IKO

Precision Positioning Table
TU Series

CAT-5795C

U.S. PATENTED

ISO 14001 Certified

New concept

U-shaped track rail

Large increase in rigidity and stable high accuracy have been realized !

IKO

Precision Positioning Table

TU

For saving in
re-lubricant cost and man-hour !

With Capillary plate™ newly introduced !

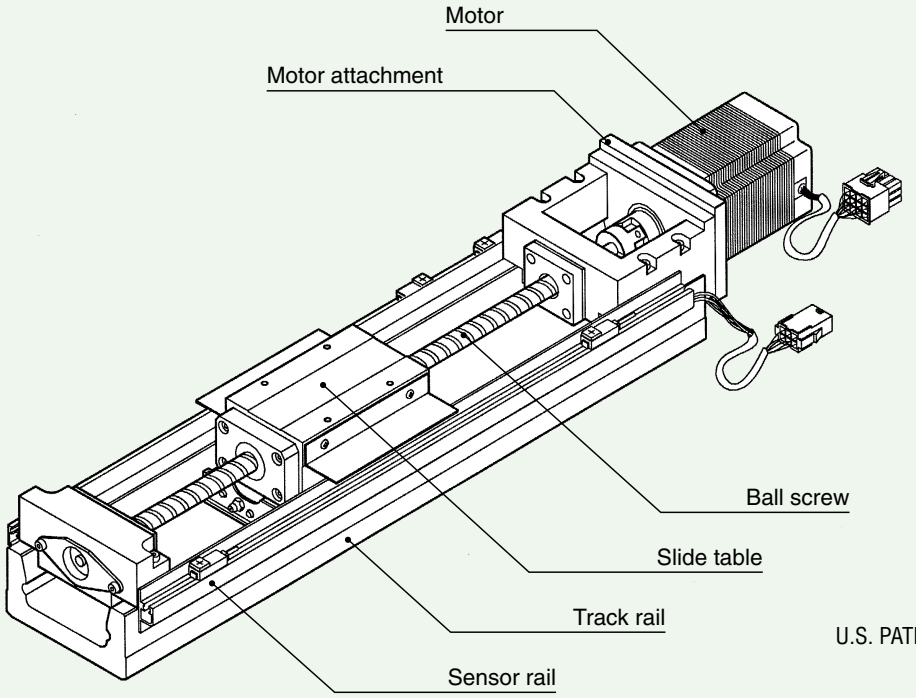
Applicable for all types

IKO Precision Positioning Table
TU

IKO Precision Table TU is a compact and slim type positioning table with a slide table assembled inside a U-shaped track rail.
The slide table is an integral part of a linear motion rolling guide mechanism, in which large diameter steel balls are arranged in two rows and make four-point contact with the raceways. Stable high accuracy and rigidity can thus be obtained even under loads fluctuating in direction and magnitude or complex loads. Also, by adopting a U-shaped structure, the rigidity of the track rail under moment load and torsion is greatly increased.
IKO Precision Positioning Table TU comes in six sizes, with a track rail width ranging from 40 mm to 130 mm. For each of them, slide tables with different lengths are available. Also, the type and lead of ball screw, motor type, sensor installation specifications, etc. can be selected to obtain the optimal positioning table for each specific application.

Precision Positioning Table with Capillary plate
Applicable for all rail width types !

40・50・60・86・100・130 mm



U.S. PATENT No. 6,176,617
No. 6,082,899
No. 5,967,667

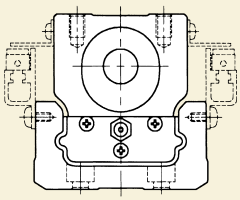
Structure of Precision Positioning Table TU

Ordering is very simple.

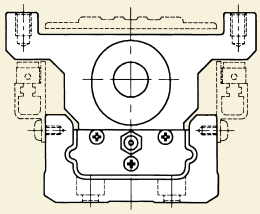
Just specify the identification number for the required functions and performance.

Slide table types and lengths

Slide tables with three different lengths, namely, short, standard, and long, are available with the same sectional shape. A bridge cover or XY bracket can be attached to the flanged table.



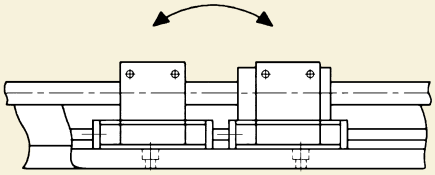
Short, Standard, and Long



Flanged

Number of slide tables

Two slide tables can be mounted on a track rail in applications where the magnitude of applied load and/or moment is large.



Motor types

Either stepping motor or AC servo motor can be selected. A motor with brake can also be specified for a vertical shaft application.

Ball screw types and leads

Either rolled screw or ground screw can be selected according to the accuracy requirement. The ball screw lead can also be specified. A table without ball screw can be used as a follower table of a set of two parallel positioning tables.

Sensor installation specifications

Various sensors including over-run sensors and origin sensors are available for installation.

Motor folding back type

Motor folding back type tables are effective in space-saving because the overall length of the table can be shortened.

Table with bridge cover

A bridge cover can be attached to the flanged tables.

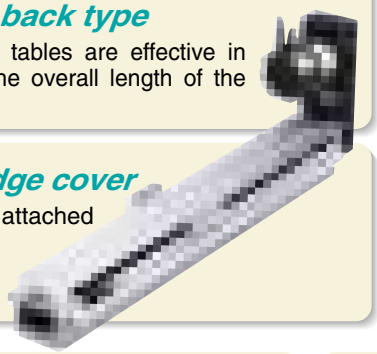
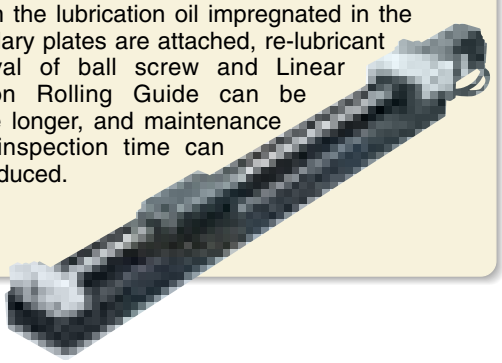


Table with bellows

A series of tables with bellows is available for preventing foreign matters from intruding into the table.

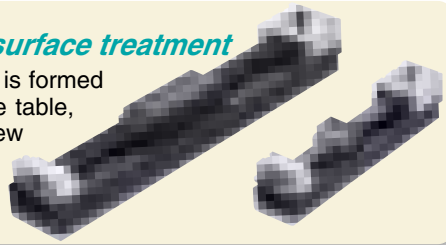
Precision Positioning Table with Capillary plate

When the lubrication oil impregnated in the Capillary plates are attached, re-lubricant interval of ball screw and Linear Motion Rolling Guide can be made longer, and maintenance and inspection time can be reduced.



Black chrome surface treatment

A black permeable film is formed on the surfaces of slide table, track rail, and ball screw to improve corrosion resistance.

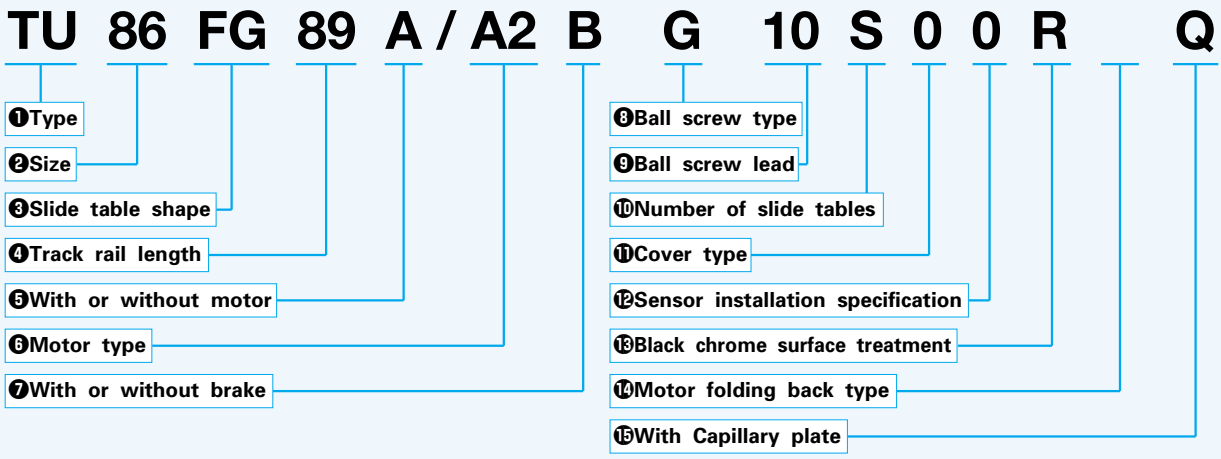


XY bracket

A series of XY brackets is prepared. The XY brackets can be used for assembling XY tables in any desired configuration.

Identification Number

Example of identification number



❶Type	TU : Precision Positioning Table TU

❷Size	40 : Track rail width 40 mm、 50 : Track rail width 50mm 60 : Track rail width 60 mm、 86 : Track rail width 86mm 100 : Track rail width 99.5mm、130 : Track rail width 130mm

❸Slide table shape	C : Short table (applicable to sizes 40, 50, 60, and 86) S : Standard table G : Long table (applicable to sizes 40, 50, 60, and 86) FC : Flanged short table (applicable to sizes 60, and 86) F : Flanged standard table FG : Flanged long table (applicable to sizes 60, and 86)

❹Track rail length	Track rail lengths shown in Table 1 can be selected.

Track rail length is indicated in cm. Values in mm are rounded off.
(Example : If the track rail is 344mm long, the designation is 34.)

Table 1 Track rail length

Without motor folding back												Motor folding back type							
TU40		TU50		TU60		TU86		TU100		TU130		TU40		TU50		TU60		TU86	
Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm	Desig-nation	Length mm
18	180	22	220	29	290	49	490	101	1010	101	1010	14	140	18	180	24	244	44	442
24	240	30	300	39	390	59	590	116	1160	116	1160	20	200	26	260	34	344	54	542
30	300	38	380	49	490	69	690	131	1310	131	1310	26	260	34	340	44	444	64	642
36	360	46	460	59	590	79	790	146	1460	146	1460	32	320	42	420	54	544	74	742
42	420	54	540	69	690	89	890	—	—	161	1610	38	380	50	500	64	644	84	842
—	—	62	620	79	790	99	990	—	—	—	—	—	—	58	580	74	744	94	942
—	—	70	700	—	—	109	1090	—	—	—	—	—	—	66	660	—	—	104	1042
—	—	—	—	—	—	119	1190	—	—	—	—	—	—	—	—	—	—	114	1142

❺With or without motor	No symbol : without motor A : with motor

If the customer provides a motor, specify “without motor” (no symbol).

❻Motor type	Specify a motor code indicated in Table 2.

When "without motor" (no symbol) is selected in item ❺ and a motor code is specified in item ❻, the motor attachment and coupling prepared for the specified motor will be attached. If the motor attachment and coupling are not required, indicate "no symbol".

Table 2 Motor (attachment) type and motor code

Motor type	TU40	TU50	TU60	TU86	TU100	TU130
AC servo motor	A5、M5	A5、M5	A1、M1	A2、M2	AA4、MA4	AA8、MA8
Stepping motor	K3	K3	K6	K6	K8	K8

Remark : See Motor Specifications on page 13.

❼With or without brake	No symbol : without brake B : with brake

If a motor with brake is required, specify "with brake" (code B).

❽Ball screw type	No symbol : rolled screw (applicable to sizes 60 and 86) G : ground screw N : without ball screw

The table without ball screw (code N) can be used as a follower table in a set of two parallel positioning tables. When "without ball screw" is selected, indicate "no symbol" in items ❺, ❻, ❼, ❾, and ❿. For designation of "Sensor specification" in item ⓬, specify "without sensor" (code 0). In item ⓫, "with bellows" cannot be specified.

❾Ball screw lead	Specify a ball screw lead shown in Table 3.

Table 3 Applicable ball screw lead

Ball screw lead mm	TU40	TU50	TU60		TU86		TU100	TU130
	Ground screw	Ground screw	Rolled screw	Ground screw	Rolled screw	Ground screw	Ground screw	Ground screw
4	○	—	—	—	—	—	—	—
5	—	○	○	○	—	—	—	—
8	○	—	—	—	—	—	—	—
10	—	○	○	○	○	○	—	—
20	—	—	—	—	○	○	○	—
25	—	—	—	—	—	—	—	○

❿Number of slide tables	S : 1、 C : 2

⓫Cover type	0 : without cover C : with bridge cover (applicable to TU···FC, TU···F, TU···FG) J : with bellows (applicable to TU60S and TU86S)

For the table with bellows (code J), the number of slide tables in item ❿ can only be specified as 1 (code S).

⓬Sensor installation specification	0 : without sensor and without sensor rail 2 : two sensors (limit sensors) and with sensor rail 3 : three sensors (limit and pre-origin sensors) and with sensor rail 4 : four sensors (limit, pre-origin, and origin sensors) and with sensor rail 9 : without sensor and with sensor rail

The sensor code indicates the number of sensors attached and whether or not a sensor rail for fastening the sensor is attached.

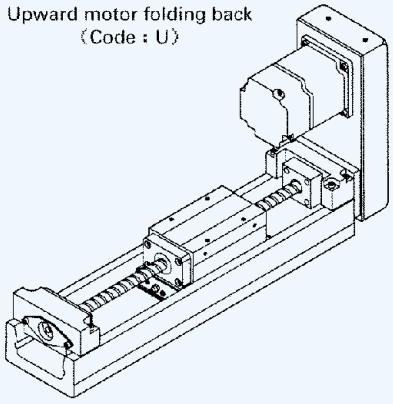
⓭Black chrome surface treatment	No symbol : no treatment, R : black chrome surface treatment 1, L : black chrome surface treatment 2

A black permeable film is formed on the surface to increase corrosion resistance.
Black chrome surface treatment 1 : Black chrome surface treatment is performed on the surfaces of the slide table and track rail.
Black chrome surface treatment 2 : In addition to black chrome surface treatment 1, black chrome surface treatment is performed on the ball screw shaft and nut.

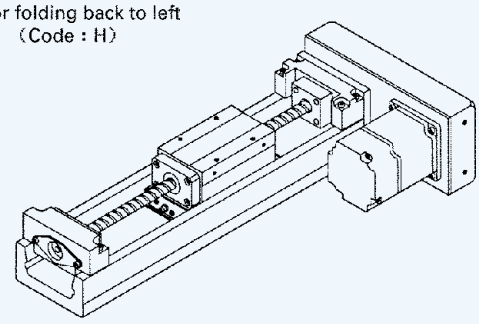
⓮Motor folding back type	No symbol : without motor folding back U : upward motor folding back (applicable to sizes 40, 50, 60, and 86) S : downward motor folding back (applicable to sizes 40, 50, 60, and 86) M : motor folding back to right (applicable to sizes 40, 50, 60, and 86) H : motor folding back to left (applicable to sizes 40, 50, 60, and 86) T : without motor folding back unit (applicable to sizes 40, 50, 60, and 86)

The motor folding back type can be used to reduce the overall length of the table and save space.
Note that the track rail length of motor folding back type tables (code U, S, M, and H) is different from that of tables without motor folding back (no symbol).
Motors cannot be installed by the customer. In item ❺ "With or without motor", specify "with motor" (code A).
For TU60 and TU86, only AC servo motors are applicable. In item ❻ "Motor type", specify "AC servo motor" (code A○ or M ○).
Tables without motor folding back unit (code T) are the tables obtained by removing the motor folding back unit from motor folding back type tables. When "without motor folding back" is selected, indicate no symbol in items ❺, ❻ and ❼.

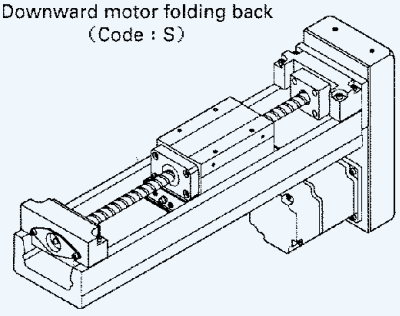
Upward motor folding back
(Code : U)



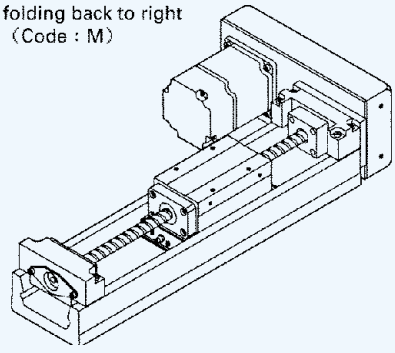
Motor folding back to left
(Code : H)



Downward motor folding back
(Code : S)



Motor folding back to right
(Code : M)



⓯With Capillary plate	No symbol : without Capillary plate Q : with Capillary plate

The capillary plates are assembled inside of the end seal in the slide table and one end of ball screw.
Not applicable for rolled ball screw type. When "with Capillary plate" is selected, specify "ground ball screw" (code G) or "without ball screw" (code N). As the Precision Positioning table with Capillary plate stroke length is shorter than the table without Capillary plate, pay attention to stroke length.
Lubrication oil impregnated in the Capillary plate is continuously fed to the raceways, when the slide table and ball screw nut travel along the raceways in uniform contact with the raceways of track rail and ball screw. Re-lubrication interval can be made longer, and maintenance and inspection time can be reduced.

Accuracy

Accuracy of IKO Precision Positioning Table TU depends on the types of ball screw specified. Accuracy of the table with rolled type screw is shown in Table 4 and that with ground type ball screw in Table 5.

Table 4 Accuracy (Rolled type ball screw)

Track rail length mm		Repeatability mm	Parallelism in table operation B mm	Back lash(1) mm
Over	Incl.			
—	500	±0.025 (±0.040)	0.015	0.050
500	800		0.020	
800	—		0.025	

Note(1) : Not applicable to motor folding back type tables.

Remark 1 : The values in ( ) are applicable to motor folding back type tables.

2 : The accuracy values for motor folding back type tables are applicable provided that the tension in the timing belt is appropriately adjusted.

Table 5 Accuracy (Ground type ball screw)

Track rail length mm		Repeatability mm		Positioning accuracy(1) mm		Parallelism in table operation B mm		Back lash(1) mm
Over	Incl.	Short table	Standard table and long table	Short table	Standard table and long table	Short table	Standard table and long table	
—	400(350)	±0.004 (±0.020)	±0.002 (±0.020)	0.030	0.020	0.015	0.008	0.003
400(350)	500(500)						0.010	
500(500)	600(550)			0.035	0.025	0.020		
600(550)	700(700)						0.012	
700(700)	800(800)			0.040	0.030			
800(800)	900(900)					0.025	0.014	
900(900)	1000(1000)			0.045	0.035			
1000(1000)	1100(1100)						0.016	
1100(1100)	1200			0.050	0.040			
1200	1400			—		—	0.030	
1400	1500			—	0.045	—		
1500	—			—	0.050	—		

Note(1) : Not applicable to motor folding back type tables.

Remark 1 : The values in ( ) are applicable to motor folding back type tables.

2 : The accuracy values for motor folding back type tables are applicable provided that the tension in the timing belt is appropriately adjusted.

Maximum speed

Maximum speeds of IKO Precision Positioning Table TU are shown in Table 6.
The maximum speeds shown in Table 6 are applicable when the standard motor is used. The actual maximum speeds must be determined by examining the operating pattern considering the motor type used, load conditions, etc.

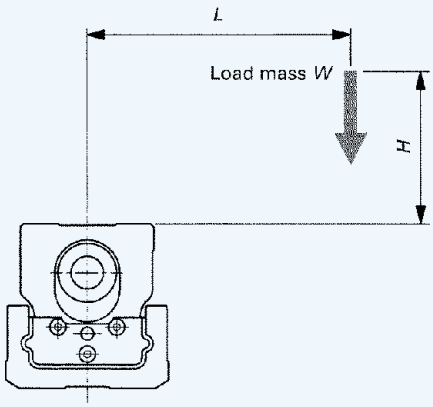
Table 6 Maximum speed

Motor type	Size	Track rail length mm	Motor speed r/min	Maximum speed mm/s					
				Lead 4mm	Lead 5mm	Lead 8mm	Lead 10mm	Lead 20mm	Lead 25mm
AC servo motor	**TU 40** **TU 50**	—	3000	200	250	400	500	—	—
	TU 60	690 and less	3000	—	250	—	500	—	—
		790	2910	—	243	—	485	—	—
	TU 86	790 and less	3000	—	—	—	500	1000	—
		890	2760	—	—	—	460	920	—
		990	2180	—	—	—	363	727	—
		1090	1770	—	—	—	295	590	—
		1190	1460	—	—	—	243	487	—
	TU100	1010	3000	—	—	—	—	1000	—
		1160	2320	—	—	—	—	773	—
		1310	1780	—	—	—	—	593	—
		1460	1400	—	—	—	—	467	—
	TU130	1010	2690	—	—	—	—	—	1121
		1160	2690	—	—	—	—	—	1121
		1310	2190	—	—	—	—	—	913
		1460	1720	—	—	—	—	—	717
		1610	1390	—	—	—	—	—	579
Stepping motor	**TU 40** **TU 50** **TU 60**	—	1800	120	150	240	300	—	—
	TU 86	990 and less	1800	—	—	—	300	600	—
		1090	1770	—	—	—	295	590	—
		1190	1460	—	—	—	243	487	—
	TU100	1160 and less	1800	—	—	—	—	600	—
		1310	1780	—	—	—	—	593	—
		1460	1400	—	—	—	—	467	—
	TU130	1310 and less	1800	—	—	—	—	—	750
		1460	1720	—	—	—	—	—	717
		1610	1390	—	—	—	—	—	579

Maximum load mass

Maximum load masses of IKO Precision Positioning Table TU are shown in Table 7.
The maximum load mass is a reference value for the maximum mass that can be mounted on a table used in a horizontal position and varies very much depending on the load mass position.

