

PATENT PENDING

**IKO**

# Precision Positioning Table

# TE



CAT-57182



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# Evolving **IKO** Precision Positioning Table

## Light-Weight, High-Precision, and Fresh Single-Axis Table

### Comes into the World.

**IKO**  
Precision Positioning Table

# TE

- Light table made of high-strength aluminum alloy
- Assures high-precision positioning with precision-ground ball screws
- Built-in C-Lube for long-term maintenance-free service
- Excellent cost performance



### TE86

Line up of seven models  
86 mm wide, 46 mm high,  
and 340 to 940 mm long



### TE50 **NEW**

Line up of four models  
50 mm wide, 26 mm high,  
and 150 to 300 mm long

### TE60

Line up of six models  
60 mm wide, 33 mm high,  
and 150 to 600 mm long



# IKO Precision Positioning Table TE

IKO Precision Positioning Table TE is a light-weight compact positioning table featuring that its main components are made of high-strength aluminum alloy and the slide table is placed inside a U-shaped bed.

Its driving mechanism adopts a precision-ground ball screw to assure high reliability high-precision positioning.

A C-Lube lubrication part built in the linear motion rolling guide and the ball screw enables long-term maintenance-free operation. This can reduce your time-consuming for lubrication.

You can freely select ball screw leads, motor types, sensor installation, and other specifications so that you can build up optimum positioning tables fit for your need.

IKO Precision Positioning Table TE is fit for various types of equipment for machining, assembling, inspecting, and transferring parts ranging from equipment that requires high positioning accuracy to general transferring equipment.



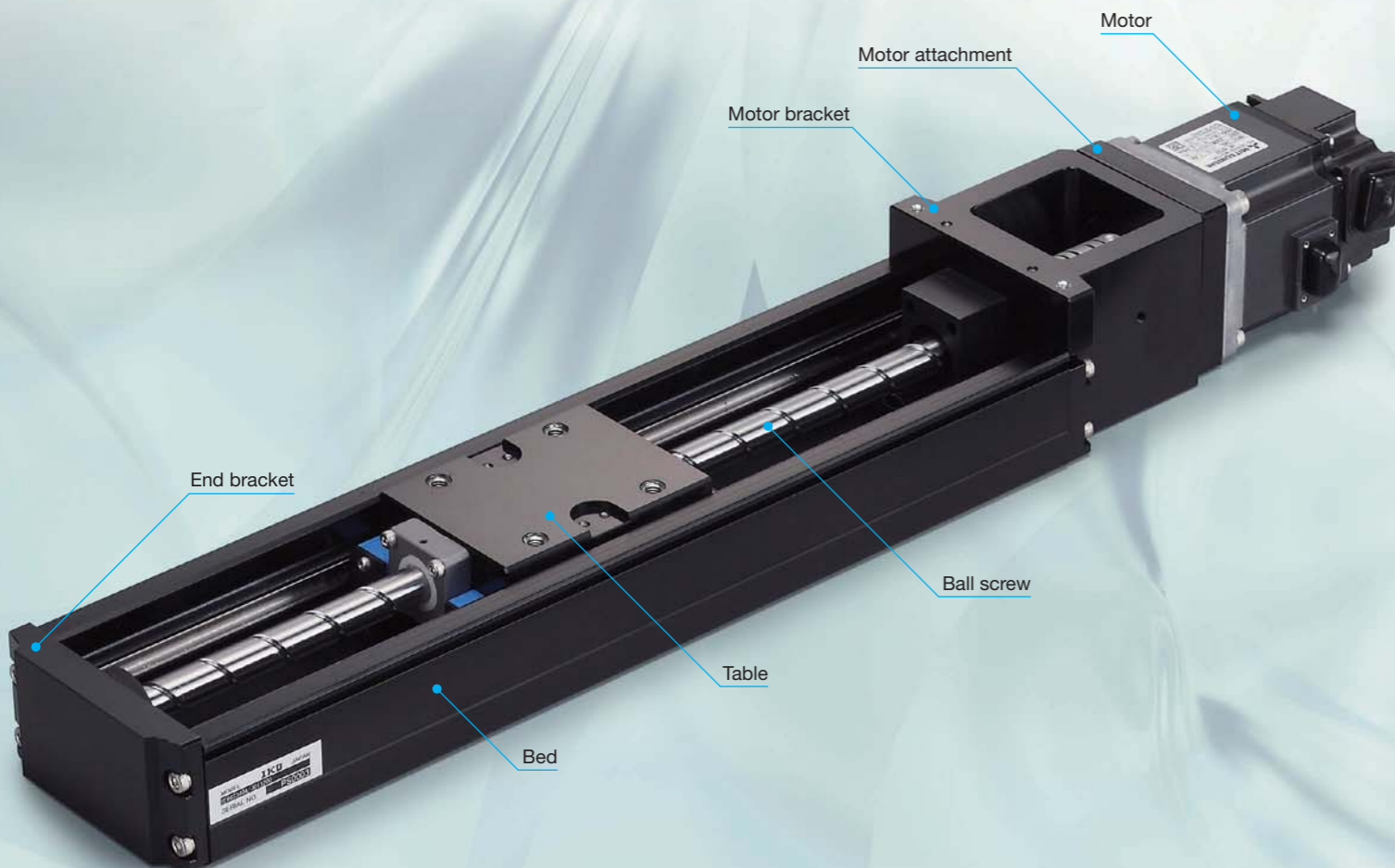
## Features of IKO Precision Positioning Table TE

### Light-Weight, Low-Cross Section, and Compact

Light-weight and compact positioning table using high-strength aluminum alloy for its main components.

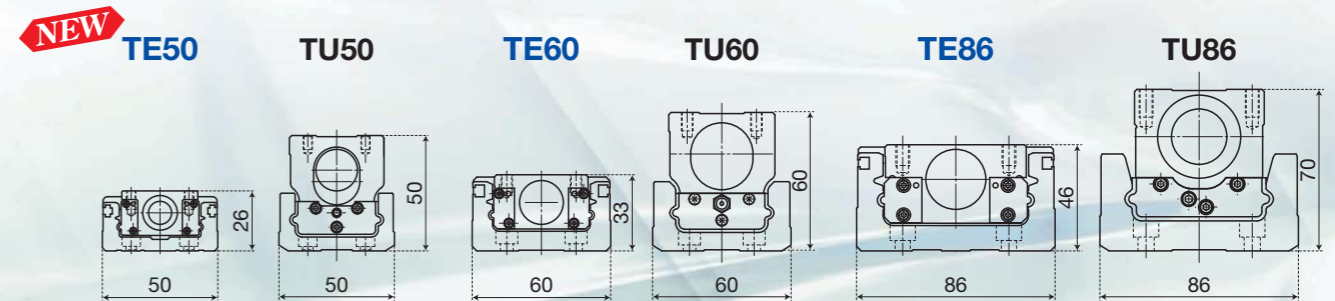
Low cross-section (26 mm high for TE50, 33 mm high for TE60 and 46 mm high for TE86) due to optimum designing of linear guides and ball screws. No sensor rail for mounting sensors, which contributes to space saving.

## Structure of Precision Positioning Table TE



### Comparison in sectional heights and weights with TU

Between IKO Precision Positioning Tables TE and TU



### Comparison in weights against TU

Between IKO Precision Positioning Tables TE and TU

Model and size	Stroke length mm	Overall length mm	Mass (1) kg	Mass/100mm kg	Weight Difference
<b>NEW</b> TE50	60	218	0.52	0.24	30% lighter weight
TU50	60	226	1.8	0.80	
TE60	100	269	1.0	0.37	33% lighter weight
TU60	100	298	3.3	1.11	
TE86	300	523	3.7	0.71	32% lighter weight
TU86	250	498	10.9	2.19	

Notes: (1) This value indicates the entire weight of a single standard table. The mass of the motor is not included.

#### High positioning accuracy

Higher precision positioning by one rank due to a combination of IKO unique linear motion rolling guide technology and precision-ground ball screws.

#### Maintenance free

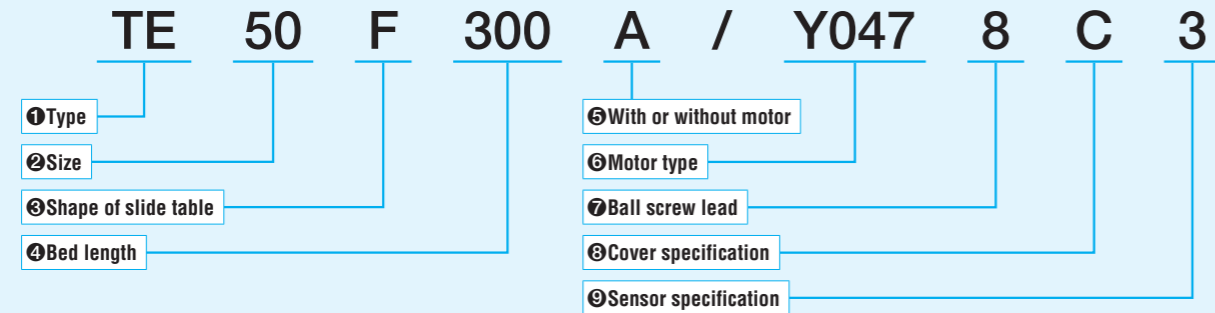
Long-term maintenance free operation due to IKO unique C-Lube lubrication part built in the linear motion rolling guide and the ball screw. This can reduce labor time for lubrication and increase the reliability of the equipment.

#### Amazing low prices

Excellent cost performance thanks to adoption of less components and improvement in parts shapes.

# Identification Number • Characteristics

## Example of identification number



<b>1 Type</b>	TE : Precision positioning table TE
<b>2 Size</b>	60 : Bed width 60mm 86 : Bed width 86mm
<b>3 Shape of slide table</b>	S : Standard table F : Flange type standard table
<b>4 Bed length</b>	Select applicable bed length in Table 1

**Table 1 Bed length and stroke length**

unit : mm

Type and size	Bed width	Bed length (stroke length)						
TE50	50	150 ( 60)	200 (110)	250 (160)	300 (210)	—	—	—
TE60	60	150 ( 50)	200 (100)	300 (200)	400 (300)	500 (400)	600 (500)	—
TE86	86	340 (200)	440 (300)	540 (400)	640 (500)	740 (600)	840 (700)	940 (800)

<b>5 With or without motor</b>	No symbol : Without motor A : With motor
When the motor is prepared by customer, specify "without motor" (no symbol).	
<b>6 Motor type</b>	Select motor shown in Table 2
When "without motor" (no symbol) is selected in item 5, the motor attachment and coupling applicable to the specified motor will be mounted. Select "No symbol" when you need neither the motor attachment nor the coupling.	
<b>7 Ball screw lead</b>	4 : Lead 4mm (Applicable to TE50) 5 : Lead 5mm (Applicable to TE60) 8 : Lead 8mm (Applicable to TE50) 10 : Lead 10mm (Applicable to TE60 and 86) 20 : Lead 20mm (Applicable to TE86)
<b>8 Cover specification</b>	0 : Without cover C : With bridge cover (Applicable to TE...F)
<b>9 Sensor specification</b>	0 : Without sensor 2 : Two sensors (limit sensors) 3 : Three sensors (limit and pre-origin sensors) 4 : Four sensors (limit, pre-origin and origin sensors) 5 : Two sensors (limit sensors) are appended to the product. 6 : Three sensors (limit and pre-origin sensors) are appended to the product. 7 : Four sensors (limit, pre-origin, and origin sensors) are appended to the product.

