

The IKO logo is displayed in red, bold, sans-serif capital letters on the top surface of the black metal table.

Super Precision Positioning Table

TX CTX

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

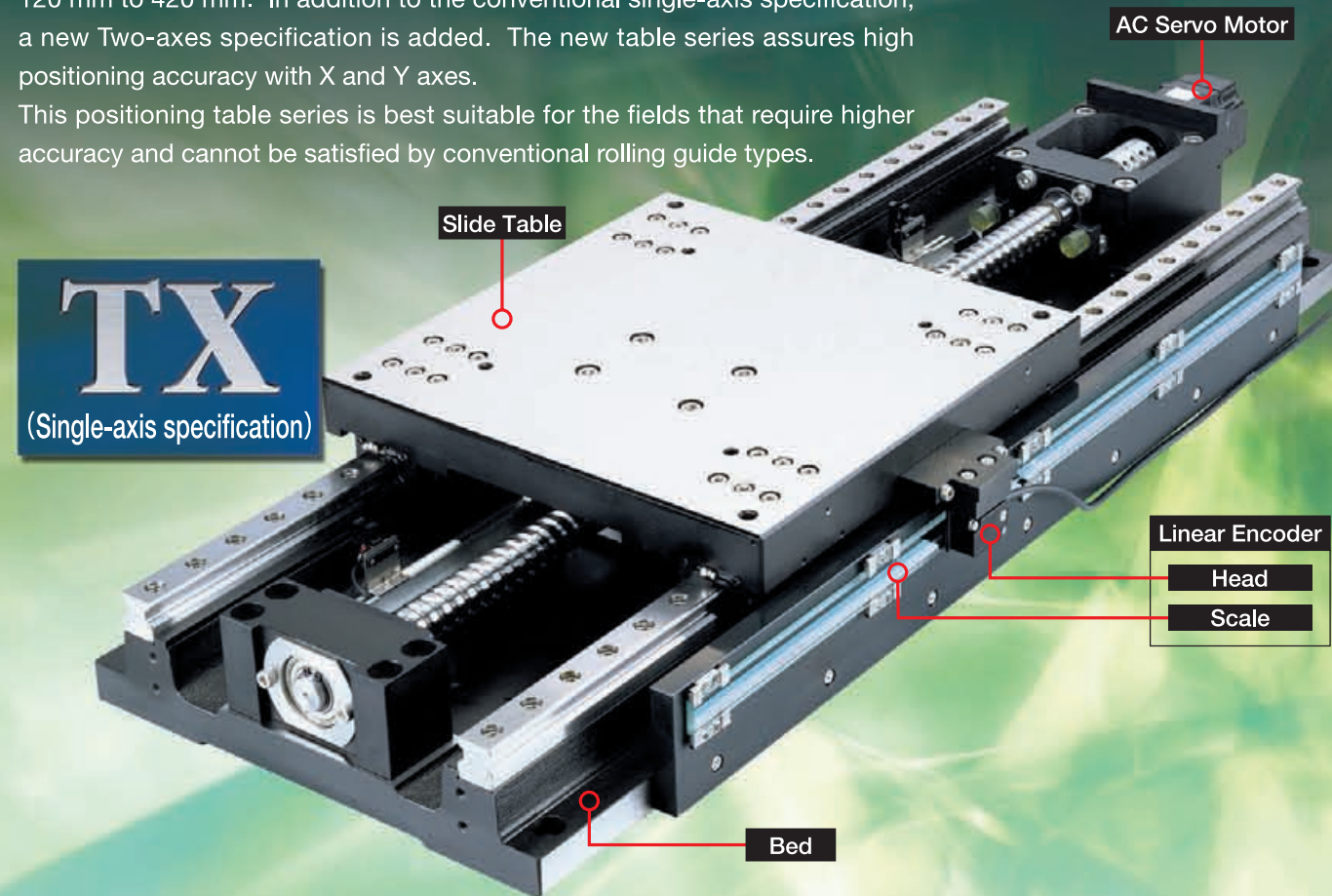
CAT-57173

TX Series of Rolling Guide Type Realizing Ultimate Positioning Performance

IKO High Precision Positioning Table TX has realized almost as high positioning performance as the air stage by incorporated the ultimate rolling guide IKO Linear Roller Way Super X in IKO Precision Positioning Table LH which is well-known for high accuracy and high rigidity as the base.

IKO High Precision Positioning Table TX has four kinds of table widths from 120 mm to 420 mm. In addition to the conventional single-axis specification, a new Two-axes specification is added. The new table series assures high positioning accuracy with X and Y axes.

This positioning table series is best suitable for the fields that require higher accuracy and cannot be satisfied by conventional rolling guide types.



TX
(Single-axis specification)

IKO High Precision Positioning Table TX and CTX

Use in low and medium vacuum condition

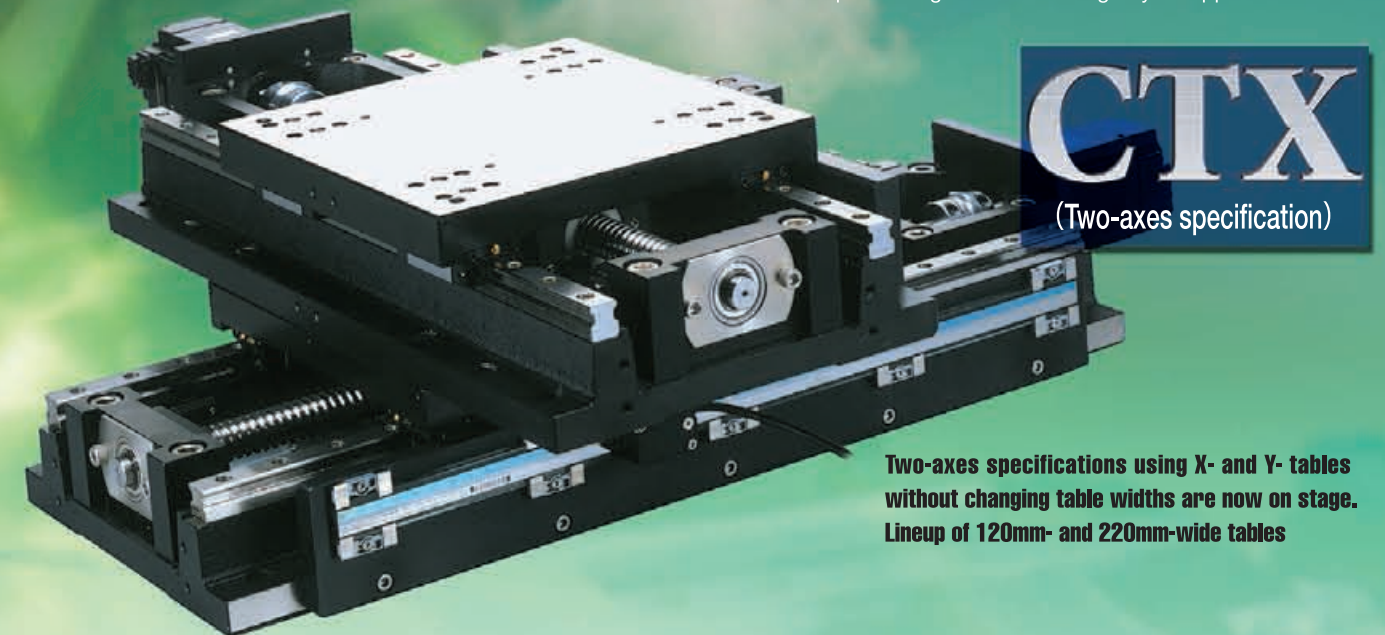
No influence to a vacuum environment by an air flow in an air stage. Can be supplied with vacuum environment grease on request. Please consult IKO.

For clean room application

Low dust generating clean grease is available as an option. Please consult IKO.

Wide variation

This series provides four table sizes ranging from 120 mm to 420 mm. Tables of double-axis specifications are manufactured in series to assure accuracy in X- and Y-axes combination. You can select positioning tables according to your applications.



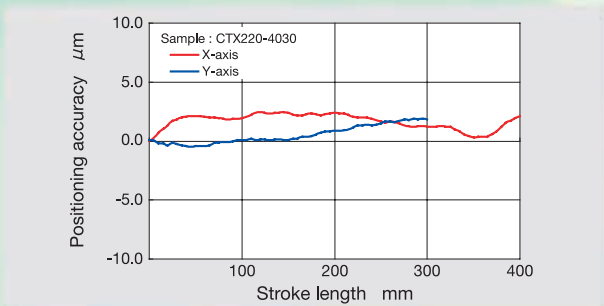
CTX
(Two-axes specification)

Two-axes specifications using X- and Y- tables without changing table widths are now on stage. Lineup of 120mm- and 220mm-wide tables

Ultimate positioning performance

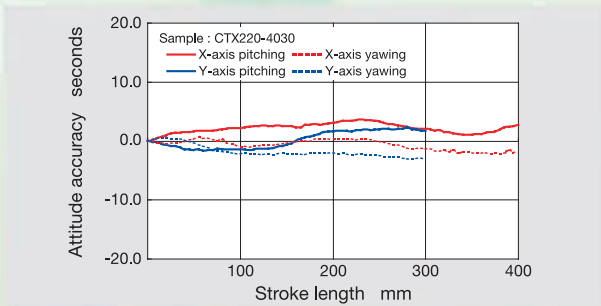
High positioning accuracy and resolution due to super-high accuracy linear encoder

By directly feeding back positional information from the super-high accuracy linear encoder of a resolution of 0.016 μm , a full-closed-loop control system is established. This control system assures high positioning accuracy in the whole stroke length.



Ultimate running accuracy by adopting Linear Roller Way Super X

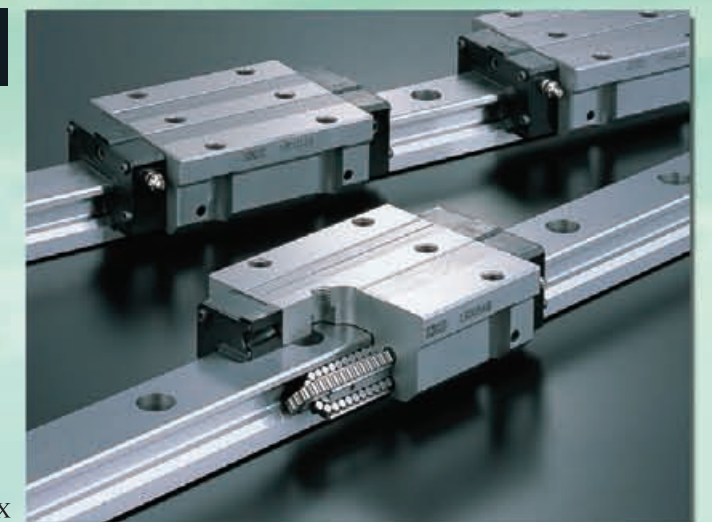
Rolling guide type of ultimate running accuracy thanks to good combination of components that are machined and assembled very accurately and IKO Linear Roller Way Super X that demonstrates the best running accuracy.