Table 7.1 Maximum load mass



unit : kg

Table model number	Slide table length	Height H mm	Length L mm								
			0	100	200	300	400	500	600	800	1000
TU 40	Short	0	35	5.0	2.7	1.9	1.4	1.1	1.0	—	—
		200	5.5	3.0	2.0	1.5	1.2	1.0	—	—	—
		400	3.0	2.1	1.5	1.2	1.0	—	—	—	—
		600	2.0	1.6	1.3	1.0	—	—	—	—	—
	Standard	0	49	7.4	4.0	2.7	2.1	1.7	1.4	1.1	—
		200	11	5.0	3.2	2.3	1.8	1.5	1.3	1.0	—
		400	5.8	3.7	2.6	2.0	1.6	1.4	1.2	—	—
		600	4.0	2.9	2.2	1.8	1.5	1.3	1.1	—	—
	Long	0	49	10	5.4	3.7	2.8	2.3	1.9	1.4	1.2
		200	19	7.6	4.6	3.3	2.6	2.1	1.8	1.4	1.1
		400	11	5.9	4.0	3.0	2.4	2.0	1.7	1.3	1.1
		600	7.3	4.8	3.5	2.7	2.2	1.9	1.6	1.3	1.0
TU 50	Short	0	41	7.6	4.2	2.9	2.2	1.8	1.5	1.1	—
		200	6.7	4.0	2.8	2.2	1.8	1.5	1.3	1.0	—
		400	3.7	2.7	2.1	1.7	1.5	1.3	1.1	—	—
		600	2.5	2.0	1.7	1.4	1.2	1.1	1.0	—	—
	Standard	0	44	13	7.1	4.9	3.7	3.0	2.5	1.9	1.5
		200	15	8.0	5.3	4.0	3.2	2.7	2.3	1.8	1.4
		400	8.5	5.7	4.2	3.4	2.8	2.4	2.1	1.6	1.4
		600	5.9	4.4	3.5	2.9	2.4	2.1	1.9	1.5	1.3
	Long	0	44	19	10	7.0	5.3	4.3	3.6	2.7	2.2
		200	29	13	8.3	6.1	4.8	3.9	3.4	2.6	2.1
		400	16	9.8	6.9	5.3	4.3	3.6	3.1	2.4	2.0
		600	11	7.8	5.9	4.7	3.9	3.3	2.9	2.3	1.9

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 operated continuously at the maximum speed (for each size), and 0.2s each, at acceleration, and at deceleration.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table 7.2 Maximum load mass

unit : kg

Table model number	Slide table length	Height *H* mm	Length *L* mm								
			0	100	200	300	400	500	600	800	1000
TU 60	Short	0	57	12	6.5	4.5	3.4	2.8	2.3	1.8	1.4
		200	11	6.3	4.4	3.4	2.8	2.3	2.0	1.6	1.3
		400	5.8	4.2	3.3	2.7	2.3	2.0	1.8	1.4	1.2
		600	4.0	3.2	2.6	2.3	2.0	1.7	1.6	1.3	1.1
	Standard	0	59	20	11	7.5	5.7	4.6	3.9	2.9	2.4
		200	24	12	8.3	6.2	4.9	4.1	3.5	2.7	2.2
		400	13	8.9	6.6	5.2	4.3	3.7	3.2	2.5	2.1
		600	9.3	6.9	5.5	4.5	3.8	3.3	2.9	2.4	2.0
	Long	0	59	30	16	11	8.6	7.0	5.9	4.4	3.6
		200	49	22	14	10	7.9	6.5	5.5	4.2	3.4
		400	29	17	12	8.9	7.2	6.0	5.2	4.0	3.3
		600	20	13	10	7.9	6.5	5.6	4.8	3.8	3.2
TU 86	Short	0	58	17	9.6	6.6	5.1	4.1	3.4	2.6	2.1
		200	12	7.9	6.0	4.8	4.0	3.5	3.0	2.4	1.9
		400	6.4	5.1	4.2	3.6	3.1	2.8	2.5	2.1	1.8
		600	4.4	3.7	3.3	2.9	2.6	2.3	2.1	1.8	1.6
	Standard	0	58	39	23	16	12	9.9	8.4	6.4	5.1
		200	36	22	16	12	9.9	8.3	7.2	5.7	4.7
		400	20	15	12	9.7	8.2	7.1	6.3	5.1	4.3
		600	14	11	9.4	8.0	7.0	6.2	5.6	4.6	3.9
	Long	0	58	51	29	20	16	13	11	8.2	6.6
		200	53	31	21	16	13	11	9.5	7.4	6.1
		400	30	22	17	13	11	9.7	8.5	6.8	5.7
		600	21	17	13	11	9.8	8.6	7.6	6.3	5.3
TU100	Standard	0	89	57	33	23	18	15	12	9.4	7.6
		200	53	32	23	18	15	12	11	8.4	6.9
		400	30	22	18	14	12	11	9.4	7.6	6.4
		600	21	17	14	12	11	9.3	8.3	6.9	5.9
TU130	Standard	0	98	71	43	31	24	19	16	12	9.9
		200	55	37	27	22	18	16	14	11	9.0
		400	32	25	20	17	15	13	12	9.5	8.1
		600	22	18	16	14	12	11	10	8.5	7.3

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 operated continuously at the maximum speed (for each size), and 0.2s each, at acceleration, and at deceleration.

Rigidity

IKO Precision Positioning Table TU is designed to achieve high rigidity by adopting a U-shaped track rail. Moment of inertia of sectional area of the track rail is shown in Table 8. The deformation characteristics of the tables under downward load (actual measurements) are shown in Fig. 1.

Table 8 Moment of inertia of sectional area of track rail

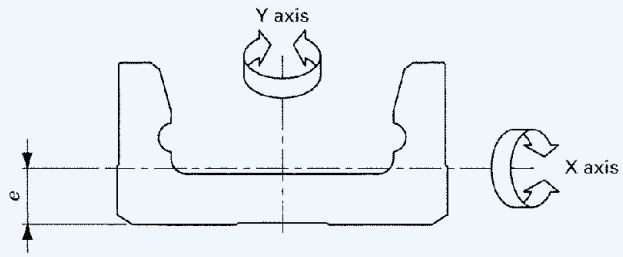


Table model number	Moment of inertia of sectional area mm⁴		Center of gravity *e* mm
	Ix	Iy	
TU 40	1.0×10^4	6.8×10^4	6.6
TU 50	2.8×10^4	1.7×10^5	8.7
TU 60	6.4×10^4	3.8×10^5	10.9
TU 86	2.4×10^5	1.6×10^6	14.6
TU100	5.9×10^5	3.3×10^6	18.8
TU130	1.4×10^6	8.8×10^6	23.0

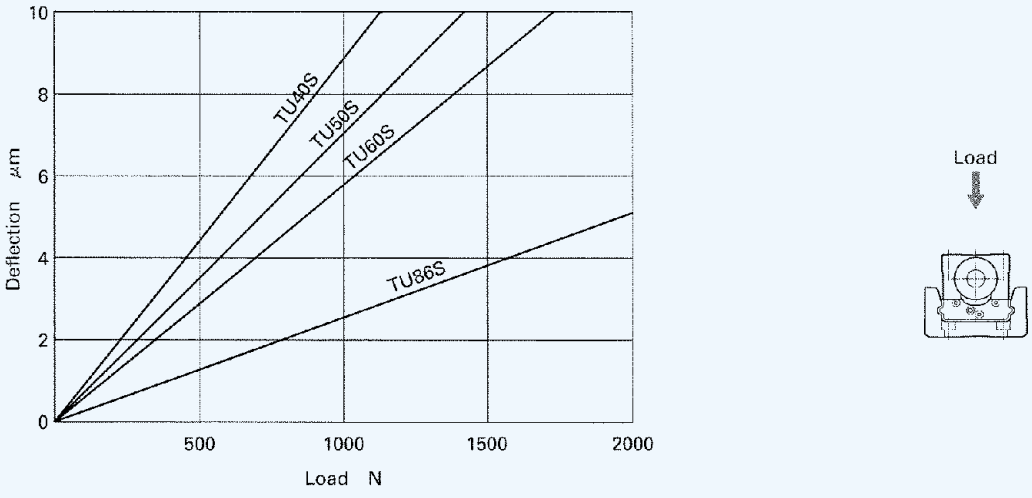


Fig. 1 Deflection vs. downward load

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Motor specification

Stepping motors, and AC servo motors, each with or without brake can be specified for IKO Precision Positioning Table TU, suiting the particular needs in the application.
Table 9 shows types of the standard motors. The types of connectors used in these motors are shown in Table 10.

Table 9 Types of standard motors

Table	Motor type	With or without brake	Motor code	Model number	Remark
TU 40 **TU 50**	AC servo motor	Without brake	A5	SGM-A5B512	Yaskawa Electric Corporation
			M5	MSM5AZA1A	Matsushita Electric Industrial Co., Ltd.
		With brake	A5B	SGM-A5B512B	Yaskawa Electric Corporation
			M5B	MSM5AZA1B	Matsushita Electric Industrial Co., Ltd.
	Stepping motor	Without brake	K3	PK545-A	Oriental Motor Co., Ltd.
		With brake	K3B	A6088-9015KM	
TU 60	AC servo motor	Without brake	A1	SGM-01B512	Yaskawa Electric Corporation
			M1	MSM011A1A	Matsushita Electric Industrial Co., Ltd.
		With brake	A1B	SGM-01B512B	Yaskawa Electric Corporation
			M1B	MSM011A1B	Matsushita Electric Industrial Co., Ltd.
	Stepping motor	Without brake	K6	PK569-A	Oriental Motor Co., Ltd.
		With brake	K6B	PK569-A-A25	
TU 86	AC servo motor	Without brake	A2	SGM-02B512	Yaskawa Electric Corporation
			M2	MSM021A1A	Matsushita Electric Industrial Co., Ltd.
		With brake	A2B	SGM-02B512B	Yaskawa Electric Corporation
			M2B	MSM021A1B	Matsushita Electric Industrial Co., Ltd.
	Stepping motor	Without brake	K6	PK569-A	Oriental Motor Co., Ltd.
		With brake	K6B	PK569-A-A25	
TU100	AC servo motor	Without brake	AA4	SGM-04A512	Yaskawa Electric Corporation
			MA4	MSM042A1A	Matsushita Electric Industrial Co., Ltd.
		With brake	AA4B	SGM-04A512B	Yaskawa Electric Corporation
			MA4B	MSM042A1B	Matsushita Electric Industrial Co., Ltd.
	Stepping motor	Without brake	K8	PK599-A	Oriental Motor Co., Ltd.
		With brake	K8B	A5657-9415KM	
TU130	AC servo motor	Without brake	AA8	SGM-08A512	Yaskawa Electric Corporation
			MA8	MSM082A1A	Matsushita Electric Industrial Co., Ltd.
		With brake	AA8B	SGM-08A512B	Yaskawa Electric Corporation
			MA8B	MSM082A1B	Matsushita Electric Industrial Co., Ltd.
	Stepping motor	Without brake	K8	PK599-A	Oriental Motor Co., Ltd.
		With brake	K8B	A5657-9415KM	

Table 10 Types of applicable connectors

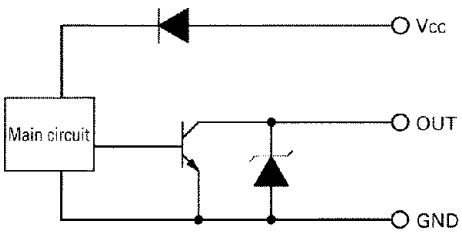
Motor type	Connector type	Motor code		Type of motor-side connector		Type of opposite-side connector	
				Plug housing	Contactor	Cap housing	Contactor
AC servo motor	Motor connector	Without brake	A… M…	172167-1	170360-1	172159-1	170362-1
		With brake	A…B	172168-1		172160-1	
			M…B	172167-1 172165-1		170159-1 172157-1	
	Encoder connector	A…		172169-1	170359-1	172161-1	170361-1
		M…		172171-1		172163-1	
Stepping motor	Motor connector	K…		172170-1	170364-1	172162-1	170366-1

Remark : Manufactured by AMP

Sensor specification

The sensor specification for IKO Precision Positioning Table TU indicates the number of sensors and whether or not a sensor rail for fastening the sensor is attached. Table 11 shows the specifications of sensors. Table 12 shows the specifications of sensor connectors. Note that, when two sensors (limit) and three sensors (limit, pre-origin) are specified in the identification number, sensors will not be wired unless specified. The sectional shape of sensor rail is shown in Fig. 2. The timing charts for the case where the number of sensors is set to 4 are shown in Tables 13.1 and 13.2. In the motor folding back type tables, the CW and CCW movements of the slide table will be opposite to those of the table without motor folding back.

Table 11 Specifications of sensors

Item \ Type	Limit, pre-origin	Origin
Type	Proximity sensor (NPN type(1))	
Power supply voltage	DC12～24V ±10%	
Current consumption	15mA or less	
Output	Open collector ・Max. current : 100mA ・Applied voltage : DC30V or less ・Residual voltage : 1.0V or less at 100mA in-flow current 0.4V or less at 16mA in-flow current	
Output operation	When approaching : OFF	When approaching : ON
Operation indicator	LED (red)	
Circuit diagram		

Note(1) : If PNP type is required, consult IKO.

Table 12 Specifications of connectors

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

Remark : Manufactured by AMP

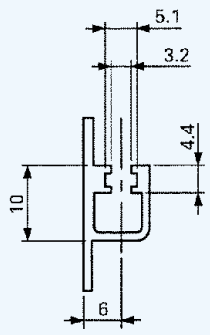
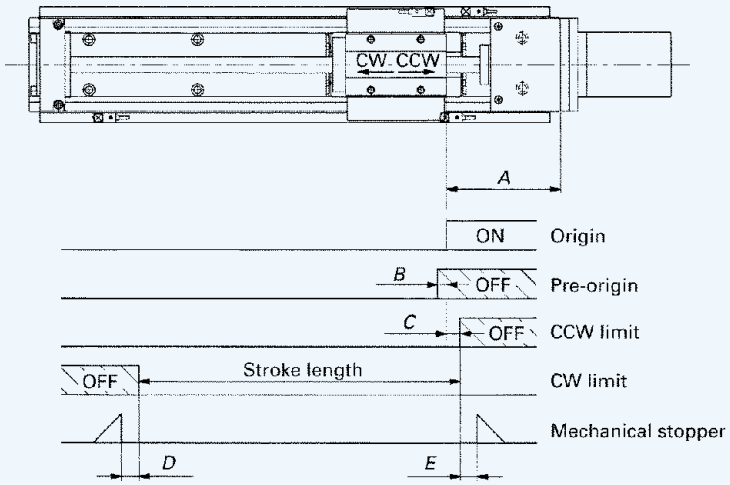


Fig. 2 Sectional shape of sensor rail

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table 13.1 Sensor timing chart (without motor folding back)

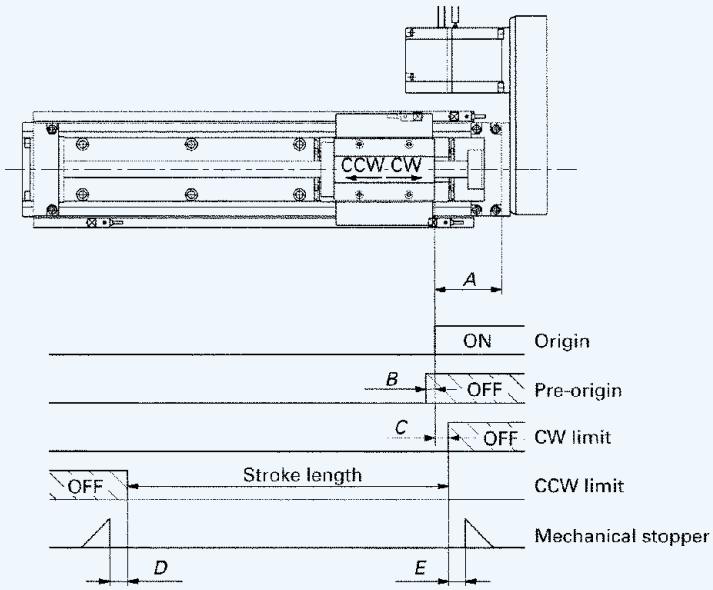


unit : mm

Model number	Slide table length	Ball screw lead	*A*	*B*	*C*	*D*(1)	*E*
TU 40	Short	4	85	2	10	7.5(5.5)	4.5
		8		6			
	Standard	4	85	2		10.5(8.5)	8
		8		6			
	Long	4	85	2		4.5(7.5)	8
		8		6			
TU 50	Short	5	85	3	10	7.2(6.2)	3.8
		10		7			
	Standard	5	85	3		8.2(7.2)	8
		10		7			
	Long	5	85	3		4.2(3.2)	8
		10		7			
TU 60	Short	5	110	3	20	14.6(19.6)	10.4
		10		7			
	Standard	5	100	3		9.6(9.6)	8
		10		7			
	Long	5	100	3		9 (8.5)	8
		10		7			
TU 86	Short	10	105	7	20	13 (14)	11
		20		14		12 (14)	4
	Standard	10	105	7		13 (14)	11
		20		14		12 (14)	
	Long	10	105	7		13 (14)	11
		20		14		12 (14)	
TU100	Standard	20	150	14	20	22 (19)	20
TU130	Standard	25	160	18	20	18 (23)	20

Note(1) : The dimensions in ( ) are for the case where the number of slide tables is two.
Remark 1 : Specify sensor installation by the identification number.
2 : For a table with bellows, the values in the above table are not applicable.

Table 13.2 Sensor timing chart (motor folding back specification)



※For the tables of motor folding back type, the CW and CCW movements of the slide table is opposite to those of the table without motor folding back.

unit : mm

Model number	Slide table length	Ball screw lead	A	B	C	D(1)	E
TU 40	Short	4	45	2	10	7.5(5.5)	4.5
		8		6			
	Standard	4	45	2		10.5(8.5)	8
		8		6			
	Long	4	45	2		4.5(7.5)	8
		8		6			
TU 50	Short	5	45	3	10	7.2(6.2)	3.8
		10		7			
	Standard	5	45	3		8.2(7.2)	8
		10		7			
	Long	5	45	3		4.2(3.2)	8
		10		7			
TU 60	Short	5	64	3	20	14.6(19.6)	10.4
		10		7			
	Standard	5	59	3		9.6(9.6)	8
		10		7			
	Long	5	59	3		9 (8.5)	8
		10		7			
TU 86	Short	10	62	7	20	13 (14)	11
		20		14		12 (14)	4
	Standard	10	62	7		13 (14)	11
		20		14		12 (14)	
	Long	10	62	7		13 (14)	11
		20		14		12 (14)	

Note(1) : The dimensions in ( ) are for the case where the number of slide tables is two.
Remark 1 : Specify sensor installation by the identification number.
2 : For a table with bellows, the values in the above table are not applicable.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

XY bracket

XY brackets can be used for IKO Precision Positioning Table TU to construct two-axis tables in various combinations. Typical combinations of two axes are shown in Fig. 3. XY brackets are made of light-weight aluminum alloy and can be assembled on a flanged table. Table 14 shows types of XY brackets. Specify the identification number shown in the table for ordering.

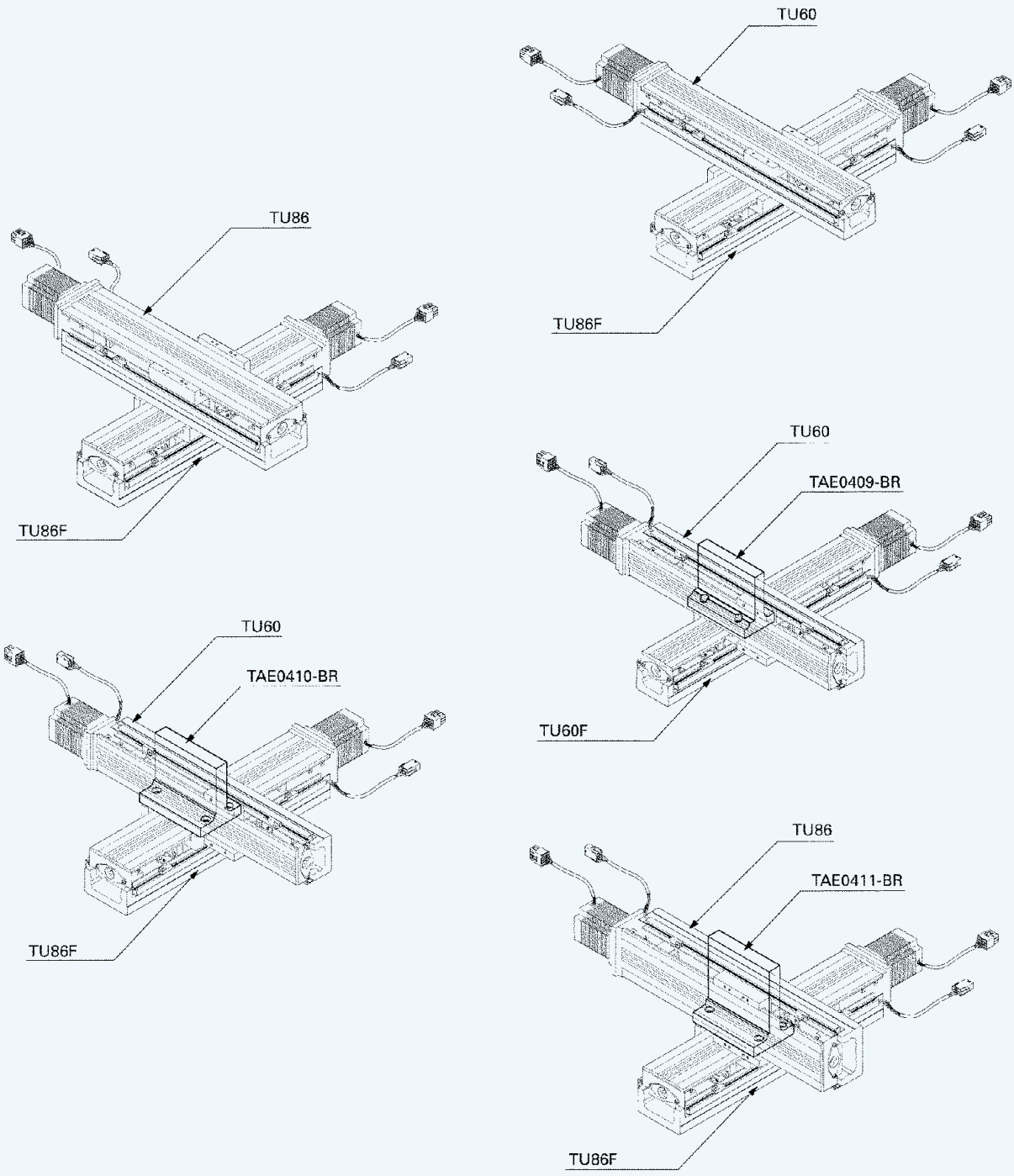
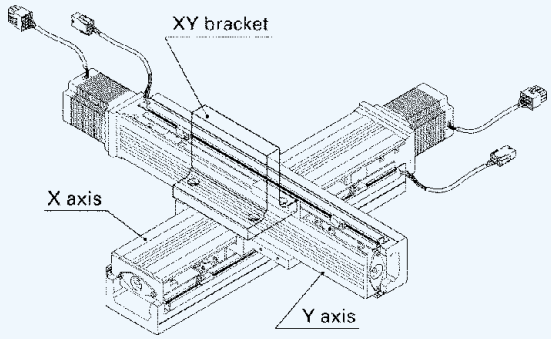
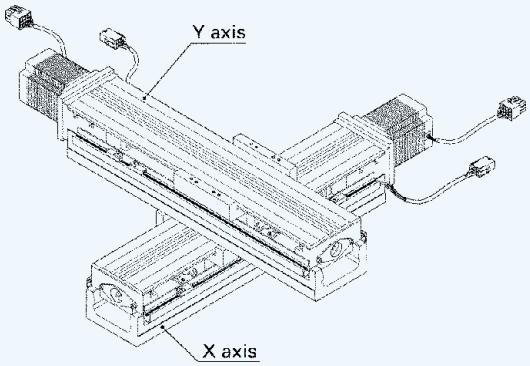


Fig. 3 Typical combinations of two-axis tables

Table 14 Combinations of two axes and types of XY brackets

Combinations with XY bracket			Combinations without bracket		
					
X axis	Y axis	Identification number of XY bracket	X axis	Y axis	Identification number of XY bracket
TU40F	TU40	TAE0412-BR	—	—	—
TU50F	TU40	TAE0413-BR	—	—	—
TU50F	TU50	TAE0414-BR	—	—	—
TU60F	TU50	TAE0415-BR	—	—	—
TU60F	TU60	TAE0409-BR	—	—	—
TU86F	TU60	TAE0410-BR	TU 86F	TU 60	Not required
TU86F	TU86	TAE0411-BR	TU 86F	TU 86	Not required
—	—	—	TU130F	TU100	Not required

