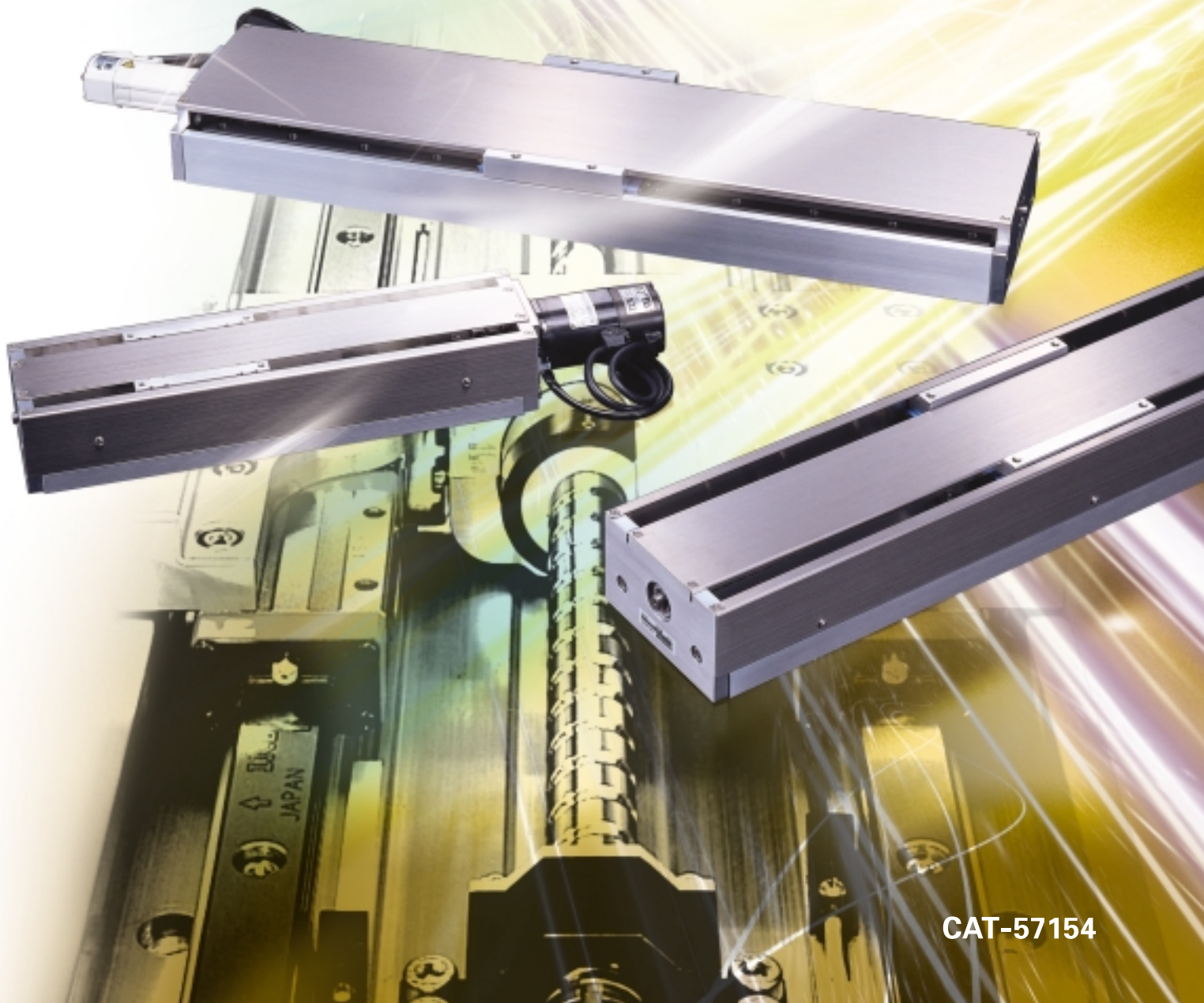


**IKO**

## Long Stroke Precision Positioning Table

# TSL...M



CAT-57154

See you again at  
**IKO** Website  
<http://www.ikont.co.jp/eg/>

# IKO Long Stroke Precision Positioning Table

# TSL...M

IKO TSL...M is a lightweight and long stroke positioning table consisting of a slide table and a bed made of high-strength aluminum alloy. Both high precision and large allowable load mass are achieved by incorporated pair of IKO C-Lube linear Way in parallel and a precision ball screw in the feed mechanism. Also, by attaching capillary plates, the maintenance work including grease-up for Linear Ways and the ball screw can be greatly reduced. A wide range of variations in table size and stroke length and a series of XY bracket permit constructing a system such as a crossed type robot easily according to each application. TSL...M is widely used as high accuracy positioning mechanism in assembling machines, and its superior performance has been proved in the field.

Structure of TSL...M



**Maintenance free specification for 5 years or 20,000 km**

U.S. PATENT	No. 6,634,246	No. 6,176,617
	No. 6,461,045	No. 6,082,899
	No. 6,517,244	No. 5,967,667

## Size variation

Models	Width of table (mm)	Stroke length (mm)											
		50	100	150	200	250	300	400	500	600	800	1000	
TSL 90 M	90	●	●	●	●	●	●						
TSL 120 M	120		●	●	●	●	●	●	●	●			
TSL 170 M	170			●	●	●	●	●	●	●			
TSL 170S M	170							●	●	●	●	●	●
TSL 220 M	220							●	●	●	●	●	●

## High running accuracy and high positioning accuracy

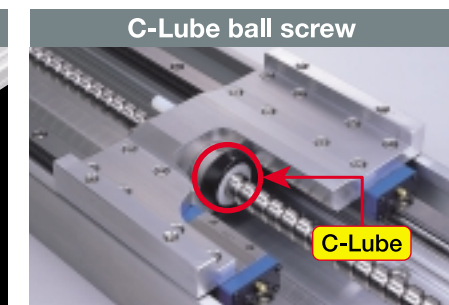
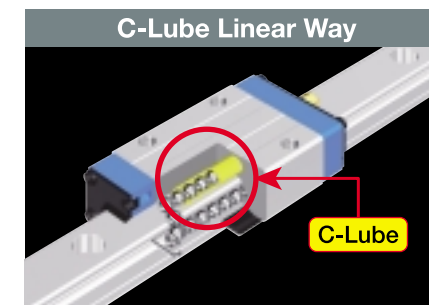
High running accuracy is achieved by incorporated pair of C-Lube Linear Ways in parallel. High accuracy positioning can be performed in combination with a precision ball screw.

## Lightweight and long stroke

A slide table and a bed made of high-strength aluminum alloy are used for reducing the total weight. Stroke lengths of up to 1000 mm are available as the series.

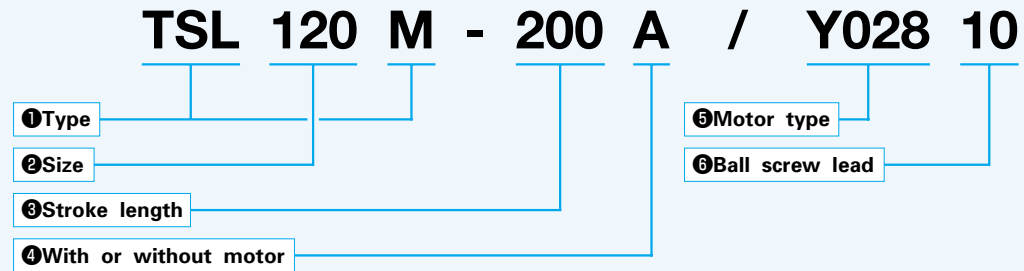
## Maintenance free

C-Lube Linear Way and C-Lube ball screw keep lubrication condition well for long period of time allowing lubrication maintenance avoidable up to 5 years or 20,000 km of running distance.



# Identification Number

## Example of identification number



①Type	TSL...M : Precision Positioning Table L
②Size	The size indicates table width. Select size and table width in Table 1.
③Stroke length	Select applicable size and applicable stroke length in Table 1.

**Table 1 Sizes, table widths, and stroke lengths**

Size	Table width mm	Stroke length mm
TSL 90 M	90	50, 100, 150, 200, 250, 300
TSL120 M	120	100, 150, 200, 250, 300, 400, 500, 600
TSL170 M	170	150, 200, 250, 300, 400, 500
TSL170S M	170	300, 400, 500, 600, 800, 1000
TSL220 M	220	300, 400, 500, 600, 800, 1000

④With or without motor	No symbol : Without brake A : With motor
------------------------	---

When the motor is prepared by customer, specify "without motor" (no symbol).

⑤Motor type	Select AC servomotor or stepping motor shown in Table 2.
-------------	--

When "without motor" (no symbol) is selected in Item ④, the motor attachment and coupling applicable to the specified motor will be mounted. If the motor attachment which is applicable to NEMA motor or other motors, consult [IJK0](#).

**Table 2 Motor types and motor codes**

Size	Motor type			
	AC servo motor		Stepping motor	
	Without brake	With brake	Without brake	With brake
TSL 90 M	Y028, P002, J002	Y033, P007, J007	V009	V010
TSL120 M				
TSL170 M				
TSL170S M	Y029, P003, J003	Y034, P008, J008	V013	V014
TSL220 M				

⑥Ball screw lead	5 : Lead 5mm 10 : Lead 10mm
------------------	--------------------------------

# Accuracy

Table 3 shows the accuracy of Precision Positioning Table L.

**Table 3 Accuracy**

unit : mm

Size	Stroke length	Positioning accuracy	Repeatability	Parallelism in table motion B	Backlash
TSL 90 M	50	0.015	±0.002	0.020	0.003
	100	0.020		0.030	
	150				
	200	0.025		0.040	
	250				
300	0.030				
TSL120 M	100	0.020	±0.002	0.030	0.003
	150				
	200	0.025			
	250				
	300	0.030			
	400	0.040			
	500	0.045			
600	0.050				
TSL170 M	150	0.020	±0.002	0.030	0.003
	200	0.025			
	250				
	300	0.030			
	400	0.040			
500	0.045				
TSL170S M TSL220 M	300	0.030	±0.002	0.040	0.003
	400	0.040			
	500	0.045			
	600	0.050		0.070	
	800				
	1000	0.060			

# Maximum Speed

Table 4 shows the maximum operational speed.