Always demonstrating stable performance by the employment of Linear Roller Way Super X

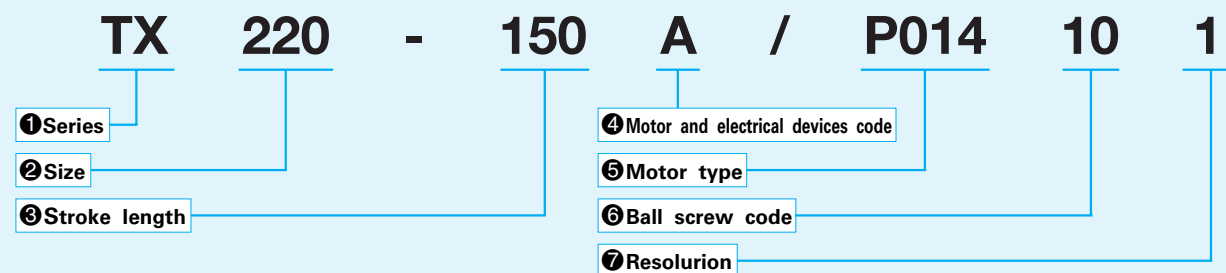
By using IKO Linear Roller Way Super X which performs excellent rigidity under high load capacity, this series of tables can provide high rigidity and specifically stable performance under fluctuating loads.

Linear Roller Way Super X



Identification Number and Specification

Example of identification number (Single axis)



①Series	TX : Super Precision Positioning Table TX (Single axis)
②Size	Width of table Select from Table 1.
③Stroke length	Select from Table 1.
④Motor and electrical devices code	A : with motor and electrical devices Super Precision Positioning Table TX is operated by full closed control. Electrical devices, AC servo motor, driver, serial exchange unit, motor code, encoder cord and serial exchange cord are appended to the table.
⑤Motor type	Select servomotor from Table 2.
⑥Ball screw code	5 : 5mm lead 10 : 10mm lead
⑦Resolution	No symbol : For the motor of Yaskawa Electric Corporation 1 : Minimum resolution 0.1 μm (0.1 μm or 0.2 μm can be selected.) 2 : Minimum resolution 0.01 μm (0.01 μm, 0.02 μm, 0.04 μm or 0.05 μm can be selected.) Please refer the maximum speed on page 6.

Table 1 Models and stroke lengths unit : mm

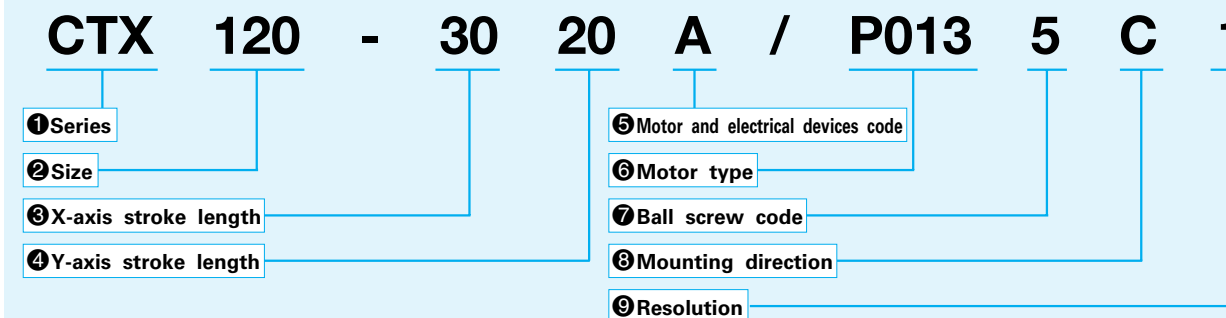
Model	Width of table	Stroke length				
		100	150	200	250	300
TX120	120	100	150	200	250	300
TX220	220	150	200	250	300	400
TX320	320	300	400	500	—	—
TX420	420	500	600	800	—	—

Table 2 Motor types

Model	Motor code		Manufacture
	With brake	Without brake	
TX120	Y039	Y043	Yaskawa Electric Corporation
	Y051	Y055	Yaskawa Electric Corporation
	P013	P018	Panasonic Corporation
	J013	J018	Mitsubishi Electric Corporation
TX220	Y040	Y044	Yaskawa Electric Corporation
	Y052	Y056	Yaskawa Electric Corporation
	P014	P019	Panasonic Corporation
	J014	J019	Mitsubishi Electric Corporation
TX320	Y041	Y045	Yaskawa Electric Corporation
	Y053	Y057	Yaskawa Electric Corporation
	P014	P019	Panasonic Corporation
TX420	J014	J019	Mitsubishi Electric Corporation
	Y042	Y046	Yaskawa Electric Corporation
	Y054	Y058	Yaskawa Electric Corporation
	P015	P020	Panasonic Corporation
	J015	J020	Mitsubishi Electric Corporation

Remark : For the detail of motor, see motor and driver specification on page 14 to 17.

Example of identification number (X-Y specification)



①Series	CTX : Super Precision Positioning Table (X-Y specification)
②Size	Width of table Select from Table 3. Combination of tables in different sizes is possible.
③X-axis stroke length ④Y-axis stroke length	Select from Table 3. Indicate the stroke length by "cm".
⑤Motor and electrical devices code	A : with motor and electrical devices Super Precision Positioning Table TX is operated by full closed control. Electrical devices, AC servo motor, driver, serial converter, motor cord, encoder cord and serial converter cord are appended to the table.
⑥Motor type	Select servomotor from Table 4.
⑦Ball screw code	5 : 5mm lead 10 : 10mm lead
⑧Mounting direction	No symbol : X-axis motor locates 90 degrees from Y-motor in clockwise direction when looking down. C : X-axis motor locates 90 degrees from Y-motor in counterclockwise direction when looking down.
⑨Resolution	No symbol : For the motor of Yaskawa Electric Corporation 1 : Minimum resolution 0.1 μm (0.1 μm or 0.2 μm can be selected.) 2 : Minimum resolution 0.01 μm (0.01 μm, 0.02 μm, 0.04 μm or 0.05 μm can be selected.) Please refer the maximum speed on page 6.

Table 3 Models and stroke lengths unit : mm

Model	Width of table	Stroke length	
		X-axis	Y-axis
CTX120	120	100	100
		200	100
		200	200
		300	200
CTX220	220	200	200
		300	200
		300	300
		400	300

Table 4 Motor types

Model	Motor code		Manufacture
	With brake	Without brake	
CTX120	Y039	Y043	Yaskawa Electric Corporation
	Y051	Y055	Yaskawa Electric Corporation
	P013	P018	Panasonic Corporation
	J013	J018	Mitsubishi Electric Corporation
CTX220	Y040	Y044	Yaskawa Electric Corporation
	Y052	Y056	Yaskawa Electric Corporation
	P014	P019	anasonic Corporation
	J014	J019	Mitsubishi Electric Corporation

Remarks : 1. For the table with brake, motor with brake is mounted on Y-axis only. For example, if Y043 is selected, X-axis has Y039 and Y-axis has Y043.
2. For the detail of motor, see motor and driver specification on page 14 to 17.

Accuracy

Table 5 Accuracy

unit : mm

Model	Stroke length		Positioning accuracy	Repeatability	Lost motion	Parallelism in table operation A	Attitude accuracy ⁽¹⁾ sec.	Straightness in vertical Straightness in horizontal	Squareness of X-Y travel			
	X-axis	Y-axis										
Single axis	TX120	100	0.003	±0.0005	0.001	0.005	5	0.003	—			
		150										
		200	0.004									
		250										
		300										
	TX220	150	0.003	±0.0005	0.001	0.005	5	0.003				
		200	0.004			0.006	6	0.004				
		250										
		300										
	400	0.005										
	TX320	300	0.004	±0.0005	0.001	0.006	6	0.004				
		400	0.005			0.007	7	0.005				
500												
TX420	500	0.005	±0.0005	0.001	0.007	7	0.005					
	600	0.006			0.008	8	0.006					
	800	0.008			0.009	9	0.008					
X-Y axis	CTX120	100	100	±0.0005	0.001	0.008	8	0.005	0.005			
		200	100						0.005	0.010		
		200	200									
		300	200									
	CTX220	200	200	±0.0005	0.001	0.009	9	0.006	0.005			
		300	200						0.006	0.010		
		300	300									
		400	300									
		0.008	0.011								11	0.008
		0.008										

Note⁽¹⁾ Amounts in the table show pitching and yawing.

Maximum Speed

Maximum speed of Super Precision Positioning Table TX is shown below.

Maximum speed and resolution are given by the lead of ball screw and driver's parameter (Electric gear).

Actual speed should not exceed values in Table 6 to 8.

Table 6 Maximum speeds for the motor of YASKAWA ELECTRIC CORPORATION

Lead of ball screw mm	Resolution $\mu\text{m/pulse}$	Maximum speed ⁽¹⁾ mm/s	Maximum speed ⁽²⁾ mm/s
5	0.0156	15.6	62.5
	0.0312	31.2	125
	0.0625	62.5	250(224)
	0.125	125	250(224)
	0.250	250(224)	250(224)
10	0.0156	15.6	62.5
	0.0312	31.2	125
	0.0625	62.5	250(224)
	0.125	125	500(448)
	0.250	250	500(448)
	0.500	500(448)	500(448)

Note⁽¹⁾ Applicable to motor code Y039 to Y046.

⁽²⁾ Applicable to motor code Y051 to Y058

Remarks : 1. Values in () are applicable for TX320 and TX420.