TAE0412-BR

unit : mm

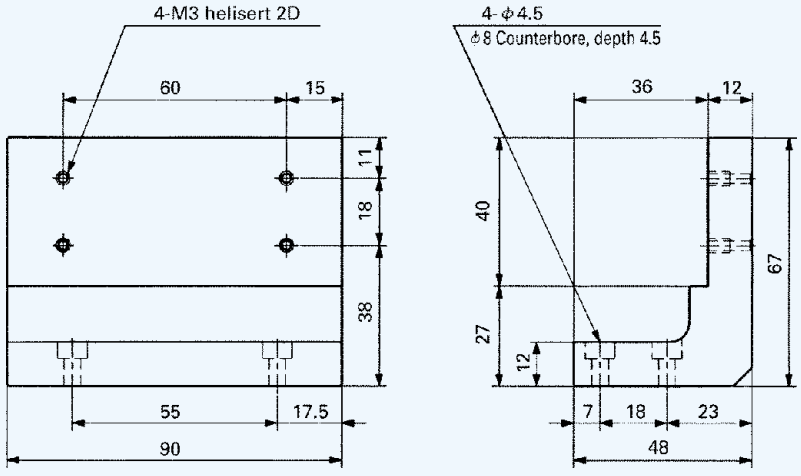
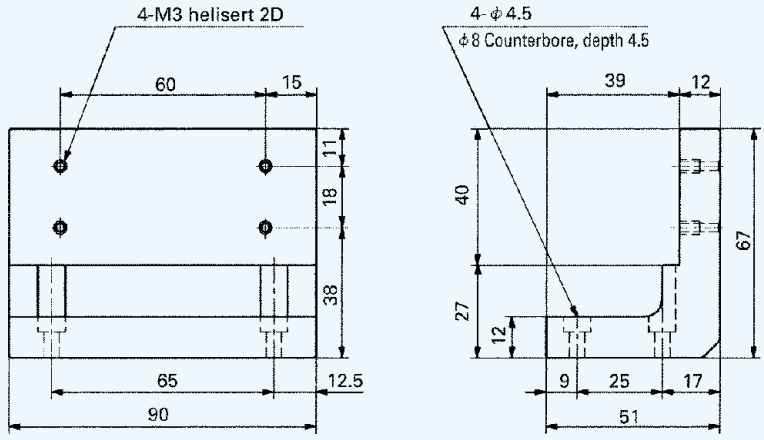


Fig. 4.1 Dimensions of XY bracket

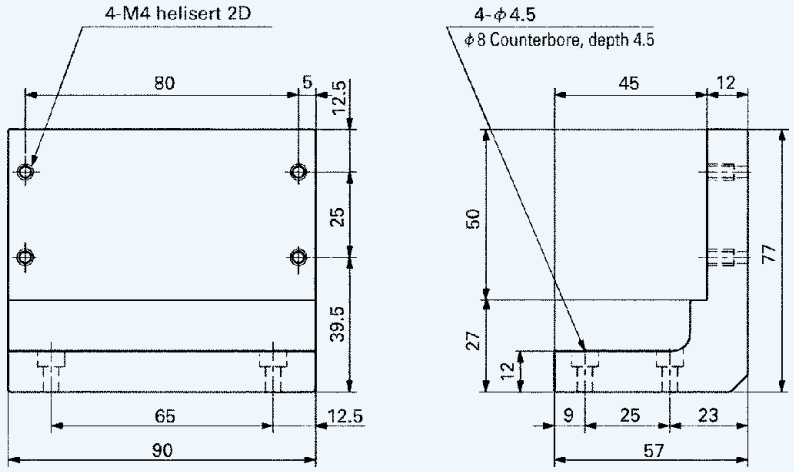
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

TAE0413-BR

unit：mm



TAE0414-BR



TAE0415-BR

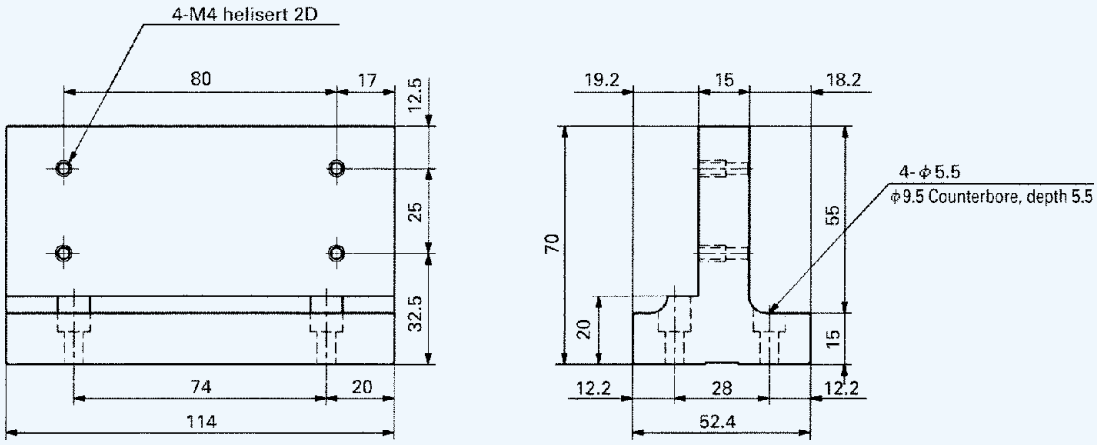
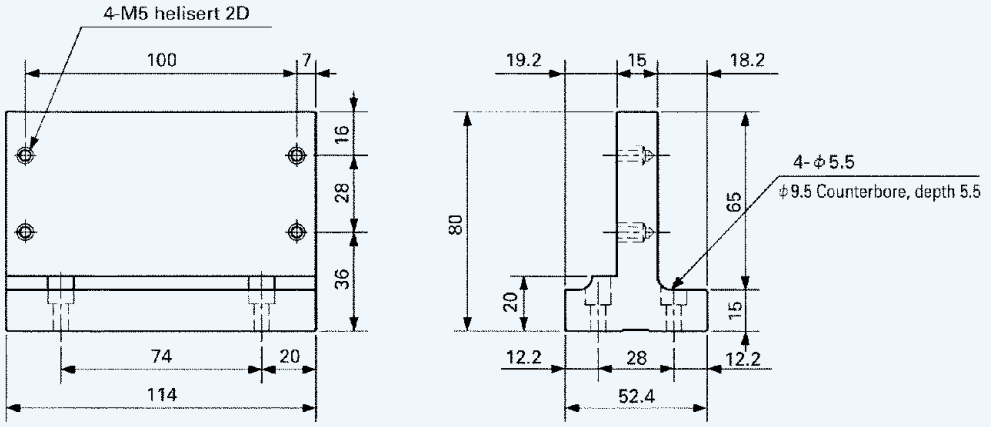


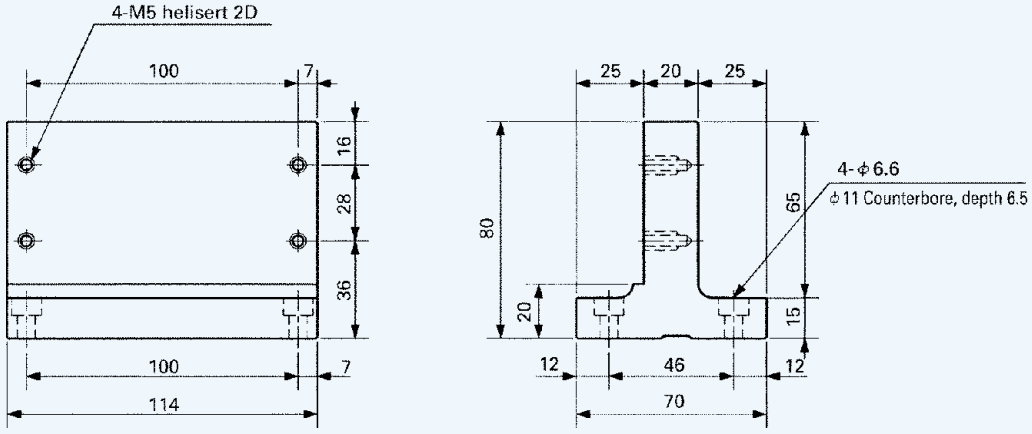
Fig. 4.2 Dimensions of XY bracket

TAE0409-BR

unit：mm



TAE0410-BR



TAE0411-BR

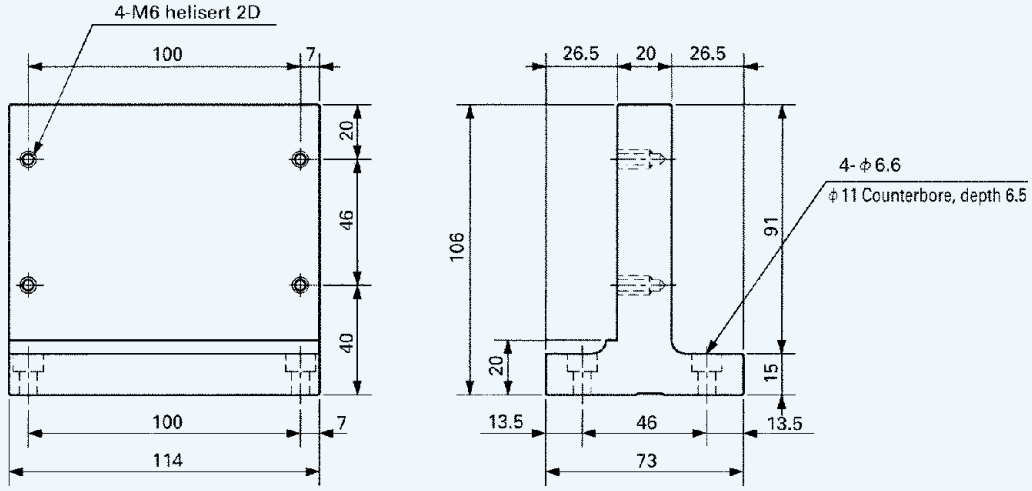


Fig. 4.3 Dimensions of XY bracket

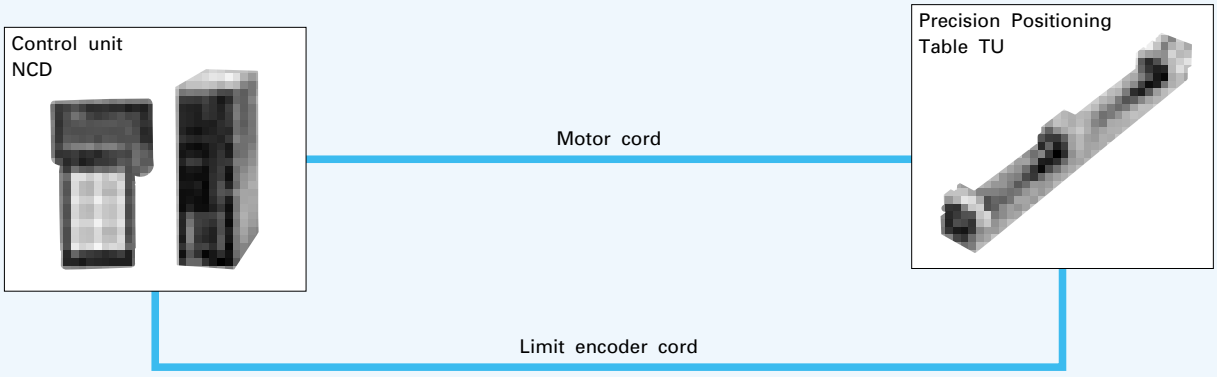
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Electric devices

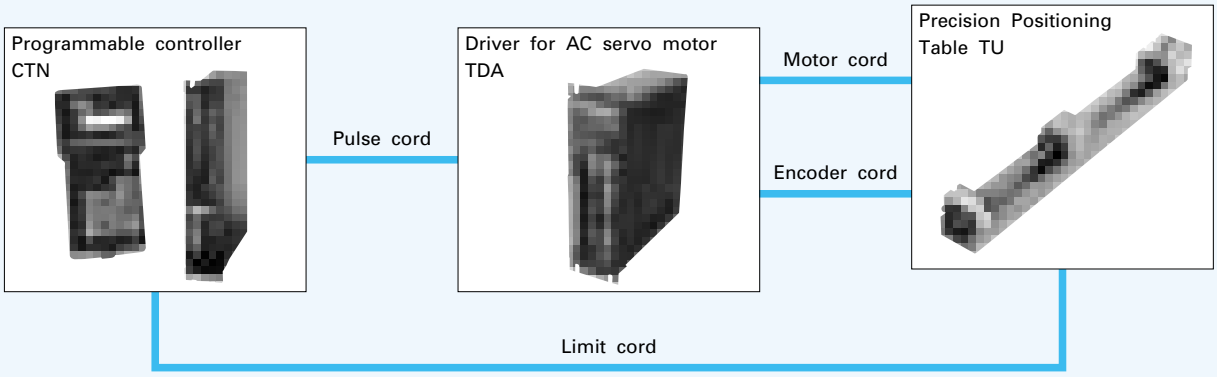
■System configuration

Electric devices for IKO Precision Positioning Table TU are specially designed to bring out full performance of the table. A well-balanced system can be constructed by using these devices with the table.
Tables 15 to 17 show system configurations of the table with the electric devices when a standard motor is used.

●System configuration of a table with AC servo motor (configuration with a control unit)



●System configuration of a table with AC servo motor (configuration with a driver and a programmable controller)



●System configuration of a table with stepping motor

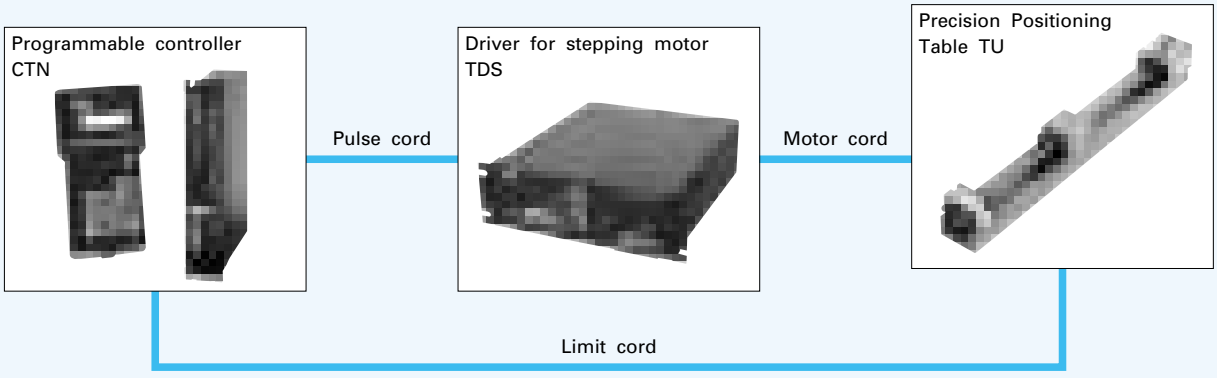


Fig. 5 System configuration

Table 15 System configuration of a table with AC servo motor (configuration with a control unit)

Table	With or without brake	Motor code	Control unit			
			Main body	Teaching box	Motor cord	Limited encoder cord
TU 40 TU 50	Without brake	A5	NCD160G-A0500	TAE1050-TB	TAE2065-AM03 (TAE2072-AM03)	TAE2066-AEL03 (TAE2073-AEL03)
		M5				TAE2067-AEL03 (TAE2074-AEL03)
	With brake	A5B	NCD160G-A0500 TAE1049-BK(1)	TAE1050-TB	TAE2070-AMB03 (TAE2077-AMB03)	TAE2066-AEL03 (TAE2073-AEL03)
		M5B			TAE2071-AMB03 (TAE2078-AMB03)	TAE2067-AEL03 (TAE2074-AEL03)
TU 60 TU 86	Without brake	A1、A2	NCD160G-A2006	TAE1050-TB	TAE2065-AM03 (TAE2072-AM03)	TAE2066-AEL03 (TAE2073-AEL03)
		M1、M2				TAE2067-AEL03 (TAE2074-AEL03)
	With brake	A1B、A1B	NCD160G-A2006 TAE1049-BK(1)	TAE1050-TB	TAE2070-AMB03 (TAE2077-AMB03)	TAE2066-AEL03 (TAE2073-AEL03)
		M1B、M2B			TAE2071-AMB03 (TAE2078-AMB03)	TAE2067-AEL03 (TAE2074-AEL03)

Note(1) : This indicates the type of a brake regenerative unit. Connect it to the main body of the driver.
Remark 1 : The cords in ( ) have high bending resistance.
2 : The standard length of the cord is 3 m.
3 : For a system configuration of the table TU100 or TU130, consult IKO for further information.

Table 16 System configuration of a table with AC servo motor (configuration with a driver and a programmable controller)

Table	With or without brake	Motor code	Type of applicable electric devices						
			Driver			Programmable controller			
			Main body	Motor cord	Encoder cord	Main body	Teaching box	Pulse cord	Limit cord
TU 40 TU 50 TU 60	Without brake	A5 A1	TDA1-1004	TAE2052-AM03 (TAE2036-AM03)	TAE2054-AE03 (TAE2038-AE03)	CTN120G	TAE1005-TB	TAE1022-LD03	
						CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
						CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
						CTN150S	TAE1048-TB	TAE1022-LD03	
	With brake	A5B A1B	TDA1-1004BK	TAE2053-AMB03 (TAE2037-AMB03)		CTN120G	TAE1005-TB	TAE1022-LD03	
						CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
						CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
						CTN150S	TAE1048-TB	TAE1022-LD03	
TU 86	Without brake	A2	TDA1-2004	TAE2052-AM03 (TAE2036-AM03)	TAE2054-AE03 (TAE2038-AE03)	CTN120G	TAE1005-TB	TAE1022-LD03	
						CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
						CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
						CTN150S	TAE1048-TB	TAE1022-LD03	
	With brake	A2B	TDA1-2004BK	TAE2053-AMB03 (TAE2037-AMB03)		CTN120G	TAE1005-TB	TAE1022-LD03	
						CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
						CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
						CTN150S	TAE1048-TB	TAE1022-LD03	

Remark 1 : The cords in ( ) have high bending resistance.
2 : The standard length of the motor cord, encoder cord and limit cord is 3 m. The length of the pulse cord is 1.5 m.
3 : For a system configuration of the table TU100 or TU130, consult IKO for further information.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table 17 System configuration of a table with stepping motor

Table	With or without brake	Motor code	Type of applicable electric devices					
			Driver		Programmable controller			
			Main body	Motor cord	Main body	Teaching box	Pulse cord	Limit cord
TU 40 **TU 50**	Without brake	K3	TDS1-5071	TAE2055-SMC03 (TAE2057-SNC03)	CTN120G	TAE1005-TB	TAE1056-LD03	
					CTN130G	TAE1016-TB	TAE1023-PC	TAE1042-LC03
					CTN140G	TAE1025-TB	TAE1026-PCA	TAE1027-LCA03
					CTN150S	TAE1048-TB	TAE1056-LD03	
			TDS1-5145	TAE2045-SML03 (TAE2059-SNL03)	CTN120G	TAE1005-TB	TAE1022-LD03	
					CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
					CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
					CTN150S	TAE1048-TB	TAE1022-LD03	
	With brake	K3B	TDS1-5145BK	TAE2061-SMBL03 (TAE2062-SNBL03)	CTN120G	TAE1005-TB	TAE1022-LD03	
					CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
					CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
					CTN150S	TAE1048-TB	TAE1022-LD03	
TU 60 **TU 86** **TU100** **TU130**	Without brake	K6 K8	TDS1-5145	TAE2045-SML03 (TAE2059-SNL03)	CTN120G	TAE1005-TB	TAE1022-LD03	
					CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
					CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
					CTN150S	TAE1048-TB	TAE1022-LD03	
	With brake	K6B K8B	TDS1-5145BK	TAE2061-SMBL03 (TAE2062-SNBL03)	CTN120G	TAE1005-TB	TAE1022-LD03	
					CTN130G	TAE1016-TB	TAE1012-PC	TAE1042-LC03
					CTN140G	TAE1025-TB	TAE1030-PC	TAE1027-LCA03
					CTN150S	TAE1048-TB	TAE1022-LD03	

Remark 1 : The cords in ( ) have high bending resistance.
2 : The standard length of the motor cord and limit cord is 3 m. The length of the pulse cord is 1.5 m.

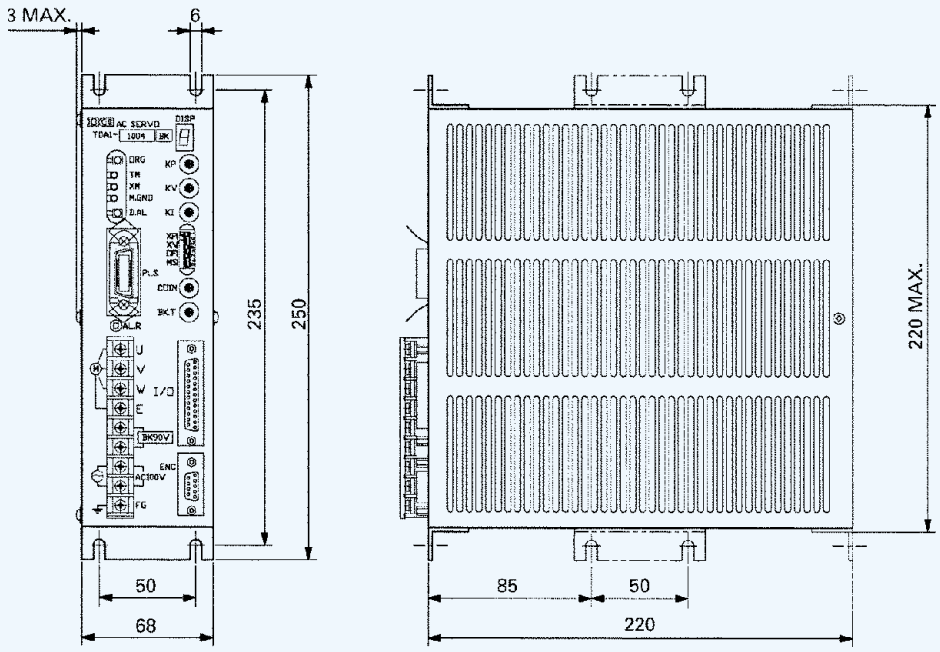
■Driver

Table 18 Main specifications of driver for AC servo motor

Item \ Type	TDA1-1004	TDA1-2004
Number of control axes	1	
Rated output of applicable motor(1)	30W、50W、100W	100W、200W
Feedback	Incremental encoder	
Command pulse input system	CW/CCW pulse or direction command/forward and reverse pulses	
Command pulse input form	Line driver or open collector (+5V level)	
Supply voltage	AC100V±10% 50/60Hz	
Current consumption	10A or less	12A or less
Ambient temperature (during operation)	0～50℃	
Ambient humidity (during operation)	35～85%RH (non-condensing)	
Mass (reference value)	2.0kg	2.2kg

Note(1) : This can be changed with the switch in the driver.

Dimensions unit : mm



Remark : The above figure shows an external view of the TDA1-1004. The dimensions are the same for this and all other models.