When 2, 3, or 4 sensors are selected, they are mounted on the sensor mounting groove along the side of the bed and two shielding plates are mounted on the slide table.

**Table 2 Motor type**

Model	Motor type	With or without brake	Motor code	Model number	Remark
TE50	AC servo motor	Without brake	Y047	SGMJV-A5A3A21	Yaskawa Electric
			P021	MSME5AZS1A	Panasonic
			J011	HF-KP053	Mitsubishi Electric
		With brake	Y049	SGMJV-A5A3A2C	Yaskawa Electric
			P026	MSME5AZS1B	Panasonic
			J016	HF-KP053B	Mitsubishi Electric
Stepper motor	Without brake	V005	PK545AW	Oriental motor	
	With brake	V006	PK545AWM		
TE60	AC servo motor	Without brake	Y048	SGMJV-01A3A21	Yaskawa Electric
			P022	MSME012S1A	Panasonic
			J012	HF-KP13	Mitsubishi Electric
		With brake	Y050	SGMJV-01A3A2C	Yaskawa Electric
			P027	MSME012S1B	Panasonic
			J017	HF-KP13B	Mitsubishi Electric
Stepper motor	Without brake	V009	PK566AE	Oriental motor	
	With brake	V010	PK566AEM		
TE86	AC servo motor	Without brake	Y059	SGMJV-02A3A21	Yaskawa Electric
			P023	MSME022S1A	Panasonic
			J013	HF-KP23	Mitsubishi Electric
		With brake	Y060	SGMJV-02A3A2C	Yaskawa Electric
			P028	MSME022S1B	Panasonic
			J018	HF-KP23B	Mitsubishi Electric
Stepper motor	Without brake	V011	PK569AE	Oriental motor	
	With brake	V012	PK569AEM		

**Table 3 Accuracy**

unit : mm

Model	Bed length	Stroke length	Repeatability	Positioning accuracy	Parallelism in table operation B	Backlash
TE50	150	60	±0.002	0.020	0.008	0.003
	200	110				
	250	160				
	300	210				
TE60	150	50	±0.002	0.020	0.008	0.003
	200	100				
	300	200				
	400	300		0.025	0.010	
	500	400				
TE86	340	200	±0.002	0.020	0.008	0.003
	440	300				
	540	400		0.025	0.012	
	640	500				
	740	600				
	840	700				
940	800	0.030	0.014			
		0.035	0.016			

Remark : The precision standard is evaluated according to the IICO inspection standards.

# Characteristics

**Table 4 Maximum speed**

Model	Motor type	Bed length mm	Motor speed r/min	Maximum speed mm/s				
				Lead 4mm	Lead 5mm	Lead 8mm	Lead 10mm	Lead 20mm
TE50	AC servo motor	150	3000	200	—	400	—	—
		200						
		250						
		300						
	Stepper motor	150	1800	120	—	240	—	—
		200						
250								
300								
TE60	AC servo motor	150	3000	—	250	—	500	—
		200						
		300						
		400						
		500						
	Stepper motor	150	1800	—	150	—	300	—
		200						
		300						
		400						
		500						
TE86	AC servo motor	340	3000	—	—	—	500	1000
		440						
		540						
		640						
		740						
	Stepper motor	340	1800	—	—	—	300	600
		440						
		540						
		640						
		740						
840	1680	—	—	—	280	560		
940								

Remark : The values of the maximum speed are applicable when the standard motor is used. The actual maximum operation speed must be determined by examining the operating pattern considering the motor used, load conditions, etc.

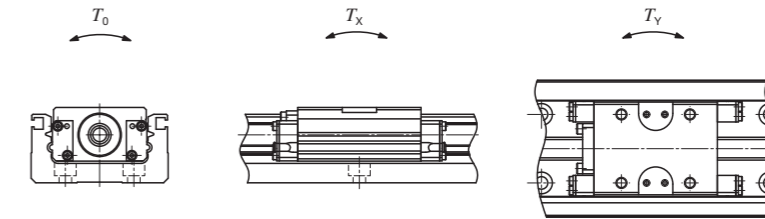
**Table 5 Maximum loading mass**

Model	Acceleration/ deceleration G	Maximum loading mass kg				
		Lead 4mm	Lead 5mm	Lead 8mm	Lead 10mm	Lead 20mm
TE50	0.5	22	—	22	—	—
TE60		—	30	—	30	—
TE86		—	—	—	40	30

Remarks 1 : Values are those set when the standard motor is used.  
2 : The maximum load mass is for a motor speed of 3000rpm.

**Table 6 Load rating of Linear motion rolling guide**

Model	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Static rated moment N · m		
			T <sub>0</sub>	T <sub>x</sub>	T <sub>y</sub>
TE50	8490	12500	211	99.5	99.5
TE60	12400	17100	354	151	151
TE86	26800	35900	1110	472	472

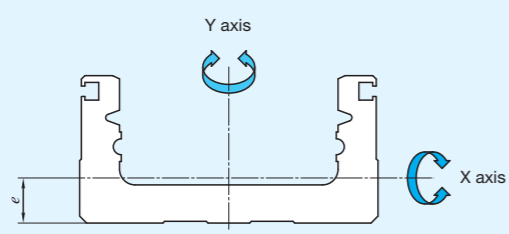


**Table 7 Specifications of ball screw**

Model	Type of ball screw	Lead mm	Shaft dia. mm	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N
TE50	Ground screw	8	4	2290	3575
			8	1450	2155
TE60	Ground screw	10	5	2730	4410
			10	1720	2745
TE86	Ground screw	12	10	3820	6480
			20	2300	3920

# Characteristics

Table 8 Moment of inertia of sectional area



Model	Moment of inertia of sectional area mm <sup>4</sup>		Barycentric point <i>e</i> mm
	I <sub>x</sub>	I <sub>y</sub>	
TE50	1.3 × 10 <sup>4</sup>	1.2 × 10 <sup>5</sup>	6.4
TE60	4.7 × 10 <sup>4</sup>	3.2 × 10 <sup>5</sup>	8.8
TE86	2.0 × 10 <sup>5</sup>	1.3 × 10 <sup>6</sup>	13.0

Table 9 Table inertia and starting torque

Model	Bed length mm	Table inertia $J_T \times 10^{-9} \text{kg} \cdot \text{m}^2$										Starting torque $T_0$ N · m
		Standard table					Flange type standard table					
		Lead					Lead					
		4mm	5mm	8mm	10mm	20mm	4mm	5mm	8mm	10mm	20mm	
TE50	150	0.057	—	0.071	—	—	0.060	—	0.084	—	—	0.03
	200	0.069	—	0.083	—	—	0.072	—	0.096	—	—	
	250	0.085	—	0.099	—	—	0.088	—	0.112	—	—	
	300	0.097	—	0.111	—	—	0.100	—	0.124	—	—	
TE60	150	—	0.13	—	0.17	—	—	0.14	—	0.20	—	0.03
	200	—	0.19	—	0.23	—	—	0.20	—	0.26	—	
	300	—	0.26	—	0.30	—	—	0.27	—	0.33	—	
	400	—	0.33	—	0.36	—	—	0.34	—	0.40	—	
	500	—	0.40	—	0.44	—	—	0.41	—	0.47	—	
	600	—	0.47	—	0.51	—	—	0.48	—	0.54	—	
TE86	340	—	—	—	0.73	1.19	—	—	—	0.81	1.50	0.05
	440	—	—	—	0.88	1.35	—	—	—	0.95	1.64	
	540	—	—	—	1.03	1.50	—	—	—	1.11	1.80	
	640	—	—	—	1.18	1.64	—	—	—	1.25	1.95	
	740	—	—	—	1.33	1.79	—	—	—	1.41	2.10	
	840	—	—	—	1.48	1.94	—	—	—	1.56	2.25	
	940	—	—	—	1.63	2.10	—	—	—	1.71	2.40	

# Sensor specification

Table 10 Specifications of sensors

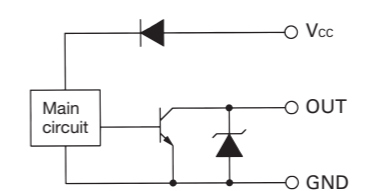
Item	Proximity sensor	
	Limit, pre-origin	Origin
Type	APM [Yamatake Co., Ltd.]	
Power supply voltage	DC12~24V ±10%	
Current consumption	10mA or less	
Output	Open collector, NPN transistor • Maximum current: 30mA or less (Resister) • Applied voltage : DC26.4V or less • Residual voltage : 1V or less at 30mA	
Output operation	When approaching : OFF	When approaching : ON
Operation indicator	LED (Orange) (OFF when senses)	LED (Orange) (ON when senses)
Circuit diagram		

Table 11 Specifications of connectors

Pin No.	Signal name	Part number of Sensor-side connector	Part number of Opposite side connector <sup>(1)</sup>
1	Origin	Cap housing 172160-1	Plug housing 172168-1
2	Pre-origin		
3	CW Limit		
4	CCW Limit	Connector 170365-1 170366-1	Connector 170363-1 or 170364-1
5	Power input		
6	GND		