The maximum speed is a value when the standard motor is used. For the actual maximum speed, it is necessary to examine the operating pattern in accordance with applied motor, load conditions, etc.

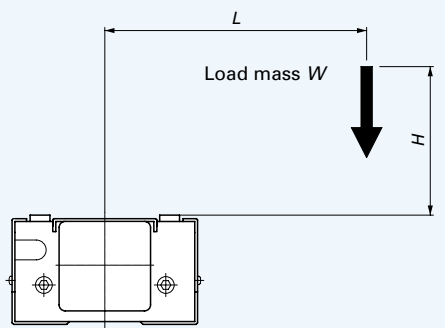
**Table 4 Maximum speed**

Motor type	Size	Stroke length mm	Motor speed r/min	Maximum speed mm/s					
				Lead 5mm	Lead 10mm				
AC servo motor	TSL 90 M	—	3000	250	500				
	TSL120 M								
	TSL170 M								
	TSL170S M					600以下	3000	250	500
	TSL220 M					800	2990	249	498
Stepping motor	TSL 90 M	—	1800	150	300				
	TSL120 M								
	TSL170 M								
	TSL170S M								
	TSL220 M					1000	2030	169	338

# Maximum Load Mass

Maximum load masses of IKO Precision Positioning Table L are shown in Table 5. The maximum load mass is a reference value for maximum mass that can be mounted on the table used horizontally and differs with each load mass position (height H and length L).

**Table 5 Maximum load mass**



unit : kg

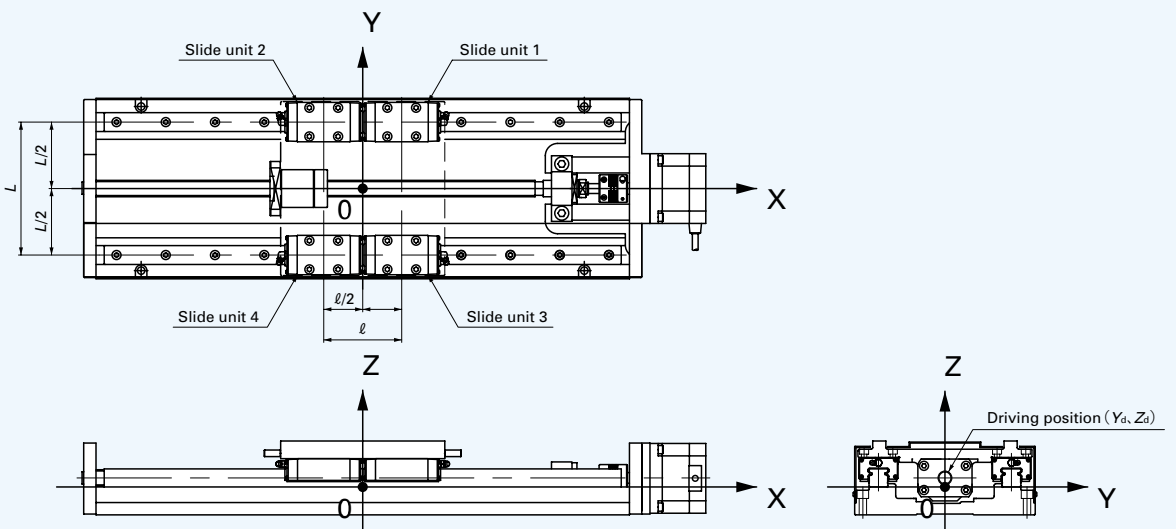
Size	Ball screw lead mm	Height H mm	Length L mm								
			0	100	200	300	400	500	600	800	1000
TSL 90 M	5	0	74	21	12	8.2	6.3	5.1	4.3	3.3	2.6
		200	69	20	12	8.2	6.3	5.1	4.3	3.3	2.6
		400	50	19	12	8.1	6.3	5.1	4.3	3.3	2.6
	10	0	39	18	11	8.0	6.2	5.1	4.3	3.3	2.6
		200	26	16	9.1	6.3	4.9	3.9	3.3	2.5	2.0
		400	24	13	8.3	6.0	4.7	3.9	3.3	2.5	2.0
TSL120 M	5	0	190	140	84	59	46	37	31	24	19
		200	190	140	83	59	46	37	31	24	19
		400	190	130	81	58	45	37	31	24	19
	10	0	97	97	64	45	35	28	24	18	15
		200	97	97	62	44	34	28	24	18	15
		400	97	85	57	42	33	27	23	18	14
TSL170 M	5	0	190	170	100	75	58	47	40	31	25
		200	190	170	100	74	58	47	40	31	25
		400	190	150	99	73	57	47	40	31	25
	10	0	97	97	79	56	43	35	30	23	19
		200	97	97	74	54	43	35	30	23	18
		400	97	94	67	51	41	34	29	23	18
TSL170S M	5	0	220	190	120	85	66	54	46	35	29
		200	220	190	120	84	66	54	46	35	29
		400	220	180	120	84	66	54	46	35	29
	10	0	110	110	91	65	51	42	35	27	22
		200	110	110	89	64	50	41	35	27	22
		400	110	110	85	63	50	41	35	27	22
TSL220 M	5	0	220	220	220	220	180	150	130	98	80
		200	220	220	220	220	180	150	130	98	80
		400	220	220	220	220	180	150	130	98	80
	10	0	110	110	110	110	110	110	95	73	60
		200	110	110	110	110	110	110	94	73	59
		400	110	110	110	110	110	110	92	72	59
10	0	110	110	110	110	110	110	100	89	70	
	200	110	110	110	110	110	110	100	89	70	
	400	110	110	110	110	110	110	100	89	70	

Remark : The above values are obtained by calculating the mass for which the rating life of the ball screw or linear motion rolling guide becomes 18000 hours when the table is continuously operated at the maximum speed (for each size), and 0.2s each, at acceleration, and at deceleration.

# Specifications for Linear Motion Rolling Guides and Ball Screws

The specifications of linear motion rolling guides used in Precision Positioning Table L are shown in Table 6 as a reference. These load ratings are not applicable for the maximum load on Precision Positioning Table L. Refer Maximum Allowable Load on Table 5.

**Table 6 Specifications of linear motion rolling guide**



unit : kg

Model	Basic dynamic load rating <sup>(1)</sup> C N	Basic static load rating <sup>(1)</sup> C <sub>0</sub> N	Locations			
			L mm	ℓ mm	Y <sub>d</sub> mm	Z <sub>d</sub> mm
TSL 90 M	1180	1480	60	60	0	-7
TSL120 M	11600	13400	80	66	0	8
TSL170 M			106	66	0	11
TSL170S M			120	130	0	1
TSL220 M	25200	28800	162	95	0	11

Note<sup>(1)</sup> : Load ratings in the table are those of one slide unit.

**Table 7 Specifications of ball screws**

Model	Type	Lead mm	Outside dia. of screw mm	Axial clearance mm	Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N
TSL 90 M	Ground screw	5	10	0.005	2730	4410
		10			1720	2745
TSL120 M	Ground screw	5	15	0.005	6080	12500
TSL170 M		10			6610	12540
TSL170S M	Ground screw	5	20	0.005	8230	17150
TSL220 M		10			10900	21700


## Table Inertia and Starting Torque

The table inertia and starting torque of  Precision Positioning Table L are shown in Table 8.

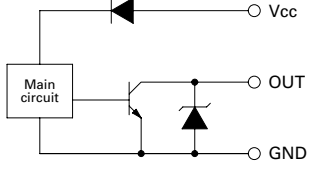
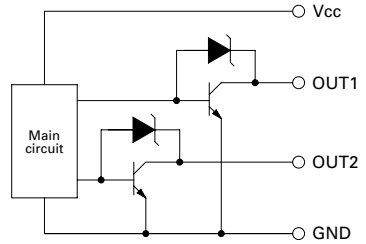
**Table 8 Table inertia and starting torque**

Size	Stroke length mm	Table inertia $J_T$ $\times 10^{-5} \text{kg} \cdot \text{m}^2$		Starting torque $T_0$ <sup>(?)</sup> N-m
		Lead 5mm	Lead 10mm	
TSL 90 M	50	0.20	0.33	0.05
	100	0.25	0.38	
	150	0.28	0.40	
	200	0.33	0.45	
	250	0.35	0.48	
	300	0.40	0.53	
TSL120 M	100	1.3	1.7	0.06
	150	1.5	1.9	
	200	1.7	2.1	
	250	1.9	2.3	
	300	2.1	2.5	
	400	2.4	2.9	
	500	2.8	3.3	
TSL170 M	150	1.4	1.8	0.06
	200	1.6	2.0	
	250	1.8	2.2	
	300	2.0	2.4	
	400	2.3	2.8	
	500	2.7	3.2	
TSL170S M	300	6.9	7.4	0.10
	400	8.1	8.6	
	500	9.3	9.8	
	600	11	11	
	800	13	14	
TSL220 M	300	7.5	8.5	0.10
	400	8.7	9.7	
	500	9.9	11	
	600	11	12	
	800	14	15	
	1000	16	17	

## Sensor Specifications

The sensor specifications for  Precision Positioning Table L are shown in Table 9. The connector specification and the sensor timing chart are shown in Table 10 and 11.

**Table 9 Specifications of sensor**

Type	Item	CW limit/CCW limit/pre-origin	Origin <sup>(1)</sup>
Sensor type		Proximally sensor	Photo sensor
Power voltage		DC12~24V $\pm 10\%$	DC5~24V $\pm 10\%$
Power supply voltage		10mA or less	30mA or less
Current consumption		NPN type transistor open collector <ul style="list-style-type: none"> <li>Switching current : 30mA or less (Resistance load)</li> <li>Residual voltage : Less than 11A at 30mA of switching current</li> <li>Maximum output voltage : 26.4V</li> </ul>	NPN type transistor open collector <ul style="list-style-type: none"> <li>Maximum current : 100mA</li> <li>Applied voltage : Less than DC30V</li> <li>Residual voltage : 0.7V or less at 50mA in-flow current 0.4V or less at 16mA in-flow current</li> </ul>
Output operation		When approaching : OFF	Light through : ON/Light blocked : ON Two outputs are available. <sup>(?)</sup>
Operation indicator		LED (Orange)	LED (Red) : Light off at output off
Circuit diagram			

Note<sup>(1)</sup> : In case AC servomotor, sensor is not attached to the body of table. Use C-phase as origin signal.