2. Actual maximum speed may be affected by load condition.

3. If higher speed is required, change resolution by electric gear.

Table 7 Maximum speeds for the motor of Panasonic Corporation

Lead of ball screw mm	Resolution $\mu\text{m/pulse}$	Maximum speed mm/s	Linear encoder serial converter ⁽¹⁾
5	0.1	264(224)	APE371(TTL×10)
	0.2	532(224)	
	0.01	26.4	
	0.02	52	APE371(TTL×50)
	0.04	104	
	0.05	132	
10	0.1	264	APE371(TTL×10)
	0.2	532(448)	
	0.01	26.4	APE371(TTL×50)
	0.02	52	
	0.04	104	
	0.05	132	

Note⁽¹⁾ Selectable resolution is according to the type of linear encoder serial converter.

Remarks : 1. Values in () are applicable to TX320 and TX420.

2. Actual maximum speed may be affected by load condition.

3. If higher speed is required, change resolution by the switch in linear encoder serial coveter.

Table 8 Maximum speeds for the motor of Mitsubishi Electric Corporation

Lead of ball screw mm	Resolution $\mu\text{m/pulse}$	Maximum speed mm/s	Linear encoder serial converter ⁽¹⁾
5	0.1	400(224)	APE371(TTL×10)
	0.2	800(224)	
	0.01	40	
	0.02	80	APE371(TTL×50)
	0.04	160	
	0.05	200	
10	0.1	400	APE371(TTL×10)
	0.2	800(448)	
	0.01	40	APE371(TTL×50)
	0.02	80	
	0.04	160	
	0.05	200	

Note⁽¹⁾ Selectable resolution is according to the type of linear encoder serial converter.

Remarks : 1. Values in () are applicable to TX320 and TX420.

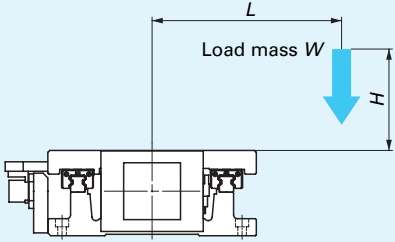
2. Actual maximum speed may be affected by load condition.

3. If higher speed is required, change resolution by the switch in linear encoder serial coveter.

Maximum Load Mass

Maximum load masses of Super Precision Positioning Table TX are shown in Table 9. The values in the table are reference values for the maximum mass that can be mounted on each models used in horizontal position and vary much depending on the position of load mass.

Table 9 Maximum Load Mass



unit : kg

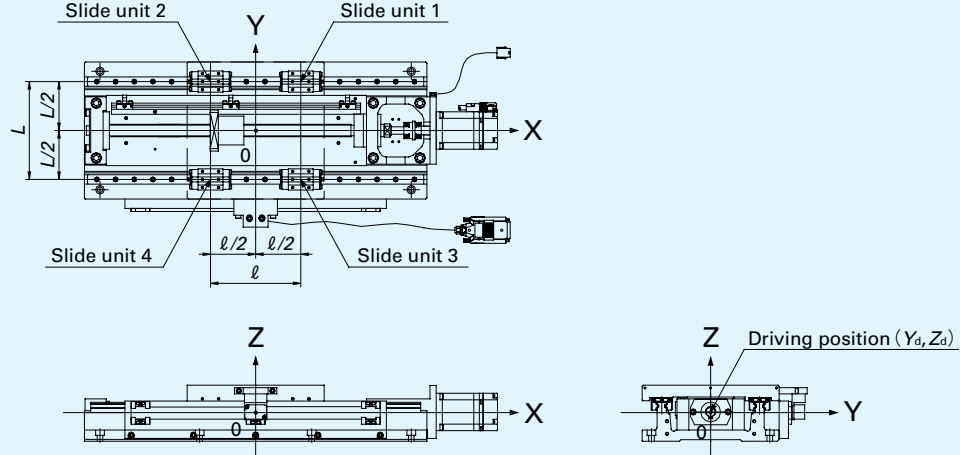
Model	Ball screw lead mm	Height H mm	Length L mm								
			0	100	200	300	400	500	600	800	1000
TX120	5	0	310	94	55	39	30	25	21	16	13
		200	260	92	55	39	30	25	21	16	13
		400	200	87	53	38	30	25	21	16	13
		600	160	80	52	38	30	24	21	16	13
	10	0	180	74	43	30	24	19	16	12	10
		200	150	67	42	30	23	19	16	12	10
400		100	58	39	29	23	19	16	12	9.9	
TX220	5	0	410	260	170	120	97	80	68	53	43
		200	410	260	170	120	97	80	68	53	43
		400	410	250	160	120	96	80	68	53	43
		600	410	230	160	120	95	79	68	53	43
	10	0	270	210	130	96	76	63	53	41	33
		200	270	190	130	95	75	62	53	41	33
400		270	170	120	91	73	61	52	41	33	
TX320	5	0	820	820	620	470	380	320	270	210	180
		200	820	820	620	470	380	320	270	210	180
		400	820	820	610	470	380	320	270	210	180
		600	820	820	600	460	370	320	270	210	180
	10	0	380	380	380	370	300	250	210	170	140
		200	380	380	380	360	290	250	210	170	140
400		380	380	380	350	290	240	210	160	140	
TX420	5	0	800	800	800	660	540	450	390	310	250
		200	800	800	800	650	530	450	390	310	250
		400	800	800	800	650	530	450	390	310	250
		600	800	800	800	640	530	450	390	310	250
	10	0	360	360	360	360	350	310	240	200	200
		200	360	360	360	360	350	300	240	200	200
400		360	360	360	360	350	300	240	200	200	
TX420	10	600	360	360	360	360	340	300	240	200	

Remarks : 1. The above values are obtained by calculating the mass for which the rating life of the ball screw or linear motion rolling guide becomes 18,000 hours when the table is operated continuously at the maximum speed (for each size), and 0.2s each, at acceleration and at deceleration.
2. For CTX, consider load mass for each axis independently.

Specifications for Linear Motion Rolling Guides and Ball Screws

The specifications of linear motion rolling guides and ball screws used in Super Precision Positioning Table TX are shown in Table 10 and 11 as a reference. These load ratings are not applicable for the maximum load on product.

Table 10 Specifications of linear motion rolling guide



Model	Basic dynamic load rating ⁽¹⁾ C N	Basic static load rating ⁽¹⁾ Co N	Locations			
			L mm	l mm	Ya mm	Za mm
TX120	5890	10400	88	82	0	2
TX220	11500	20000	157	145	0	1
TX320	32100	56300	240	210	0	6
TX420	38200	70300	300	290	0	0

Note⁽¹⁾ Values in the table are load ratings for one slide unit.

Remark : For X-Y axis table, load rating of each axis is the same as that of single axis.

Table 11 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 Co N
TX120	Ground type ball screw	5	15	0	7070	12800
		10			7070	12800
TX220	Ground type ball screw	5	20	0	8230	17150
		10			10900	21700
TX320	Ground type ball screw	5	25	0	16700	43500
		10			15800	32700
TX420	Ground type ball screw	5	25	0	16700	43500
		10			15800	32700

Remark : For X-Y axis table, load rating of each axis is the same as that of single axis.

Table Inertia and Starting Torque

Table 12 Table inertia, coupling inertia and starting torque

Mode number	Stroke length mm		Table inertia J_T $\times 10^{-5} \text{kg} \cdot \text{m}^2$		Coupling inertia J_C $\times 10^{-5} \text{kg} \cdot \text{m}^2$	Starting torque T_0 N · m	
	X-axis	Y-axis	Lead 5mm	Lead 10mm			
Single axis	TX120	100		1.3	1.8	0.29	0.07
		150		1.5	2.0		
		200		1.6	2.2		
		250		1.8	2.4		
		300		2.0	2.6		
	TX220	150		5.2	7.0	0.85	0.12
		200		5.8	7.6		
		250		6.4	8.2		
		300		7.1	8.8		
	TX320	300		20	26	0.85	0.26
		400		23	29		
		500		26	32		
TX420	500		30	39	0.85	0.30	
	600		33	42			
	800		39	48			
X-Y axis	CTX120	100	100	2.1	4.7	0.29	0.07
		200	100	2.4	5.1		
		200	200	2.5	5.8		
		300	200	2.9	6.2		
	CTX220	200	200	8.2	16.9	0.85	0.13
		300	200	9.5	18.1		
		300	300	9.8	19.3		
		400	300	11.0	20.5		

Remark : For X-Y axis table, values in the table show of X axis. Values of Y axis are applicable to the single axis in the table.

Sensor Specification

Table 13 Specifications of sensor

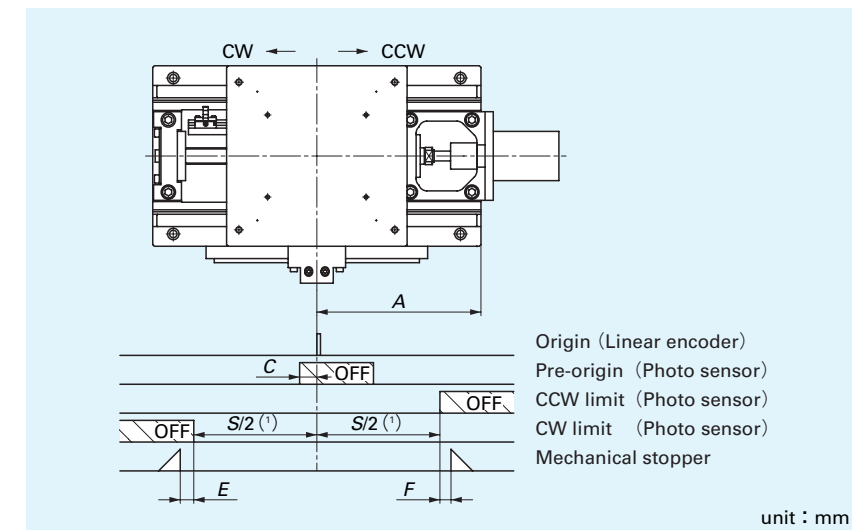
Sensor Item	Pre-origin, CW limit, CCW limit
Type	Photo sensor
Power supply voltage	DC5~24V $\pm 10\%$
Current consumption	15mA or less
Output	Open collector <ul style="list-style-type: none"> Max. current : 50mA Applied voltage : DC30V or less Residual voltage : 0.7V or less at 50mA in-flow current 0.4V or less at 16mA in-flow current
Output operation	When approaching : ON
Operation indicator	Operation indicator LED (red)
Circuit diagram	

Table 14 Specifications of connector

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

Note⁽¹⁾ Opposite-side connector and contactor are not appended.
 Remarks : 1. Connector is made by Tyco Electronics Co., Ltd.
 2. The origin signal of linear encoder from driver can be used as origin point.