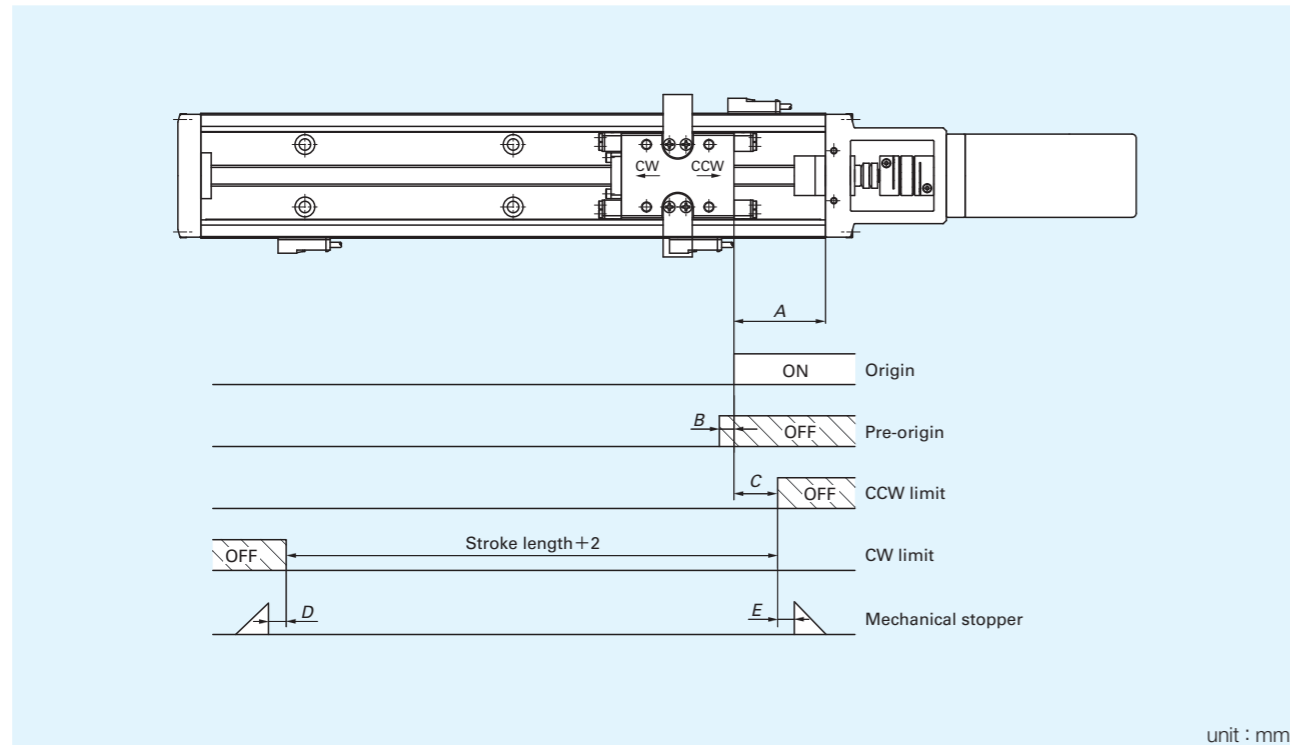
Note <sup>(1)</sup> : Prepare the opposite-side connector by customer.

Remarks 1 : The connector is manufactured by Tyco Electronics Japan G.K.

2 : Above table shows connector specification in case of sensor specification "4".

# Sensor specification

Table 12 Timing chart of Sensors



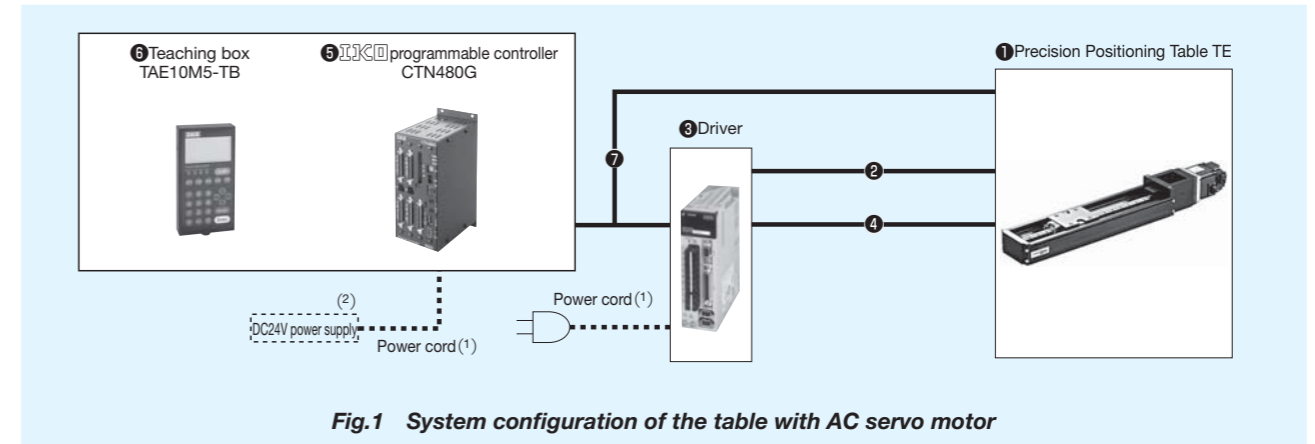
unit : mm

Model	Ball screw lead	A	B	C	D	E
TE50	4	33	2	10	( 6)	( 5)
	8		6			
TE60	5	44	3	20	( 9.5)	( 9)
	10		7			
TE86	10	50	7	20	(11)	(10)
	20		12			

# System configuration

Optimum electric equipment systems are available to Precision Positioning Table TE according to the types of motors. An example of system configuration is shown below. For ordering, use model number in Table 13.

## AC servo motor



Note (1) : The power cable shall be prepared at customer side.  
 (2) : DC24V power supply shall be prepared at customer side.

Table 13 Electric devices for the motor of Yaskawa Electric Corporation

Name	Model number		
① Precision Positioning Table TE	TE50	TE60	TE86
Motor without brake	Y047	Y048	Y059
② Motor cord	JZSP-CSM01-□□-E (JZSP-CSM21-□□-E)		JZSP-CSM02-□□-E (JZSP-CSM22-□□-E)
Motor with brake <sup>(1)</sup>	Y049	Y050	Y060
② Motor cord	JZSP-CSM11-□□-E (JZSP-CSM31-□□-E)		JZSP-CSM12-□□-E (JZSP-CSM32-□□-E)
③ Driver	SGDV-R70A01A	SGDV-R90A01A	SGDV-1R6A01A
④ Encoder cord	JZSP-CSP01-□□-E (JZSP-CSP21-□□-E)		

Note (1) : In case of with brake type, the power supply unit for brake release shall be prepared at customer side.  
 Remarks 1 : The cords in ( ) have high bending resistance.  
 2 : The length of motor cord or encoder cord shall be selected in the end of model number □□, from 3m, 5m, 10m, and 20m.  
 \* Code is specified by two digits even if length of cord is less than 10m.  
 (Example for case of 3m : JZSP-CSM01-03-E)

Table 14 Electric devices for the motor of Yaskawa Electric and Programmable controller CTN480G

Name	Model number
Motor code	Y047, Y048, Y049, Y050, Y059, Y060
⑤ Programmable controller	CTN480G
⑥ Teaching box	TAE10M5-TB
⑦ Pulse limit cord	TAE10M7-LD□□ (TAE10M8-LD□□)

Remarks 1 : The cords in ( ) have high bending resistance.  
 2 : The length of pulse limit cord can be specified by increments of 1m up to 20m maximum at the end of model number □□.  
 \* Code is specified by two digits even if length of cord is less than 10m.  
 (Example for case of 3m : TAE10M7-LD03)  
 3 : The length of pulse limit cord is 1.5m.

# System configuration

**Table 15 Electric devices of the table with Panasonic AC servo motor**

Name		Model number		
① Precision Positioning Table TE		TE50	TE60	TE86
Motor without brake	Motor code	P021	P022	P023
	② Motor cord	MFMCA0□□0NJD		
Motor with brake <sup>(1)</sup>	Motor code	P026	P027	P028
	② Motor cord	MFMCA0□□0NJD		
	Brake cord <sup>(2)</sup>	MFMCB0□□0PJT		
③ Driver		MADHT1505	MADHT1507	
④ Encoder cord		MFECA0□□0MJD		

Note <sup>(1)</sup> : In case of with brake type, the power supply unit for brake release shall be prepared at customer side.

<sup>(2)</sup> : A brake cord shall be prepared at customer side.

Remarks 1 : The cords in ( ) have high bending resistance.

2 : The length of motor cord or encoder cord shall be selected in the end of model number □□, from 3m, 5m, 10m, and 20m.

※ Code is specified by two digits even if length of cord is less than 10m.

(Example for case of 3m : MFMCA0030NJD)

**Table 16 Electric devices for the motor of Panasonic and Programmable controller CTN480G**

Name	Model number
Motor code	P021, P022, P023, P026, P027, P028
⑤ Programmable controller	CTN480G
⑥ Teaching box	TAE10M5-TB
⑦ Pulse limit cord	TAE10V2-LD□□
	(TAE10V3-LD□□)

Remarks 1 : The cords in ( ) have high bending resistance.

2 : The length of pulse limit cord can be specified by increments of 1m up to 20m maximum at the end of model number □□.

※ Code is specified by two digits even if length of cord is less than 10m.

(Example for case of 3m : TAE10V2-LD03)

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

**Table 17 Electric devices of the table with Mitsubishi Electric AC servo motor**

Name		Model number		
① Precision Positioning Table TE		TE50	TE60	TE86
Motor without brake	Motor code	J011	J012	J013
	② Motor cord	MR-PWS1CBL□M-A1-L (MR-PWS1CBL□M-A1-H)		
Motor with brake <sup>(1)</sup>	Motor code	J016	J017	J018
	② Motor cord <sup>(2)</sup>	MR-PWS1CBL□M-A1-L (MR-PWS1CBL□M-A1-H)		
	Motor code	MR-BKS1CBL□M-A1-L (MR-BKS1CBL□M-A1-H)		
③ Driver		MR-J3-10A	MR-J3-20A	
④ Encoder cord		MR-J3ENCBL□M-A1-L (MR-J3ENCBL□M-A1-H)		

Note <sup>(1)</sup> : In case of with brake type, the power supply unit for brake release shall be prepared at customer side.

<sup>(2)</sup> : A brake cord shall be prepared at customer side.

Remarks 1 : The cords in ( ) have high bending resistance.

2 : The length of motor cord or encoder cord shall be selected in the end of model number □□, from 3m, 5m, 10m, and 20m.

※ Code is specified by two digits even if length of cord is less than 10m.

(Example for case of 2m : MR-PWS1CBL2M-A1-L)

**Table 18 Electric devices for the motor of Mitsubishi Electric Corporation and Programmable controller CTN480G**

Name	Model number
Motor code	J011, J012, J013, J016, J017, J018
⑤ Programmable controller	CTN480G
⑥ Teaching box	TAE10M5-TB
⑦ Pulse limit cord	TAE10V4-LD□□
	(TAE10V5-LD□□)

Remarks 1 : The cords in ( ) have high bending resistance.

2 : The length of pulse limit cord can be specified by increments of 1m up to 20m maximum at the end of model number □□.

※ Code is specified by two digits even if length of cord is less than 10m.

(Example for case of 3m : TAE10V4-LD03)

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



## Stepper motor

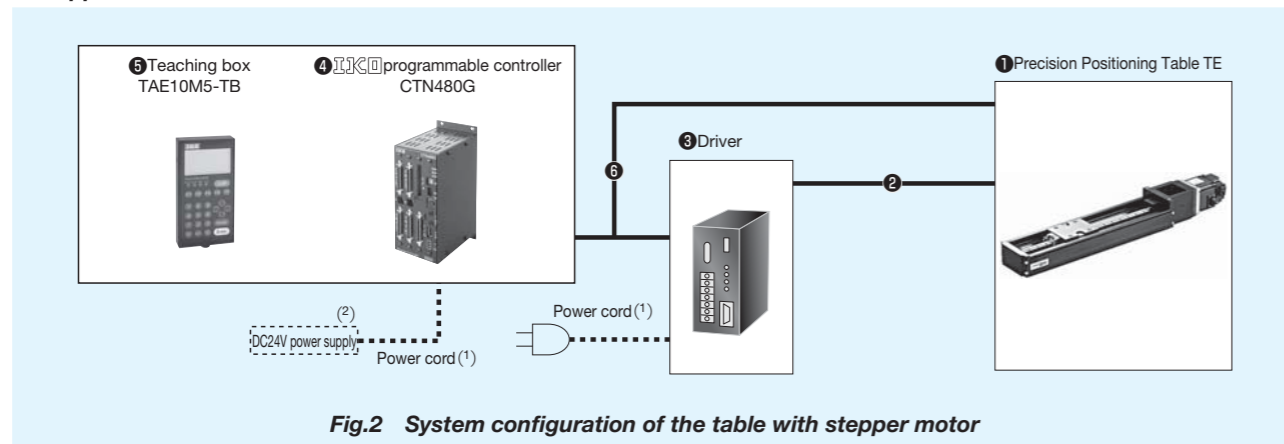


Fig.2 System configuration of the table with stepper motor

Note (1) : Power cable shall be prepared at customer side.  
 (2) : DC24V Power supply shall be prepared at customer side.