<sup>(?)</sup> : OUT1 is connected and "Entrance of light : ON" are set on delivery condition.

**Table 10 Specifications of connector**

Pin. No.	Signal name	Connectors (Tyco Electronics AMP K.K.)	
		Body side	Connection side <sup>(?)</sup>
1	Origin <sup>(1)</sup>	Cap housing 172160-1	Plag housing 172168-1
2	Pre-origin		
3	CW limit		
4	CCW limit	Connector 170365-1	Connector 170363-1
5	Power input		
6	GND		

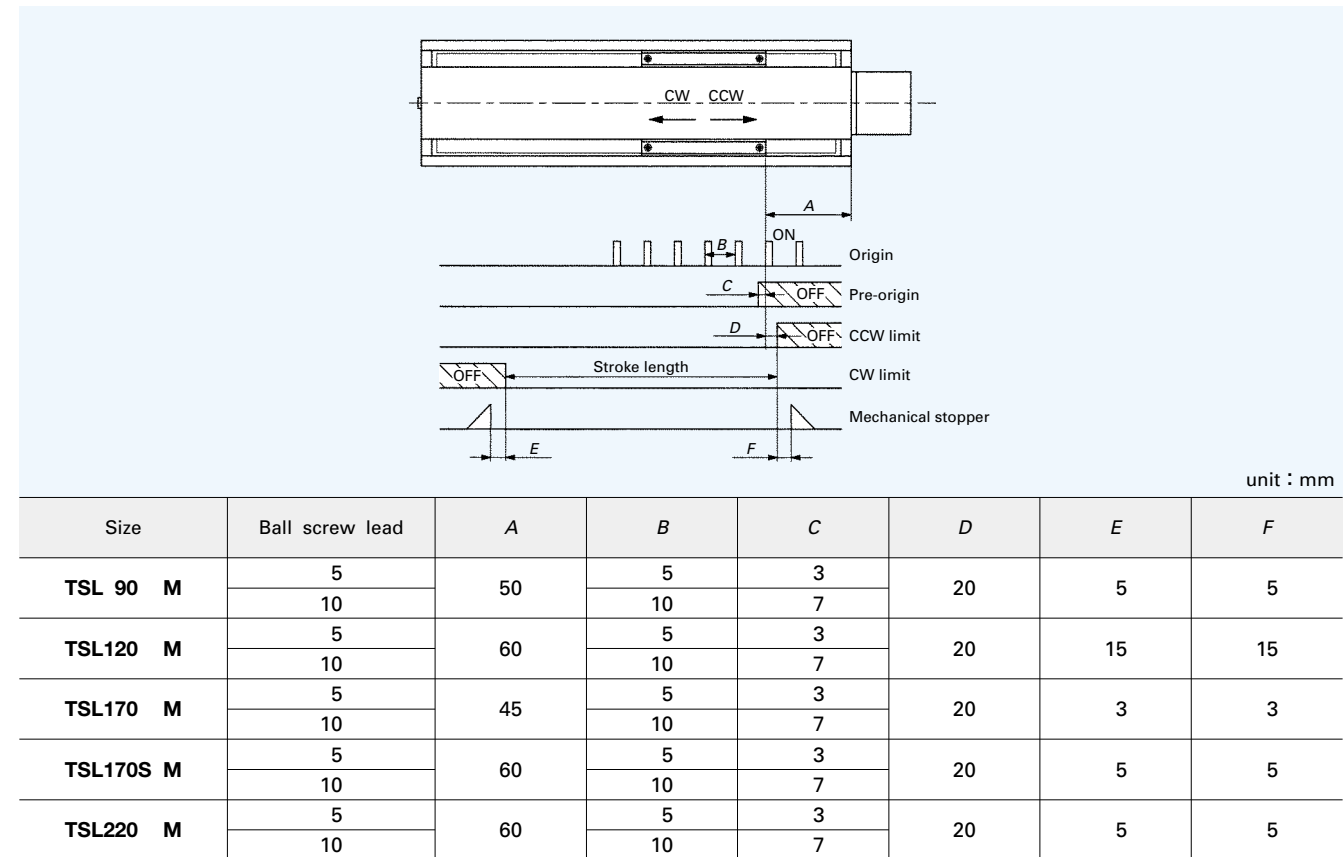
Note<sup>(1)</sup> : Origin is not connected in case AC servomotor.

<sup>(?)</sup> : Prepare applicable connector.

# Sensor Specifications

A sensor timing chart for Precision Positioning Table L without capillary plates is shown in Table 11.

**Table 11 Sensor timing chart**



Remark : When the AC servo motor is selected, no origin sensor is attached. Use the C-phase or Z-phase signal of the encoder.

# Motor

Types of standard motors are shown in Table 12 and 13.

**Table 12 AC Servomotor**

Size	Without brake		With brake <sup>(1)</sup>		Output W
	Motor code	Motor type	Motor code	Motor type	
TSL 90 M	Y028	SGMAH-01AAA21-E	Y033	SGMAH-01AAA2C-E	100
TSL120 M	P002	MSMA012A1A	P007	MSMA012AB	
TSL170 M	J002	HC-KFS13	J007	HC-KFS13B	
TSL170S M	Y029	SGMAH-02AAA21-E	Y034	SGMAH-02AAA2C-E	200
TSL220 M	P003	MSMA022A1A	P008	MSMA022A1B	
	J003	HC-KFS23	J008	HC-KFS23B	

Note<sup>(1)</sup> : In the motor with brake, power supply for brake release is needed.

**Table 13 Stepping Motor**

Size	Without brake		With brake	
	Motor code	Motor type	Motor code	Motor type
TSL 90 M	V009	PK566AE	V010	PK566AEM
TSL120 M				
TSL170 M				
TSL170S M	V013	PK596AE	V014	PK596AEM
TSL220 M				

# XY Bracket

IKO Precision Positioning Table L can configure various combinations of two axes by using the XY brackets (made of aluminum alloy) shown in Fig. 1 and Fig. 2. When ordering any of them, specify it by its model number.