Table 15 Sensor timing chart



Model number	Ball screw lead	A	C	E	F
TX120	5	L/2 ⁽¹⁾	3	5.5	4.5
CTX120	10		7		
TX220	5	L/2 ⁽¹⁾	3	14	10
CTX220	10		7		
TX320	5	L/2 ⁽¹⁾	3	20	15
	10		7		
TX420	5	L/2 ⁽¹⁾	3	18	15
	10		7		

Note⁽¹⁾ Refer to dimension tables on page 19 to 22.
 Remark : For X-Y axis table, specification of each axis are the same as those of single axis.

System Configuration

Super Precision Positioning Table TX is operated by highly accurate full-closed-loop control and electric devices (AC servo motor, driver, serial exchange unit, motor code, encoder code and serial exchange unit cord) to each model are designated to achieve best performance. Models of these devices are shown below.

Exclusive controller, pulse and limit codes are prepared by customer.

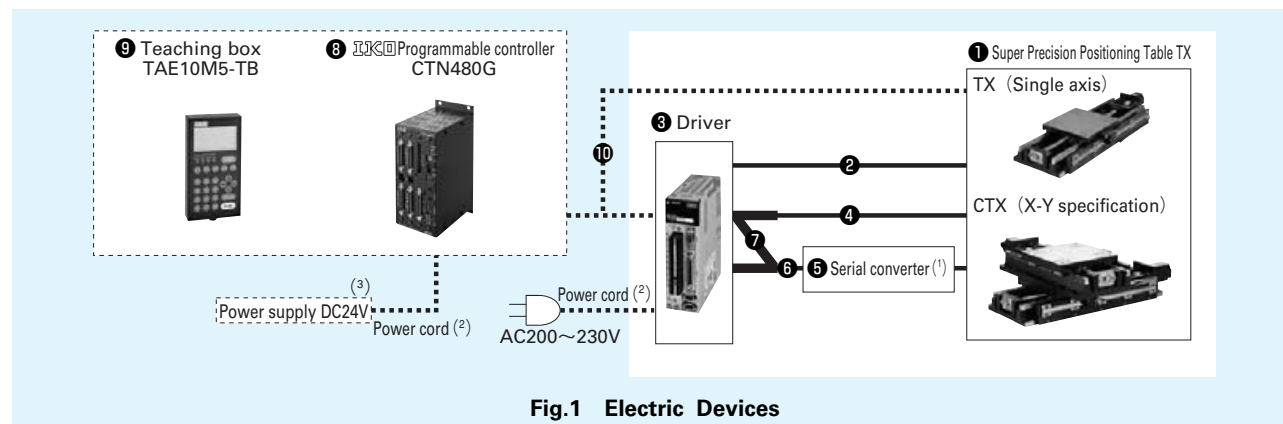


Fig.1 Electric Devices

- 注⁽¹⁾ Serial converter is appended for YASKAWA motor.
 Linear encoder serial converter is appended for Panasonic or Mitsubishi motor.
⁽²⁾ Power code is prepared by customer.
⁽³⁾ DC24V power supply is prepared by customer.

Table 16 Electric devices for the motor of Yaskawa Electric Corporation (Appended)

Items	Model code									
① Super Precision Positioning Table TX	TX120 CTX120		TX220 CTX220		TX320		TX420			
Motor without brake	Motor code	Y039	Y051	Y040	Y052	Y041	Y053	Y042	Y054	
	② Motor cord	JZSP-CSM02-03-E						JZSP-CSM03-03-E		
Motor with brake ⁽¹⁾	Motor code	Y043	Y055	Y044	Y056	Y045	Y057	Y046	Y058	
	② Motor cord	JZSP-CSM12-03-E						JZSP-CSM13-03-E		
③ Driver	SGDS -02A02A-E	SGDV-1R6A01A -000000001	SGDS -04A02A-E	SGDV-2R8A01A -000000001	SGDS -08A02A-E	SGDV-3R8A01A -000000001	SGDS -08A02A-E	SGDV-5R5A01A -000000001		
④ Encoder cord	JZSP-CSP01-03-E									
⑤ Serial converter	JZDP-D003-000-E									
⑥ Serial converter cord	JZSP-CLP70-03-E									
⑦ Power supply cord for encoder	Not appended ⁽²⁾									

- Note⁽¹⁾ For "with brake model", power supply for brake release is needed.
⁽²⁾ Separation cord for encoder power supply is required when Panasonic motor is selected.
 Remarks : 1. For CTX (X-Y stage), two sets of driver and serial converter are appended.
 2. The length of motor cord, encoder cord and serial converter cord are 3m each.
 3. For "with brake model" in X-Y axis table, brake is applicable to Y axis only.
 Example : If Y043 is selected, X-axis has Y039 and Y-axis has Y043.

Table 17 Electric devices for the motor of Yaskawa Electric Corporation with IKO programmable controller CTN480G (Separate purchase required)

Items	Model code
⑧ Programmable controller	CTN480G
⑨ Teaching box	TAE10M5-TB
⑩ Pulse and 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.
 4. For X-Y axis table, two pieces each of pulse and limit cord are necessary.

Table 18 Electric devices for the motor of Panasonic Corporation (Appended)

Items	Model code			
① Super Precision Positioning Table TX	TX120 CTX120	TX220 CTX220	TX320	TX420
Motor without brake	Motor code	P013	P014	P015
	② Motor cord	MFMCA0032EED		
Motor with brake ⁽¹⁾	Motor code	P018	P019	P020
	② Motor cord	MFMCA0032EED		
	brake cord ⁽²⁾	MFMCB0030GET		
③ Driver	MADDT1207F	MBDDT2210F	MBDDT3520F	
④ Encoder cord	MFECA0030EAD			
⑤ Linear encoder serial converter ⁽³⁾	APE371(TTLX10) or APE371(TTLX50)			
⑥ Linear encoder cord	Special cord by IKO ⁽⁴⁾			
⑦ Power supply cord for encoder	Special cord by IKO ⁽⁵⁾			

- Note⁽¹⁾ For "with brake model", power supply for brake release is needed.
⁽²⁾ For "with brake model", brake cord is appended.
⁽³⁾ Selectable resolution is according to the type of linear encoder serial converter. See page 6.
⁽⁴⁾ Model number : TAE20T4-EC03
⁽⁵⁾ Model number : TAE20T3-EC

- Remarks : 1. For CTX (X-Y stage), two sets of driver and serial converter are appended.
 2. The length of motor cord, encoder cord and serial converter cord are 3m each.
 3. The length of power supply cord for linear encoder is 0.2m.
 4. For "with brake model" in X-Y axis table, brake is applicable to Y axis only.
 Example : If P018 is selected, X-axis has P013 and Y-axis has P018.

Table 19 Electric devices for the motor of Panasonic Corporation with IKO programmable controller CTN480G (Separate purchase required)

Items	Model code
⑧ Programmable controller	CTN480G
⑨ Teaching box	TAE10M5-TB
⑩ Pulse and 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.
 4. For X-Y axis table, two pieces each of pulse and limit cord are necessary.

System Configuration

Table 20 Electric devices for the motor of Mitsubishi Electric Corporation (Appnded)

Items		Model code			
① Super Precision Positioning Table TX		TX120 CTX120	TX220 CTX220	TX320	TX420
Motor without brake	Motor code	J013	J014		J015
	② Motor cord	MR-PWS1CBL2M-A1-L			
Motor with brake ⁽¹⁾	Motor code	J018	J019		J020
	② Motor cord	MR-PWS1CBL2M-A1-L			
	③ brake cord ⁽²⁾	MR-BKS1CBL2M-A1-L			
③ Driver		MR-J3-20A-KE005	MR-J3-40A-KE005	MR-J3-70A-KE005	
④ Encoder cord		MR-J3ENCBL2M-A1-L			
⑤ Linear encoder serial converter ⁽³⁾		APE371(TTLX10) or APE371(TTLX50)			
⑥ Linear encoder cord		Special cord by IIO ⁽⁴⁾			
⑦ Power supply cord for encoder		Not appended ⁽⁵⁾			

Note⁽¹⁾ For "with brake model", power supply for brake release is needed.
⁽²⁾ For "with brake model", brake cord is appended.
⁽³⁾ Selectable resolution is according to the type of linear encoder serial converter. See page 6.
⁽⁴⁾ Model number : TAE20T4-EC03
⁽⁵⁾ Separation cord for encoder power supply is required when Panasonic motor is selected.
Remarks : 1. For CTX (X-Y stage), two sets of driver and serial converter are appended.
2. The length of motor cord, encoder cord and serial converter cord are 2m each.
3. The length of linear encoder cord is 3m.
4. For "with brake model" in X-Y axis table, brake is applicable to Y axis only.
Example : If J018 is selected, X-axis has J013 and Y-axis has J018.

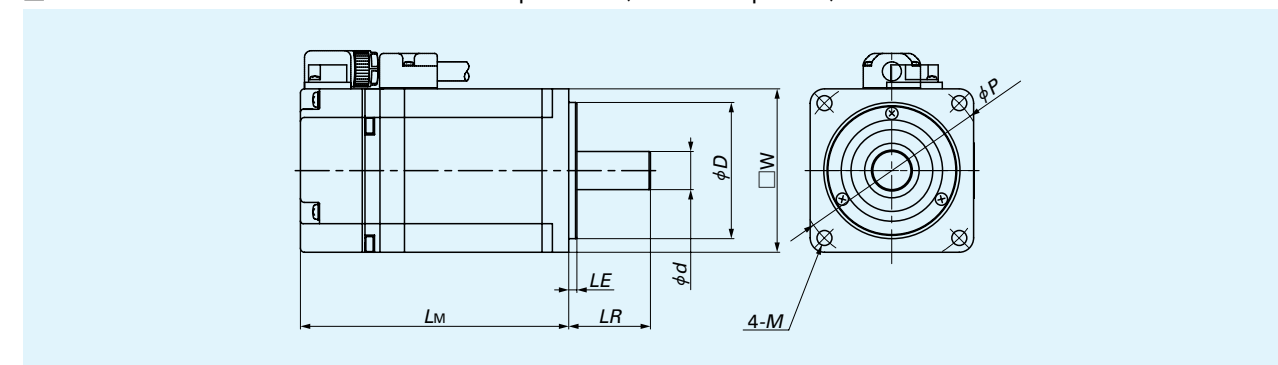
Table 21 Electric devices for the motor of Mitsubishi Electric Corporation with IIO programmable controller CTN480G (Separate purchase required)

Items	Model code
⑧ Programmable controller	CTN480G
⑨ Teaching box	TAE10M5-TB
⑩ Pulse and 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: TAE10V2-LD03)
3. The length of pulse and limit cord is 1.5m.
4. For X-Y axis table, two pieces each of pulse and limit cord are necessary.