Table 19 Electric devices of the table with Oriental stepper motor

Name	Model number		
① Precision Positioning Table TE	TE50	TE60	TE86
Motor without brake	Motor code	V005	V011
	② Motor cord	TAE20R8-SM□□ (TAE20R9-SN□□)	
Motor with brake (1)	③ Driver	RKD507-A	RKD514L-A
	Motor code	V006	V010, V012
Motor with brake (1)	② Motor cord	TAE20S1-SMB□□ (TAE20S2-SNB□□)	
	③ Driver	RKD507M-A	RKD514LM-A

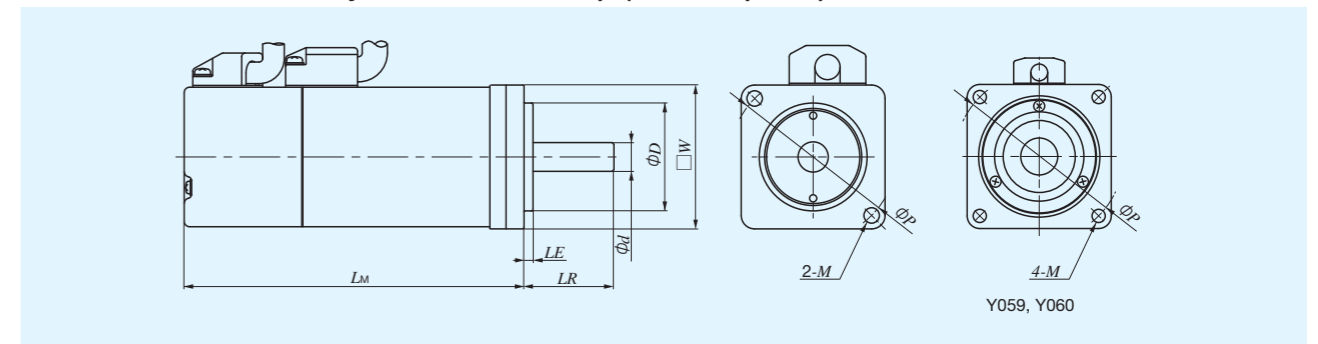
Note (1) : In case of with brake type, the power supply unit for brake release shall be prepared at customer side.  
 (2) : A brake cord shall be prepared at customer side.  
 Remarks 1 : The cords in ( ) have high bending resistance.  
 2 : The length of motor cord can be specified by □□ in the end 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 20 Electric devices for the motor of Oriental Motor Corporation and Programmable controller CTN480G

Name	Model number
Motor code	V005, V006, V009, V010, V011, V012
⑤ Programmable controller	CTN480G
⑥ Teaching box	TAE10M5-TB
⑦ Pulse limit cord	TAE10S3-LD□□ (TAE10S4-LD□□)

Remarks 1 : The cords in ( ) have high bending resistance.  
 2 : The length of pulse limit cord can be specified by increments of 1m up to 20m maximum at the end of model number □□.  
 ※ Code is specified by two digits even if length of cord is less than 10m.  
 (Example for case of 3m : TAE10S3-LD03)  
 3 : The length of pulse limit cord is 1.5m.

## AC servo motor and driver by Yaskawa Electric Corp. (RoHS compatible)



### Specifications of motor

Motor code	Model	Power voltage V	Rated voltage W	Rated torque N · m	Maximum momentary torque N · m	Rated number of revolution r/min	Motor inertia $J_M \times 10^{-4} \text{kg} \cdot \text{m}^2$	Encoder type	Mass kg
Y047	SGMJV-A5A3A21	200	50	0.159	0.557	3000	0.0414	20 bit Absolute or incremental (1048576pulse/rev)	0.3
Y048	SGMJV-01A3A21		100	0.318	1.110		0.0665		0.4
Y049	SGMJV-A5A3A2C		50	0.159	0.557		0.0561		0.6
Y050	SGMJV-01A3A2C		100	0.318	1.110		0.0812		0.7
Y059	SGMJV-02A3A21		200	0.637	2.230		0.259		0.9
Y060	SGMJV-02A3A2C		200	0.637	2.230		0.323		1.5

### Dimension of motor

unit : mm

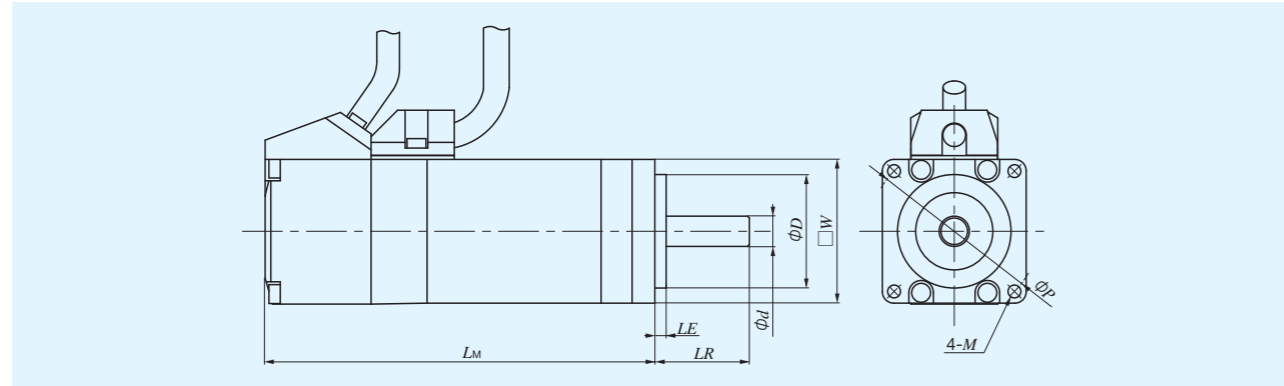
Motor code	$\square W \times L_M$	LR	LE	d	D	P	M
Y047	40 × 69	25	2.5	8	30	46	φ 4.3
Y048	40 × 82.5	25	2.5	8	30	46	φ 4.3
Y049	40 × 114	25	2.5	8	30	46	φ 4.3
Y050	40 × 127.5	25	2.5	8	30	46	φ 4.3
Y059	60 × 80	30	3	14	50	70	φ 5.5
Y060	60 × 120	30	3	14	50	70	φ 5.5

### Specifications of driver

Item	Driver type	SGDV-R70A01A	SGDV-R90A01A	SGDV-1R6A01A
Applicable motor code		Y047, Y049	Y048, Y050	Y059, Y060
Power supply voltage		200V	200V	200V
Rated output of applicable motor		50W	100W	200W
Feedback		Serial encoder		
Command input pulse		Selection one from symbol with pulse line, CCW or CW with pulse line, two phase pulse with 90-degree difference		
Type of command input pulse		Line driver or Open collector		
Maximum input pulses		Line driver : 4Mpps Open collector : 200kpps		
Main circuit power supply voltage		Triphase AC200~230V -15~10% 50/60Hz		
Control circuit supply voltage		Single phase AC200~230V -15~10% 50/60Hz		
Continuous output current Arms		0.66	0.91	1.6
Maximum output current Arms		2.1	2.9	5.8
Ambient temperature in operation		0~55°C		
Ambient temperature in storage		-20~85°C		
Ambient humidity (use and storage)		Less than 90% RH (No condensation)		
Mass kg		0.9	0.9	0.9

# Specifications of motor and driver

## AC servo motor and driver by Panasonic Corp. (RoHS compatible)



### Specifications of motor

Motor code	Model	Power voltage V	Rated voltage W	Rated torque N·m	Maximum momentary torque N·m	Rated number of revolution r/min	Motor inertia $J_M \times 10^{-4} \text{kg} \cdot \text{m}^2$	Encoder type	Mass kg
P021	MSME5AZS1A	200	50	0.16	0.48	3000	0.025	17 bit Absolute or incremental (131072pulse/rev)	0.31
P022	MSME012S1A		100	0.32	0.95		0.051		0.46
P023	MSME022S1A		200	0.64	1.91		0.140		0.78
P026	MSME5AZS1B		50	0.16	0.48		0.027		0.51
P027	MSME012S1B		100	0.32	0.95		0.054		0.66
P028	MSME022S1B		200	0.64	1.91		0.160		1.20

### Dimension of motor

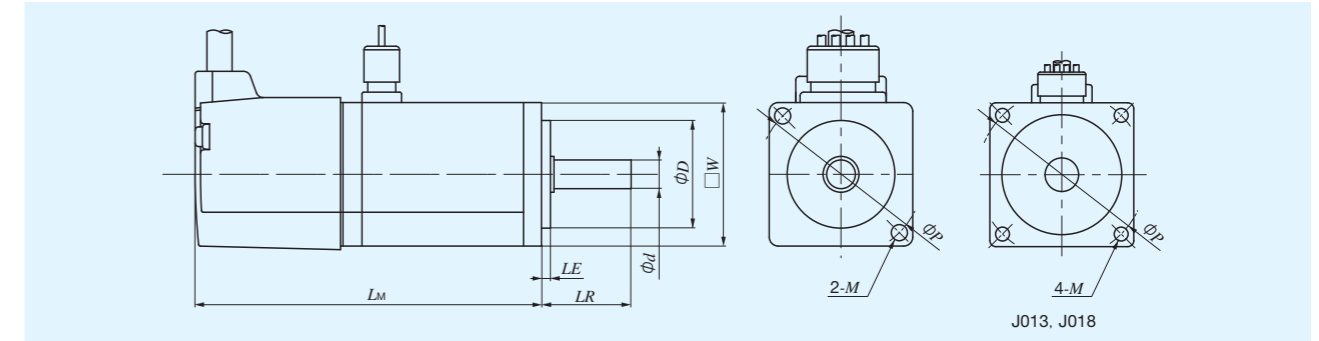
unit : mm

Motor code	$\square W \times L_M$	LR	LE	d	D	P	M
P021	38 × 72	25	3	8	30	45	φ3.4
P022	38 × 92	25	3	8	30	45	φ3.4
P023	60 × 79.5	30	3	11	50	70	φ4.5
P026	38 × 102	25	3	8	30	45	φ3.4
P027	38 × 122	25	3	8	30	45	φ3.4
P028	60 × 116	30	3	11	50	70	φ4.5