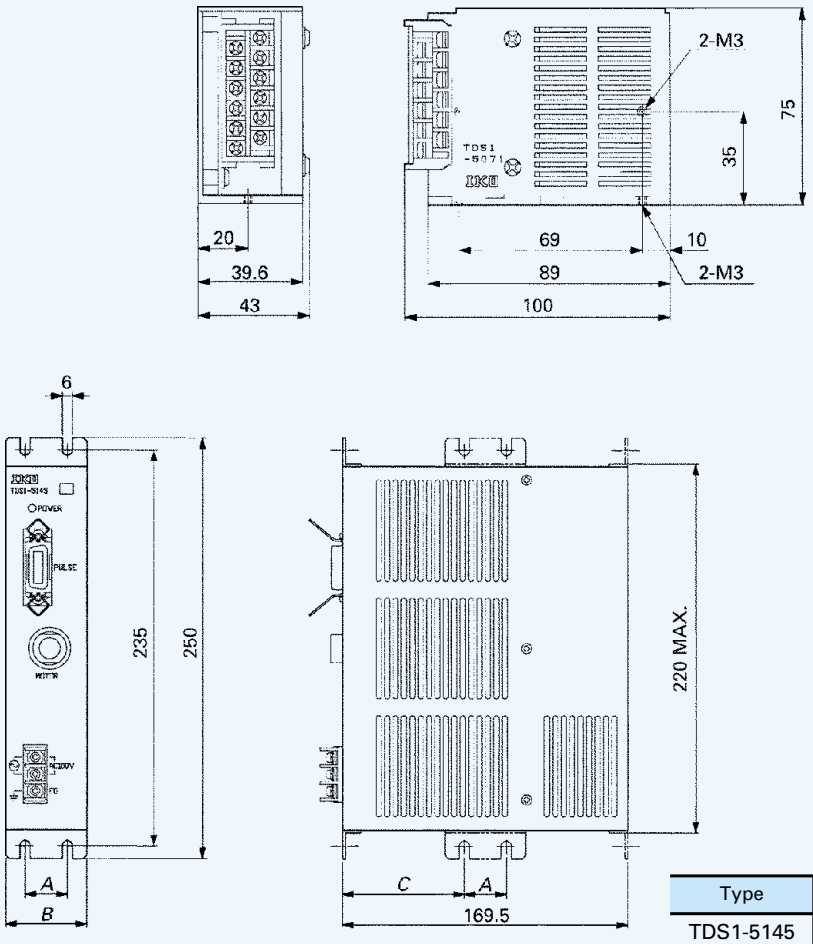
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table 19 Main specifications of driver for stepping motor

Item \ Type	TDS1-5071	TDS1-5145	TDS2-5145
Number of control axes	1	1	2
Applicable motor	5-phase stepping motor of 0.75A/phase	5-phase stepping motor of 0.75 to 1.4A/phase	
Drive method	Bipolar constant-current drive		
Excitation method	4-phase to 5-phase excitation or 4-phase excitation		
Command pulse input system	CW/CCW pulse		
Command pulse input form	Line driver or open collector (+5V level)		
Supply voltage	DC24V±10%	AC100V±10% 50/60Hz	
Current consumption	3A or less	5A or less	10A or less
Ambient temperature (during operation)	0~45℃	0~50℃	
Ambient humidity (during operation)	35~85%RH (non-condensing)		
Mass (reference value)	0.3kg	1.3kg	2.0kg

Dimensions

unit : mm



unit : mm

Type	A	B	C
TDS1-5145	25	48	72.5
TDS2-5145	50	74	60

■Control unit

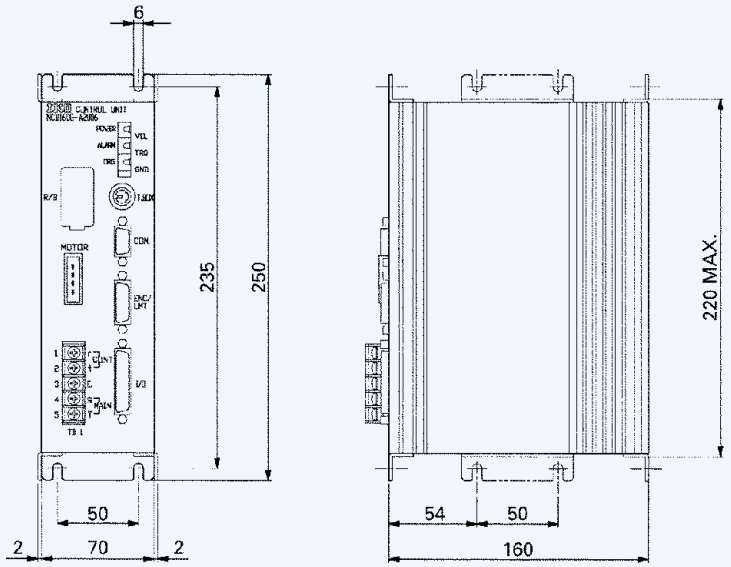
Table 20 Main specifications of control unit

Item \ Type	NCD160G-A0500	NCD160G-A2006
Number of control axes	1	
Applicable motor	AC servo motor 30W、50W	AC servo motor 100W、200W
Feedback	Incremental encoder	
Maximum command value	±2147483647μm	
Motor speed	Rated motor speed 3,000rpm, maximum motor speed 4,500rpm	
Input method	MDI, teaching and PC input via RC-232C	
Command input system	Absolute command or incremental command	
Program capacity	12 kbytes (1,200 steps or more)	
Number of positioning points	256 points	
Functions	Jump, call, repetition, speed setting, acceleration/deceleration setting, timer control, I/O control, branching by input conditions, various editing functions (such as creation, deletion, erasing, and insertion)	
Number of I/O points	LS input: 3 points, I/O input: 23 points, I/O output: 15 points	
Power supply for input and output	DC24V 1A	
Protective functions	Over-current, over-voltage, over-load, over-speed, voltage drop, encoder error, deviation error, over-heat, CPU error, etc.	
Other major functions	RS-232C (reading, writing, direct execution, etc.), software limit, torque limitation, torque monitoring, speed change during movement, LS logic change, various check functions, brake regenerative unit (optional) (1) , etc.	
Supply voltage	AC85～132V 50/60Hz	
Current consumption	6A or less	12A or less
Ambient temperature (during operation)	0～50℃	
Ambient humidity (during operation)	35～85%RH (non-condensing)	
Weight (reference value)	Main body 1.6kg, teaching box 0.5kg	

Note(1) : This regenerative unit contains a brake power supply for motor with brake. (TAE1049-BK)

Dimensions

unit : mm

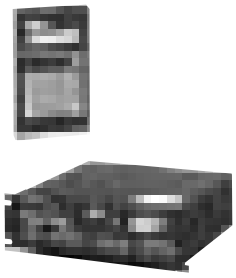
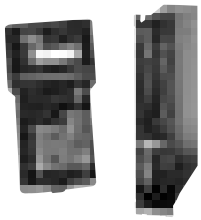
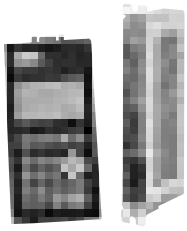


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

■Programmable controller

Four types of program controllers, three types of program input type and one type of point memory type, are available. Table 21 compares the characteristics of the respective types. Select the optimal type suitable for each application.

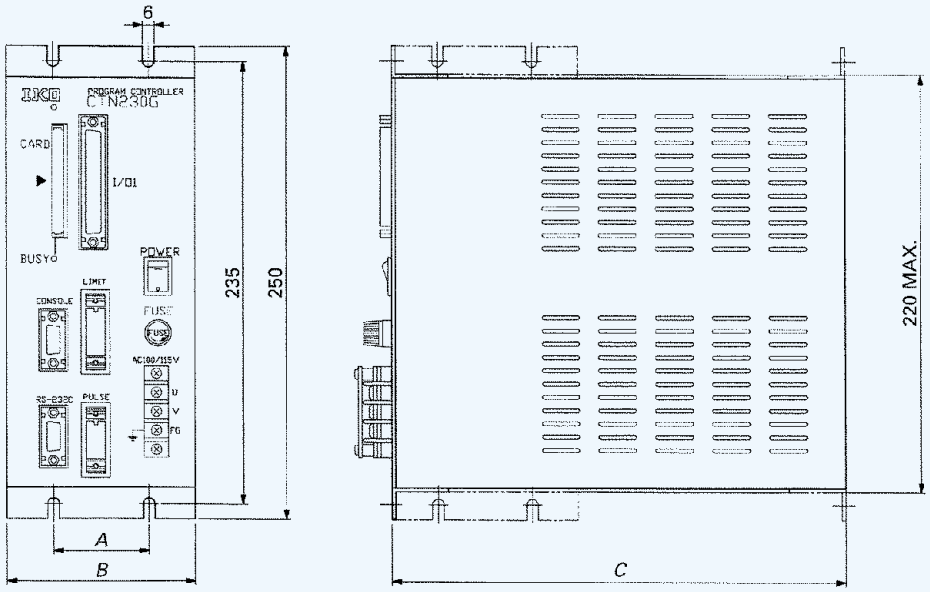
Table 21 Main specifications of programmable controller

Model		Program input type			Point memory type
		CTN120G **CTN220G**	**CTN130G** **CTN230G** **CTN430G**	**CTN140G** **CTN240G**	**CTN150S**
	Type	Standard type	High-function type	Compact type	
Appearance					
Number of control axes		1 or 2 axes	1, 2, or 4 axes	1 or 2 axes	1 axis
Supply voltage		AC90～110V	AC85～132V	DC24V±10%	DC24V±10%
Maximum output frequency		200kpps	1.5Mpps	200kpps	2.5Mpps
Pulse output system		CW/CCW pulse or direction command/forward and reverse pulses			
		Current discharge type	Line driver	Line driver	Line driver
Maximum command value		±999999 pulses	±99999999 pulses	±999999 pulses	±2147483648 pulses
Acceleration/deceleration method		Straight line	Straight line, S shaped line	Straight line	Straight line, S shaped line, cycloid
Command input system		Absolute command or incremental command			
Program capacity		1000 steps	2000 steps	1000 steps	64-point memory (not programmable)
General input and output (I/O)	Input	8 points (CTN120G) 20 points (CTN220G)	20 points	8 points (CTN140G) 20 points (CTN240G)	None
	Output	7 points (CTN120G) 12 points (CTN220G)	12 points	7 points (CTN140G) 12 points (CTN240G)	None
Linear and arc interpolation		○ (CTN220G)	○ (CTN230G、CTN430G)	×	×
	Point pass	○	×	×	×
General input and output add-ons		×	○	×	×
Memory card		○	○	×	×
RS-232C operation		○	○	○	○
Position correction of linear scale		×	○	×	×
Remarks		The program input type is so designed that programs entered by a teaching box or PC are executed in order of steps. Programming is possible with an optional teaching box or PC, or by simple teaching.			The point memory type does not come with a program function. Stored points are switched over and executed with an external device such as a sequencer or PC.
		Standard type with 100V AC power supply input. The interpolation function of CTN220G comes with a point pass function as standard specification.	High-function type with a 100V AC power supply input. High-speed output at 1.5Mpps maximum. A series of multi-axis controllers up to four-axis control.	A type to be incorporated into compact electric devices with a 24V DC power supply input.	

Remark : ○ indicates that the unit has the function. × indicates that the unit does not have the function.

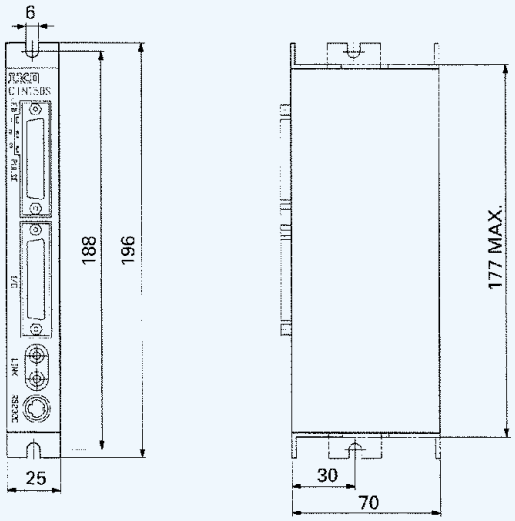
Dimensions

unit : mm



unit : mm

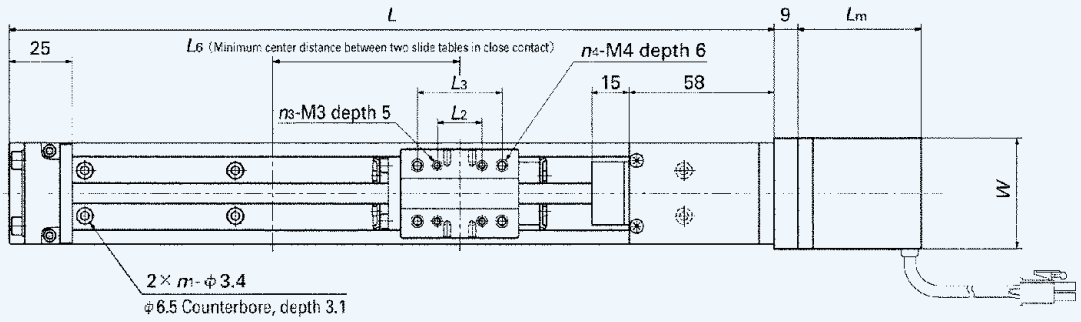
Model	*A*	*B*	*C*
CTN120G	50	74	221
CTN220G	50	99	221
CTN130G CNT230G	50	99	240
CNT430G	75	124	240
CNT140G CNT240G	25	49	156
CNT150S	See the figure below.		

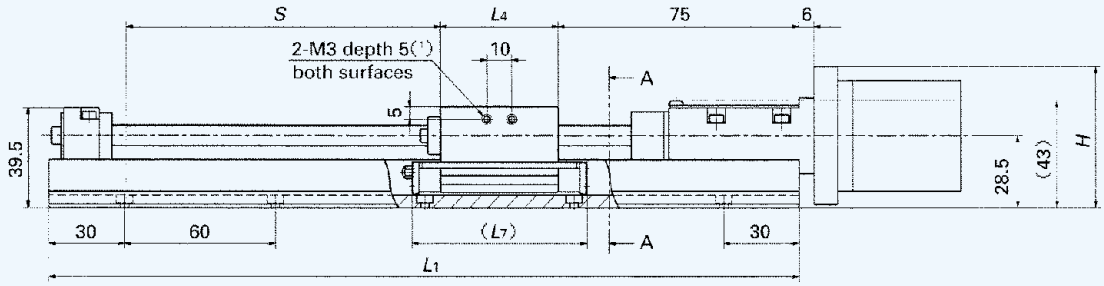


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

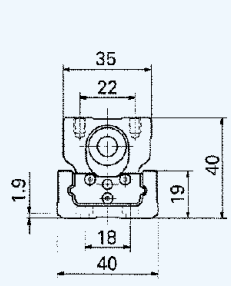
TU40C、TU40S、TU40G、TU40F

unit：mm

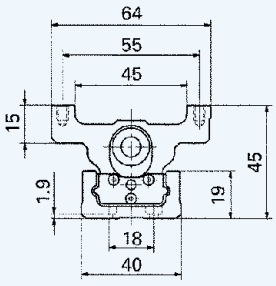




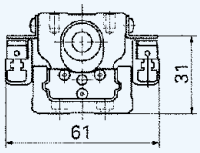
A-A section



TU40C、TU40S、TU40G



TU40F



With sensor

Note(1) : These threaded holes are not provided on TU40F.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_6	L_7	n_3	n_4	Mass kg
TU40C	—	—	19.5	45	43	—	2	0.1
TU40S	—	18	31.5	60	55	—	4	0.2
TU40G	18	34	47.5	75	71	4	4	0.3
TU40F	—	18	31.5	60	55	—	4	0.3

Dimensions of track rail

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg			
			TU40C	**TU40S TU40F**	**TU40G**	**TU40C**	**TU40S**	**TU40G**	**TU40F**
180	186	3	45(—)	30(—)	—(—)	0.9	1.0	—	1.1
240	246	4	105(70)	90(40)	80(—)	1.1	1.2	1.3	1.3
300	306	5	165(130)	150(100)	140(70)	1.2	1.3	1.4	1.4
360	366	6	225(190)	210(160)	200(130)	1.4	1.5	1.6	1.6
420	426	7	285(250)	270(220)	260(190)	1.6	1.7	1.8	1.8

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor

unit : mm

Motor type	AC servo motor						Stepping motor		
Motor code	A5			M5			K3		
Dimension	H	W	L_m	H	W	L_m	H	W	L_m
Without brake	48.5	40	77	48.5	38	73	56.5	42	47
With brake			108.5			105			77

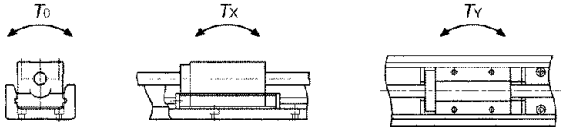
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Ground screw	4	8	2 290	3 575	0.005 or less
	8		1 450	2 155	

Specifications of linear motion rolling guide

Model Number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU40C	5 530	6 340	86.9(174)	23.7(202)	23.7(202)
TU40S、TU40F	7 570	10 100	139 (278)	54.9(403)	54.9(403)
TU40G	9 910	15 200	208 (417)	117 (716)	117 (716)

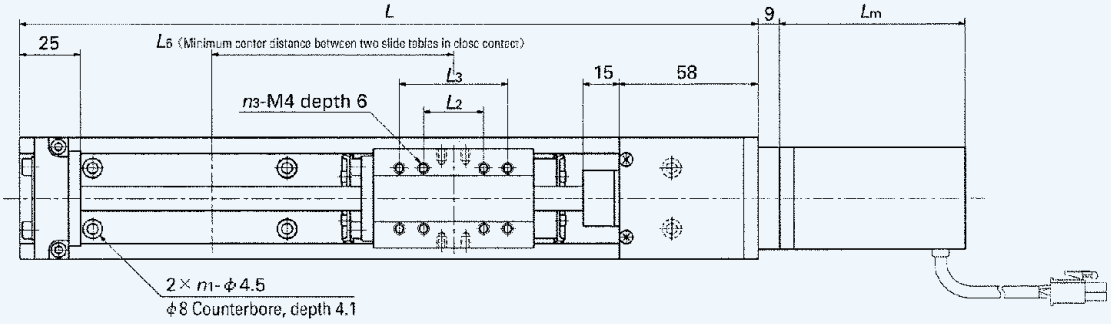
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.

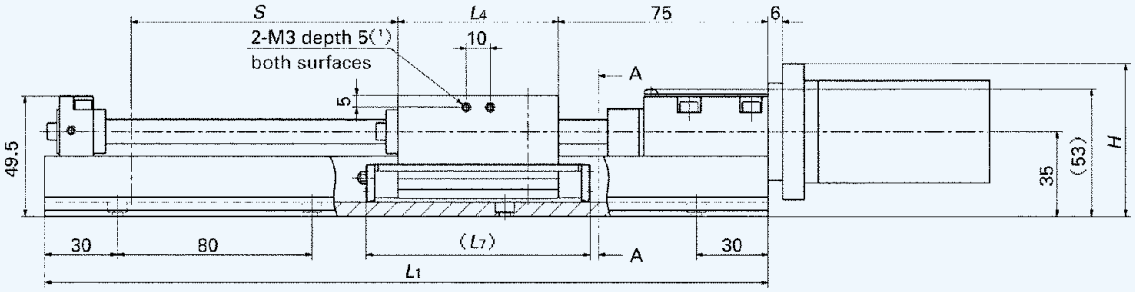


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

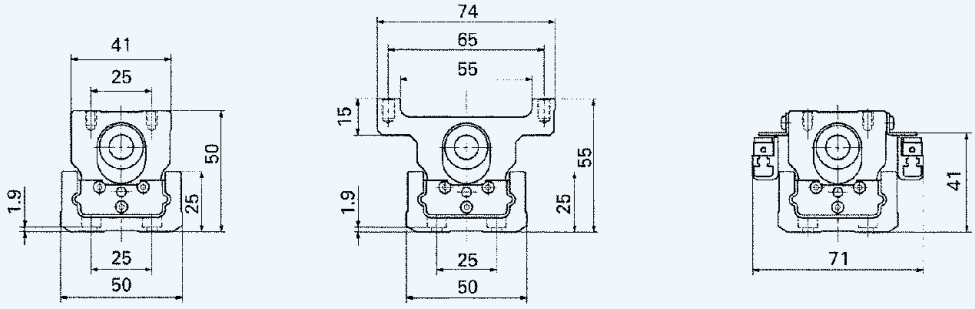
TU50C、TU50S、TU50G、TU50F

unit：mm





A-A section



TU50C、TU50S、TU50G **TU50F** With sensor

Note(1)：These threaded holes are not provided on TU50F.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_6	L_7	n_3	Mass kg
TU50C	—	—	23.8	55	51	2	0.2
TU50S	25	—	42.8	75	70	4	0.4
TU50G	25	45	66.8	100	94	8	0.7
TU50F	25	—	42.8	75	70	4	0.5

Dimensions of track rail

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg			
			TU50C	**TU50S TU50F**	**TU50G**	**TU50C**	**TU50S**	**TU50G**	**TU50F**
220	226	3	80(—)	60(—)	—(—)	1.6	1.8	—	1.9
300	306	4	160(115)	140(75)	120(—)	1.9	2.1	2.4	2.2
380	386	5	240(195)	220(155)	200(110)	2.3	2.5	2.8	2.6
460	466	6	320(275)	300(235)	280(190)	2.7	2.9	3.2	3.0
540	546	7	400(355)	380(315)	360(270)	3.1	3.3	3.6	3.4
620	626	8	480(435)	460(395)	440(350)	3.5	3.7	3.9	3.8
700	706	9	560(515)	540(475)	520(430)	3.8	4.0	4.3	4.1

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor

unit : mm

Motor type	AC servo motor				Stepping motor	
Motor code	A5		M5		K3	
Dimension	H	L_m	H	L_m	H	L_m
Without brake	55	77	55	73	63	47
With brake		108.5		105		77

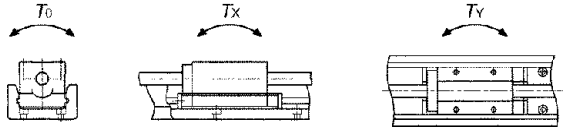
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Ground screw	5	10	2 730	4 410	0.005 or less
	10		1 720	2 745	

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU50C	8 110	9 130	162(323)	40.9(358)	40.9(358)
TU50S、TU50F	12 000	16 400	291(582)	118 (799)	118 (799)
TU50G	16 100	25 600	452(905)	270 (1580)	270 (1580)

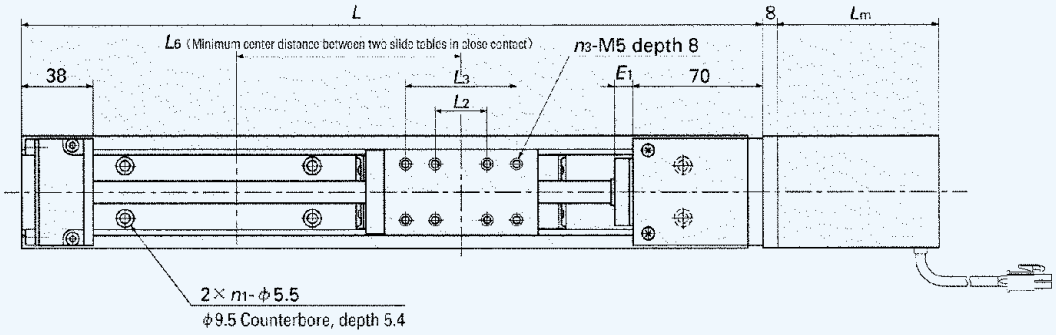
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.