Specifications of Motor and Driver

■ Motor and Driver of Yaskawa Electric Corporation (RoHS compliance)



Motor specifications

Motor code	Motor 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
Y039	SGMAS-02ACA21-E	200	200	0.637	1.91	3000	0.116	Incremental 17bits (131072pulse/rev)	0.9
Y040	SGMAS-04ACA21-E		400	1.27	3.82		0.190		1.2
Y041	SGMAS-06ACA21-E		600	1.91	5.73		0.326		1.7
Y042	SGMAS-08ACA21-E		750	2.39	7.16		0.769		2.5
Y043	SGMAS-02ACA2C-E		200	0.637	1.91		0.180		1.5
Y044	SGMAS-04ACA2C-E		400	1.27	3.82		0.254		1.8
Y045	SGMAS-06ACA2C-E		600	1.91	5.73		0.390		2.4
Y046	SGMAS-08ACA2C-E		750	2.39	7.16		0.940		3.2
Y051	SGMAV-02A3A21		200	0.637	1.91		0.116	Common for incremental and absolute 20bits (1048576pulse/rev)	0.9
Y052	SGMAV-04A3A21		400	1.27	3.82		0.190		1.2
Y053	SGMAV-06A3A21		550	1.75	5.25		0.326		1.7
Y054	SGMAV-08A3A21		750	2.39	7.16		0.769		2.3
Y055	SGMAV-02A3A2C		200	0.637	1.91		0.180		1.5
Y056	SGMAV-04A3A2C		400	1.27	3.82		0.254		1.8
Y057	SGMAV-06A3A2C		550	1.75	5.25		0.390		2.4
Y058	SGMAV-08A3A2C		750	2.39	7.16		0.940		3.2

Motor mounting dimension

unit : mm

Motor code	□W×LM	LR	LE	d	D	P	M
Y039	60× 80	30	3	14	50	70	φ 5.5
Y040	60× 98.5	30	3	14	50	70	φ 5.5
Y041	60×124.5	30	3	14	50	70	φ 5.5
Y042	80×115	40	3	16	70	90	φ 7
Y043	60×120	30	3	14	50	70	φ 5.5
Y044	60×138.5	30	3	14	50	70	φ 5.5
Y045	60×172	30	3	14	50	70	φ 5.5
Y046	80×160	40	3	16	70	90	φ 7
Y051	60× 80	30	3	14	50	70	φ 5.5
Y052	60× 98.5	30	3	14	50	70	φ 5.5
Y053	60×124.5	30	3	14	50	70	φ 5.5
Y054	80×115	40	3	16	70	90	φ 7
Y055	60×120	30	3	14	50	70	φ 5.5
Y056	60×138.5	30	3	14	50	70	φ 5.5
Y057	60×170.5	30	3	14	50	70	φ 5.5
Y058	80×160	40	3	19	70	90	φ 7

Specifications of Motor and Driver

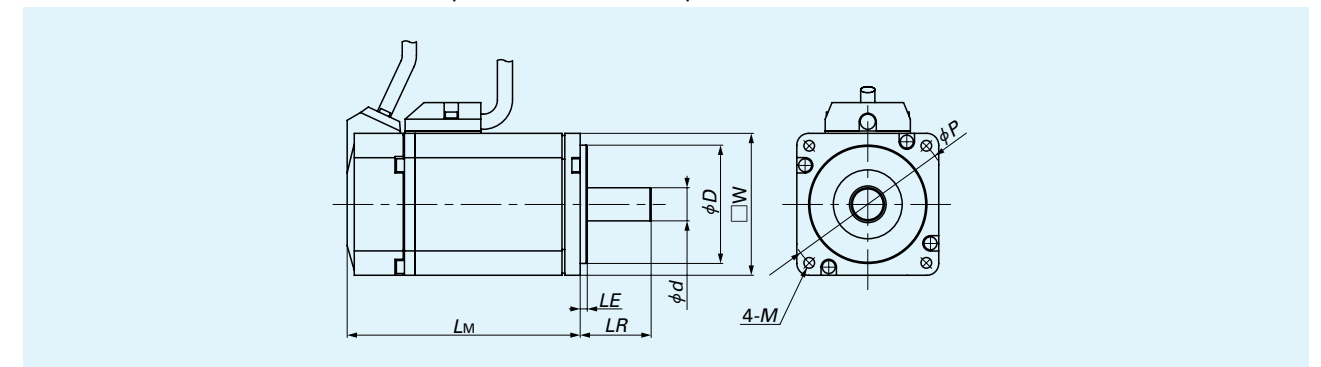
Driver specifications

Model code of driver		SGDS-02A02A-E	SGDS-04A02A-E	SGDS-08A02A-E	
Item					
Applicable motor code		Y039 · Y043	Y040 · Y044	Y041 · Y045	Y042 · Y046
Rated output		200W	400W	600W	750W
Feed back	Servo motor	Serial encoder			
	Linear encoder				
Command input pulse	Selection one from Symbol with pulse line, CCW or CW with pulse line, two phases pulse with 90-degree difference (A-phases or B-phases).				
Type of command input pulse	Line driver				
Capability of command input speed	1Mpps				
Main power supply voltage	Single phase AC200~230V -15~10% 50/60Hz				
Control circuit supply voltage	Single phase AC200~230V -15~10% 50/60Hz				
Continuous rated current Arms		2.1	2.8	5.5	
Maximum consumption current Arms		6.5	8.5	16.9	
Ambient temperature in operation	0~55°C				
Ambient temperature in storage	-20~85°C				
Ambient temperature in operation and storage	90%RH or less (Keep dewdrop free)				
Mass (Ref.) kg		0.7	0.9	1.4	

Driver specifications

Model code of driver		SGDV-1R6A01A -000000001	SGDV-2R8A01A -000000001	SGDV-3R8A01A -000000001	SGDV-5R5A01A -000000001
Item					
Applicable motor code		Y051 · Y055	Y052 · Y056	Y053 · Y057	Y054 · Y058
Rated output		200W	400W	550W	750W
Feed back	Servo motor	Serial encoder			
	Linear encoder				
Command input pulse	Selection one from Symbol with pulse line, CCW or CW with pulse line, two phases pulse with 90-degree difference (A-phases or B-phases).				
Type of command input pulse	Line driver · Open collector				
Capability of command input speed	Line driver : 4Mpps Open collector : 200kpps				
Main power supply voltage	Three phases AC200~230V -15~10% 50/60Hz				
Control circuit supply voltage	Three phases AC200~230V -15~10% 50/60Hz				
Continuous rated current Arms		1.6	2.8	3.8	5.5
Maximum consumption current Arms		6.5	9.3	11.0	16.9
Ambient temperature in operation	0~55°C				
Ambient temperature in storage	-20~85°C				
Ambient temperature in operation and storage	90%RH or less (Keep dewdrop free)				
Mass (Ref.) kg		0.9	1.0	1.5	1.5

Motor and Driver of Panasonic Corporation (RoHS compliance)



Motor specifications

Motor code	Motor 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
P013	MSMD022S1A	200	200	0.64	1.91	3000	0.14	Common for incremental and absolute 17bits (131072pulse/rev)	0.82
P014	MSMD042S1A		400	1.3	3.8		0.26		1.2
P015	MSMD082S1A		750	2.4	7.1		0.87		2.3
P018	MSMD022S1B		200	0.64	1.91		0.16		1.3
P019	MSMD042S1B		400	1.3	3.8		0.28		1.7
P020	MSMD082S1B		750	2.4	7.1		0.97		3.1

Motor mounting dimension

unit : mm

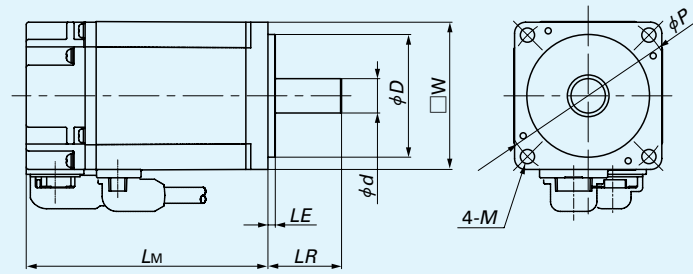
Motor code	$\square W \times L_M$	LR	LE	d	D	P	M
P013	60 × 79	30	3	11	50	70	φ 4.5
P014	60 × 98.5	30	3	14	50	70	φ 4.5
P015	60 × 112	35	3	19	70	90	φ 6
P018	60 × 115.5	30	3	11	50	70	φ 4.5
P019	60 × 135	30	3	14	50	70	φ 4.5
P020	60 × 149	35	3	19	70	90	φ 6

Driver specifications

Model code of driver		MADDT1207F	MBDDT2210F	MBDDT3520F
Item				
Applicable motor code		P013, P018	P014, P019	P015, P020
Rated output		200W	400W	750W
Feed back	Servomotor	Serial encoder		
	Linear encoder			
Command input pulse	Selection one from Symbol with pulse line, CCW or CW with pulse line, two phases pulse with 90-degree difference (A-phases or B-phases).			
Type of command input pulse	Line driver			
Capability of command input speed	4Mpps			
Main power supply voltage	Single phase AC200~240V -15~10% 50/60Hz			Single phase/Three phases AC200~240V -15~10% 50/60Hz
Continuous rated current Arms		1.6	2.6	4.0
Maximum consumption current Arms		6.9	11.0	17.0
Control circuit supply voltage	Single phase AC200~240V -15~10% 50/60Hz			
Ambient temperature in operation	0~55°C (Keep freeze free)			
Ambient temperature in storage	-20~65°C (Keep freeze free)			
Ambient temperature in operation and storage	90%RH or less (Keep dewdrop free)			
Mass (Ref.) kg		0.8	1.1	1.5