### Specifications of driver

Item	Driver type	
	MADHT1505	MADHT1507
Applicable motor code	P021, P022, P026, P027	P023, P028
Power supply voltage	200V	200V
Rated output of applicable motor	50W, 100W	200W
Feedback	Serial encoder	
Command input pulse	Selection one from symbol with pulse line, CCW or CW with pulse line, two phase pulse with 90-degree difference	
Type of command input pulse	Line driver or Open collector	
Maximum input pulses	Line driver : 4Mpps Open collector : 500kpps	
Main circuit power supply voltage	Single phase AC200~240V -15~10% 50/60Hz	
Control circuit supply voltage	Single phase AC200~240V -15~10% 50/60Hz	
Rated output current	1.1	1.6
Maximum output current	4.7	6.9
Ambient temperature in operation	0~55°C (No freezing)	
Ambient temperature in storage	-20~65°C (No freezing)	
Ambient humidity (use and storage)	Less than 90% RH (No condensation)	
Mass kg	0.8	0.8

## AC servo motor and driver by Mitsubishi Electric Corp. (RoHS compatible)



### Specifications of motor

Motor code	Model	Power voltage V	Rated voltage W	Rated torque N·m	Maximum momentary torque N·m	Rated number of revolution r/min	Motor inertia $J_M \times 10^{-4} \text{kg} \cdot \text{m}^2$	Encoder type	Mass kg
J011	HF-KP053	200	50	0.16	0.48	3000	0.052	18 bit Absolute or incremental (262144pulse/rev)	0.35
J012	HF-KP13		100	0.32	0.95		0.088		0.56
J013	HF-KP23		200	0.64	1.90		0.240		0.94
J016	HF-KP053B		50	0.16	0.48		0.054		0.65
J017	HF-KP13B		100	0.32	0.95		0.090		0.86
J018	HF-KP23B		200	0.64	1.90		0.310		1.60

### Dimension of motor

unit : mm

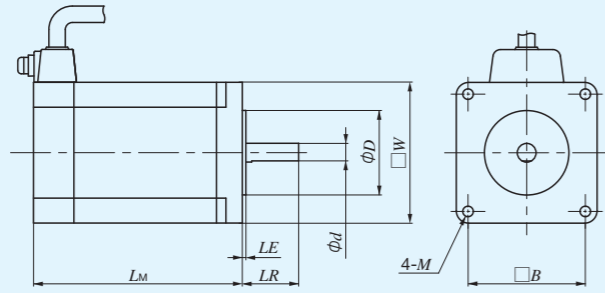
Motor code	$\square W \times L_M$	LR	LE	d	D	P	M
J011	40 × 66.4	25	2.5	8	30	46	φ4.5
J012	40 × 82.4	25	2.5	8	30	46	φ4.5
J013	60 × 76.6	30	3	14	50	70	φ5.8
J016	40 × 107.5	25	2.5	8	30	46	φ4.5
J017	40 × 123.5	25	2.5	8	30	46	φ4.5
J018	60 × 116.1	30	3	14	50	70	φ5.8

### Specifications of driver

Item	Driver type	
	MR-J3-10A	MR-J3-20A
Applicable motor code	J011, J012, J016, J017	J013, J018
Power supply voltage	200V	
Rated output of applicable motor	50W, 100W	200W
Feedback	Serial encoder	
Command input pulse	Selection one from symbol with pulse line, CCW or CW with pulse line, two phase pulse with 90-degree difference	
Type of command input pulse	Line driver or Open collector	
Maximum input pulses	Line driver : 1Mpps Open collector : 200kpps	
Main circuit power supply voltage	Three phase 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	
Rated output current	0.8	1.4
Maximum output current	2.4	4.2
Ambient temperature in operation	0~55°C (No freezing)	
Ambient temperature in storage	-20~65°C (No freezing)	
Ambient humidity (use and storage)	Less than 90% RH (No condensation)	
Mass kg	0.8	0.8

# Specifications of motor and driver

## Stepper motor and driver by Oriental Motor Co., Ltd. (RoHS compatible)



### Specifications of motor

Motor code	Model	Step angle	Maximum holding torque N · m	Current A-phase	Motor inertia $J_M \times 10^{-5} \text{kg} \cdot \text{m}^2$	Mass kg
V005	PK545AW	0.72	0.24	0.75	0.68	0.4
V006	PK545AWM		0.24	0.75	0.83	0.52
V009	PK566AE		0.83	1.4	2.8	0.8
V010	PK566AEM		0.83	1.4	4.4	1.1
V011	PK569AE		1.66	1.4	5.6	1.3
V012	PK569AEM		1.66	1.4	7.2	1.6

### Dimension of motor

unit : mm

Motor code	$\square W \times L_M$	LR	LE	d	D	B	M
V005	42 × 47	20	2	5	22	31	M3 depth 4.5
V006	42 × 77						
V009	60 × 59.5	24	1.5	8	36	50	φ 4.5
V010	60 × 99.5						
V011	60 × 89						
V012	60 × 129						

### Specifications of driver

Item	Driver type	RKD507-A	RKD507M-A	RKD514L-A	RKD514LM-A
Applicable motor code		V005	V006	V009, V011	V010, V012
Excitation type		Micro step			
Command input pulse		Selection one from CW/CCW signal, Pulse/Rotational direction signal			
Type of command input pulse		Photo coupler input, input resistance 220 Ω, Input current 10~20mA			
Main circuit power supply voltage		Single phase 100~115V ± 15% 50/60Hz 1.0A		Single phase 100~115V ± 15% 50/60Hz 4.5A	
Ambient temperature in operation		0~50°C (No freezing)			
Ambient humidity in operation		Less than 85% RH (No condensation)			
Mass kg		0.4		0.85	

# Precautions on use

- ◆ Precision Positioning Table TE is a precision device. Giving an excessive load or shock to it will lower the accuracy and damage its components. Take extreme care when handling it.
- ◆ Make sure that there is no dust or harmful projection on the mating table mounting surface.
- ◆ The flatness of the mounting base for Precision Positioning Table TE will affect the positioning accuracy. It must be less than 30 μm.
- ◆ Grease is applied to Linear Motion Rolling Guides and ball screws incorporated in Precision Positioning Table TE. Do not admit dust or foreign matters into Precision Positioning Table. If foreign matters enter it, remove them and pollute grease completely, and then apply clean grease again.
- ◆ Lubrication of Precision Positioning Table TE varies depending on the operating conditions. Generally, relubricate grease every 6 months. In the case of use involving long-distance reciprocating motion at all times, remove the old grease every 3 months, and then apply clean grease again.
- ◆ Precision Positioning Table TE is worked, assembled, and adjusted with high accuracy. Do not disassemble or modify this product.

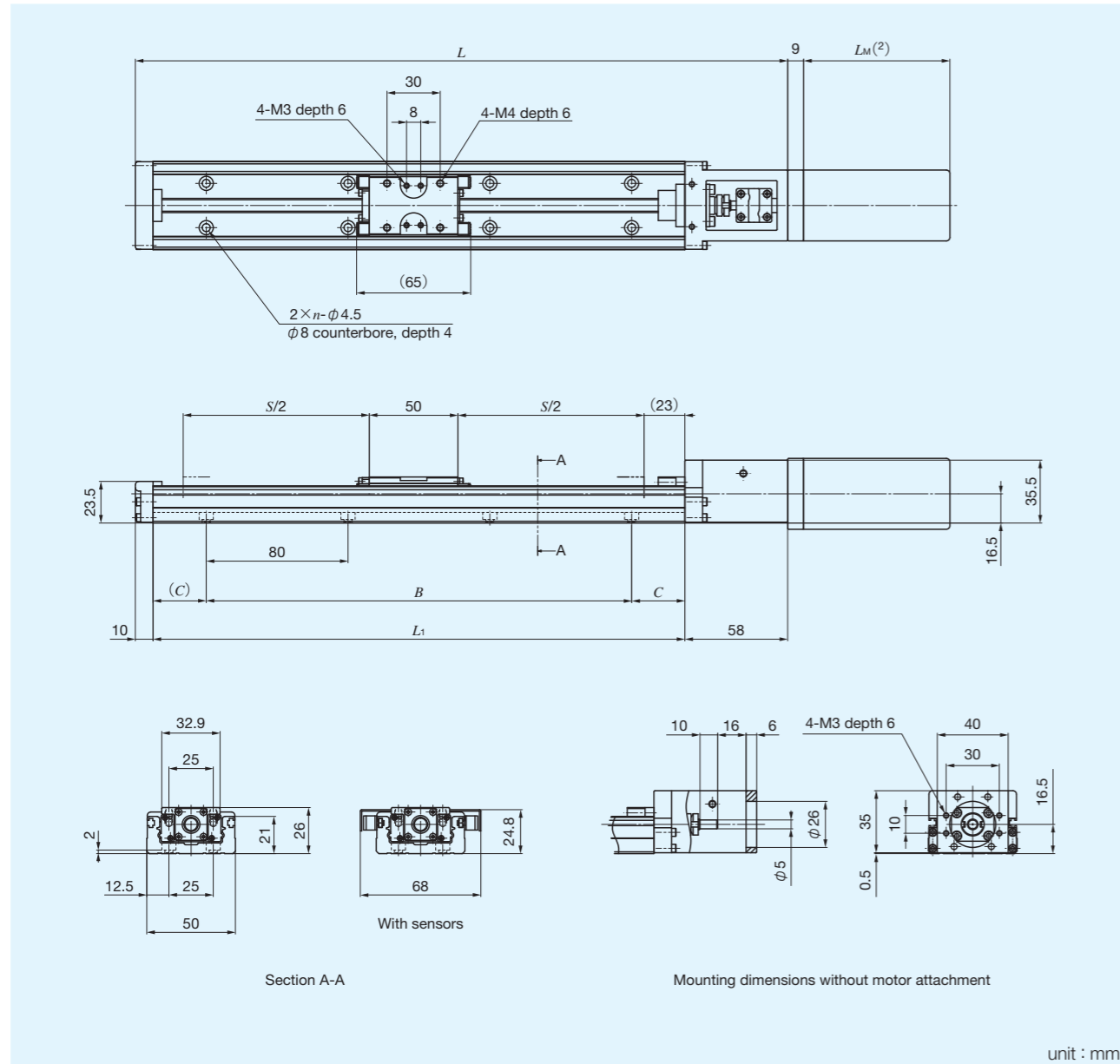
◎ The appearance, specifications and other details of the products are subject to change without prior for improvement.

### Duration and scope of warranty

The period of warranty for the precision positioning table and related electrical devices is set at one year after delivery. If a failure occurs while the product is correctly being used and the failure is clearly attributable to its manufacture, the product will be repaired at no cost within the warranty period. A warranty here means the guarantee of the precision positioning table itself as a single unit. It shall be a fare-paying service if field service is required. When the trouble is not obviously judged by our product deficiency as a result of our investigation, the customer shall be responsible for the repair cost. Secondary damage that occurs on the product breakdown or use is out of our warranty. When disposing of the products, treat them as ordinary industrial waste.