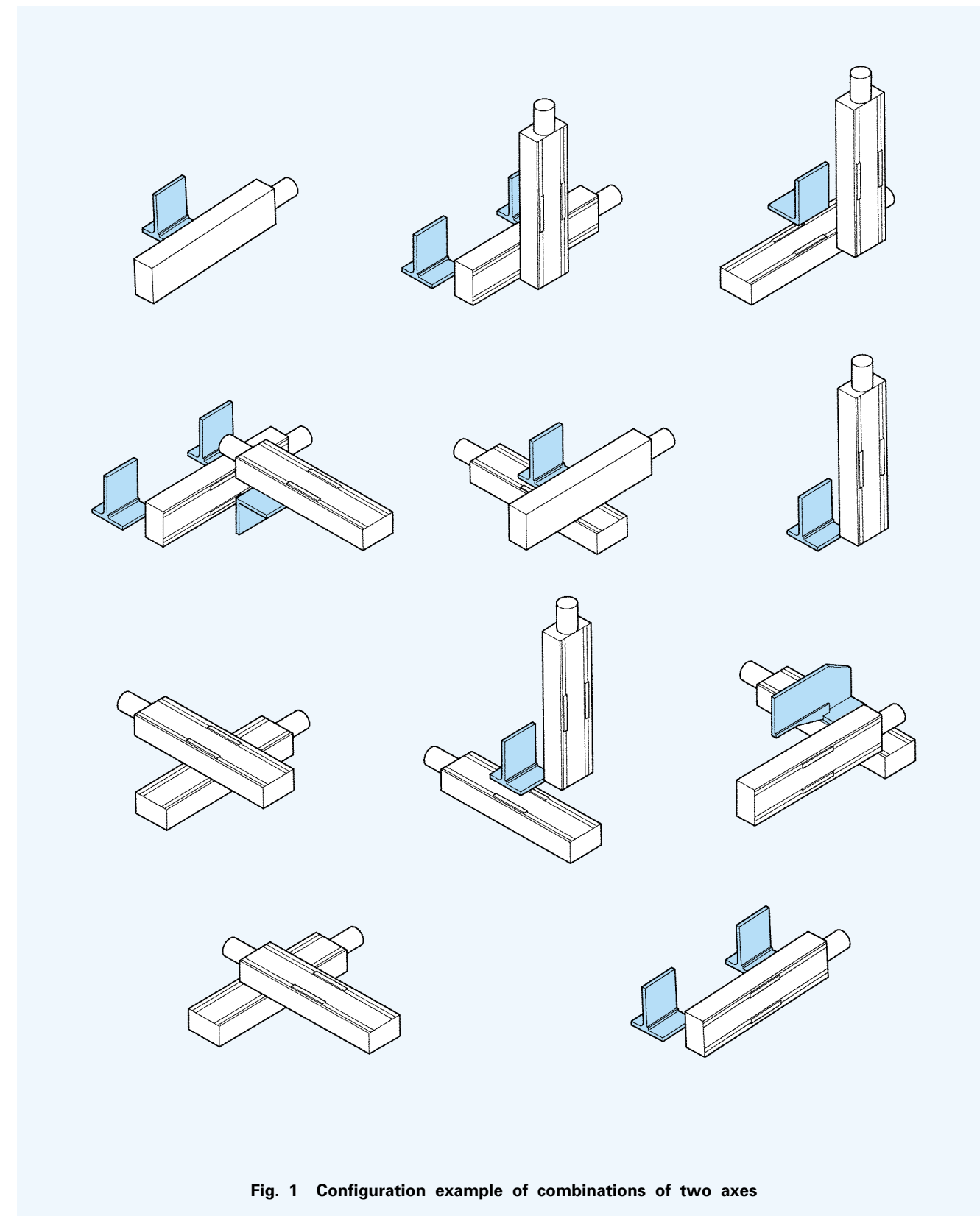


Fig. 1 Configuration example of combinations of two axes

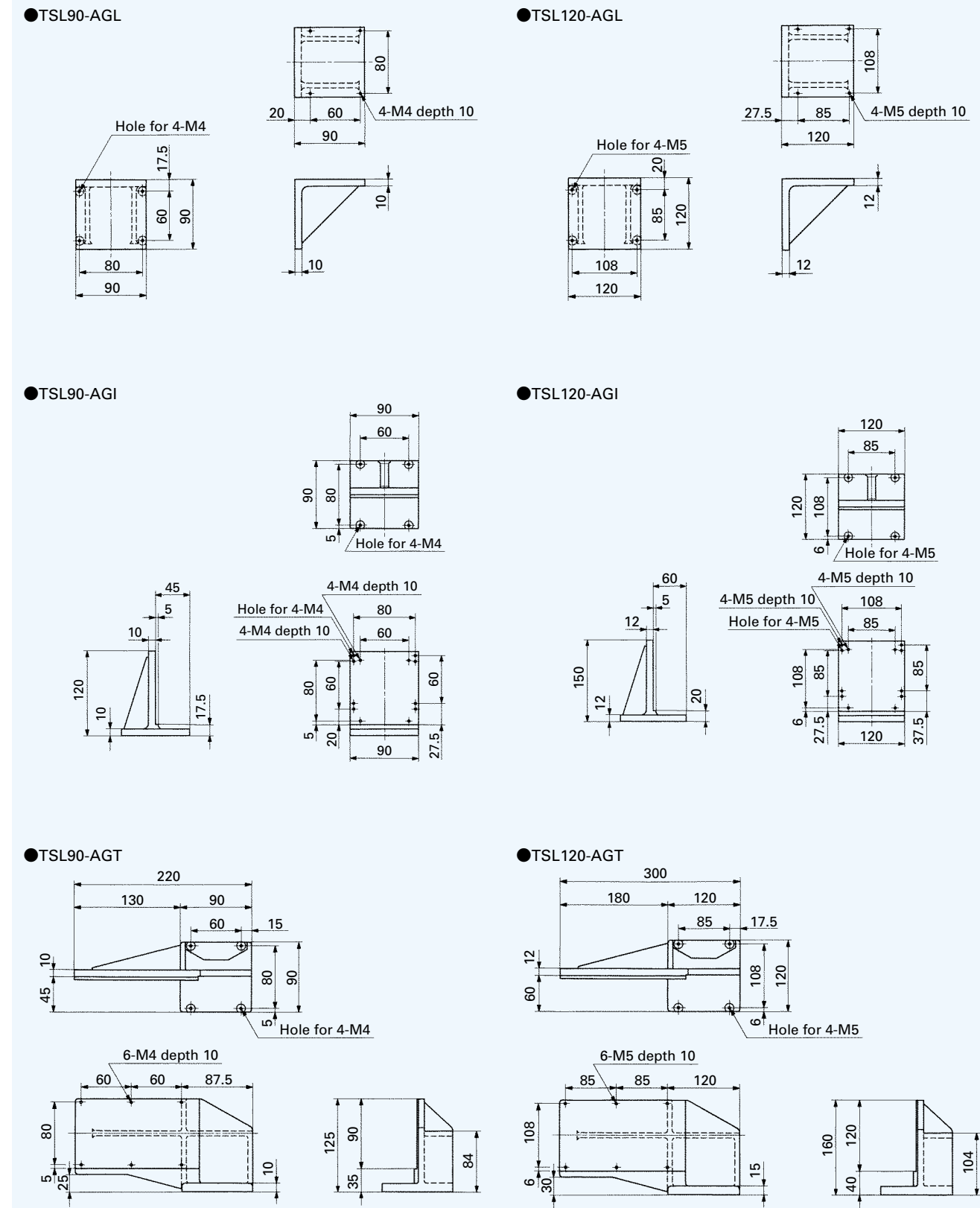
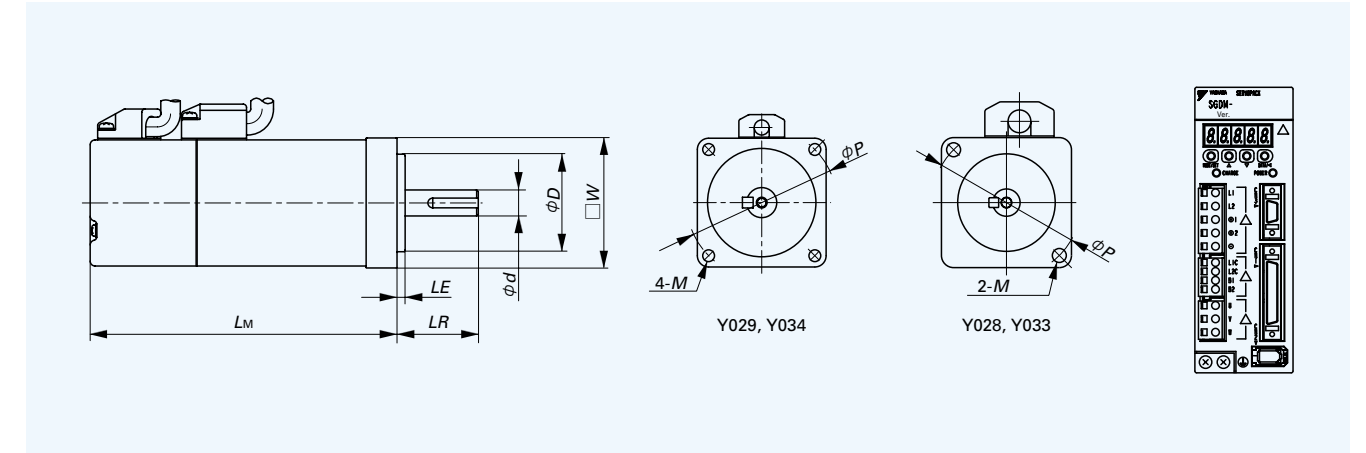


Fig. 2 XY brackets (for TSL90M and TSL120M)

# Specifications of Motor and Driver

Motor and driver by YASKAWA Electric Corporation (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 Jm X10 <sup>-4</sup> kg·m <sup>2</sup>	Encoder type	Mass kg
Y028	SGMAH-01AAA21-E	200	100	0.318	0.955	3000	0.0364	Incremental 13 bit (8192 pulse/rev)	0.5
Y029	SGMAH-02AAA21-E		200	0.637	1.91		0.106		1.1
Y033	SGMAH-01AAA2C-E		100	0.318	0.955		0.0449		0.8
Y034	SGMAH-02AAA2C-E		200	0.637	1.91		0.164		1.6

## Dimension of motor

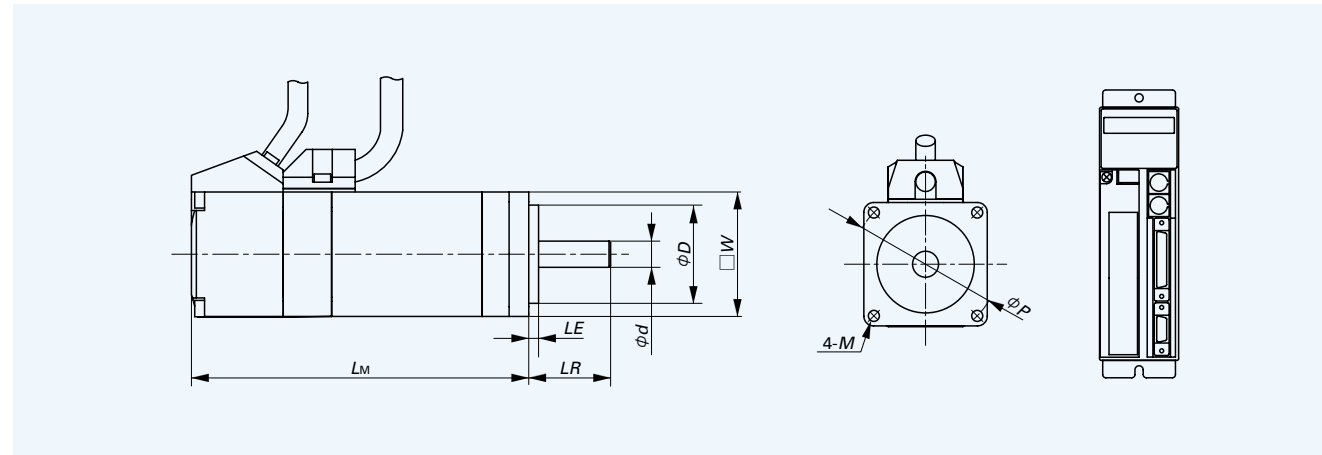
unit : mm

Motor code	□W×LM	LR	LE	d	D	P	M
Y028	40×94.5	25	2.5	8	30	46	φ4.3
Y029	60×96.5	30	3	14	50	70	φ5.5
Y033	40×135	25	2.5	8	30	46	φ4.3
Y034	60×136	30	3	14	50	70	φ5.5

## Specifications of driver

Driver type	SGDH-01AE-E	SGDH-02AE-E
Applicable motor code	Y028, Y033	Y029, Y034
Rated output of applicable motor	100W	200W
Signal feed back	Serial encoder	
Type of command pulse input	+ pulse line, 90degrees two phases, Choose one from CW or CCW.	
System of command pulse input	Line driver, Open collector	
Main circuit power voltage	Single/Three phase AC200~230V -15~10% 50/60Hz	
Control circuit power supply	Single phase AC200~230V -15~10% 50/60Hz	
Continuously output current Arms	0.91	2.1
Maximum output current Arms	2.8	6.5
Ambient temperature in operation	0~50°C	
Ambient temperature in storage	-20~85°C	
Ambient humidity (use and storage)	Less than 90%RH (Keep dewdrop free)	
Mass kg	0.8	0.8

Motor and driver by Matsushita Electric Industrial Co., Ltd.