Caution in Use

Motor and Driver of Mitsubishi Electric Corporation (RoHS compliance)



Motor specifications

Motor code	Motor 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
J013	HF-KP23	200	200	0.64	1.9	3000	0.24	Common for incremental and absolute 18bits (262144pulse/rev)	0.94
J014	HF-KP43		400	1.3	3.8		0.42		1.5
J015	HF-KP73		750	2.4	7.2		1.43		2.9
J018	HF-KP23B		200	0.64	1.91		0.31		1.6
J019	HF-KP43B		400	1.3	3.8		0.5		2.1
J020	HF-KP73B		750	2.4	7.2		1.63		3.9

Motor mounting dimension

unit : mm

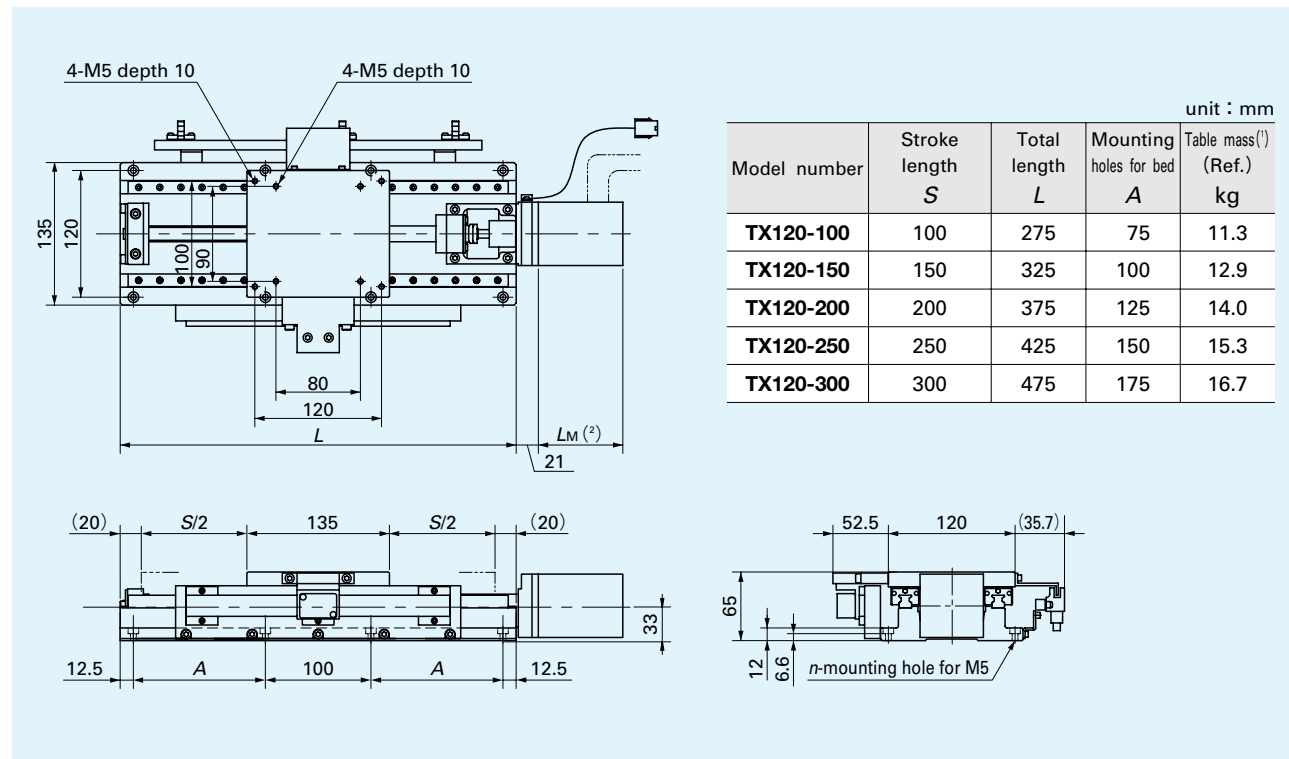
Motor code	$\square W \times L_M$	LR	LE	d	D	P	M
J013	60 × 76.6	30	3	14	50	70	$\phi 5.8$
J014	60 × 98.5	30	3	14	50	70	$\phi 5.8$
J015	60 × 112	40	3	19	70	90	$\phi 6.6$
J018	60 × 116.1	30	3	14	50	70	$\phi 5.8$
J019	60 × 135	30	3	14	50	70	$\phi 5.8$
J020	60 × 149	40	3	19	70	90	$\phi 6.6$

Driver specifications

Item	Model code of driver		
	MR-J3-20A-KE005	MR-J3-40A-KE005	MR-J3-70A-KE005
Applicable motor code	J013、J018	J014、J019	J015、J020
Rated output	200W	400W	750W
Feed back	Servomotor		
	Linear encoder		
Command input pulse	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 (A-phases or B-phases).		
Type of command input pulse	Line driver · Open collector		
Capability of command input speed	Line driver : 4Mpps Open collector : 200kpps		
Main power supply voltage	Single phase/Three phases AC200~230V -15~10% 50/60Hz		
Control circuit supply voltage	Single phase AC200~230V -15~10% 50/60Hz		
Continuous rated current Arms	1.4	2.7	5.2
Maximum consumption current Arms	4.2	8.1	15.6
Ambient temperature in operation	0~55°C (Keep freeze free)		
Ambient temperature in storage	-20~65°C (Keep freeze free)		
Ambient temperature in operation and storage	90%RH or less (Keep dewdrop free)		
Mass (Ref.) kg	0.8	1.0	1.4

- Super Precision Positioning Table TX is a precision equipment. A careful handling is strongly required. Do not apply any excessive force or heavy shock.
- Make sure the mounting surfaces to be free from dirt and harmful foreign objects.
- Good flatness is required for mounting surfaces to assure positioning accuracy. 8 μ m or better is recommended.
- Grease is applied to the linear motion rolling guide and ball screw at delivery. Dust preventive cover is required to protect the inside of table from foreign particles or dusts. In case foreign particles or dusts enter into the table, intensive cleaning and re-greasing are necessary.
- The re-lubrication interval varies depending on the operating conditions of the table. A six month interval is generally recommended. If the table operation consists of reciprocating motions with many cycles and long strokes, re-lubrication in every three months with replacing old grease is recommended.
- Super Precision Positioning Table TX is machined, assembled and adjusted very precisely. Therefore, never disassemble or modify the table.
- Linear encoder is made of glass. Great care is necessary not to apply load and/or shock to it.
- Please make sure that surface of linear scale must be kept clean by ethyl alcohol or alternative cleaning solution, otherwise, malfunction or irregular operation may happen. In the application of dusty environment, dust protective cover for linear encoder is recommended.

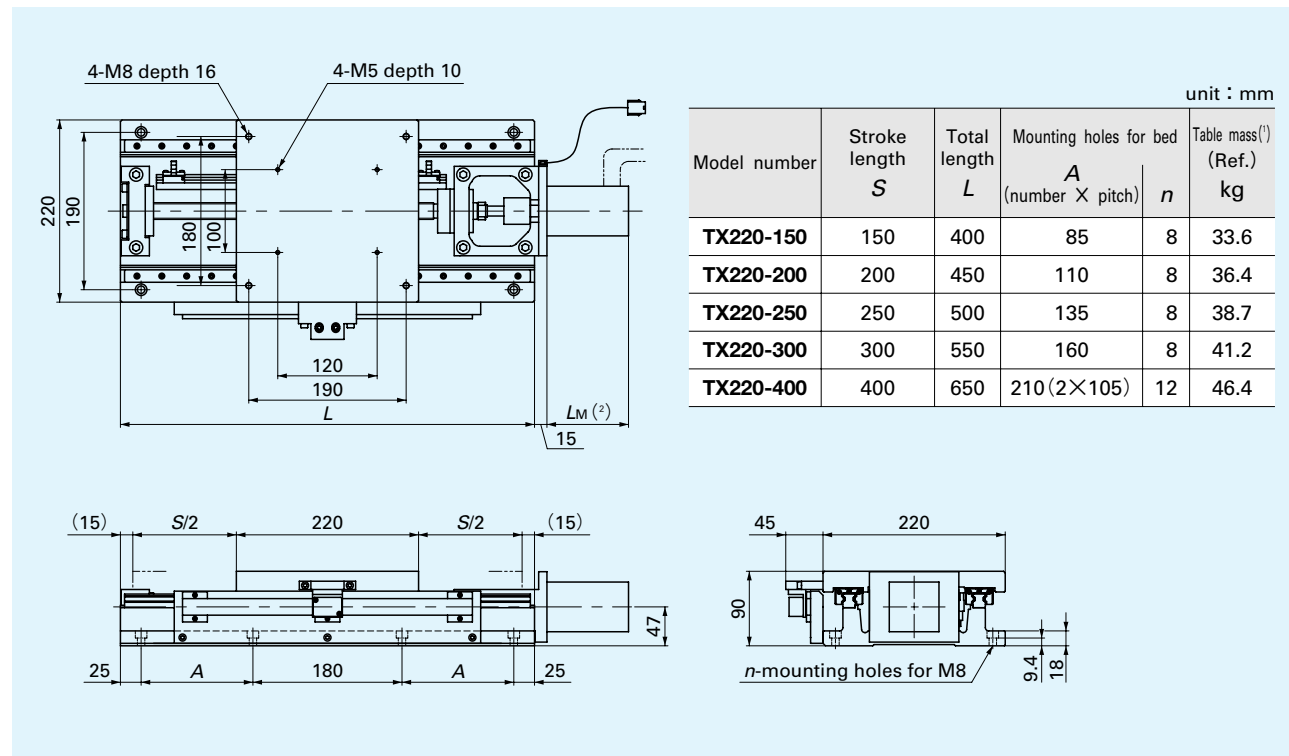
TX120



Note⁽¹⁾ : Motor weight is not included.

(?) : Refer "specifications of Motor and Driver" on page 14 to 17.