# IKO Precision Positioning Table TE

## TE50S



unit : mm

Bed length	Overall length	Stroke length	Bed mounting hole			Mass <sup>(1)</sup> (Ref.) kg
			$B$	$C$	$n$	
150	218	60	80	35	2	0.52
200	268	110	160	20	3	0.62
250	318	160	160	45	3	0.72
300	368	210	240	30	4	0.82

Note <sup>(1)</sup> : The mass of the motor is not included.

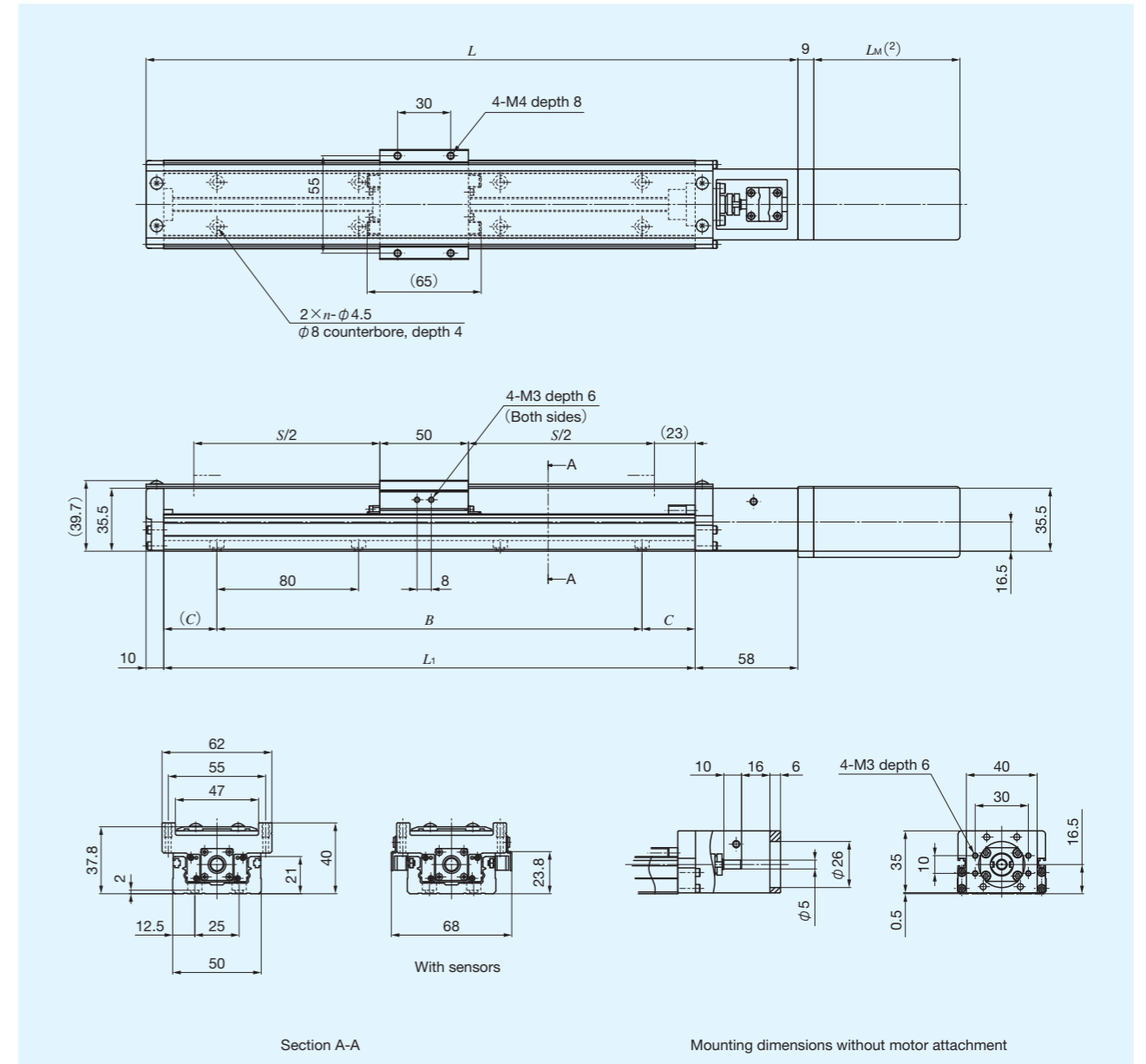
<sup>(2)</sup> : See "Specifications of Motor and Driver".

Remark : When AC servo motor is selected, motor attachment protrudes 3.5mm from mounting surface of bed.

When stepper motor is selected, motor attachment protrudes 4.5mm from mounting surface of bed.

# IKO Precision Positioning Table TE

## TE50F



unit : mm

Bed length	Overall length	Stroke length	Bed mounting hole			Mass <sup>(1)</sup> (Ref.) kg
			$B$	$C$	$n$	
150	218	60	80	35	2	0.65
200	268	110	160	20	3	0.75
250	318	160	160	45	3	0.85
300	368	210	240	30	4	0.94

Note <sup>(1)</sup> : The mass of the motor is not included.

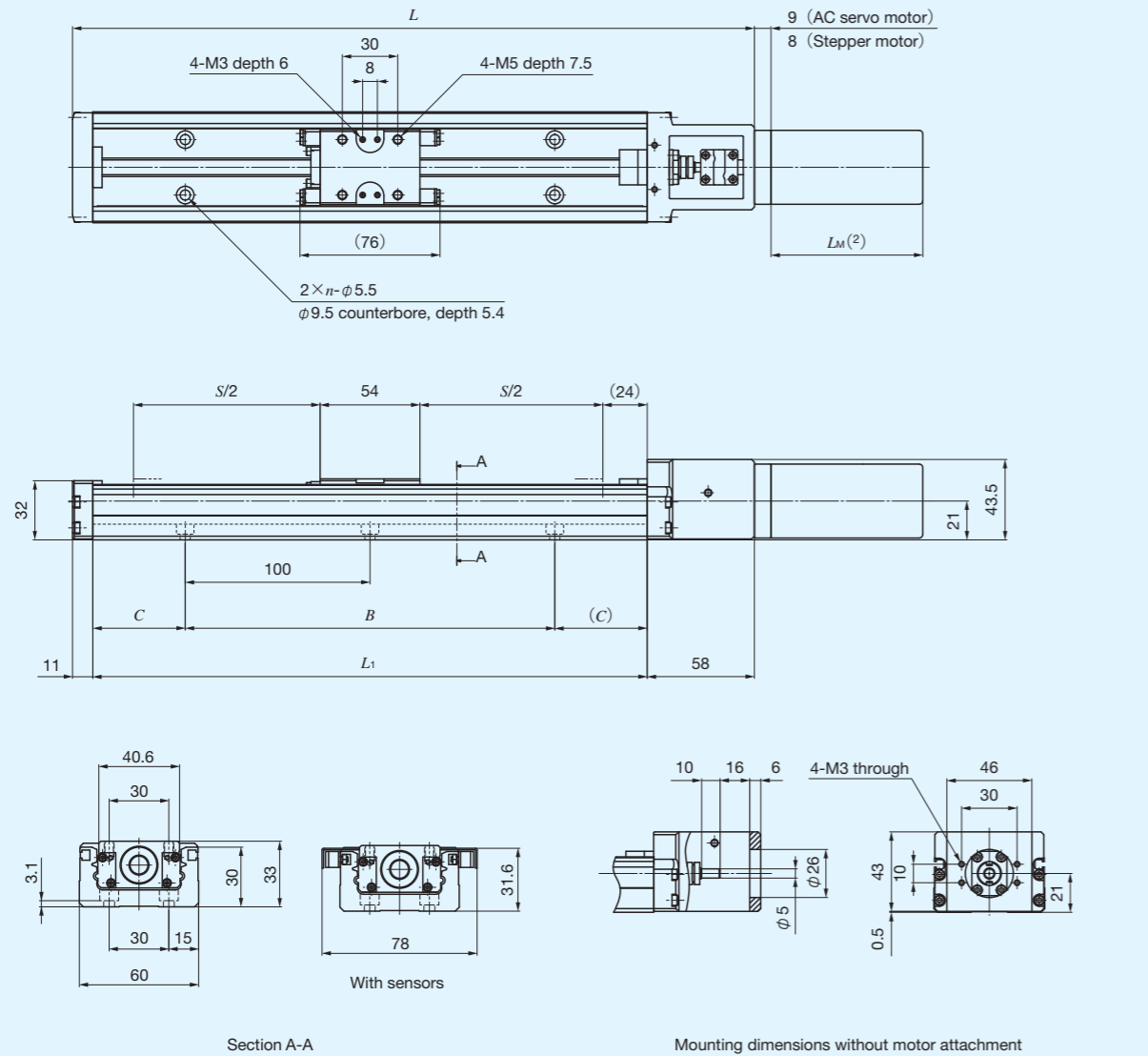
<sup>(2)</sup> : See "Specifications of Motor and Driver".

Remark : When AC servo motor is selected, motor attachment protrudes 3.5mm from mounting surface of bed.

When stepper motor is selected, motor attachment protrudes 4.5mm from mounting surface of bed.