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 Jm X10 <sup>-4</sup> kg·m <sup>2</sup>	Encoder type	Mass kg
P002	MSMA012A1A	200	100	0.32	0.95	3000	0.062	Incremental 2500pulse/rev	0.56
P003	MSMA022A1A		200	0.64	1.91		0.17		1.0
P007	MSMA012A1B		100	0.32	0.95		0.066		0.76
P008	MSMA022A1B		200	0.64	1.91		0.20		1.4

Dimension of motor

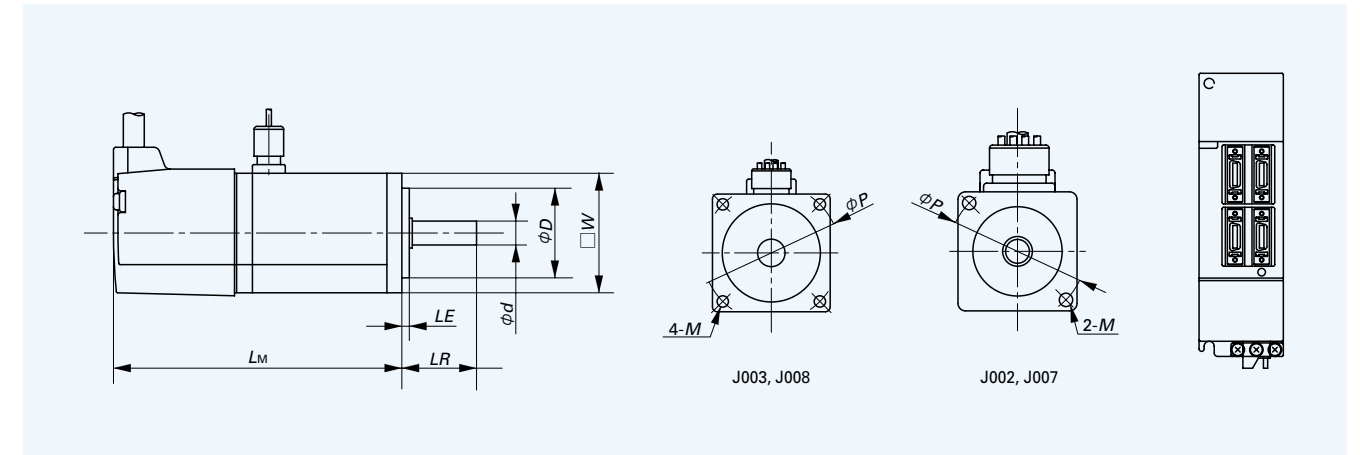
unit : mm

Motor code	□W×LM	LR	LE	d	D	P	M
P002	38×103	25	3	8	30	45	φ 3.4
P003	60×94	30	3	11	50	70	φ 4.5
P007	38×135	25	3	8	30	45	φ 3.4
P008	60×127	30	3	11	50	70	φ 4.5

Specifications of driver

Driver type	MSDA015A1A	MSDA023A1A
Applicable motor code	P002, P007	P003, P008
Rated output of applicable motor	100W	200W
Signal feed back	Serial encoder 2500pulse/rev	
Type of command pulse input	CW/CCW signal Pulse/Rotational direction signal 90degrees two phases	
System of command pulse input	Line driver, Open corrector	
Main circuit power voltage	Single/Three phase AC200~230V -15 ~ +10% 50/60Hz	Three phase AC200~230V -15 ~ +10% 50/60Hz
Control circuit power supply	Single phase AC200~230V -15~10% 50/60Hz	
Power supply capacity kVA	0.3	0.5
Ambient temperature in operation	0~55°C (Keep dewdrop free)	
Ambient temperature in storage	-20~85°C (Keep dewdrop free)	
Ambient humidity (use and storage)	Less than 90%RH (Keep dewdrop free)	
Mass kg	1.0	1.0

Motor and driver by Mitsubishi Electric Corporation (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 Jm X10 <sup>-4</sup> kg·m <sup>2</sup>	Encoder type	Mass kg
J002	HC-KFS13	200	100	0.32	0.95	3000	0.084	17 bit Absolute or incremental	0.53
J003	HC-KFS23		200	0.64	1.9		0.42		0.99
J007	HC-KFS13B		100	0.32	0.95		0.087		0.89
J008	HC-KFS23B		200	0.64	1.9		0.47		1.6

Dimension of motor

unit : mm

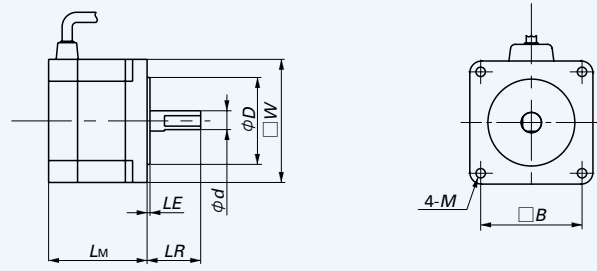
Motor code	□W×LM	LR	LE	d	D	P	M
J002	40×96.5	25	2.5	8	30	46	φ 4.5
J003	60×99.5	30	3	14	50	70	φ 5.8
J007	40×124.5	25	2.5	8	30	46	φ 4.5
J008	60×131.5	30	3	14	50	70	φ 5.8

Specifications of driver

Driver type	MR-J2S-10A	MR-J2S-20A
Applicable motor code	J002, J007	J003, J008
Rated output of applicable motor	100W	200W
Signal feed back	Absolute/Incremental sharing 17 bit encoder	
Type of command pulse input	+ pulse line, 90degrees two phases, Chose one from CW or CCW.	
System of command pulse input	Line driver, Open corrector	
Main circuit power voltage	Three phase AC200~230V, 50/60Hz or Single phase AC230V, 50/60Hz	
Control circuit power supply	Single phase AC200~230V, 50/60Hz	
Rated output current A	0.71	1.1
Maximum output current A	2.2	3.4
Ambient temperature in operation	0~55°C (Keep dewdrop free)	
Ambient temperature in storage	-20~65°C (Keep dewdrop free)	
Ambient humidity (use and storage)	Less than 90%RH (Keep dewdrop free)	
Mass kg	0.7	0.7



Stepping 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	Rotor Inertia $J_M$ kg · m <sup>2</sup>	Mass (Ref.) kg
V009	PK566AE	0.72	0.83	1.4	$2.8 \times 10^{-5}$	0.3
V013	PK596AE		2.1	1.4	$14 \times 10^{-5}$	1.7
V010	PK566AEM		0.83	1.4	$4.4 \times 10^{-5}$	1.1
V014	PK596AEM		2.1	1.4	$24.7 \times 10^{-5}$	2.4

Dimension of motor

unit : mm

Motor code	□W×LM	LR	LE	d	D	B	M
V009	60× 59.5	24	1.5	8	36	50	φ 4.5
V013	85× 68	37	2	14	60	70	φ 6.5
V010	60× 99.5	24	1.5	8	36	50	φ 4.5
V014	85×119	37	2	14	60	70	φ 6.5

Specifications of driver

Driver type	RKD514L-A	RKD514LM-A	RKD514H-A	RKD514HM-A
Applicable motor code	V009	V010	V013	V014
Excitation type	Micro step			
Input	CW/CCW signal Pulse/Rotational direction signal			
Input type	Photo coupler input, input resistance 220Ω, Input current 10~20mA			
Power supply	Single phase 100-115V±15% 50/60Hz 4.5A			
Ambient temperature in operation	0~50°C (Keep dewdrop free)			
Ambient temperature in storage	Less than 85%RH (Keep dewdrop free)			
Mass kg	0.85			

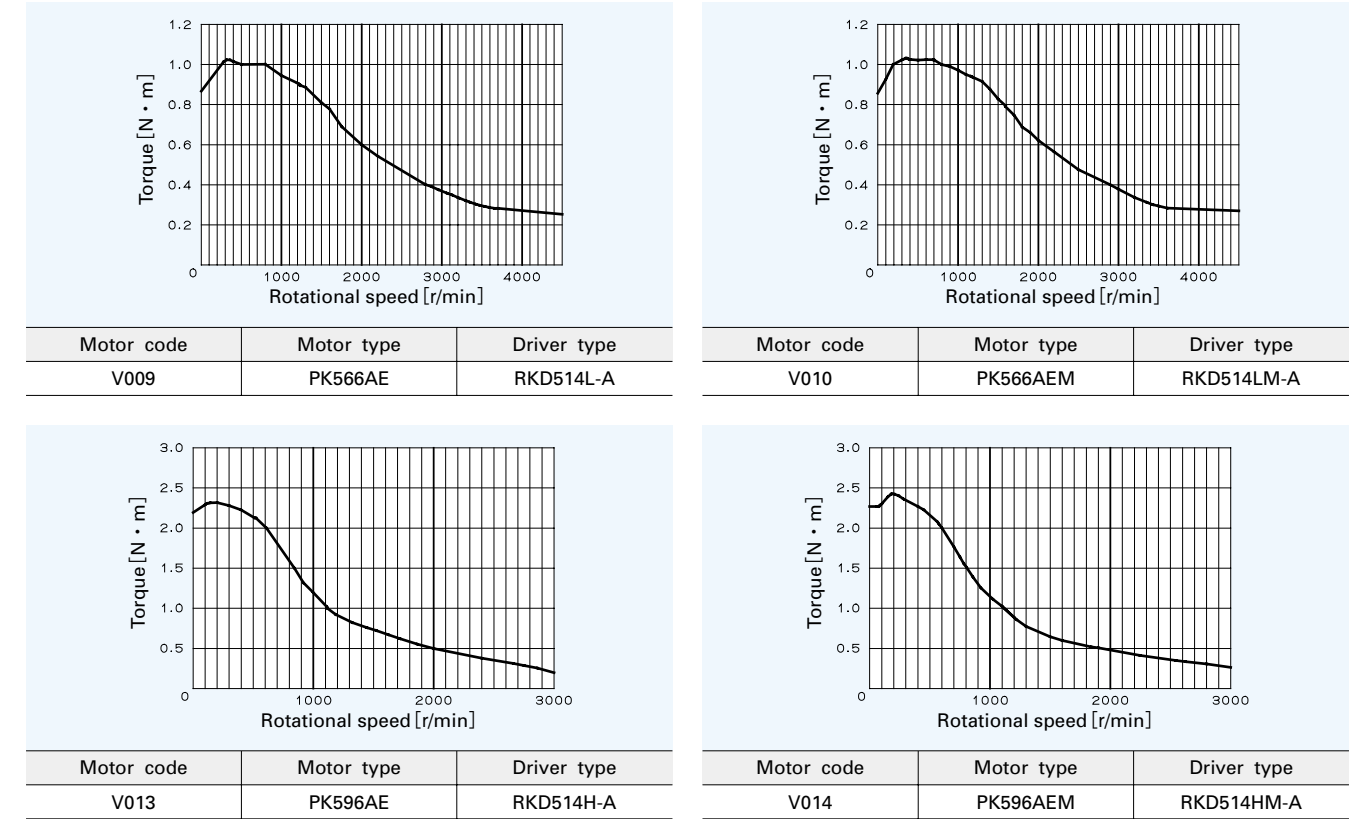
Remark : Refer instruction manual.