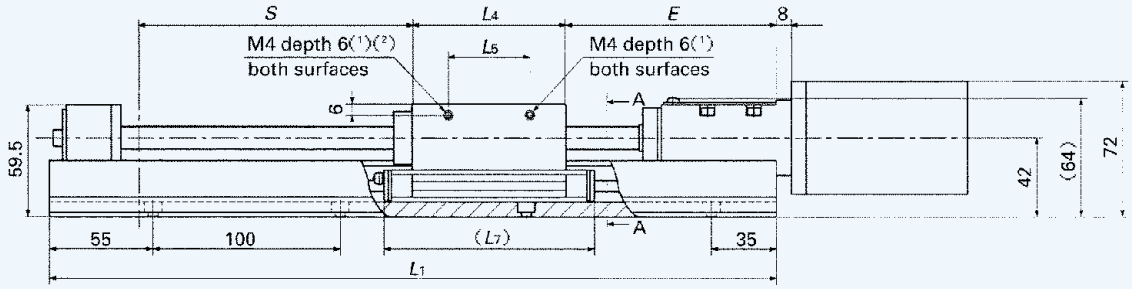


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

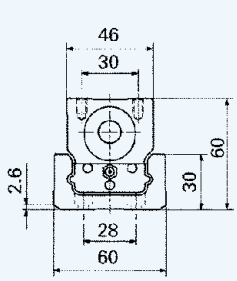
TU60C、TU60S、TU60G、TU60FC、TU60F、TU60FG

unit：mm

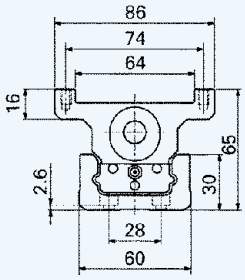




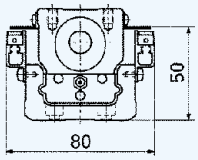
A-A section



TU60C、TU60S、TU60G



TU60FC、TU60F、TU60FG



With sensor

Note(1) : These threaded holes are not provided on TU60FC, TU60F, and TU60FG.
(2) : In case of TU60C, φ3 depth 2.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_5	L_6	L_7	n_3	E	E_1	Mass kg
TU60C	—	—	27.4	17.4	65	58	2	90	15	0.3
TU60S	28	—	52.4	18	90	83	4	80	10	0.6
TU60G	28	60	83	44	120.5	113	8	80	10	1.0
TU60FC	—	—	27.4	—	65	58	2	90	15	0.4
TU60F	28	—	52.4	—	90	83	4	80	10	0.8
TU60FG	28	60	83	—	120.5	113	8	80	10	1.3

Dimensions of track rail

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg					
			TU60C TU60FC	**TU60S TU60F**	**TU60G TU60FG**	**TU60C**	**TU60S**	**TU60G**	**TU60FC**	**TU60F**	**TU60FG**
290	298	3	110(50)	100(20)	70(—)	3.0	3.3	3.6	3.1	3.5	3.9
390	398	4	210(150)	200(120)	170(60)	3.7	4.0	4.4	3.8	4.2	4.7
490	498	5	310(250)	300(220)	270(160)	4.5	4.8	5.1	4.6	4.9	5.4
590	598	6	410(350)	400(320)	370(260)	5.2	5.5	5.8	5.3	5.7	6.1
690	698	7	510(450)	500(420)	470(360)	6.0	6.2	6.6	6.1	6.4	6.9
790	798	8	610(550)	600(520)	570(460)	6.7	7.0	7.3	6.8	7.2	7.6

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor L_m

unit : mm

Motor type	AC servo motor		Stepping motor
Motor code	A1	M1	K6
Without brake	94.5	103	87
With brake	135	135	129

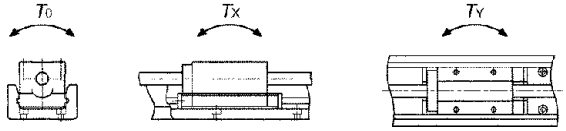
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Rolled screw	5	12	2 800	5 000	0.05 or less
	10		1 800	3 200	
Ground screw	5	12	3 230	6 320	0.005 or less
	10		2 300	3 920	

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU60C、TU60FC	11 200	12 400	245(490)	65.0(576)	65.0(576)
TU60S、TU60F	16 600	22 400	441(881)	187 (1310)	187 (1310)
TU60G、TU60FG	23 300	37 300	734(1470)	489 (2760)	489 (2760)

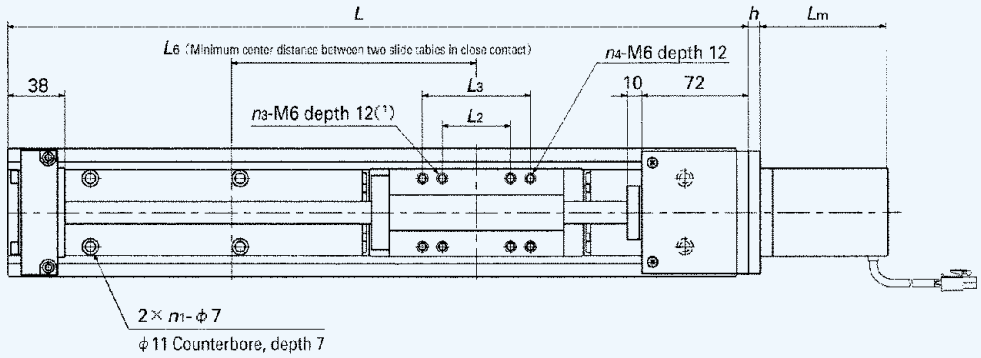
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.

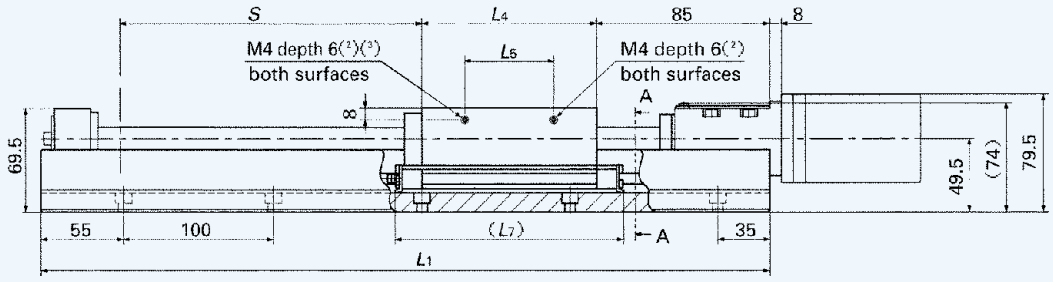


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

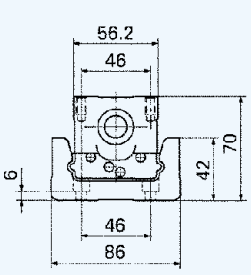
TU86C、TU86S、TU86G、TU86FC、TU86F、TU86FG

unit：mm

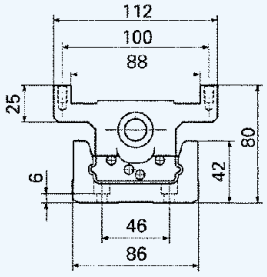




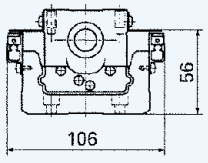
A-A section



TU86C、TU86S、TU86G



TU86FC、TU86F、TU86FG



With sensor

Note(1) : The table TU86F is M5 depth 12.
(2) : The tables are provided with no threaded hole. These threaded holes are not provided on TU86FC, TU86F, and TU86FG.
(3) : The table TU86C is φ3 depth 2.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_5	L_6	L_7	n_3	n_4	Mass kg
TU86C	—	—	43	30	90	80	2	—	0.7
TU86S	46	—	93	63	140	130	4	—	1.7
TU86G	46	73	118	60	165	155	4	4	2.2
TU86FC	—	—	43	—	90	80	2	—	1.1
TU86F	28	46	93	—	140	130	4	4	2.3
TU86FG	46	73	118	—	165	155	4	4	3.0

Dimensions of track rail

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg					
			TU86C TU86FC	**TU86S TU86F**	**TU86G TU86FG**	**TU86C**	**TU86S**	**TU86G**	**TU86FC**	**TU86F**	**TU86FG**
490	498	5	300(220)	250(120)	225(70)	9.9	10.9	11.4	10.3	11.5	12.2
590	598	6	400(320)	350(220)	325(170)	10.8	11.7	12.2	11.2	12.4	13.0
690	698	7	500(420)	450(320)	425(270)	12.3	13.2	13.8	12.7	13.9	14.6
790	798	8	600(520)	550(420)	525(370)	13.8	14.7	15.3	14.2	15.4	16.1
890	898	9	700(620)	650(520)	625(470)	15.0	15.9	16.4	15.4	16.6	17.2
990	998	10	800(720)	750(620)	725(570)	16.5	17.4	17.9	16.9	18.1	18.7
1090	1098	11	900(820)	850(720)	825(670)	18.0	18.9	19.4	18.4	19.6	20.2
1190	1198	12	1000(920)	950(820)	925(770)	19.5	20.4	21.0	19.9	21.1	21.8

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor

unit : mm

Motor type	AC servo motor				Stepping motor	
Motor code	A2		M2		K6	
Dimension	h	L_m	h	L_m	h	L_m
Without brake	13	96.5	13	95	8	87
With brake		136		128		129

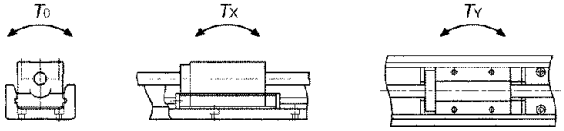
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Rolled screw	10	15	4 900	9 100	0.05 or less
	20		3 900	5 050	
Ground screw	10	15	6 080	12 600	0.005 or less
	20		4 510	7 850	

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU86C、TU86FC	21 500	24 700	703(1410)	190(1530)	190(1530)
TU86S、TU86F	35 900	53 400	1520(3040)	792(4650)	792(4650)
TU86G、TU86FG	43 000	69 800	1990(3980)	1320(6990)	1320(6990)

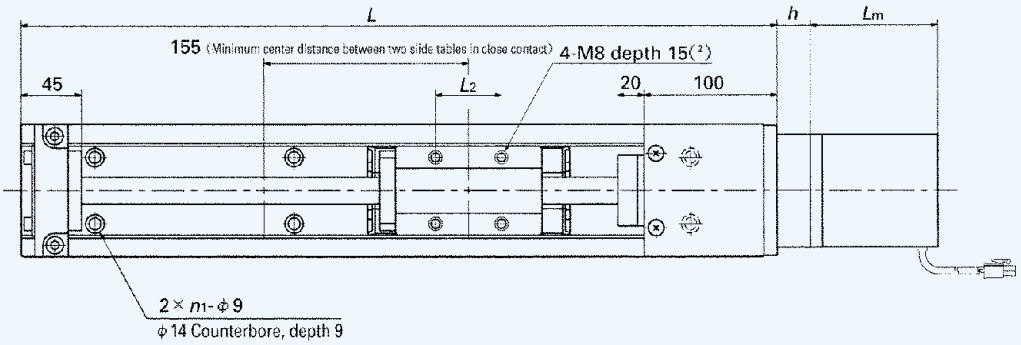
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.

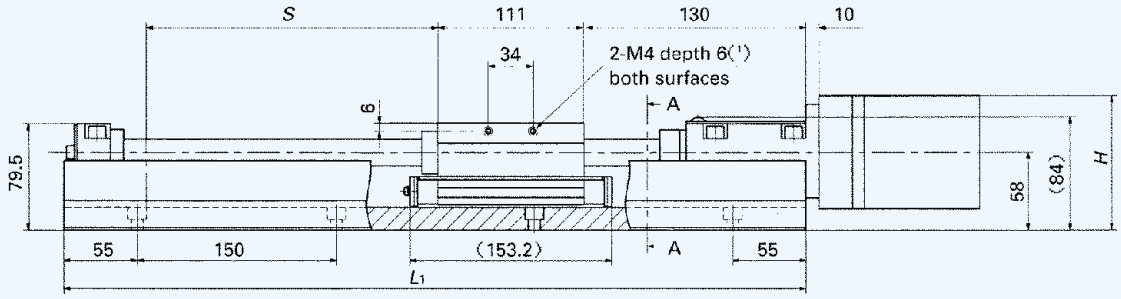


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

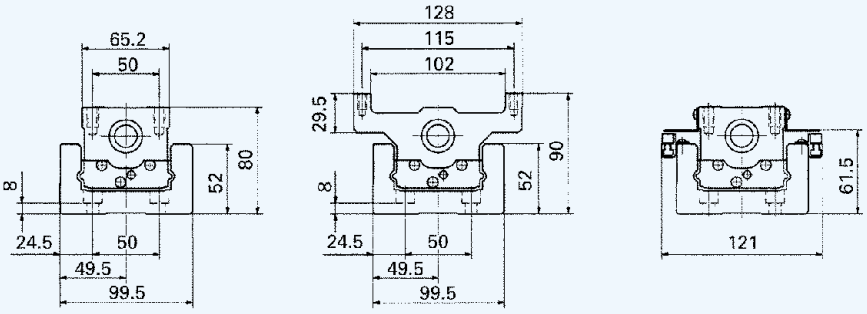
TU100S、TU100F

unit：mm





A-A section



TU100S **TU100F** With sensor

Note(1) : The table TU100F is provided with no threaded hole.
(2) : The table TU100F is M6 depth 12.
Remark : The track rail is provided with female threads for M12 hanging bolt.

Dimensions of slide table

unit : mm

Model number	Track rail length L_1	Total length L	Stroke length S(1)	n_1	L_2	Mass(2) kg
TU100S	1010	1020	690(550)	7	50	28.0
	1160	1170	840(700)	8		31.6
	1310	1320	990(850)	9		35.1
	1460	1470	1140(1000)	10		38.8
TU100F	1010	1020	690(550)	7	46	29.1
	1160	1170	840(700)	8		32.7
	1310	1320	990(850)	9		36.2
	1460	1470	1140(1000)	10		39.9

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor

unit : mm

Motor type	AC servo motor						Stepping motor		
Motor code	AA4			MA4			K8		
Dimension	h	H	L_m	h	H	L_m	h	H	L_m
Without brake	7	93	124.5	7	93	124	25	100.5	96
With brake			164			157			149

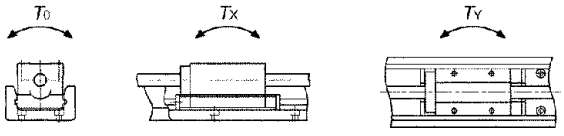
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Ground screw	20	20	6 960	13 000	0.005 or less

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU100S、TU100F	47 100	71 000	2310(4620)	1250(6750)	1250(6750)

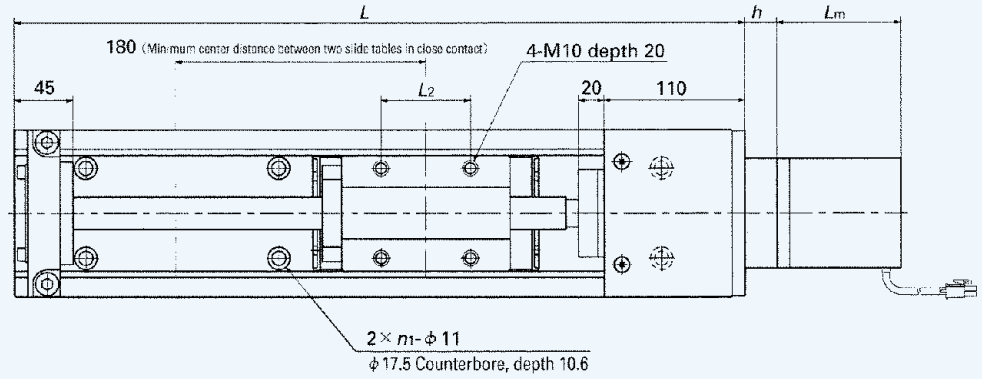
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.

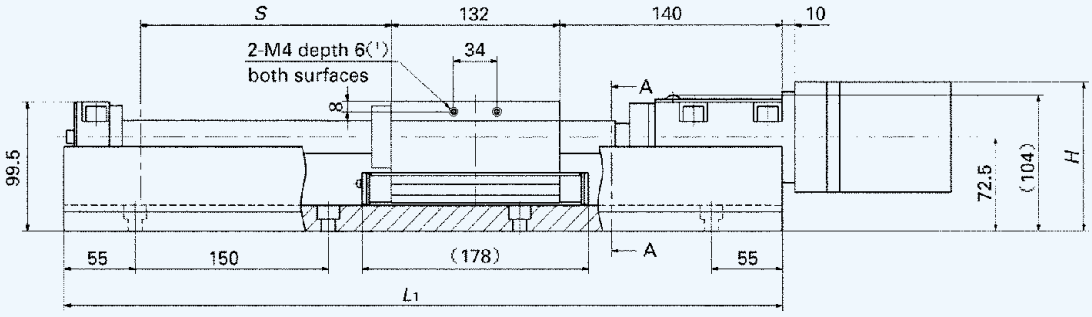


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

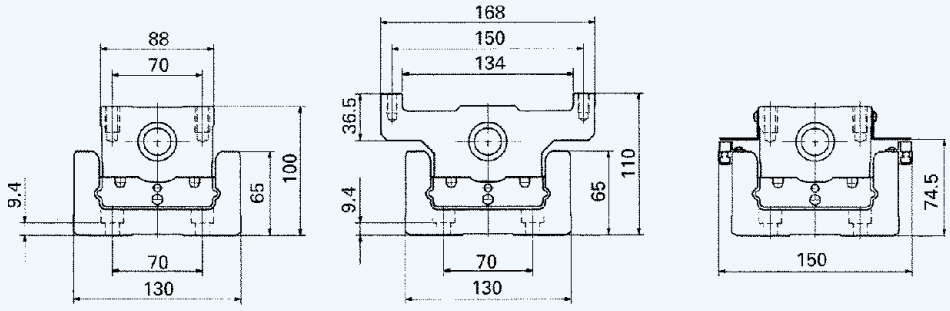
TU130S、TU130F

unit：mm





A-A section



TU130S **TU130F** With sensor

Note(1) : The table TU130F is provided with no threaded hole.
Remark : The track rail is provided with female threads for M12 hanging bolt.

Dimensions of slide table

unit : mm

Model number	Track rail length L_1	Total length L	Stroke length S(1)	n_1	L_2	Mass(2) kg
TU130S	1010	1020	660(490)	7	70	45.2
	1160	1170	810(640)	8		50.6
	1310	1320	960(790)	9		56.2
	1460	1470	1110(940)	10		61.8
	1610	1620	1260(1090)	11		67.3
TU130F	1010	1020	660(490)	7	50	47.6
	1160	1170	810(640)	8		53.0
	1310	1320	960(790)	9		58.6
	1460	1470	1110(940)	10		64.2
	1610	1620	1260(1090)	11		69.7

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor

unit : mm

Motor type	AC servo motor						Stepping motor		
Motor code	AA8			MA8			K8		
Dimension	h	H	L_m	h	H	L_m	h	H	L_m
Without brake	17	112.5	145	12	112.5	143	25	115	96
With brake			189.5			178			149

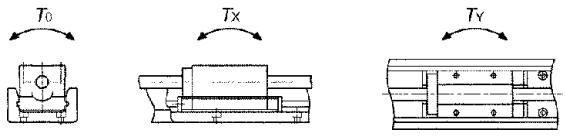
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Ground screw	25	25	10 100	20 000	0.005 or less

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU130S、TU130F	60 200	92 100	4070(8140)	1900(10100)	1900(10100)

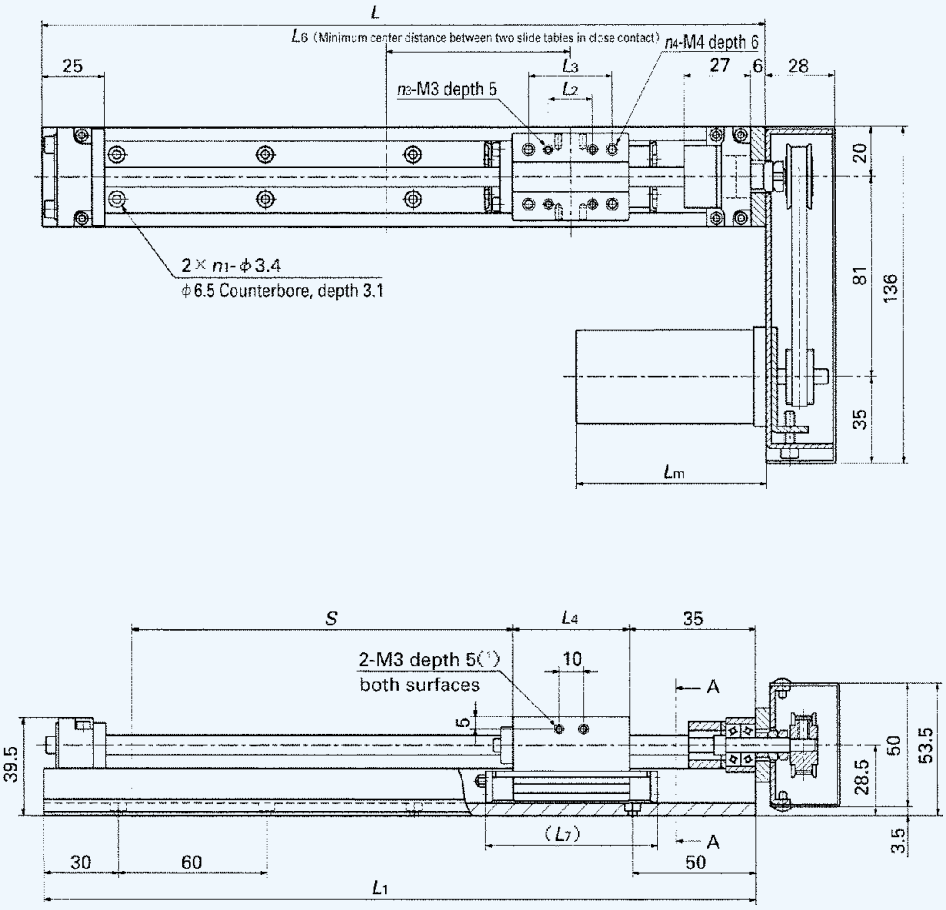
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.



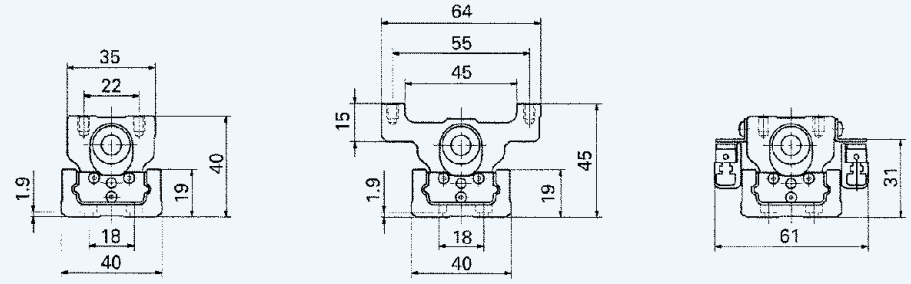
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Motor folding back type TU40

unit : mm



A-A section



TU40C、TU40S、TU40G **TU40F** With sensor

Note(1) : These threaded holes are not provided on TU40F.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_6	L_7	n_3	n_4	Mass kg
TU40C	—	—	19.5	45	43	—	2	0.1
TU40S	—	18	31.5	60	55	—	4	0.2
TU40G	18	34	47.5	75	71	4	4	0.3
TU40F	—	18	31.5	60	55	—	4	0.3

Track rail length

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg			
			TU40C	**TU40S TU40F**	**TU40G**	**TU40C**	**TU40S**	**TU40G**	**TU40F**
140	146	2	45(—)	30(—)	—(—)	1.0	1.1	—	1.2
200	206	3	105(70)	90(40)	80(—)	1.2	1.3	1.4	1.4
260	266	4	165(130)	150(100)	140(70)	1.4	1.5	1.6	1.6
320	326	5	225(190)	210(160)	200(130)	1.6	1.7	1.8	1.8
380	386	6	285(250)	270(220)	260(190)	1.8	1.9	2.0	2.0

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor L_m

unit : mm

Motor type	AC servo motor		Stepping motor
Motor code	A5	M5	K3
Without brake	77	73	47
With brake	108.5	105	77

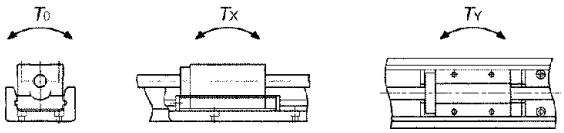
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Ground screw	4	8	2 290	3 575	0.005 or less
	8		1 450	2 155	

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU40C	5 530	6 340	86.9(174)	23.7(202)	23.7(202)
TU40S、TU40F	7 570	10 100	139 (278)	54.9(403)	54.9(403)
TU40G	9 910	15 200	208 (417)	117 (716)	117 (716)

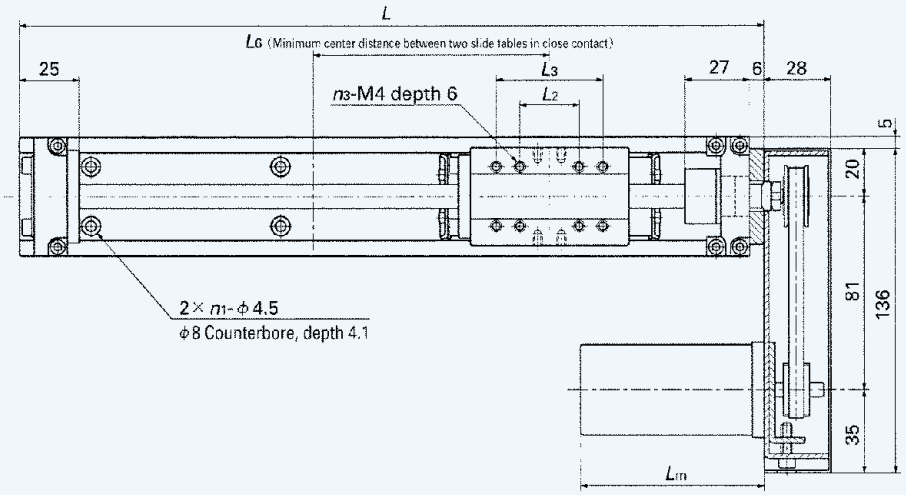
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.