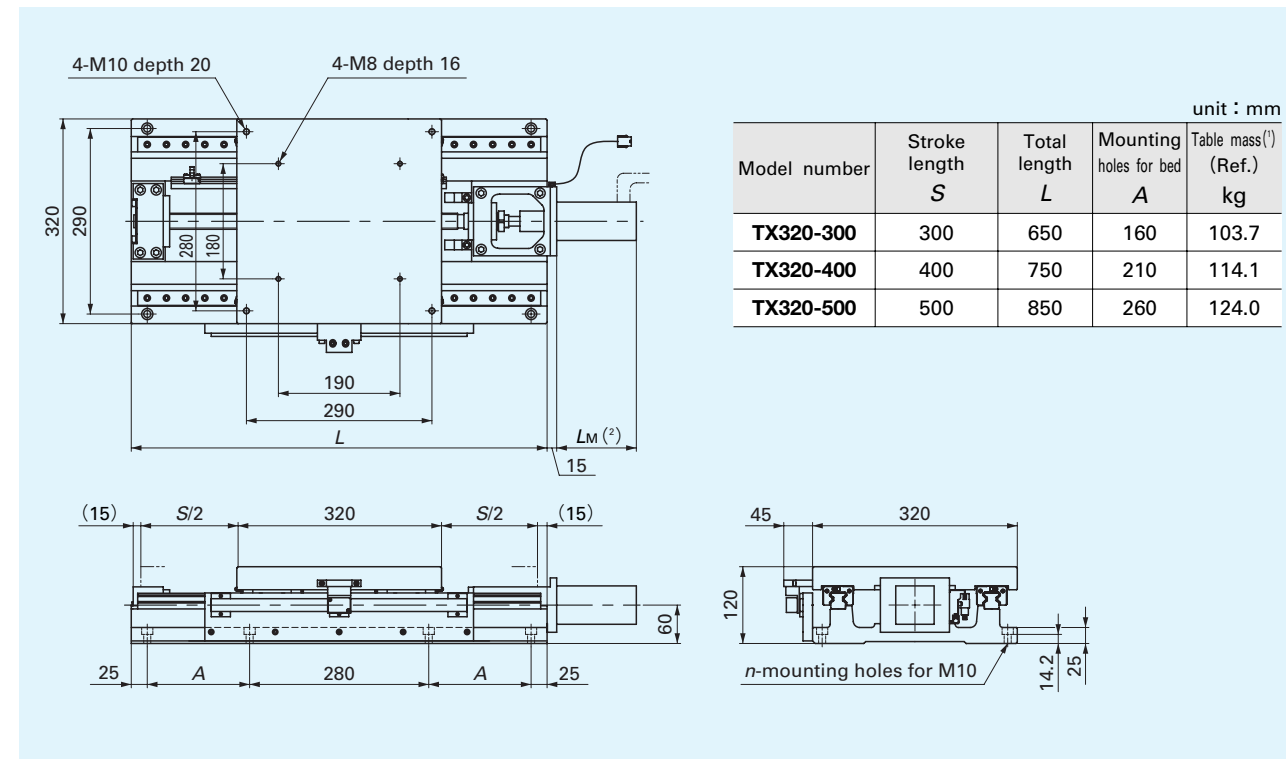
TX220



Note⁽¹⁾ : Motor weight is not included.

(?) : Refer "specifications of Motor and Driver" on page 14 to 17.

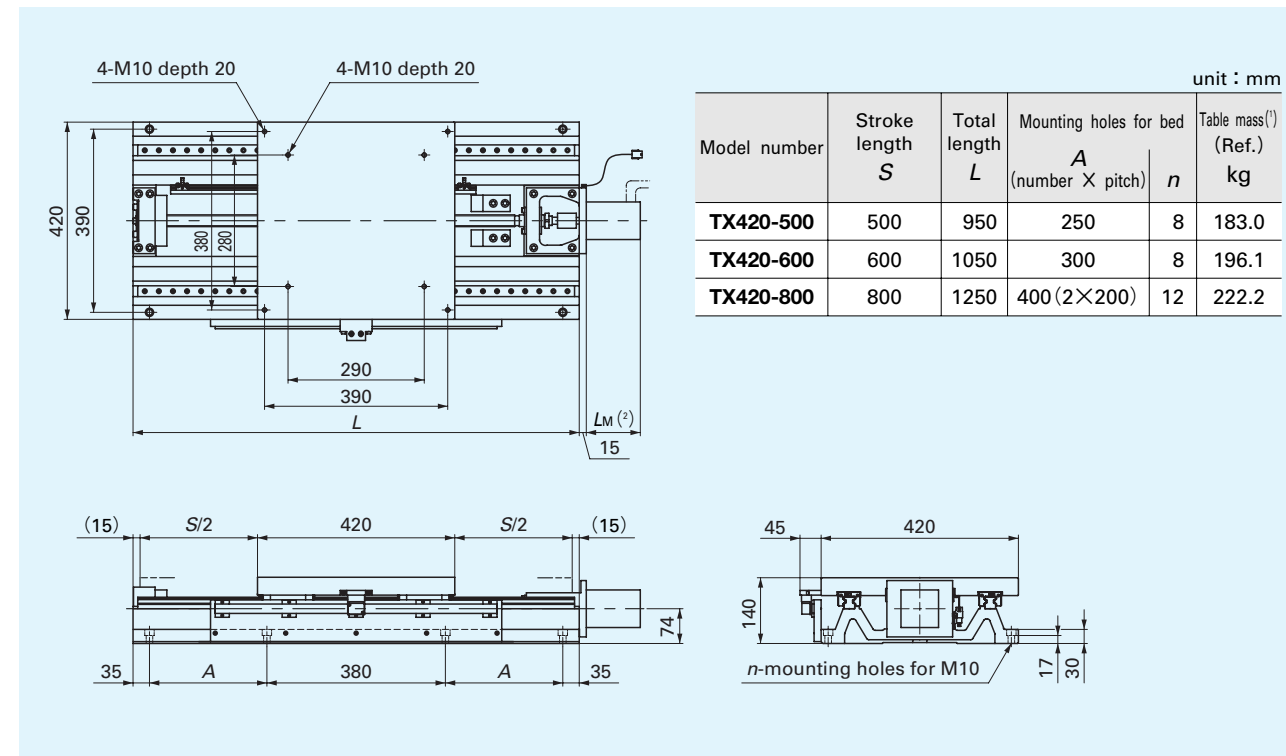
TX320



Note⁽¹⁾ : Motor weight is not included.

(?) : Refer "specifications of Motor and Driver" on page 14 to 17.

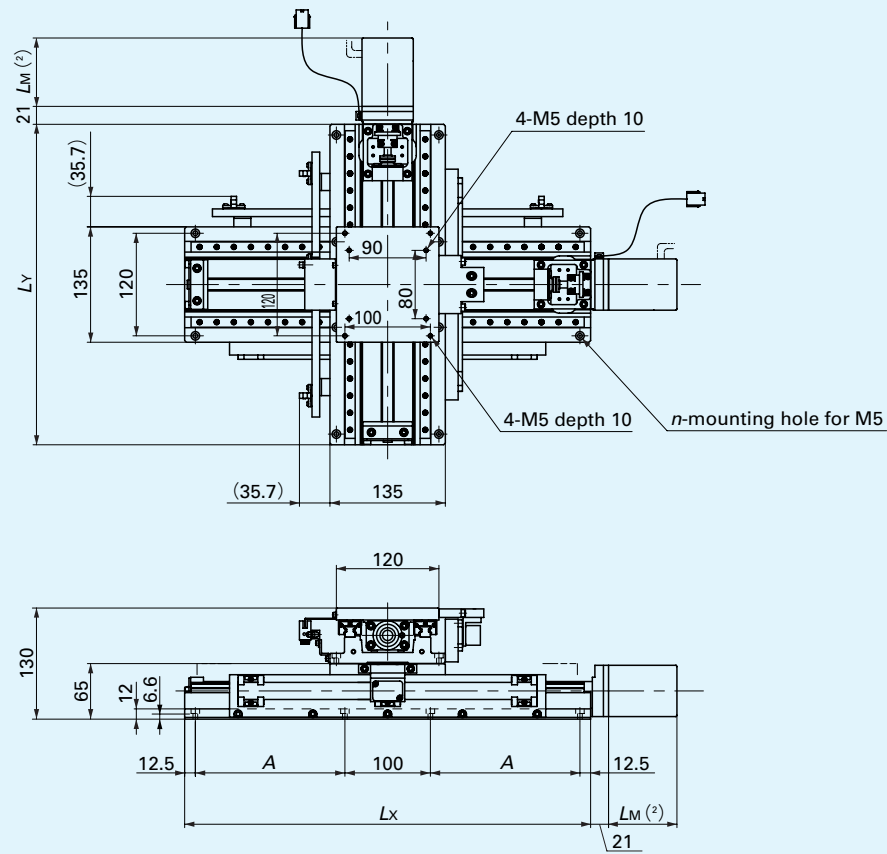
TX420



Note⁽¹⁾ : Motor weight is not included.

(?) : Refer "specifications of Motor and Driver" on page 14 to 17.

CTX120



unit : mm

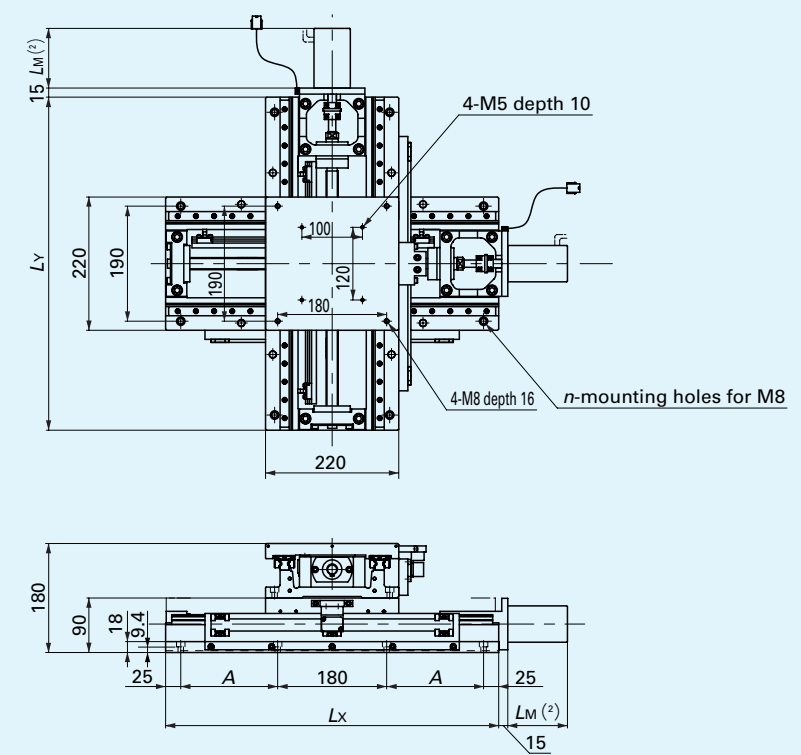
Model number	Stroke length <i>S</i>		Total length		Mounting holes for bed <i>A</i>	Table mass ⁽²⁾ (Ref.) kg
	X-axis	Y-axis	<i>L_x</i>	<i>L_y</i>		
CTX120-1010	100	100	275	275	75	22.6
CTX120-2010	200	100	375	275	125	25.3
CTX120-2020	200	200	375	375	125	28.0
CTX120-3020	300	200	475	375	175	30.7

Note⁽¹⁾ : Motor weight is not included.