# IKO Precision Positioning Table TE

## TE60S



unit : mm

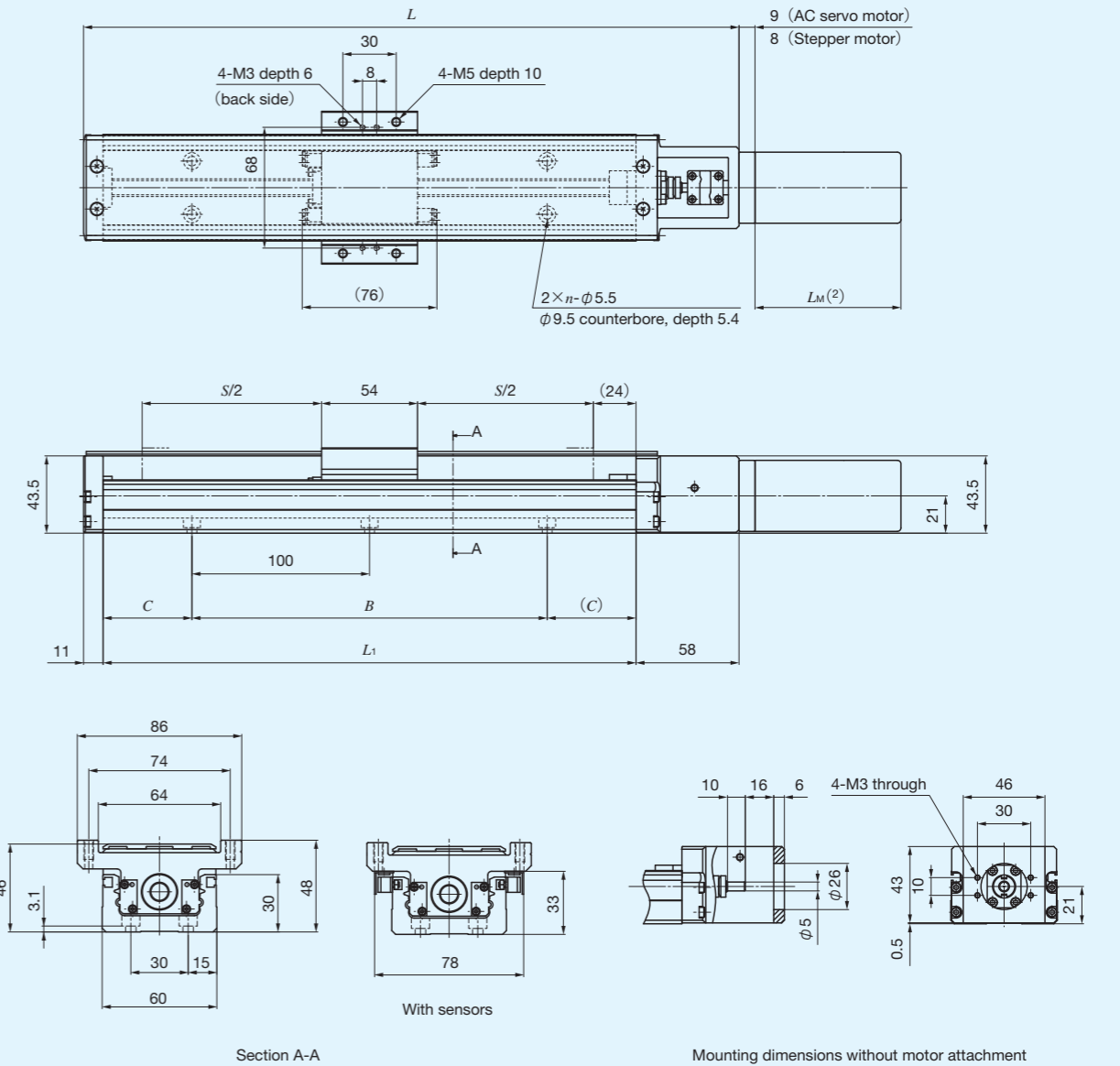
Bed length	Overall length	Stroke length	Bed mounting hole			Mass <sup>(1)</sup> (Ref.)
			B	C	n	
$L_1$	$L$	$S$				kg
150	219	50	100	25	2	0.9
200	269	100	100	50	2	1.0
300	369	200	200	50	3	1.3
400	469	300	300	50	4	1.6
500	569	400	400	50	5	1.9
600	669	500	500	50	6	2.2

Note (1) : The mass of the motor is not included.  
 (2) : See "Specifications of Motor and Driver".

Remark : When motor code V009 or V010 is selected, motor attachment protrudes 9mm from the mounting surface of bed.

# IKO Precision Positioning Table TE

## TE60F



unit : mm

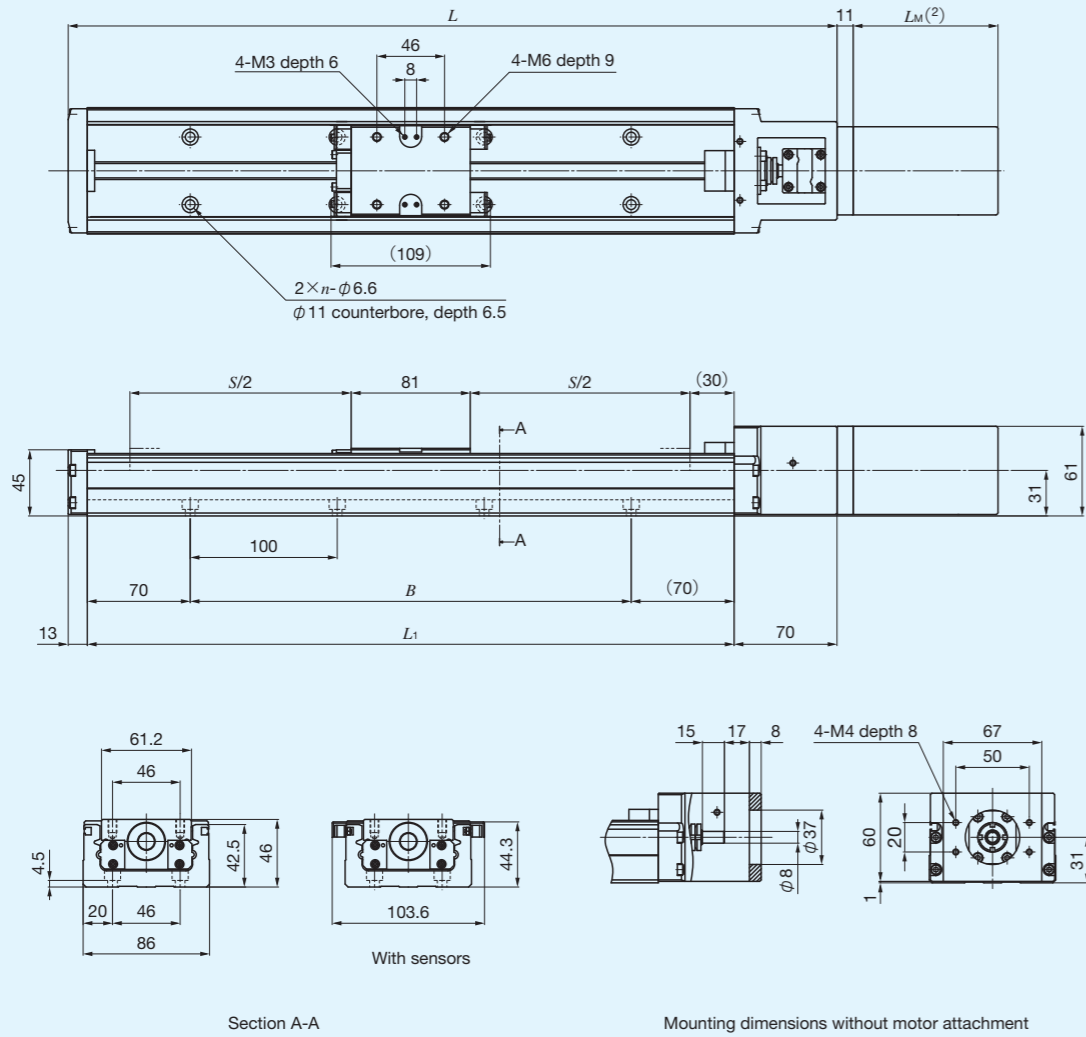
Bed length	Overall length	Stroke length	Bed mounting hole			Mass <sup>(1)</sup> (Ref.)
			B	C	n	
$L_1$	$L$	$S$				kg
150	219	50	100	25	2	1.1
200	269	100	100	50	2	1.2
300	369	200	200	50	3	1.5
400	469	300	300	50	4	1.9
500	569	400	400	50	5	2.2
600	669	500	500	50	6	2.5

Note (1) : The mass of the motor is not included.  
 (2) : See "Specifications of Motor and Driver".

Remark : When motor code V009 or V010 is selected, motor attachment protrudes 9mm from the mounting surface of bed.

# IKO Precision Positioning Table TE

## TE86S



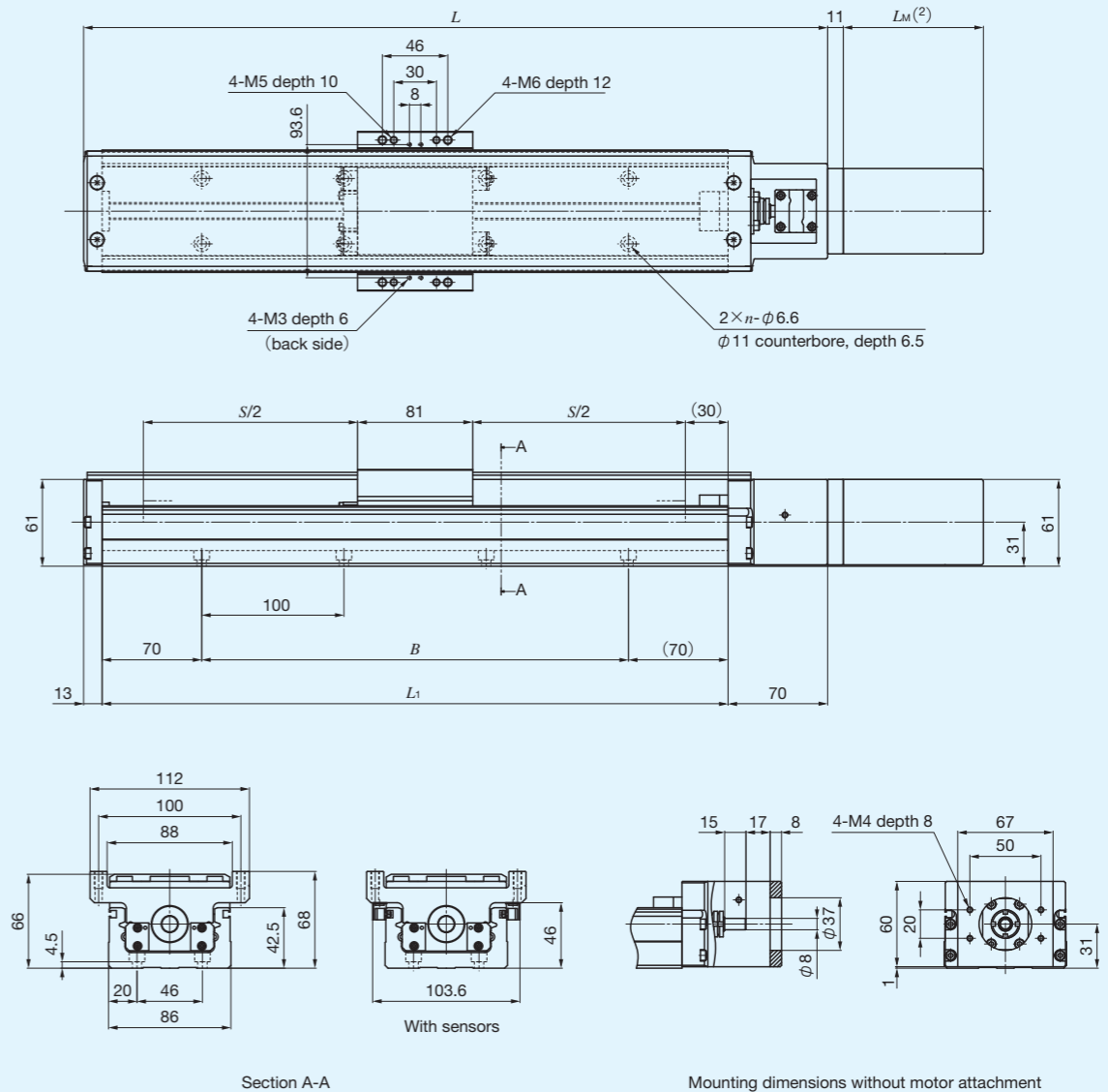
unit : mm

Bed length	Overall length	Stroke length	Bed mounting hole		Mass <sup>(1)</sup> (Ref.) kg
			B	n	
$L_1$	$L$	$S$			
340	423	200	200	3	3.1
440	523	300	300	4	3.7
540	623	400	400	5	4.2
640	723	500	500	6	4.7
740	823	600	600	7	5.2
840	923	700	700	8	5.7
940	1023	800	800	9	6.3

Note (1) : The mass of the motor is not included.  
 (2) : See "Specifications of Motor and Driver".