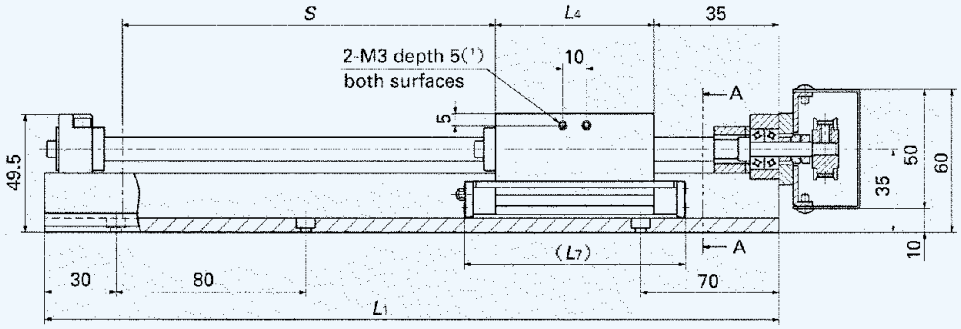


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

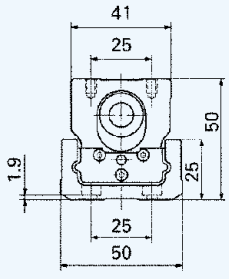
Motor folding back type TU50

unit : mm

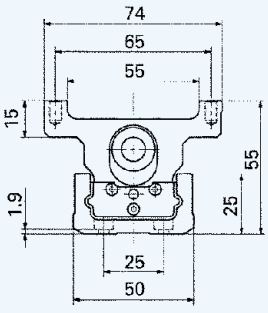




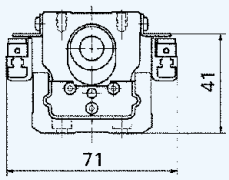
A-A section



TU50C、TU50S、TU50G



TU50F



With sensor

Note(1) : These threaded holes are not provided on TU50F.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_6	L_7	n_3	Mass kg
TU50C	—	—	23.8	55	51	2	0.2
TU50S	25	—	42.8	75	70	4	0.4
TU50G	25	45	66.8	100	94	8	0.7
TU50F	25	—	42.8	75	70	4	0.5

Track rail length

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg			
			TU50C	**TU50S TU50F**	**TU50G**	**TU50C**	**TU50S**	**TU50G**	**TU50F**
180	186	2	80(—)	60(—)	—(—)	1.6	1.8	—	1.9
260	266	3	160(115)	140(75)	120(—)	1.9	2.1	2.4	2.2
340	346	4	240(195)	220(155)	200(110)	2.3	2.5	2.8	2.6
420	426	5	320(275)	300(235)	280(190)	2.7	2.9	3.2	3.0
500	506	6	400(355)	380(315)	360(270)	3.1	3.3	3.6	3.4
580	586	7	480(435)	460(395)	440(350)	3.5	3.7	3.9	3.8
660	666	8	560(515)	540(475)	520(430)	3.8	4.0	4.3	4.1

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor L_m

unit : mm

Motor type	AC servo motor		Stepping motor
Motor code	A5	M5	K3
Without brake	77	73	47
With brake	108.5	105	77

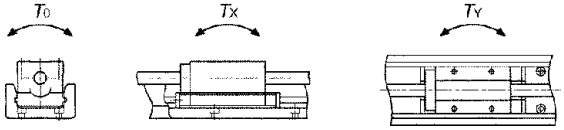
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Ground screw	5	10	2 730	4 410	0.005 or less
	10		1 720	2 745	

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU50C	8 110	9 130	162(323)	40.9(358)	40.9(358)
TU50S、TU50F	12 000	16 400	291(582)	118 (799)	118 (799)
TU50G	16 100	25 600	452(905)	270 (1580)	270 (1580)

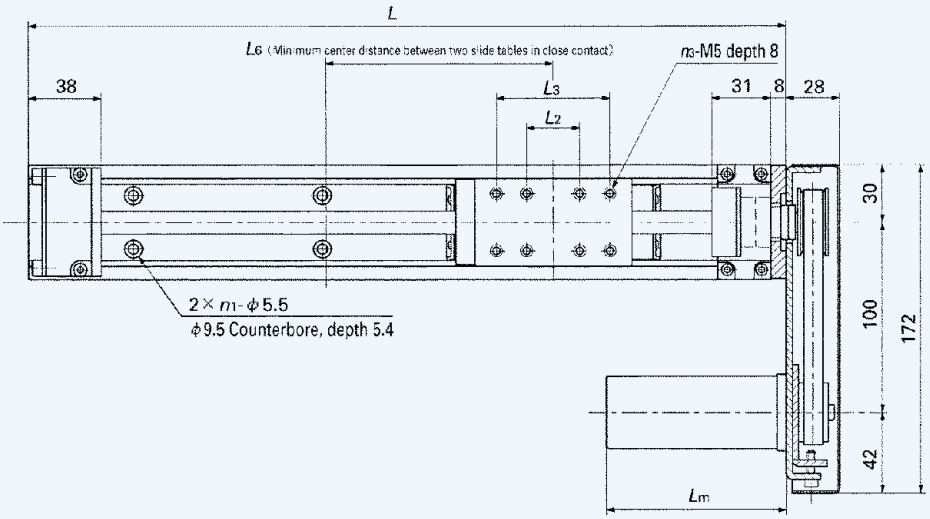
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.

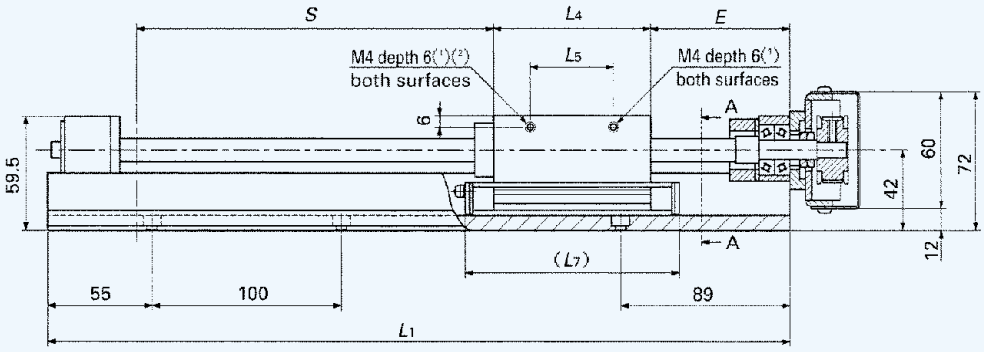


1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

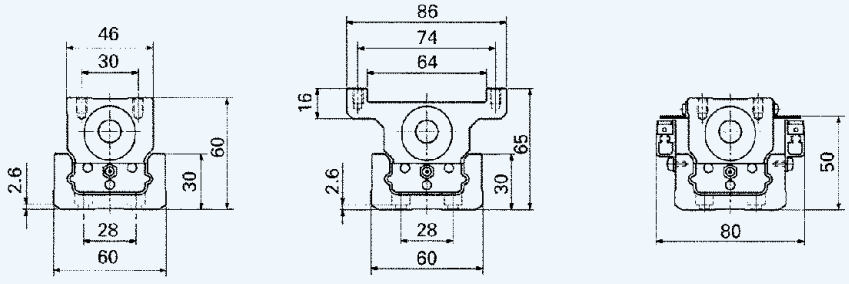
Motor folding back type TU60

unit : mm





A-A section



TU60C、TU60S、TU60G　　TU60FC、TU60F、TU60FG　　With sensor

Note (1) : These threaded holes are not provided on TU60FC, TU60F, and TU60FG.
(2) : In case of TU60C, φ3 depth 2.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_5	L_6	L_7	n_3	E	Mass kg
TU60C	—	—	27.4	17.4	65	58	2	44	0.3
TU60S	28	—	52.4	18	90	83	4	39	0.6
TU60G	28	60	83	44	120.5	113	8	39	1.0
TU60FC	—	—	27.4	—	65	58	2	44	0.4
TU60F	28	—	52.4	—	90	83	4	39	0.8
TU60FG	28	60	83	—	120.5	113	8	39	1.3

Track rail length

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg					
			TU60C TU60FC	**TU60S TU60F**	**TU60G TU60FG**	**TU60C**	**TU60S**	**TU60G**	**TU60FC**	**TU60F**	**TU60FG**
244	252	2	110(50)	95(15)	65(—)	3.6	3.9	4.2	3.7	4.1	4.5
344	352	3	210(150)	195(115)	165(55)	4.3	4.6	5.0	4.4	4.8	5.3
444	452	4	310(250)	295(215)	265(155)	5.1	5.4	5.7	5.2	5.5	6.0
544	552	5	410(350)	395(315)	365(255)	5.8	6.1	6.4	5.9	6.3	6.7
644	652	6	510(450)	495(415)	465(355)	6.6	6.8	7.2	6.7	7.0	7.5
744	752	7	610(550)	595(515)	565(455)	7.5	7.6	7.9	7.6	7.8	8.2

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor L_m

unit : mm

Motor type	AC servo motor	
Motor code	A1	M1
Without brake	94.5	103
With brake	135	135

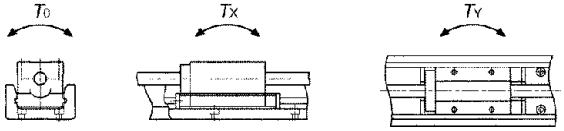
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Rolled screw	5	12	2 800	5 000	0.05 or less
	10		1 800	3 200	
Ground screw	5	12	3 230	6 320	0.005 or less
	10		2 300	3 920	

Specifications of linear motion rolling guide

Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU60C、TU60FC	11 200	12 400	245(490)	65.0(576)	65.0(576)
TU60S、TU60F	16 600	22 400	441(881)	187 (1310)	187 (1310)
TU60G、TU60FG	23 300	37 300	734(1470)	489 (2760)	489 (2760)

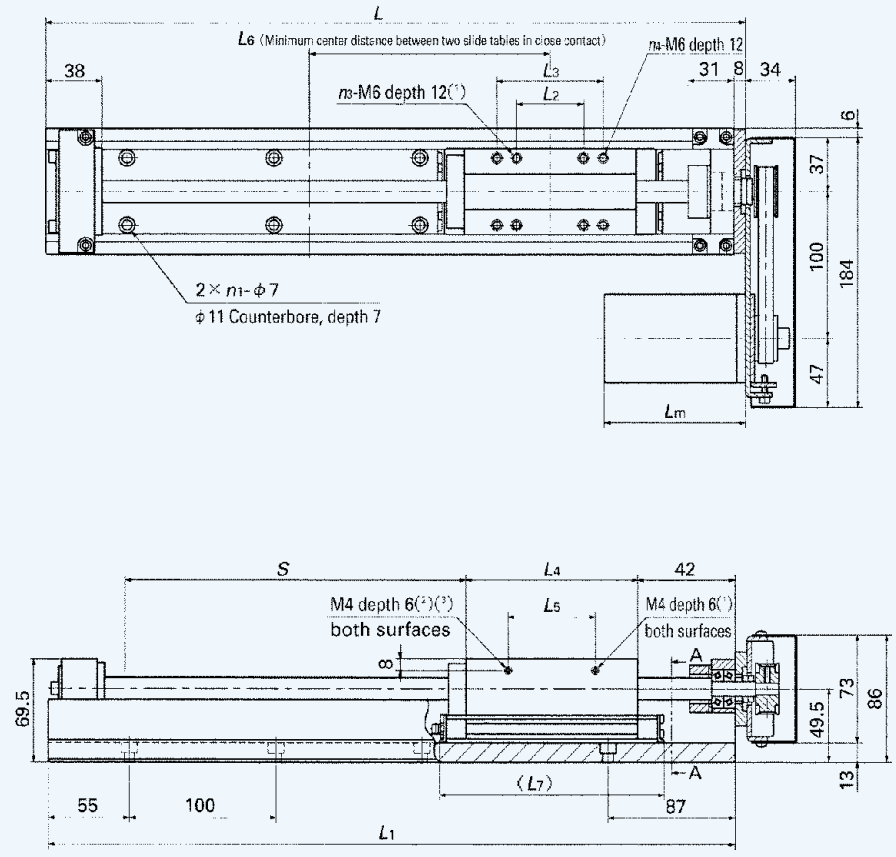
Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.



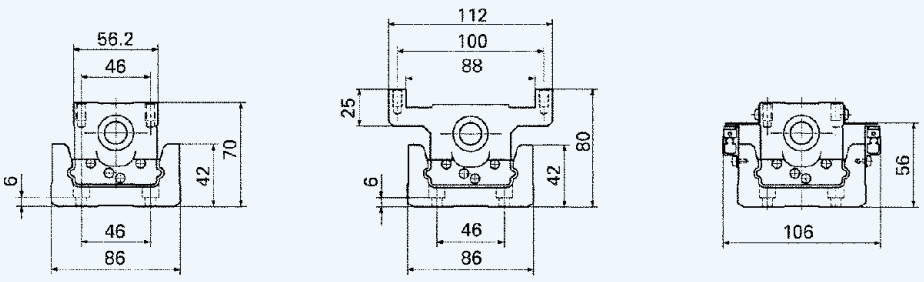
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Motor folding back type TU86

unit : mm



A-A section



TU86C、TU86S、TU86G **TU86FC、TU86F、TU86FG** With sensor

Note(1) : The table TU86F is M5 depth 12.
(2) : These threaded holes are not provided on TU86FC, TU86F, and TU86FG.
(3) : The table TU86C is φ3 depth 2.

Dimensions of slide table

unit : mm

Model number	L_2	L_3	L_4	L_5	L_6	L_7	n_3	n_4	Mass kg
TU86C	—	—	43	30	90	80	2	—	0.7
TU86S	46	—	93	63	140	130	4	—	1.7
TU86G	46	73	118	60	165	155	4	4	2.2
TU86FC	—	—	43	—	90	80	2	—	1.1
TU86F	28	46	93	—	140	130	4	4	2.3
TU86FG	46	73	118	—	165	155	4	4	3.0

Track rail length

unit : mm

Track rail length L_1	Total length L	n_1	Stroke length S(1)			Mass(2) kg					
			TU86C TU86FC	**TU86S TU86F**	**TU86G TU86FG**	**TU86C**	**TU86S**	**TU86G**	**TU86FC**	**TU86F**	**TU86FG**
442	450	4	295(215)	245(115)	220(65)	10.3	11.3	11.8	10.7	11.9	12.6
542	550	5	395(315)	345(215)	320(165)	11.2	12.1	12.6	11.6	12.8	13.4
642	650	6	495(415)	445(315)	420(265)	12.7	13.6	14.2	13.1	14.3	15.0
742	750	7	595(515)	545(415)	520(365)	14.2	15.1	15.7	14.6	15.8	16.5
842	850	8	695(615)	645(515)	620(465)	15.4	16.3	16.8	15.8	17.0	17.6
942	950	9	795(715)	745(615)	720(565)	16.9	17.8	18.3	17.3	18.5	19.1
1042	1050	10	895(815)	845(715)	820(665)	18.4	19.3	19.8	18.8	20.0	20.6
1142	1150	11	995(915)	945(815)	920(765)	19.9	20.8	21.4	20.3	21.5	22.2

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
(2) : The total mass of the table with one slide table is indicated. The mass of motor is not included.

Dimensions of motor L_m

unit : mm

Motor type	AC servo motor	
Motor code	A2	M2
Without brake	96.5	95
With brake	136	128

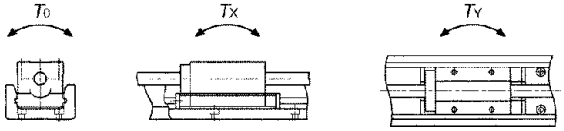
Specifications of ball screw

Type of ball screw	Lead mm	Outside dia. of screw mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Axial clearance mm
Rolled screw	10	15	4 900	9 100	0.05 or less
	20		3 900	5 050	
Ground screw	10	15	6 080	12 600	0.005 or less
	20		4 510	7 850	

Specifications of linear motion rolling guide

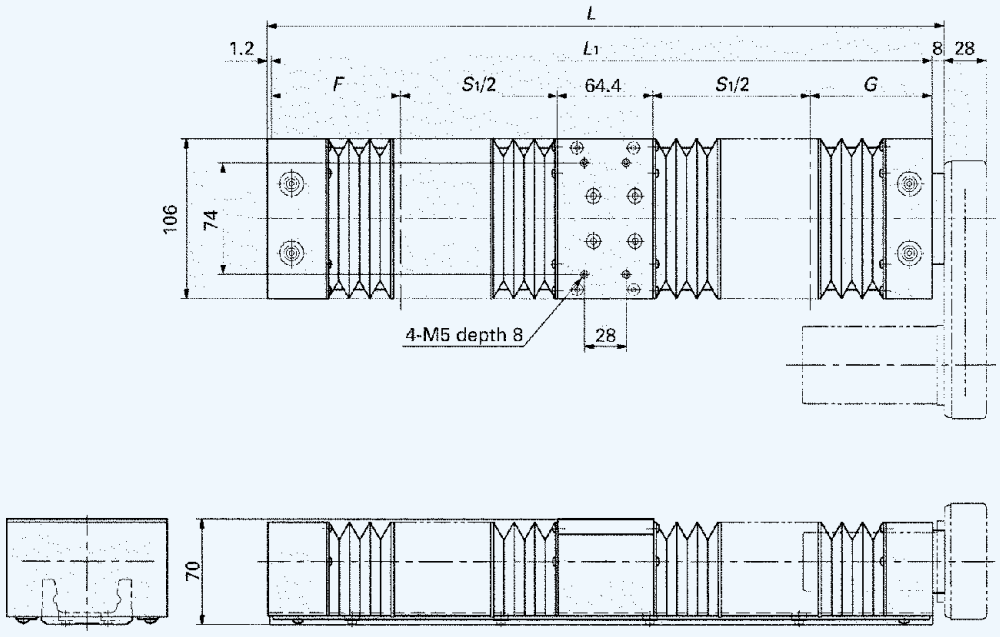
Model number	Basic dynamic load rating C N	Basic static load rating C_0 N	Static moment rating(1) N・m		
			T_0	T_X	T_Y
TU86C、TU86FC	21 500	24 700	703(1410)	190(1530)	190(1530)
TU86S、TU86F	35 900	53 400	1520(3040)	792(4650)	792(4650)
TU86G、TU86FG	43 000	69 800	1990(3980)	1320(6990)	1320(6990)

Note(1) : The values are those in the directions shown in the figure below. The values in ( ) are for two slide tables in close contact.



1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table with bellows TU60S

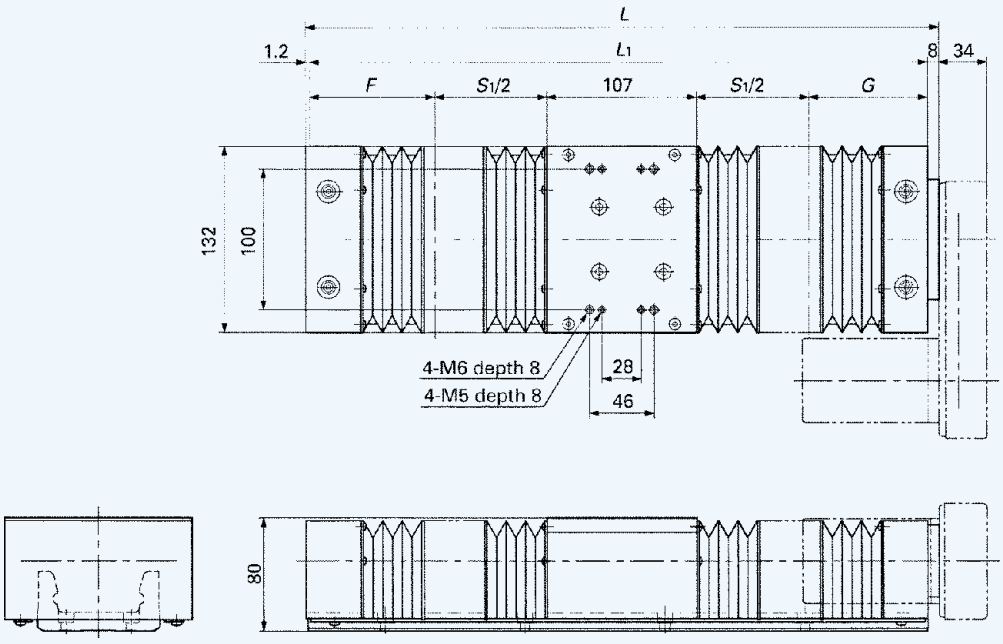


unit : mm

Track rail length L_1	Total length L	Limit stroke length(1) S_1	Stroke length(2) S	F	G
290(244)	299.2(253.2)	73.6(68.6)	65(60)	59(59)	93(52)
390(344)	399.2(353.2)	147.6(142.6)	140(135)	72(72)	106(65)
490(444)	499.2(453.2)	219.6(214.6)	210(205)	86(86)	120(79)
590(544)	599.2(553.2)	293.6(288.6)	285(280)	99(99)	133(92)
690(644)	699.2(653.2)	393.6(388.6)	380(375)	99(99)	133(92)
790(744)	799.2(753.2)	465.6(460.6)	455(450)	113(113)	147(106)

Note(1) : Limit stroke length means the limit value of stroke range over which the slide table can travel.
(2) : The limit stroke length when limit sensors are attached is indicated.
Remark 1 : The dimensions in ( ) are applicable to the table with bellows of the motor folding back specification.
2 : For the mounting dimensions of track rail, see the dimension table of TU60.