⁽²⁾ : Refer "specifications of Motor and Driver" on page 14 to 17.

Remark : Different stroke lengths, combination of different table sizes and tables with plastic cable carrier can be available. Consult .

CTX220



unit : mm

Model number	Stroke length <i>S</i>		Total length		Mounting holes for bed		Table mass ⁽²⁾ (Ref.) kg
	X-axis	Y-axis	<i>L_x</i>	<i>L_y</i>	<i>A</i> (number X pitch)	<i>n</i>	
CTX220-2020	200	200	450	450	110	8	72.8
CTX220-3020	300	200	550	450	160	8	77.6
CTX220-3030	300	300	550	550	160	8	82.4
CTX220-4030	400	300	650	550	210 (2X105)	12	87.6

Note⁽¹⁾ : Motor weight is not included.

⁽²⁾ : Refer "specifications of Motor and Driver" on page 14 to 17.

Remark : Different stroke lengths, combination of different table sizes and tables with plastic cable carrier can be available. Consult .

The Roller Effect Monster

IKO Linear Roller Way Super X

LRX

IKO

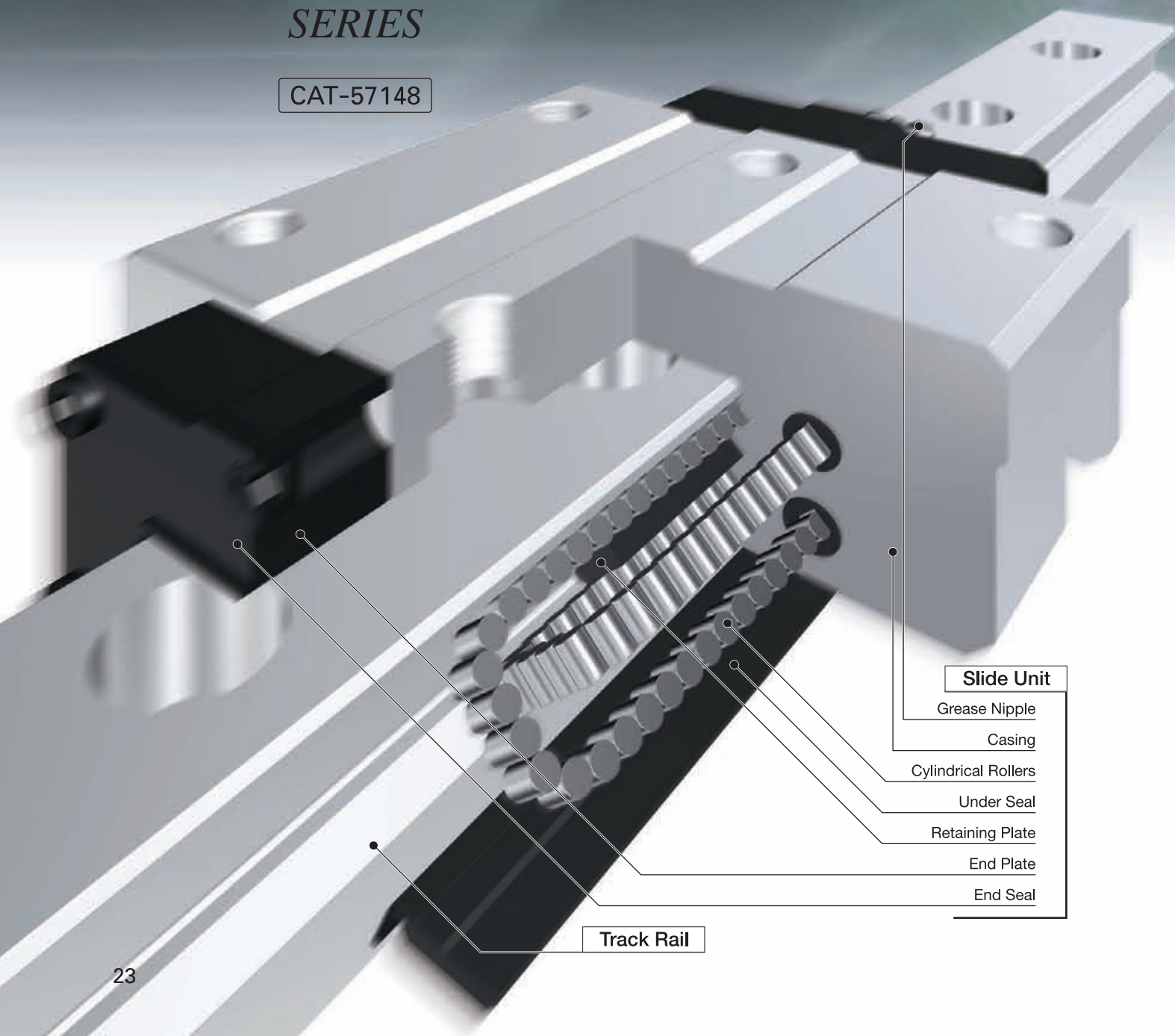
Linear Roller Way

SUPER X

SERIES

CAT-57148

In **IKO** Linear Roller Way Super X, four rows of cylindrical rollers are incorporated in a highly rigid casing with good balance, and the cylindrical rollers in each row are arranged in parallel to each other. Owing to its small elastic deformation, stable operation is ensured even under heavy or fluctuating loads. Smooth and quiet motion, high reliability, high rigidity and high running accuracy are realized.



Slide Unit

Grease Nipple

Casing

Cylindrical Rollers

Under Seal

Retaining Plate

End Plate

End Seal

Track Rail

High Rigidity

Superior Damping Characteristic

Well-balanced Structure

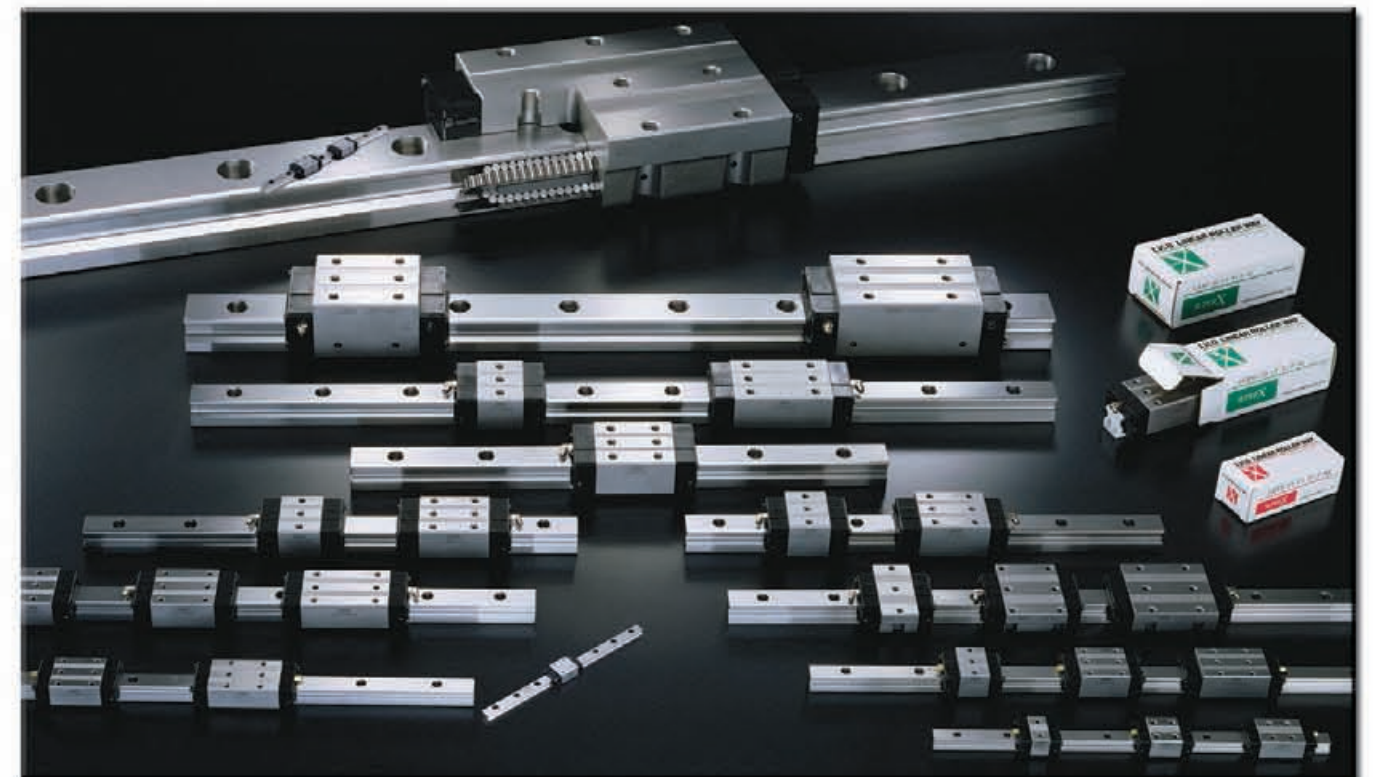
The Super X interchangeable series brings to you the "Six Roller Effects", whenever and wherever they are required to give higher potentials for your application.

High Load Capacity

Long Life and High Accuracy

Smooth and Quiet Motion

In high rigidity and high load capacity **IKO** Linear Roller Way Super X series, the smallest size **LRX 10** is newly introduced covering a full range of variation. Nine types are now available in various sizes with track rail width ranging from 10mm to 100mm. Interchangeable, stainless steel made and nineteen kinds of special options are also available.



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registration certificate**