Connection of motor

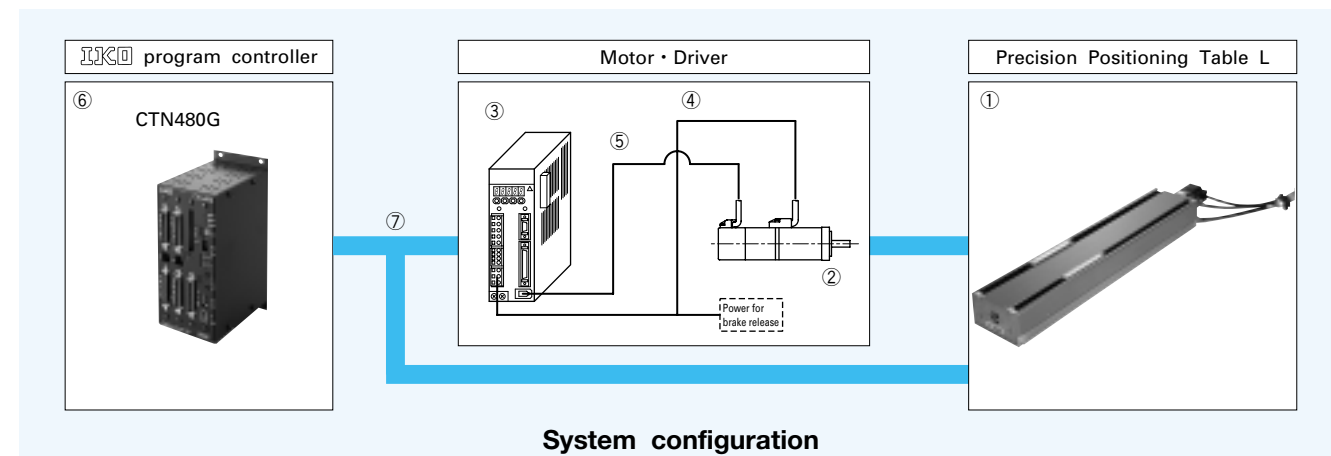
Without motor		With motor		Connectors (Tyco Electronics AMP K.K.)	
Pin No.	Cord color	Pin No.	Cord color	Motor side	Connection side
1	Blue	1	Blue	Plug · Housing 172170-1	Plug · Housing 172162-1
2	No-use	2	No-use		
3	Red	3	Red		
4	No-use	4	No-use		
5	Orange	5	Orange		
6	No-use	6	No-use		
7	Green	7	Green		
8	No-use	8	No-use		
9	Black	9	Black		
10	No-use	10	No-use		
11	No-use	11	Red/White (Brake input +)	Terminal 170364-1	Terminal 170366-1
12	No-use	12	Black/White (Brake input -)		

Remark : Prepare applicable connector.

Torque charts of stepping motor



# System Configuration



## Combination of Motor · Driver · Controller

### AC servomotor

①Models	Without brake		With brake <sup>(1)</sup>		⑤Encoder cord	③Driver	⑥Controller CTN480G			
	②Motor code	④Motor cord	②Motor code	④Motor cord			⑦Pulse · Limit cord			
TSL 90 M TSL120 M TSL170 M	Y028	TAE20G2-AM□□ (TAE20G1-AM□□)	Y033	TAE20G4-AMB□□ (TAE20G3-AMB□□)	TAE20G6-EC□□ (TAE20G5-EC□□)	SGDH-01AE-E	TAE10M7-LD□□ (TAE10M8-LD□□)			
TSL170S M TSL220 M								Y029	Y034	SGDH-02AE-E
TSL 90 M TSL120 M TSL170 M								P002	TAE20G8-AM□□ (TAE20G7-AM□□)	P007
TSL170S M TSL220 M	P003	P008	MSDA023A1A							
TSL 90 M TSL120 M TSL170 M	J002	TAE20H4-AM□□ (TAE20H3-AM□□)	J007	TAE20H6-AMB□□ (TAE20H5-AMB□□)	TAE20H8-EC□□ (TAE20H7-EC□□)	MR-J2S-10A	TAE10P1-LD□□ (TAE10P2-LD□□)			
TSL170S M TSL220 M								J003	J008	MR-J2S-20A

Note<sup>(1)</sup> : In the motor with brake, power supply for brake release is needed.

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

2. The lengths of cord can be specified by □□ in the end of supplemental code. Selectable length is up to 20m in increments of 1m.

※ The length under 10m is also selected by two digits. (Example of 3m : TAE20G2-AM03)

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

### Stepping motor

①Models	Without brake		With brake		⑥Controller CTN480G						
	②Motor code	④Motor cord	③Driver	②Motor code		④Motor cord	③Driver	⑦Pulse · Limit cord			
TSL 90 M TSL120 M TSL170 M	V009	TAE20R8-SM□□ (TAE20R9-SN□□)	RKD514L-A	V010	TAE20S1-SMB□□ (TAE20S2-SNB□□)	RKD514LM-A	TAE10S3-LD□□ (TAE10S4-LD□□)				
TSL170S M TSL220 M								V013	RKD514H-A	V014	RKD514HM-A

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

2. The lengths of cord can be specified by □□ in the end of supplemental code. Selectable length is up to 10m in increments of 1m.

(Example of 3m : TAE20R8-SM03)

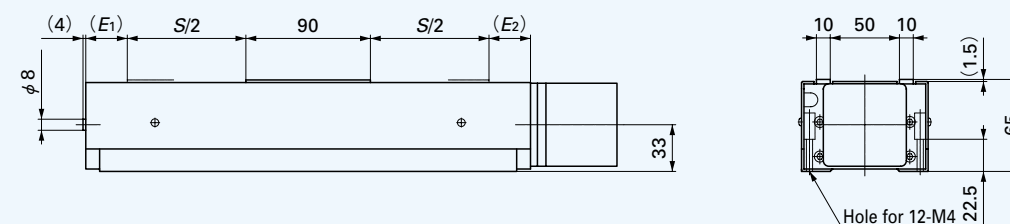
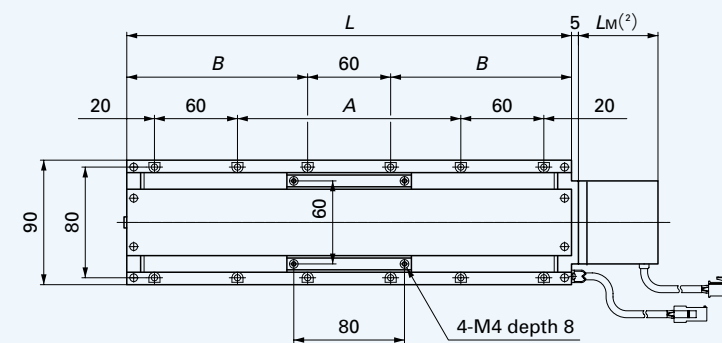
3. The length of limit cord can be specified by □□ in the end of supplemental code. Selectable length is up to 20m in increments of 1m.

(Example of 3m : TAE10S3-LD03)

4. The length of pulse cord is 1.5m.

# IKO Precision Positioning Table L

## TSL90M



unit : mm

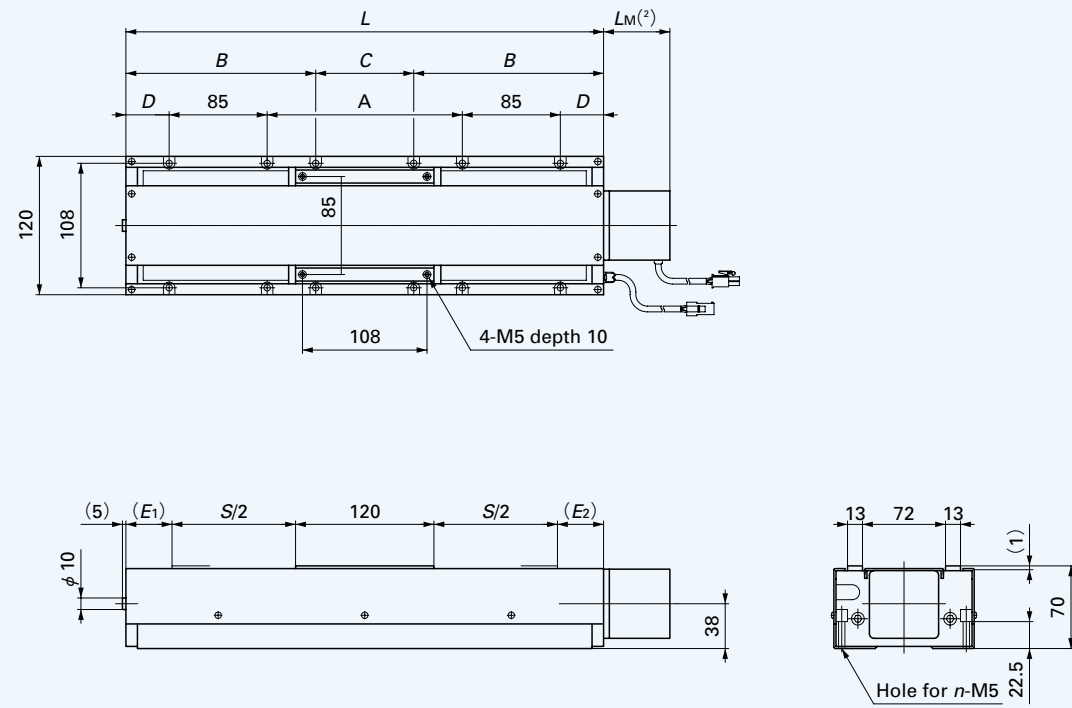
Model number	Stroke length			Dimensions of table			Mass <sup>(1)</sup> (Reference) kg
	S	E <sub>1</sub>	E <sub>2</sub>	Total length L	Bed mounting holes A B		
TSL90M-50	50	30	30	200	40	70	2.8
TSL90M-100	100			250	90	95	3.2
TSL90M-150	150			300	140	120	3.5
TSL90M-200	200			350	190	145	3.9
TSL90M-250	250			400	240	170	4.2
TSL90M-300	300			450	290	195	4.6

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

(?) : See "Motor and Driver".