Table with bellows TU86S



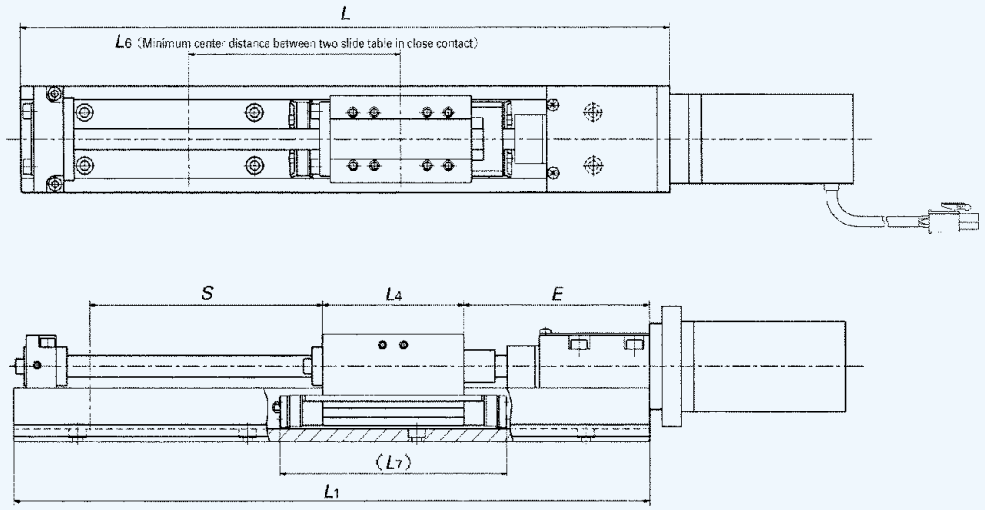
unit : mm

Track rail length L_1	Total length L	Limit stroke length(1) S_1	Stroke length(2) S	F	G
490(442)	499.2(451.2)	203(198)	195(190)	72(72)	108(65)
590(542)	599.2(551.2)	275(270)	265(260)	86(86)	122(79)
690(642)	699.2(651.2)	349(344)	340(335)	99(99)	135(92)
790(742)	799.2(751.2)	421(416)	410(405)	113(113)	149(106)
890(842)	899.2(851.2)	521(516)	510(505)	113(113)	149(106)
990(942)	999.2(951.2)	593(588)	580(575)	127(127)	163(120)
1090(1042)	1099.2(1051.2)	667(662)	655(650)	140(140)	176(133)
1190(1142)	1199.2(1151.2)	739(734)	730(725)	154(154)	190(147)

Note(1) : Limit stroke length means the limit value of stroke range over which the slide table can travel.
(2) : The limit stroke length when limit sensors are attached is indicated.
Remark 1 : The dimensions in ( ) are applicable to the table with bellows of the motor folding back specification.
2 : For the mounting dimensions of track rail, see the dimension table of TU86.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table with capillary plates



unit : mm

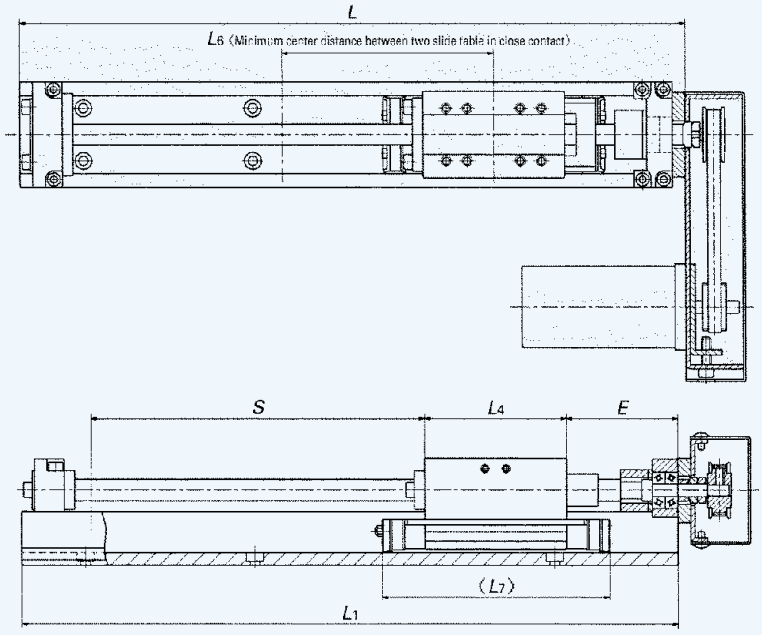
Model number	Track rail length L_1	Total length L	Stroke length(1) S	E	L_4	L_6	L_7
TU 40C	180	186	30 (—)	90	19.5	60	55
	240	246	90 (40)				
	300	306	150 (100)				
	360	366	210 (160)				
	420	426	270 (220)				
TU 40S **TU 40F**	180	186	20 (—)	90	31.5	70	67
	240	246	80 (—)				
	300	306	140 (75)				
	360	366	200 (135)				
	420	426	260 (195)				
TU 40G	240	246	60 (—)	90	47.5	85	83
	300	306	120 (45)				
	360	366	180 (105)				
	420	426	240 (165)				
TU 50C	220	226	65 (—)	90	23.8	65	63
	300	306	145 (90)				
	380	386	225 (170)				
	460	466	305 (250)				
	540	546	385 (330)				
	620	626	465 (410)				
	700	706	545 (490)				
TU 50S **TU 50F**	220	226	45 (—)	90	42.8	85	82
	300	306	125 (50)				
	380	386	205 (130)				
	460	466	285 (210)				
	540	546	365 (290)				
	620	626	445 (370)				
	700	706	525 (450)				
TU 50G	300	306	100 (—)	90	66.8	110	106
	380	386	180 (80)				
	460	466	260 (160)				
	540	546	340 (240)				
	620	626	420 (320)				
	700	706	500 (400)				

unit : mm

Model number	Track rail length L_1	Total length L	Stroke length(1) S	E	L_4	L_6	L_7
TU 60C TU 60FC	290	298	90 (40)	100	27.4	75	70
	390	398	190 (140)				
	490	498	290 (240)				
	590	598	390 (340)				
	690	698	490 (440)				
	790	798	590 (540)				
TU 60S TU 60F	290	298	90 (—)	80	52.4	100	95
	390	398	190 (110)				
	490	498	290 (210)				
	590	598	390 (310)				
	690	698	490 (410)				
	790	798	590 (510)				
TU 60G TU 60FG	290	298	60 (—)	80	83	130	125
	390	398	160 (50)				
	490	498	260 (150)				
	590	598	360 (250)				
	690	698	460 (350)				
	790	798	560 (450)				
TU 86C TU 86FC	490	498	260 (190)	110	43	95	92
	590	598	360 (290)				
	690	698	460 (390)				
	790	798	560 (490)				
	890	898	660 (590)				
	990	998	760 (690)				
	1090	1098	860 (790)				
	1190	1198	960 (890)				
TU 86S TU 86F	490	498	230 (120)	85	93	145	142
	590	598	330 (220)				
	690	698	430 (320)				
	790	798	530 (420)				
	890	898	630 (520)				
	990	998	730 (620)				
	1090	1098	830 (720)				
	1190	1198	930 (820)				
TU 86G TU 86FG	490	498	210 (70)	85	118	170	167
	590	598	310 (170)				
	690	698	410 (270)				
	790	798	510 (370)				
	890	898	610 (470)				
	990	998	710 (570)				
	1090	1098	810 (670)				
	1190	1198	910 (770)				
TU100S TU100F	1010	1020	670 (540)	130	111	170	166
	1160	1170	820 (690)				
	1310	1320	970 (840)				
	1460	1470	1120 (990)				
TU130S TU130F	1010	1020	630 (480)	140	132	195	190
	1160	1170	780 (630)				
	1310	1320	930 (780)				
	1460	1470	1080 (930)				
	1610	1620	1230 (1080)				

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
Remark : For the dimension of the slide table and track rail, see the dimension tables of the respective models.

Table with capillary plates (Motor folding back type)



unit : mm

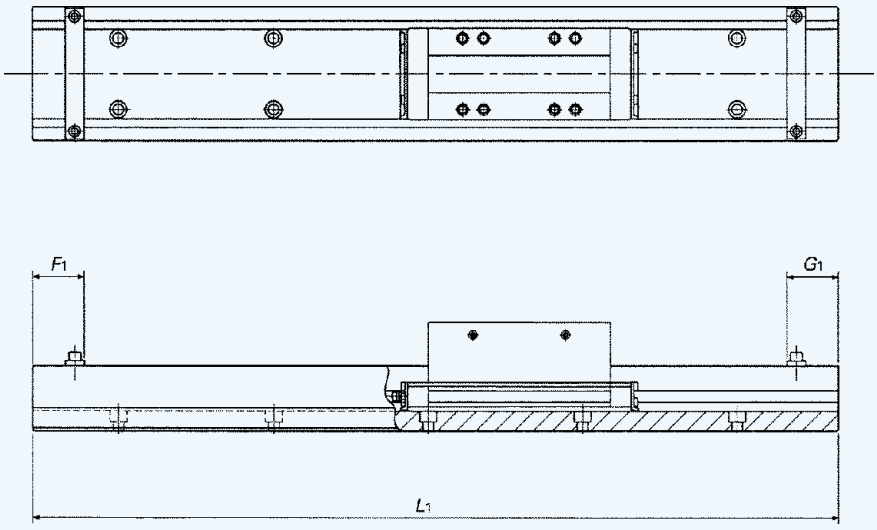
Model number	Track rail length L_1	Total length L	Stroke length(1) S	E	L_4	L_6	L_7
TU40C	140	146	30 (—)	50	19.5	60	55
	200	206	90 (40)				
	260	266	150 (100)				
	320	326	210 (160)				
	380	386	270 (220)				
TU40S TU40F	140	146	20 (—)	50	31.5	70	67
	200	206	80 (—)				
	260	266	140 (75)				
	320	326	200 (135)				
	380	386	260 (195)				
TU40G	200	206	60 (—)	50	47.5	85	83
	260	266	120 (45)				
	320	326	180 (105)				
	380	386	240 (165)				
TU50C	180	186	65 (—)	50	23.8	65	63
	260	266	145 (90)				
	340	346	225 (170)				
	420	426	305 (250)				
	500	506	385 (330)				
	580	586	465 (410)				
	660	666	545 (490)				
TU50S TU50F	180	186	45 (—)	50	42.8	85	82
	260	266	125 (50)				
	340	346	205 (130)				
	420	426	285 (210)				
	500	506	365 (290)				
	580	586	445 (370)				
	660	666	525 (450)				
TU50G	260	266	100 (—)	50	66.8	110	106
	340	346	180 (80)				
	420	426	260 (160)				
	500	506	340 (240)				
	580	586	420 (320)				
	660	666	500 (400)				

unit : mm

Model number	Track rail length L_1	Total length L	Stroke length(1) S	E	L_4	L_6	L_7
TU60C TU60FC	244	252	90 (40)	55	27.4	75	70
	344	352	190 (140)				
	444	452	290 (240)				
	544	552	390 (340)				
	644	652	490 (440)				
	744	752	590 (540)				
TU60S TU60F	244	252	80 (—)	40	52.4	100	95
	344	352	180 (110)				
	444	452	280 (210)				
	544	552	380 (310)				
	644	652	480 (410)				
	744	752	580 (510)				
TU60G TU60FG	244	252	50 (—)	40	83	130	125
	344	352	150 (50)				
	444	452	250 (150)				
	544	552	350 (250)				
	644	652	450 (350)				
	744	752	550 (450)				
TU86C TU86FC	442	450	250 (190)	70	43	95	92
	542	550	350 (290)				
	642	650	450 (390)				
	742	750	550 (490)				
	842	850	650 (590)				
	942	950	750 (690)				
	1042	1050	850 (790)				
	1142	1150	950 (890)				
TU86S TU86F	442	450	230 (120)	40	93	145	142
	542	550	330 (220)				
	642	650	430 (320)				
	742	750	530 (420)				
	842	850	630 (520)				
	942	950	730 (620)				
	1042	1050	830 (720)				
	1142	1150	930 (820)				
TU86G TU86FG	442	450	210 (70)	40	118	170	167
	542	550	310 (170)				
	642	650	410 (270)				
	742	750	510 (370)				
	842	850	610 (470)				
	942	950	710 (570)				
	1042	1050	810 (670)				
	1142	1150	910 (770)				

Note(1) : The limit stroke length when limit sensors are attached is indicated. The values in ( ) are for two slide tables in close contact.
Remark : For the dimension of the slide table and track rail, see the dimension tables of the respective models.

Table without ball screw



unit : mm

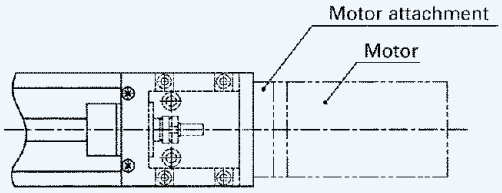
Model number	Track rail specification	Track rail length L_1	Without bridge cover		With bridge cover	
			F_1	G_1	F_1	G_1
TU40	For a type without motor folding back	180	20	18	20	18
		240				
		300				
		360				
		420				
	For a type with motor folding back	140	20	18	20	18
		200				
		260				
		320				
		380				

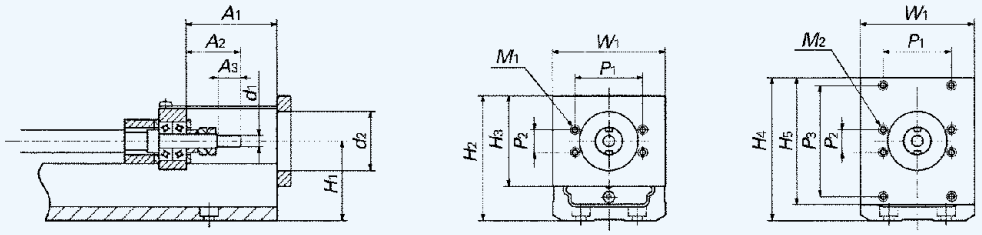
Model number	Track rail specification	Track rail length L_1	Without bridge cover		With bridge cover	
			F_1	G_1	F_1	G_1
TU 50	For a type without motor folding back	220	20	18	20	18
		300				
		380				
		460				
		540				
		620				
		700				
	For a type with motor folding back	180	20	18	20	18
		260				
		340				
		420				
		500				
		580				
		660				
TU 60	For a type without motor folding back	290	32	17	35	29
		390				
		490				
		590				
		690				
		790				
	For a type with motor folding back	244	32	28	35	29
		344				
		444				
		544				
		644				
		744				
TU 86	For a type without motor folding back	490	32	19	35	29
		590				
		690				
		790				
		890				
		990				
		1090				
		1190				
	For a type with motor folding back	442	32	28	35	29
		542				
		642				
		742				
		842				
		942				
		1042				
		1142				
TU100	For a type without motor folding back	1010	35	34	35	34
		1160				
		1310				
		1460				
TU130	For a type without motor folding back	1010	35	38	35	38
		1160				
		1310				
		1460				
		1610				

Remark : For the dimensions of the slide table and track rail, see the dimension tables of the respective models.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table without motor attachment





TU40…/K3(1) (Stepping motor specification)
TU50…/K3(1) (Stepping motor specification)

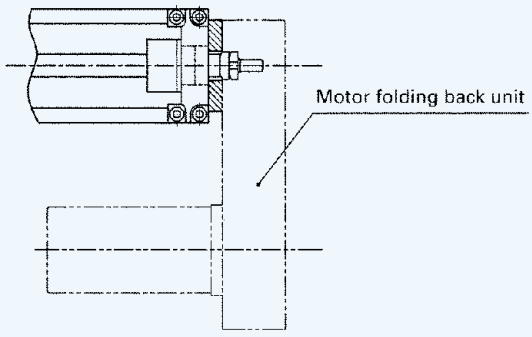
unit : mm

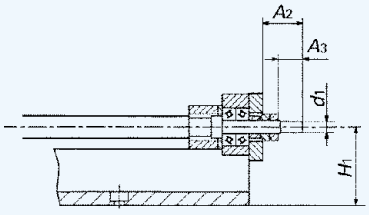
Model number	A_1	A_2	A_3	d_1	d_2	H_1	H_2	H_3	H_4	H_5
TU 40	40	24	10	$\phi 5\ ^{0}_{-0.008}$	$\phi 26\ ^{+0.04}_{+0.02}$	28.5	43.5	30	56.5	56
TU 50	40	24	10	$\phi 5\ ^{0}_{-0.008}$	$\phi 26\ ^{+0.04}_{+0.02}$	35	55	40	63	56
TU 60	46	29	15	$\phi 8\ ^{0}_{-0.009}$	$\phi 32\ ^{+0.04}_{+0.02}$	42	62	40	—	—
TU 86	48	29	15	$\phi 8\ ^{0}_{-0.009}$	$\phi 39\ ^{+0.04}_{+0.02}$	49.5	74.5	50	—	—
TU100	72	44	22	$\phi 12\ ^{0}_{-0.011}$	$\phi 59\ ^{+0.04}_{+0.02}$	58	93	70	—	—
TU130	72	44	20	$\phi 15\ ^{0}_{-0.011}$	$\phi 59\ ^{+0.04}_{+0.02}$	72.5	107.5	70	—	—

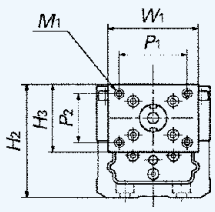
Model number	W_1	P_1	P_2	P_3	M_1	M_2
TU 40	40	30	10	49	4-M3 depth 6	8-M3 depth 6
TU 50	50	30	10	49	4-M3 depth 6	8-M3 depth 6
TU 60	58.5	50	20	—	4-M4 depth 8	—
TU 86	84.5	50	20	—	4-M4 depth 8	—
TU100	98	72	40	—	4-M5 depth 10	—
TU130	128	72	40	—	4-M5 depth 10	—

Note(1) : When a table without motor attachment is specified in the identification number, the AC servo motor specification is selected.
Remark : For the dimensions of the slide table and track rail, see the dimension tables of the respective models.

Table without motor folding back unit







unit : mm

Model number	A_2	A_3	d_1	H_1	H_2	H_3	W_1	P_1	P_2	M_1
TU40	18	10	$\phi 5\ ^{0}_{-0.008}$	28.5	43.5	30	40	24	24	4-M4 depth 6
TU50	18	10	$\phi 5\ ^{0}_{-0.008}$	35	50	30	40	24	24	4-M4 depth 6
TU60	21	15	$\phi 8\ ^{0}_{-0.009}$	42	62	40	60	42	20	4-M4 depth 8
TU86	21	15	$\phi 8\ ^{0}_{-0.009}$	49.5	69.5	40	85	42	20	4-M4 depth 8

Remark : For the dimensions of the slide table and track rail, see the dimension tables of the respective models.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Motor attachment bracket

Various types and sizes of motors can be attached to IKO Precision Positioning Table TU by mounting the motor attachment bracket to the table body. A mounting example of the motor attachment bracket is shown in Fig. 6. Table 22 shows the types of motor attachment brackets. The motor attachment bracket for the standard motor can be specified by simply indicating the identification number of the table.

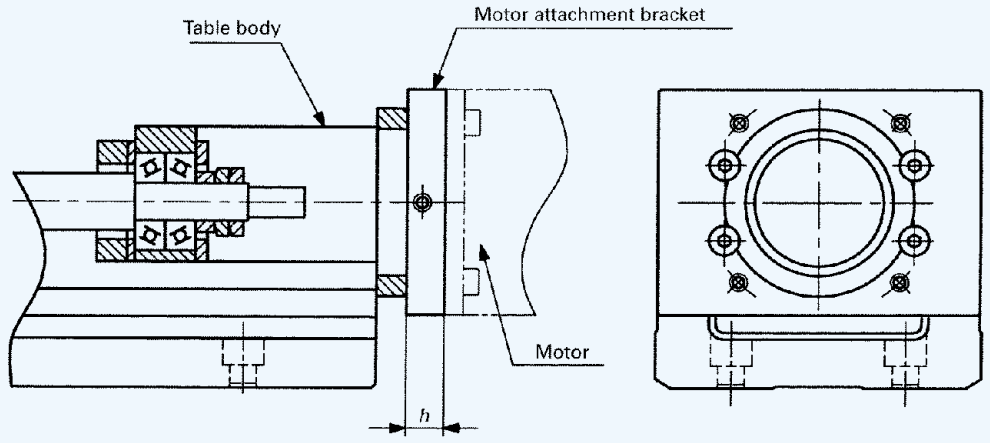


Fig. 6 Mounting example of motor attachment bracket

Table 22 Types of motor attachment bracket

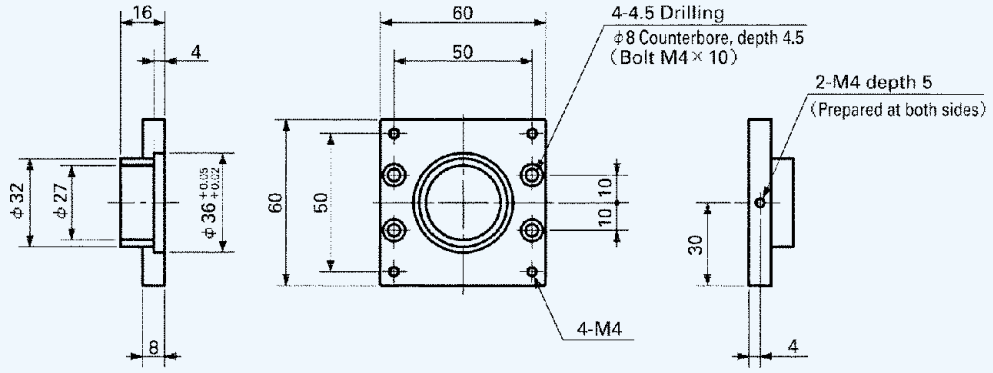
Table	Motor attachment bracket model number	Applicable motor		Dimension *h* mm	Mass kg
		Motor type	Model number		
TU40	TAE9043-AT(1)	Stepping motor	PK54… Oriental Motor Co., Ltd.	9	0.15
	TAE9044-AT	AC servo motor	SGM-A3…、SGM-A5…、SGM-01… Yaskawa Electric Corporation	9	0.1
	TAE9045-AT		MSM3A…、MSM5A…、MSM01… Matsushita Electric Industrial Co., Ltd.	9	0.1
	TAE9046-AT		MSM5B…、MSM1A…、MSM2A… Matsushita Electric Industrial Co., Ltd.	4	0.05
TU50	TAE9043-AT(1)	Stepping motor	PK54… Oriental Motor Co., Ltd.	9	0.15
	TAE9044-AT	AC servo motor	SGM-A3…、SGM-A5…、SGM-01… Yaskawa Electric Corporation	9	0.1
	TAE9045-AT		MSM3A…、MSM5A…、MSM01… Matsushita Electric Industrial Co., Ltd.	9	0.1
	TAE9046-AT		MSM5B…、MSM1A…、MSM2A… Matsushita Electric Industrial Co., Ltd.	4	0.05
TU60	TAE9014-AT	Stepping motor	PK56… Oriental Motor Co., Ltd.	8	0.2
	TAE9015-AT	AC servo motor	SGM-A3…、SGM-A5…、SGM-01… Yaskawa Electric Corporation	8	0.2
	TAE9022-AT		MSM3A…、MSM5A…、MSM01… Matsushita Electric Industrial Co., Ltd.	8	0.2
	TAE9016-AT	DC servo motor	L511… Sanyo Electric Co., Ltd.	10	0.2
TU86	TAE9017-AT	Stepping motor	PK56… Oriental Motor Co., Ltd.	8	0.3
	TAE9018-AT	AC servo motor	SGM-A3…、SGM-A5…、SGM-01… Yaskawa Electric Corporation	8	0.3
	TAE9019-AT		SGM-02…、SGM-03…、SGM-04… Yaskawa Electric Corporation	13	0.4
	TAE9023-AT		MSM3A…、MSM5A…、MSM01… Matsushita Electric Industrial Co., Ltd.	8	0.3
	TAE9024-AT		MSM02…、MSM04… Matsushita Electric Industrial Co., Ltd.	13	0.4
	TAE9020-AT	DC servo motor	L511… Sanyo Electric Co., Ltd.	10	0.3
	TAE9021-AT		L720… Sanyo Electric Co., Ltd.	13	0.5
TU100	TAE9049-AT	Stepping motor	PK59… Oriental Motor Co., Ltd.	(Contact IKO for detail)	
	TAE9050-AT	AC servo motor	SGM-04… Yaskawa Electric Corporation	7	0.3
	TAE9051-AT		MSM04… Matsushita Electric Industrial Co., Ltd.	7	0.3
TU130	TAE9049-AT	Stepping motor	PK59… Oriental Motor Co., Ltd.	(Contact IKO for detail)	
	TAE9052-AT	AC servo motor	SGM-08… Yaskawa Electric Corporation	17	0.6
	TAE9053-AT		MSM08… Matsushita Electric Industrial Co., Ltd.	12	0.4

Note(1) : This bracket can be mounted only on the table body of TU40.../K3 and TU50.../K3.
Remark : For the detailed dimensions of units with a standard motor, see each dimention table.