# IKO Precision Positioning Table TE

## TE86F



unit : mm

Bed length	Overall length	Stroke length	Bed mounting hole		Mass <sup>(1)</sup> (Ref.) kg
			B	n	
$L_1$	$L$	$S$			
340	423	200	200	3	3.7
440	523	300	300	4	4.3
540	623	400	400	5	4.9
640	723	500	500	6	5.5
740	823	600	600	7	6.1
840	923	700	700	8	6.7
940	1023	800	800	9	7.2

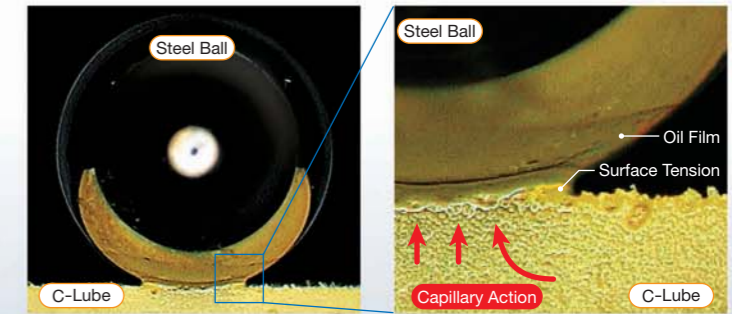
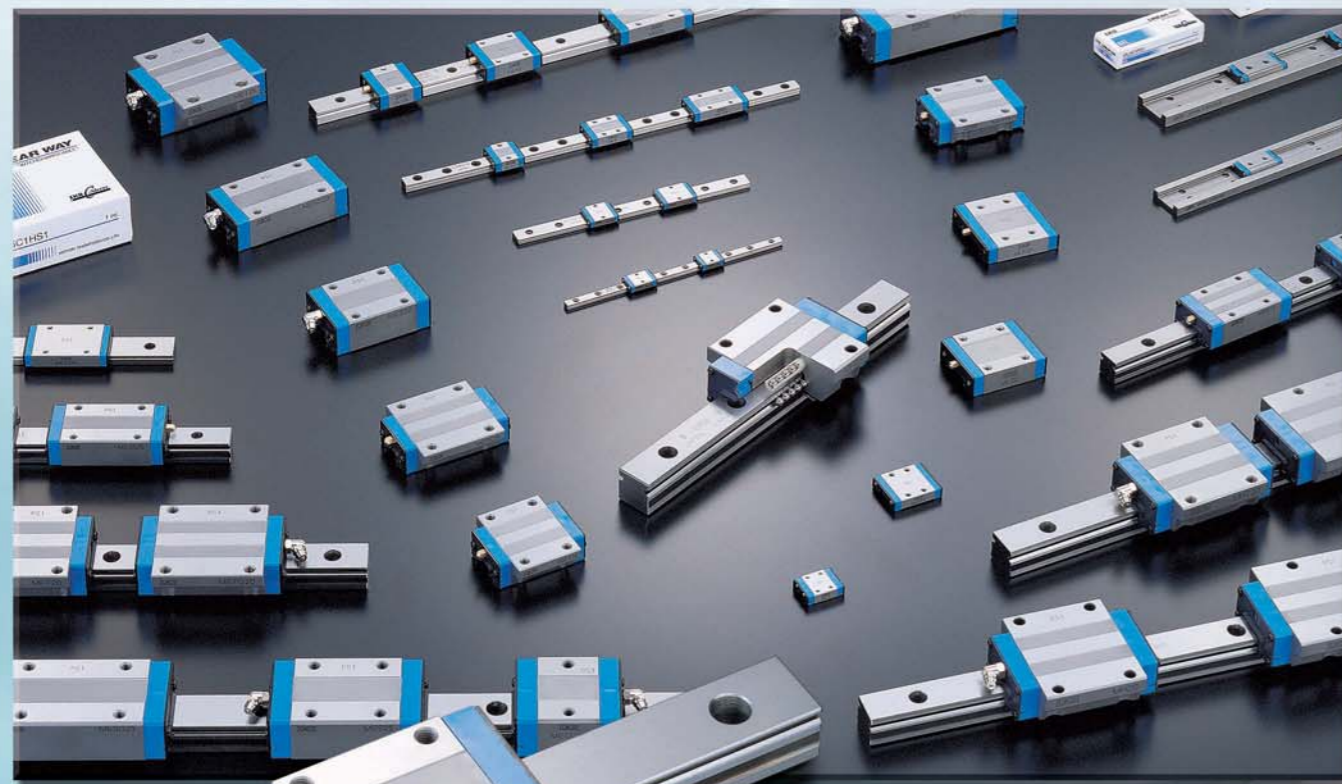
Note (1) : The mass of the motor is not included.  
 (2) : See "Specifications of Motor and Driver".

# Maintenance free for 20,000km or 5 years

**IKO Maintenance Free & Interchangeable**

**C-Lube Linear Way**

**C-Lube Linear Roller Way**



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.

Miniature type **ML** series



Compact **ME** series



High load capacity **MH** series



U-shaped track rail **MUL** series



Linear Roller Way **MX** series



**Oil Minimum**

**IKO Gentle to The Earth**

# World Network of **IKO**

## **NIPPON THOMPSON CO., LTD.**

Head office : 19-19 Takanawa 2-chome Minato-ku,  
Tokyo 108-8586, Japan  
Phone : +81 (0)3-3448-5850  
Fax : +81 (0)3-3447-7637  
E-mail : ntt@ikonet.co.jp  
URL : <http://www.ikonet.co.jp/eg/>  
Plant : Gifu, Kamakura

## **NIPPON THOMPSON CO., LTD.**

### **ASEAN REPRESENTATIVE OFFICE**

Level 8, #1 Silom Road, Silom  
Bangrak, Bangkok  
Thailand 10500  
Phone: +66 (0)2-231-8278  
FAX: +66 (0)2-231-8121  
E-mail: ntar@ikonet.co.jp

## **IKO-THOMPSON (SHANGHAI) LTD.**

### **Shanghai**

1402-1404 Sunyoung Center  
28 Xuanhua Road, Shanghai  
People's Republic of China 200050  
Phone: +86 (0)21-3250-5525  
Fax: +86 (0)21-3250-5526  
E-mail: ntc@ikonet.co.jp

### **Beijing**

Room 1515 15/F, NCI Tower  
12A Jianguomenwai Ave, Chaoyang District, Beijing  
People's Republic of China 100022  
Phone: +86 (0)10-8523-3412  
Fax: +86 (0)21-3250-5526  
E-mail: ntc@ikonet.co.jp

### **Guangzhou**

Suite 834, Garden Tower, Garden Hotel  
368 Huanshi Donglu Yuexiu District, Guangzhou, Guangdong  
People's Republic of China 510064  
Phone: +86 (0)20-8384-0797  
Fax: +86 (0)20-8381-2863  
E-mail: ntc@ikonet.co.jp

### **Wuhan**

Room 0233, Novotel Wuhan Xinhua  
558 Jianshe Avenue, Jiang Han District, Wuhan, Hubei  
People's Republic of China 430022  
Phone: +86 (0)27-8556-1610  
Fax: +86 (0)27-8556-1630  
E-mail: ntc@ikonet.co.jp

## **IKO INTERNATIONAL, INC.**

### **East coast**

91 Walsh Drive  
Parsippany, NJ 07054  
U.S.A.  
Phone: +1 973-402-0254  
Toll Free: 1-800-922-0337  
Fax: +1 973-402-0441  
E-mail: eco@ikonet.co.jp

### **Midwest**

500 K East Thorndale Avenue  
Wood Dale, IL 60191  
U.S.A.  
Phone: +1 630-766-6464  
Toll Free: 1-800-323-6694  
Fax: +1 630-766-6869  
E-mail: mwo@ikonet.co.jp

### **West coast**

9830 Norwalk Boulevard, Suite 198  
Santa Fe Springs, CA 90670  
U.S.A.  
Phone: +1 310-609-3988  
Toll Free: 1-800-252-3665  
Fax: +1 310-609-3916  
E-mail: wco@ikonet.co.jp  
  
3333 Bowers Avenue, Suite 155  
Santa Clara, CA 95054  
U.S.A.  
Phone: +1 408-492-0240  
Toll Free: 1-800-252-3665  
Fax: +1 408-492-0245  
E-mail: wco@ikonet.co.jp

### **Southeast**

2150 Boggs Road, Suite 100  
Duluth, GA 30096  
U.S.A.  
Phone: +1 770-418-1904  
Toll Free: 1-800-874-6445  
Fax: +1 770-418-9403  
E-mail: seo@ikonet.co.jp

### **Southwest**

8105 N. Beltline Road  
Suite 130, Irving, TX 75063  
U.S.A.  
Phone: +1 972-929-1515  
Toll Free: 1-800-295-7886  
Fax: +1 972-915-0060  
E-mail: swo@ikonet.co.jp

## **NIPPON THOMPSON EUROPE B.V.**

### **The Netherlands**

Sheffieldstraat 35-39  
3047 AN Rotterdam  
The Netherlands  
Phone: +31 (0)10-4626868  
Fax: +31 (0)10-4626099  
E-mail: nte@ikonet.co.jp

### **Germany**

Mündelheimer Weg 56  
40472 Düsseldorf  
Germany  
Phone: +49 (0)211-414061  
Fax: +49 (0)211-427693  
E-mail: ntd@ikonet.co.jp  
  
Im Gewerbepark D 30  
93059 Regensburg  
Germany  
Phone: +49 (0)941-206070  
Fax: +49 (0)941-2060719  
E-mail: ntdr@iko-nt.de  
  
Gruben Str.95c  
66540 Neunkirchen  
Germany  
Phone: +49 (0)6821-999-860  
Fax: +49 (0)6821-999-8626  
E-mail: ntdn@iko-nt.de

### **UK**

2 Vincent Avenue, Crownhill  
Milton Keynes Bucks MK8 0AB  
United Kingdom  
Phone: +44 (0)1908-566144  
Fax: +44 (0)1908-565458  
E-mail: sales@iko.co.uk

### **Spain**

Autovia Madrid-Barcelona, Km. 43,700  
Polig. Ind. AIDA, A-8, Ofic. 2, 1ª  
19200-Azuqueca de Henares  
Guadalajara, Spain  
Phone: +34 949-263390  
Fax: +34 949-263113  
E-mail: nts@ikonet.co.jp

### **France**

Roissypole Le Dôme  
2 rue de La Haye  
BP 15950 Tremblay en France  
95733 Roissy C. D. G. Cedex  
France  
Phone: +33 (0)1-48165739  
Fax: +33 (0)1-48165746  
E-mail: ntf@ikonet.co.jp

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