# IKO Precision Positioning Table L

## TSL120M



unit : mm

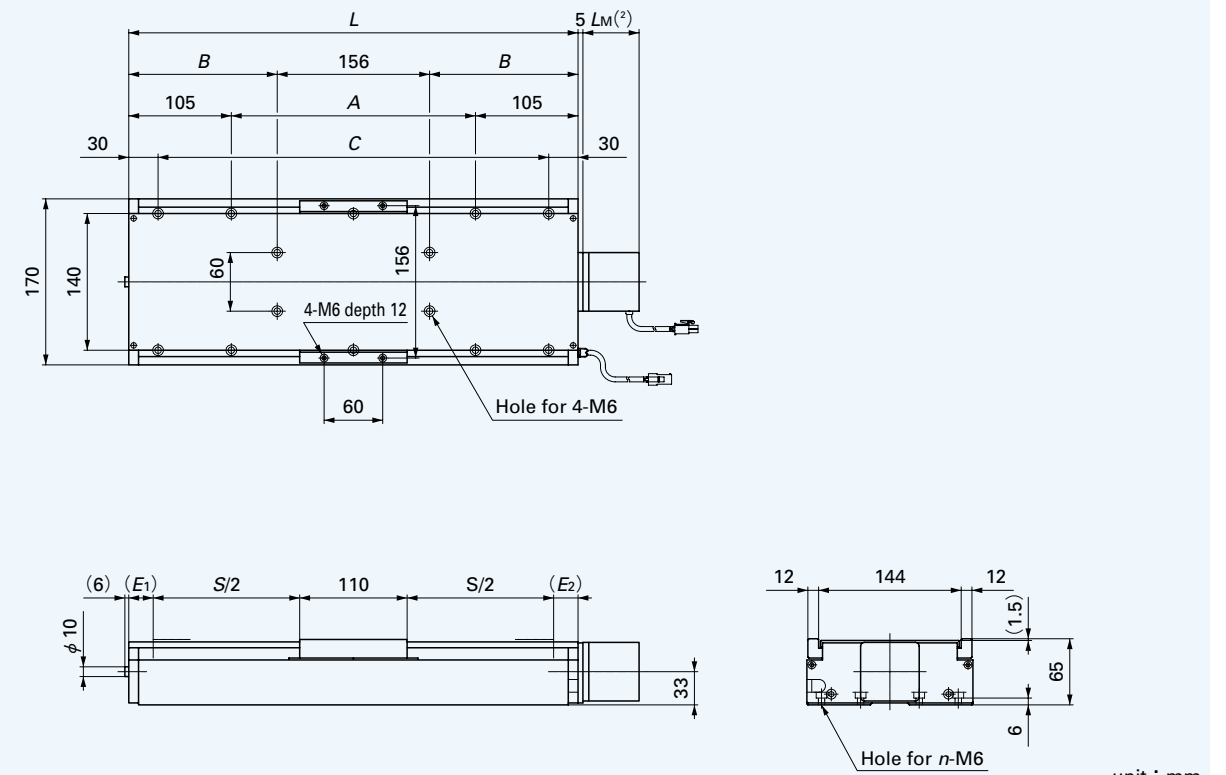
Model number	Stroke length			Dimensions of table						Mass <sup>(1)</sup> (Reference) kg
	S	E <sub>1</sub>	E <sub>2</sub>	Total length L	Bed mounting holes					
					A	B	C	D	n	
TSL120M-100	100	40	40	300	85	107.5	85	22.5	8	6.1
TSL120M-150	150			350	135	132.5	85	22.5	12	6.6
TSL120M-200	200			400	185	157.5	85	22.5	12	7.1
TSL120M-250	250			450	235	182.5	85	22.5	12	7.6
TSL120M-300	300			500	255	207.5	85	37.5	12	8.1
TSL120M-400	400			600	355	207.5	185	37.5	12	9.1
TSL120M-500	500			700	455	207.5	285	37.5	12	10.1
TSL120M-600	600			800	555	207.5	385	37.5	12	11.1

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

(?) : See "Specifications of Motor and Driver".

# IKO Precision Positioning Table L

## TSL170M



unit : mm

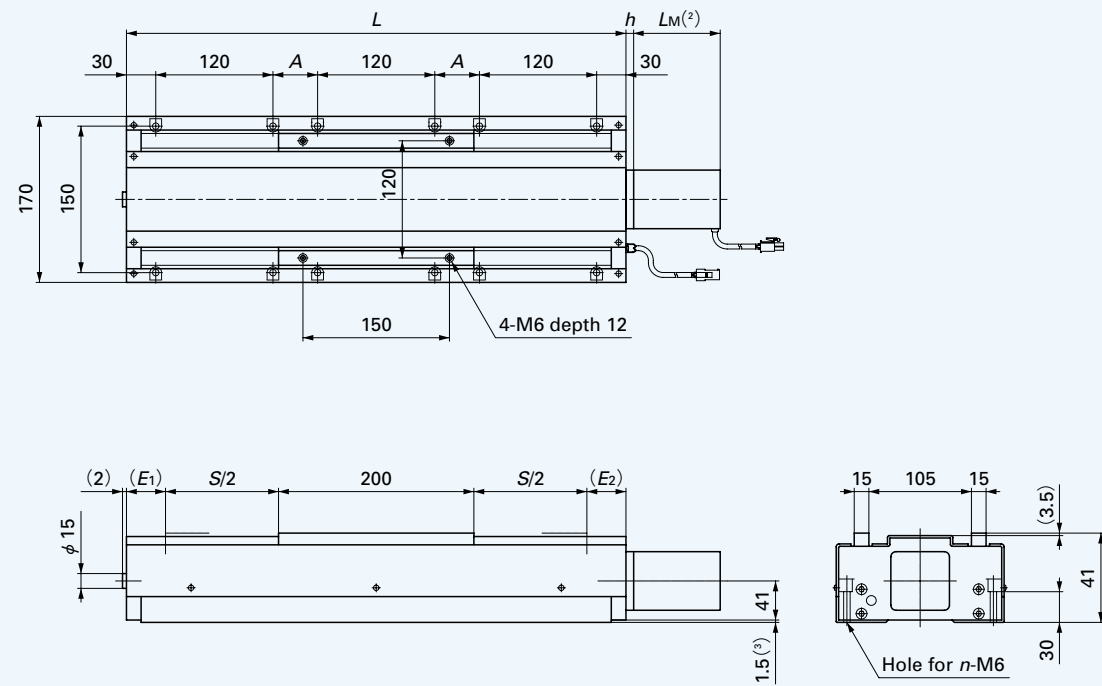
Model number	Stroke length			Dimensions of table					Mass <sup>(1)</sup> (Reference) kg
	S	E <sub>1</sub>	E <sub>2</sub>	Total length L	A	B	C(Number of pitches X pitch)	n	
TSL170M-150	150	25	25	310	100	77	250	8	7.2
TSL170M-200	200			360	150	102	300	8	7.8
TSL170M-250	250			410	200	127	350 (2×175)	10	8.4
TSL170M-300	300			460	250	152	400 (2×200)	10	9.1
TSL170M-400	400			560	350	202	500 (2×250)	10	10.4
TSL170M-500	500			660	450	252	600 (2×300)	10	11.6

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

(?) : See "Specifications of Motor and Driver".

# IKO Precision Positioning Table L

## TSL170SM



unit : mm

Model number	Stroke length			Dimensions of table			Mass <sup>(1)</sup> (Reference) kg
	S	E <sub>1</sub>	E <sub>2</sub>	Total length L	Bed mounting holes A(Number of pitches X pitch)   n		
TSL170SM- 300	300	40	40	580	80	12	14.8
TSL170SM- 400	400			680	130	12	16.6
TSL170SM- 500	500			780	180	12	18.5
TSL170SM- 600	600			880	230	12	20.3
TSL170SM- 800	800			1080	330 (2×165)	16	22.2
TSL170SM- 1000	1000			1280	430 (2×215)	16	22.8

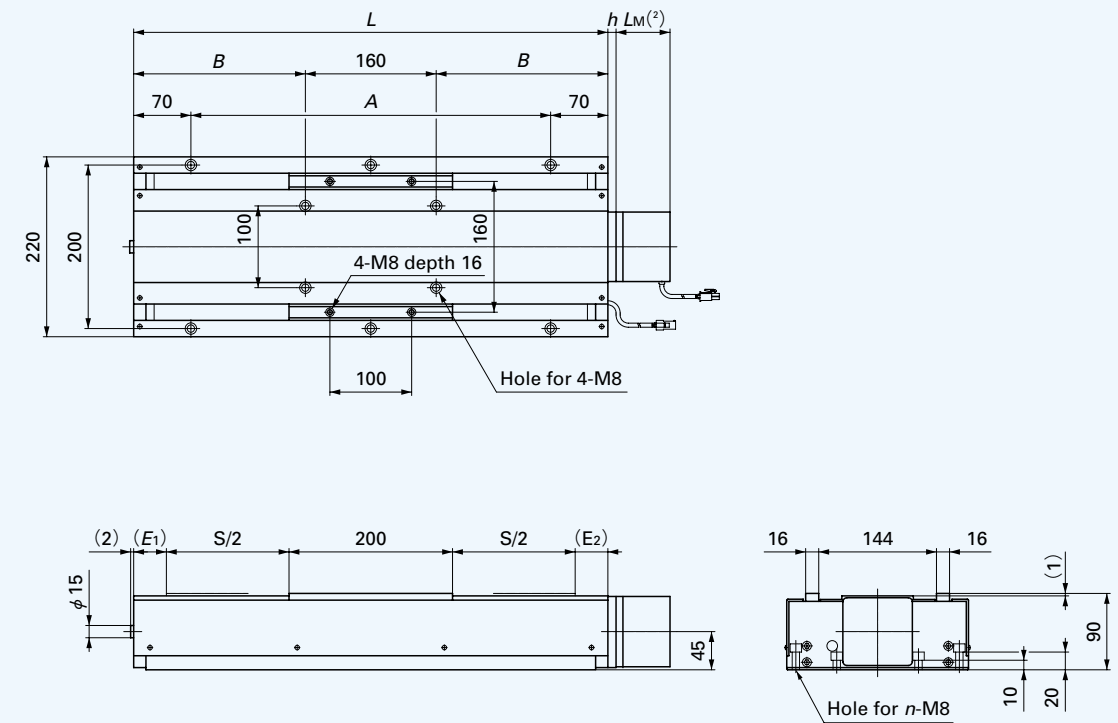
Note<sup>(1)</sup> : The mass of the motor is not included.  
<sup>(2)</sup> : See "Specifications of Motor and Driver".