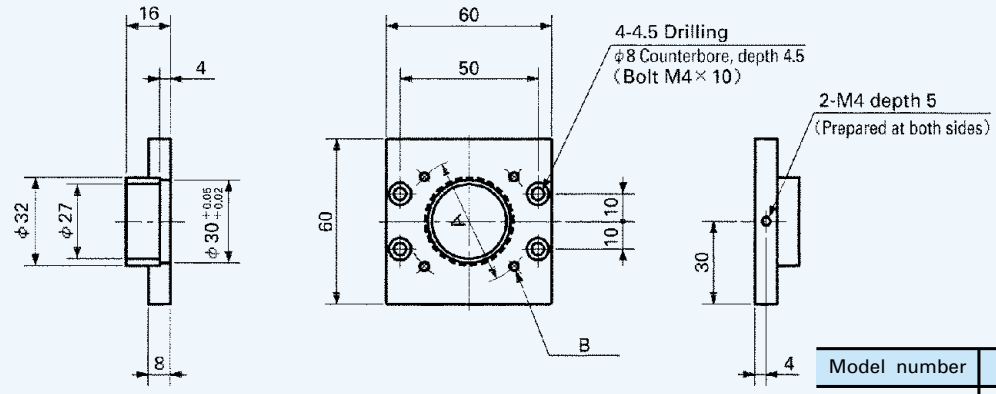
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

unit：mm

TAE9014-AT

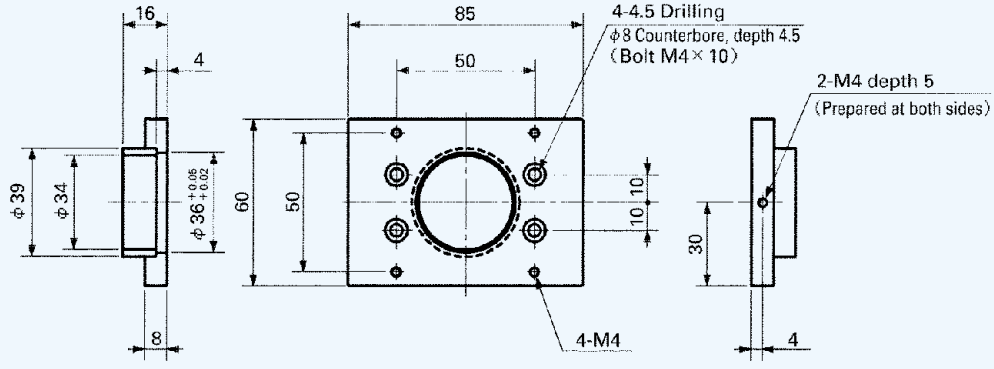


TAE9015-AT
TAE9022-AT



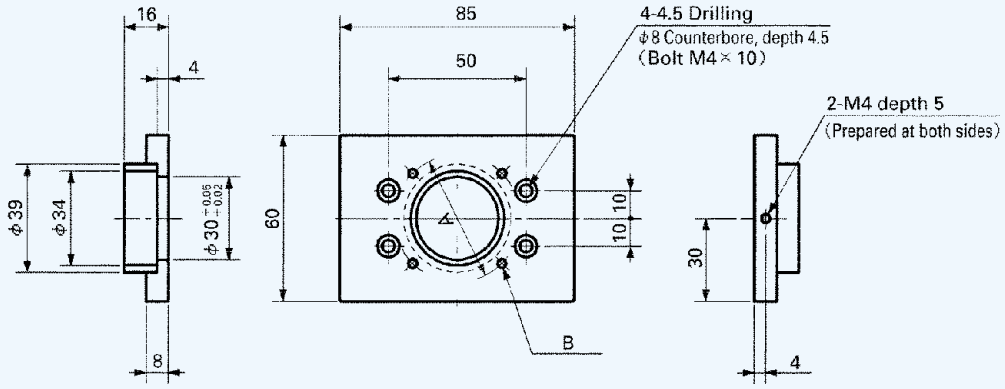
Model number	φA	B
TAE9015-AT	46	4-M4
TAE9022-AT	45	4-M3

TAE9017-AT

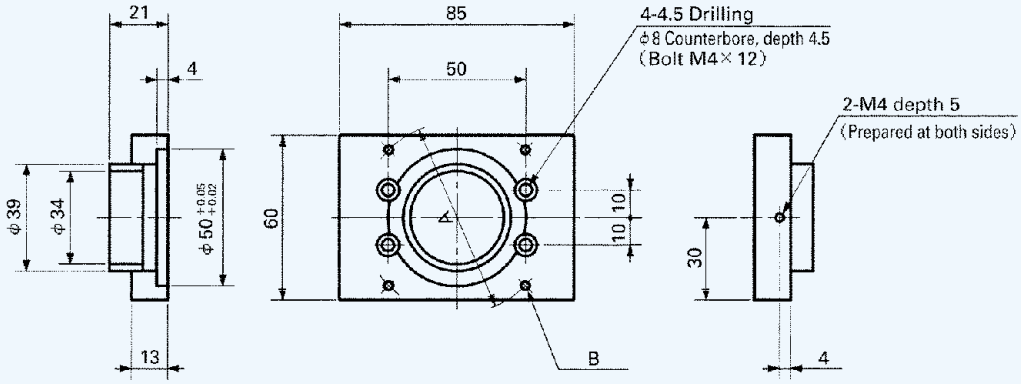


unit：mm

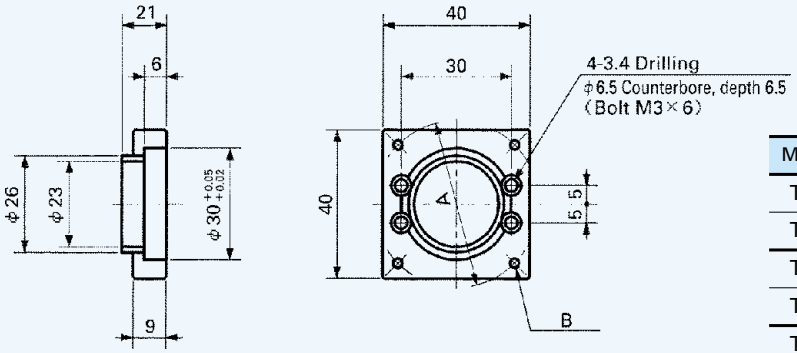
TAE9018-AT
TAE9023-AT



TAE9019-AT
TAE9024-AT



TAE9044-AT
TAE9045-AT

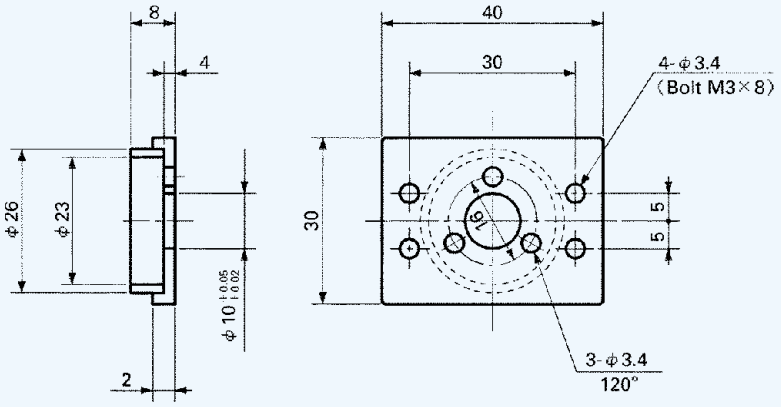


Model number	φA	B
TAE9018-AT	46	4-M4
TAE9023-AT	45	4-M3
TAE9019-AT	70	4-M5
TAE9024-AT	70	4-M4
TAE9044-AT	46	4-M4
TAE9045-AT	45	4-M3

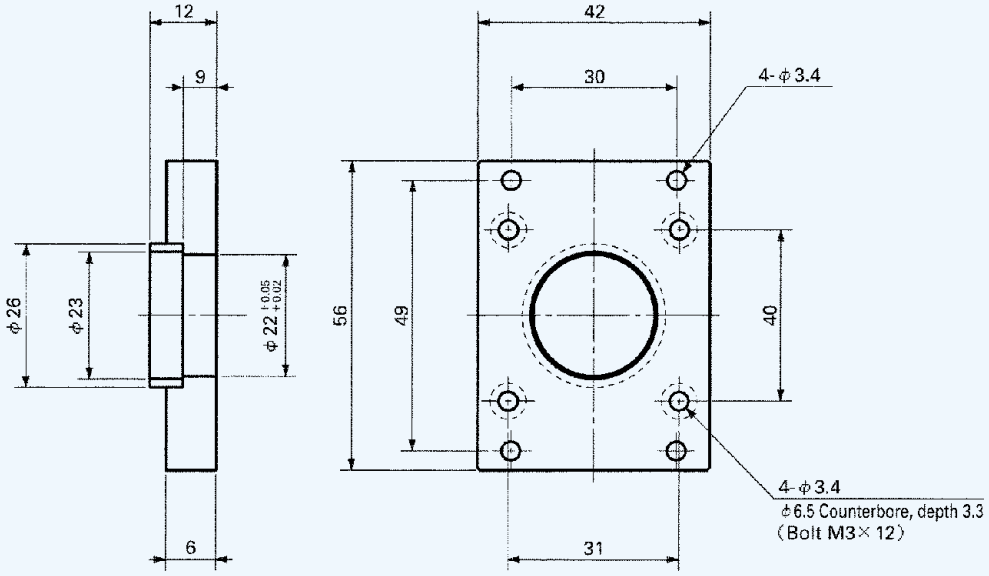
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

TAE9046-AT

unit：mm

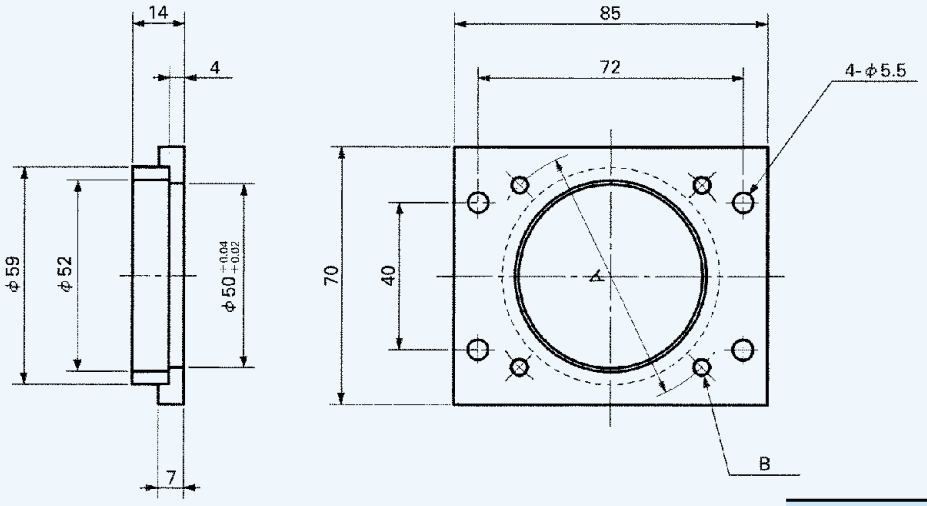


TAE9043-AT



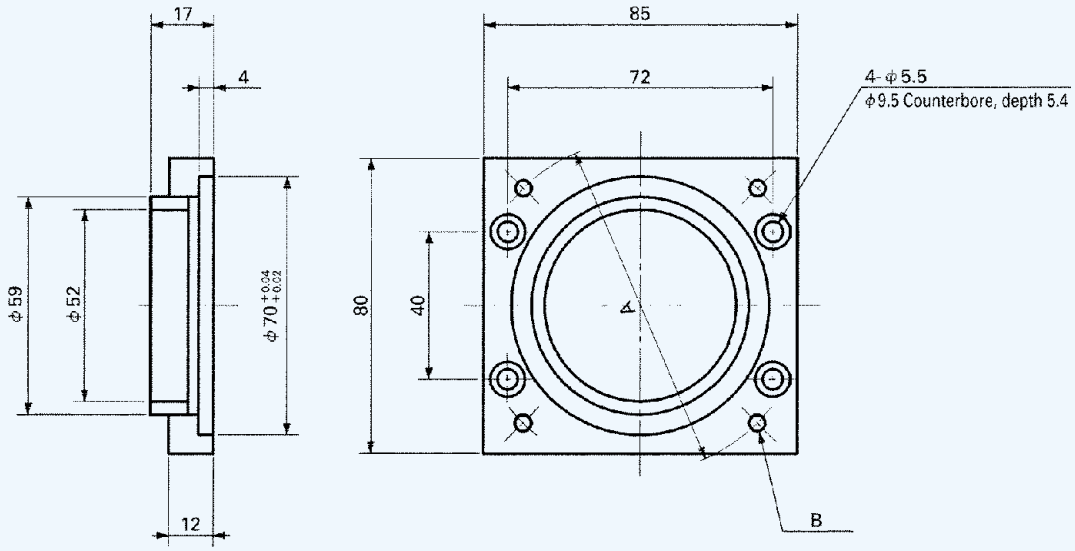
TAE9050-AT
TAE9051-AT

unit：mm



Model number	φA	B
TAE9050-AT	70	4-M4
TAE9051-AT	70	4-M5

TAE9052-AT
TAE9053-AT



Model number	φA	B
TAE9052-AT	90	4-M6
TAE9053-AT	90	4-M5

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Selecting an operation pattern

The maximum speed of the table can be determined from the maximum speed of the motor and the lead of the ball screw. For calculating the actual positioning time, the acceleration/deceleration time must also be taken into consideration. Furthermore, the effective torque in the operation pattern must be examined to check whether it is equal to or less than the rated torque of the motor.

Calculating the limit acceleration time

The torque acting on the motor is the sum of the torque due to load and that due to acceleration. It reaches its peak during acceleration. Considering that the torque required for acceleration can not exceed the output torque of the motor, the limit acceleration time is calculated as follows:

●Load torque T_L

$$T_L = T_0 + \mu W g \cdot \frac{\ell}{2\pi\eta} \quad [N \cdot m]$$

●Acceleration torque T_a

$$T_a = (J_M + J_T + J_L) \cdot \frac{2\pi N}{60 t_a} \quad [N \cdot m]$$

$$J_L = W \cdot \left(\frac{\ell}{2\pi}\right)^2 \quad [kg \cdot m^2]$$

●Torque required for acceleration T_P

$$T_P = T_L + T_a \quad [N \cdot m]$$

$$T_P < T_M$$

●Limit acceleration time t_a

$$t_a = (J_M + J_T + J_L) \cdot \frac{2\pi N}{60} \cdot \frac{k}{T_M - T_L} \quad [s]$$

T_0 : Start-up torque N・m (see Table 23)
μ : Friction coefficient of the rolling guide 0.01
W : Weight of the load (Mass put on the table) kg
ℓ : Lead of the ball screw m
η : Efficiency 0.9
J_M : Motor inertia kg・m²
J_T : Table inertia kg・m² (see Table 23)
J_L : Inertia of the load kg・m²
N : Motor speed rpm
t_a : Acceleration time s
g : Gravitational acceleration 9.8m/s²
T_M : Output torque of the motor N・m
・T_M of the stepping motor can be obtained from the torque characteristic diagram by picking up the output torque at a motor speed of N.
・T_M of the AC/DC servo motor must be set to 2 or 3 times the rated torque.
k : Constant
・Stepping motor : 1.5～2
・AC/DC servo motor : 1.3

Calculating an effective torque

An AC/DC servo motor requires a large torque during the table acceleration/deceleration.
If, in an operation pattern, the ratio of running time of motor is high, the effective torque may exceed the rated torque of the motor, and the motor may overheat or seize. Therefore, make sure that the effective torque does not exceed the rated torque of the motor.
The effective torque is obtained as follows, when the table is driven in the operation pattern shown in Fig. 7:

●Effective torque T_{rms}

$$T_{rms} = \sqrt{\frac{T_P^2 \times t_a \times 2 + T_L^2 \times t_c}{t}} \quad [N \cdot m]$$

For simplification, it is assumed: torque in acceleration=torque in deceleration
If the rated torque of the motor is higher than the effective torque, the motor can run continuously in that operation pattern.

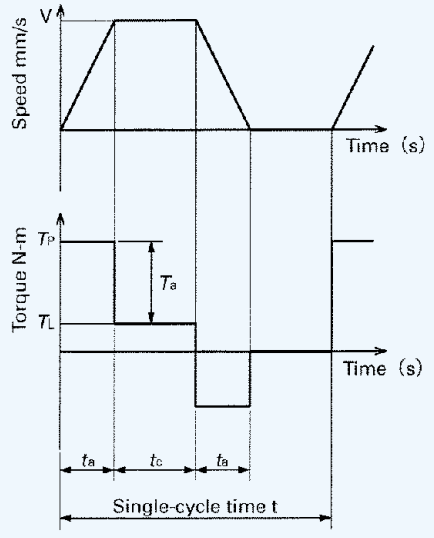


Fig. 7 Operation pattern and required torque

Table 23 Table inertia J_T and start-up torque To

Model number	Track rail length(1) mm	Table inertia J_T(3) $\times 10^{-5}$kg・m²						Start-up torque T_0(2) N・m	
		Short table		Standard table		Long table			
		Lead 4mm	Lead 8mm	Lead 4mm	Lead 8mm	Lead 4mm	Lead 8mm	Ground ball screw	
TU 40	180(140)	0.05	0.07	0.06	0.09	0.06	0.10	0.06	
	240(200)	0.07	0.09	0.08	0.11	0.08	0.12		
	300(260)	0.09	0.11	0.10	0.12	0.10	0.14		
	360(320)	0.11	0.13	0.12	0.14	0.12	0.16		
	420(380)	0.13	0.15	0.13	0.16	0.14	0.18		
Model number	Track rail length(1) mm	Table inertia J_T(3) $\times 10^{-5}$kg・m²						Start-up torque T_0(2) N・m	
		Short table		Standard table		Long table			
		Lead 5mm	Lead 10mm	Lead 5mm	Lead 10mm	Lead 5mm	Lead 10mm	Ground ball screw	
TU 50	220(180)	0.17	0.21	0.18	0.27	—	—	0.08	
	300(260)	0.23	0.28	0.24	0.33	0.26	0.40		
	380(340)	0.29	0.34	0.30	0.39	0.32	0.46		
	460(420)	0.35	0.40	0.36	0.45	0.38	0.53		
	540(500)	0.41	0.46	0.43	0.51	0.44	0.59		
	620(580)	0.47	0.52	0.49	0.57	0.51	0.65		
	700(660)	0.54	0.58	0.55	0.63	0.57	0.71		
Model number	Track rail length(1) mm	Table inertia J_T(3) $\times 10^{-5}$kg・m²						Start-up torque T_0(2) N・m	
		Short table		Standard table		Long table			
		Lead 5mm	Lead 10mm	Lead 5mm	Lead 10mm	Lead 5mm	Lead 10mm	Rolled ball screw	Ground ball screw
TU 60	290(244)	0.45	0.53	0.47	0.61	0.49	0.71	0.10	0.12
	390(344)	0.60	0.69	0.62	0.77	0.65	0.87		
	490(444)	0.76	0.85	0.78	0.93	0.81	1.0		
	590(544)	0.92	1.0	0.94	1.1	0.97	1.2		
	690(644)	1.1	1.2	1.1	1.2	1.1	1.3		
	790(744)	1.2	1.3	1.3	1.4	1.3	1.5		
Model number	Track rail length(1) mm	Table inertia J_T(3) $\times 10^{-5}$kg・m²						Start-up torque T_0(2) N・m	
		Short table		Standard table		Long table			
		Lead 10mm	Lead 20mm	Lead 10mm	Lead 20mm	Lead 10mm	Lead 20mm	Rolled ball screw	Ground ball screw
TU 86	490(442)	2.1	2.9	2.3	3.9	2.4	4.4	0.16	0.16
	590(542)	2.4	3.2	2.7	4.3	2.8	4.8		
	690(642)	2.8	3.6	3.1	4.6	3.2	5.1		
	790(742)	3.2	4.0	3.5	5.0	3.6	5.5		
	890(842)	3.6	4.4	3.9	5.4	4.0	5.9		
	990(942)	4.0	4.8	4.2	5.8	4.4	6.3		
	1090(1042)	4.4	5.2	4.6	6.2	4.8	6.7		
	1190(1142)	4.8	5.6	5.0	6.6	5.1	7.1		
Model number	Track rail length mm	Table inertia J_T $\times 10^{-5}$kg・m²						Start-up torque T_0(2) N・m	
		Standard table							
		Lead 20mm						Ground ball screw	
TU100	1010	15						0.30	
	1160	17							
	1310	19							
	1460	20							
Model number	Track rail length mm	Table inertia J_T $\times 10^{-5}$kg・m²						Start-up torque T_0(2) N・m	
		Standard table							
		Lead 25mm						Ground ball screw	
TU130	1010	39						0.60	
	1160	43							
	1310	48							
	1460	52							
	1610	57							

Remark(1) : The values in ( ) indicate the track rail length of the motor folding back type.

(2) : The values must be multiplied 1.5 (approx.) in case of the table with two slide tables, and by 2 (approx.) for motor folding type tables.

(3) : To obtain the table inertia of the motor folding back type, add the values shown to the value in the table.
TU40 and TU50 : 0.28×10^{-5}kg・m², TU60 and TU86 : 1.5×10^{-5}kg・m²

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

TU

NIPPON THOMPSON CO., LTD.

Head office :19-19 Takanawa 2-chome
Minato-ku, Tokyo 108-8586, Japan
Phone :Tokyo(03)3448-5850
Fax :(03)3447-7637
E-mail :ntt@ikonet.co.jp
URL :http://www.ikont.co.jp/
Plant :Gifu, Kamakura

IKO International, Inc.

● P.O. BOX 5897
91 Walsh Drive
Parsippany, NJ 07054
U.S.A.
Phone:(973)402-0254
Toll Free:1-800-922-0337
Fax:(973)402-0441
E-mail:eco@ikonet.co.jp

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

● 20170 South Western Avenue
Torrance, CA 90501
U.S.A.
Phone:(310)609-3988
Toll Free:1-800-252-3665
Fax:(310)609-3916
E-mail:wco@ikonet.co.jp

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

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

Nippon Thompson Europe B.V.

● Sheffieldstraat 35-39
3047 AN Rotterdam
The Netherlands
Phone:010-4626868
Fax:010-4626099
E-mail:nte@ikonet.co.jp

● Mündelheimer Weg 56
40472 Düsseldorf
Germany
Phone:0211-414061
Fax:0211-427693
E-mail:ntd@ikonet.co.jp

Donaustaufer Str. 200
93059 Regensburg
Germany
Phone:0941-447737
Fax:0941-447747

● 2 Vincent Avenue, Crownhill
Milton Keynes Bucks MK8 OAB
United Kingdom
Phone:01908-566144
Fax:01908-565458
E-mail:ntu@ikonet.co.jp

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

● Roissypole Le Dôme
2 rue de La Haye
BP 10950 Tremblay en France
95733 Roissy C. D. G. Cedex
France
Phone:01-48165739
Fax:01-48165746
E-mail:ntf@ikonet.co.jp

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