### Dimension of motor mount unit : mm

Type of motor	h
AC servomotor	—
Stepping motor	11

# IKO Precision Positioning Table L

## TSL220M



unit : mm

Model number	Stroke length			Dimensions of table				Mass <sup>(1)</sup> (Reference) kg
	S	E <sub>1</sub>	E <sub>2</sub>	Total length L	Bed mounting holes A(Number of pitches X pitch)   B   n			
TSL220M- 300	300	40	40	580	440 (2×220)	210	6	20.1
TSL220M- 400	400			680	540 (2×270)	260	6	22.5
TSL220M- 500	500			780	640 (2×320)	310	6	24.7
TSL220M- 600	600			880	740 (4×185)	360	10	27.0
TSL220M- 800	800			1080	940 (4×235)	460	10	31.5
TSL220M- 1000	1000			1280	1140 (4×285)	560	10	36.2

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

### Dimension of motor mount unit : mm

Type of motor	h
AC servomotor	—
Stepping motor	10

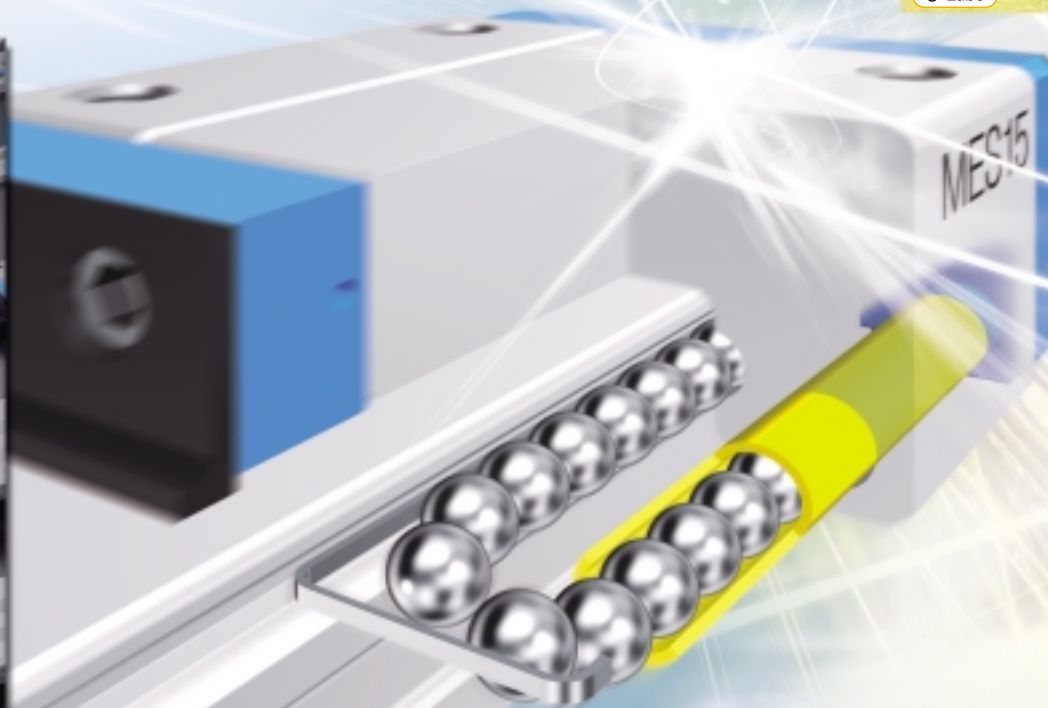
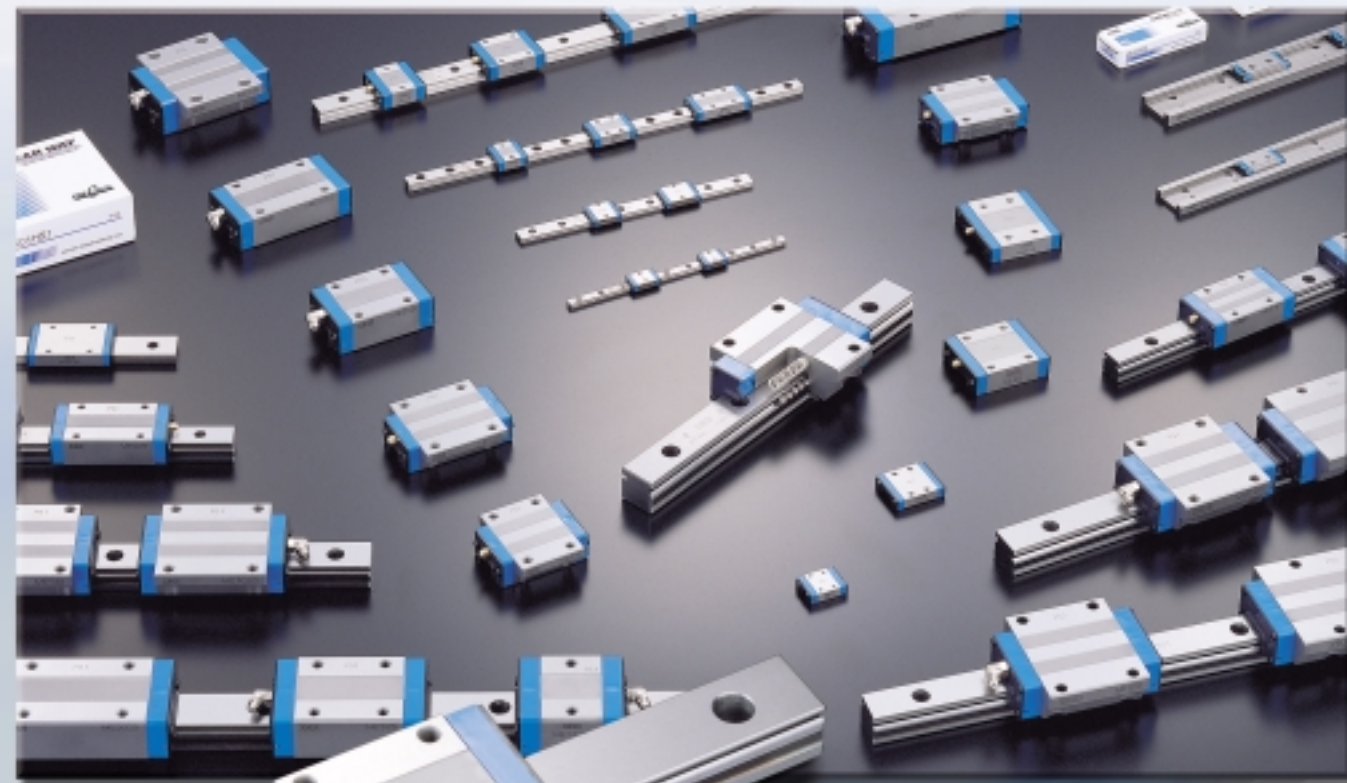
**Engineers' dream now becomes a reality**

**Maintenance free for 20,000km or 5 years**

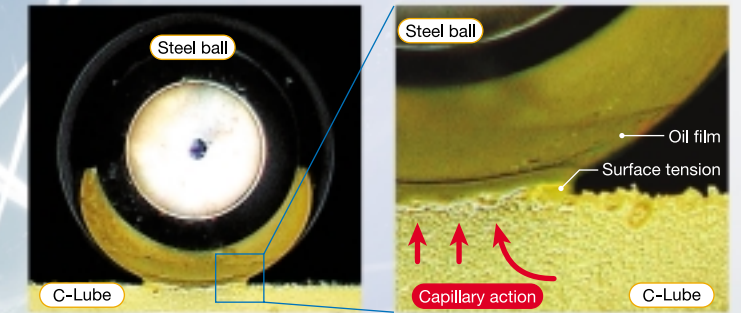
**IKO Maintenance Free & Interchangeable**

**C-Lube Linear Way**

**ML ME MH MUL**



The Capillary system that IKO have 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 separately, 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 the lubricant is maintained for a long term allowing to reduce the cost of lubrication management systems.

**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.

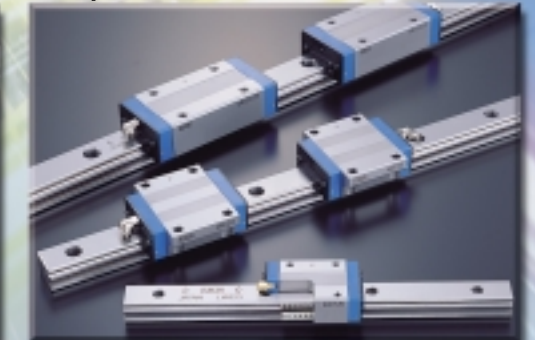
**Smooth**

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**



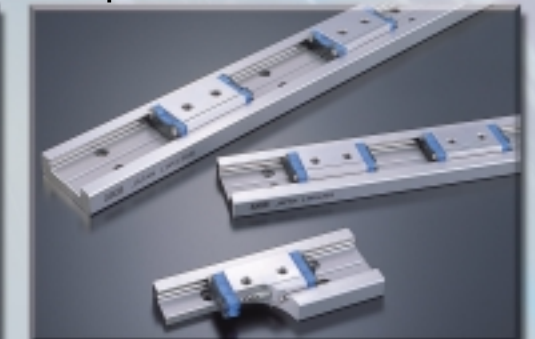
**Compact ME series**



**High load capacity MH series**



**U-shaped track rail MUL series**



## **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.**

Room 23G, Zhao Feng World Trade Building  
No.369, Jiang Su Road,  
Changning District, Shanghai 200050,  
People's Republic of China  
Phone: +86 (0)21-5237-9100  
Fax: +86 (0)21-5237-9095

## **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 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**

20170 South Western Avenue  
Torrance, CA 90501  
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

### **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, 1<sup>a</sup>  
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

Recognizing that conservation of the global environment is the top-priority challenge for the world's population, Nippon Thompson 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**

