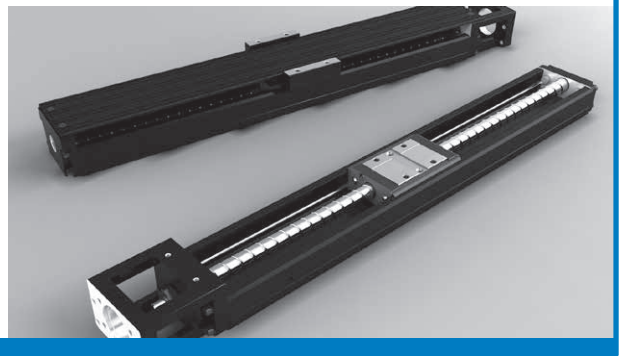
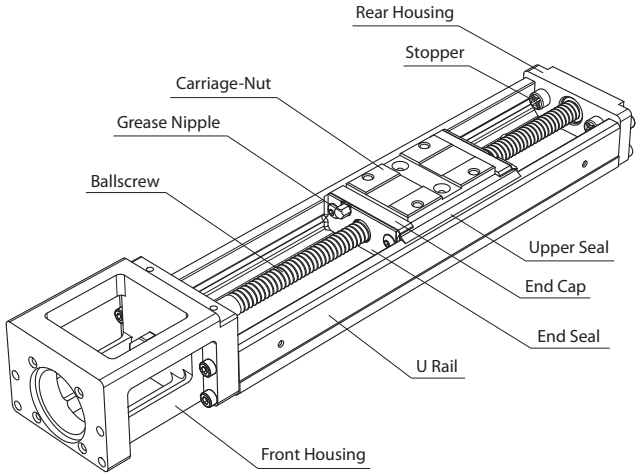


Actuator

KM Series

Construction

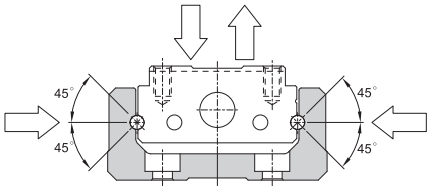


Characteristics

KM series consist of linear guideway unit and ballscrew unit. For saving space, ***PMI*** combine the carriage of linear guideway and nut of ballscrew to a integral Carriage-Nut. The carriage-nut cooperate with the U rail designed for high rigidity to achieve the high rigidity and high accuracy in the minimal space, especially to saving time of installation. Moreover, the design of two rows with Gothic-arch groove and contact angle of 45°can bear four directional loading.

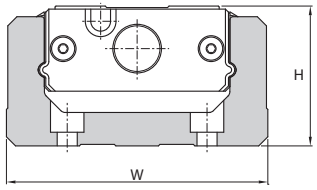
Four Directional Equal Load

KM series are applied two rows with Gothic-arch groove and designed to contact angle of 45° which enables it to carry an equal load in radial, reversed radial and lateral directions to suit to any mounting orientation.



Saving Space

Combine the carriage of linear guideway and nut of ballscrew to a carriage-nut, KM series can achieve the best use of space.

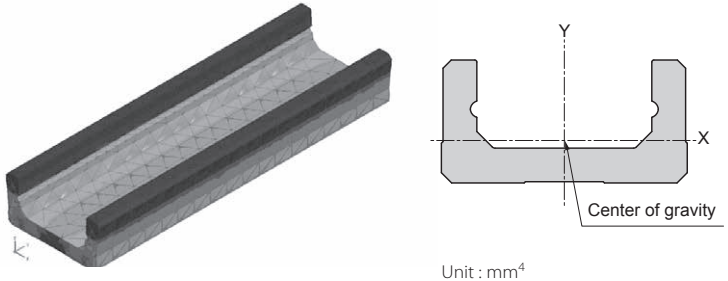


Unit : mm

Model	H	W
KM15	15	30
KM20	20	40
KM26	26	50
KM30	30	60
KM 33	33	60
KM 45	45	80
KM 46	46	86
KM 55	55	100
KM 65	65	130

High Rigidity

Base on the optimal analysis of FEM for the shape of U rail, it has the balance between light weight and high rigidity.



Unit : mm^4

Model	I_X	I_Y
KM15	$1.3x10^3$	$1.5x10^4$
KM20	$5.8x10^3$	$6.0x10^4$
KM26	1.6×10^4	1.5×10^5
KM30	4.4×10^4	3.3×10^5
KM 33	6.1×10^4	3.8×10^5
KM 45	1.5×10^5	1.1×10^6
KM 46	2.5×10^5	1.6×10^6
KM 55	2.3×10^5	2.3×10^6
KM 65	4.7×10^5	5.9×10^6

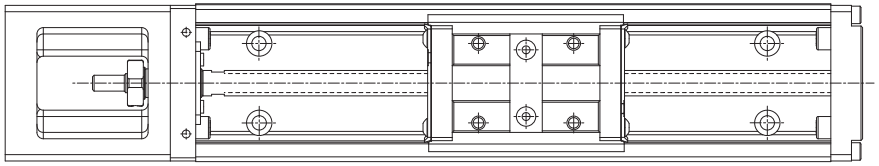
Note* I_X : Geometrical moment of inertia around X axis
I_Y : Geometrical moment of inertia around Y axis

High Accuracy

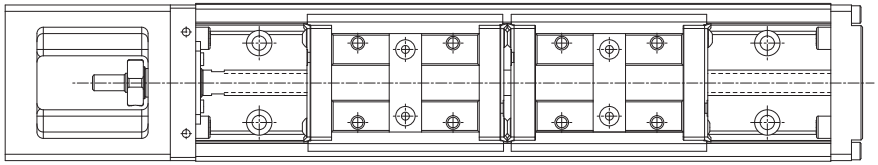
The design of two rows with Gothic-arch groove and stable manufacturing technology can control the variation by load at the minimum. It can provide the smooth feed with high accuracy.

Carriage-Nut Type

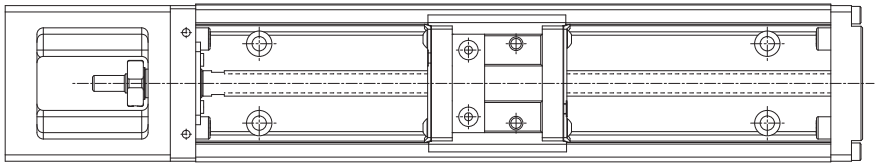
A Type : A single carriage-nut with standard length



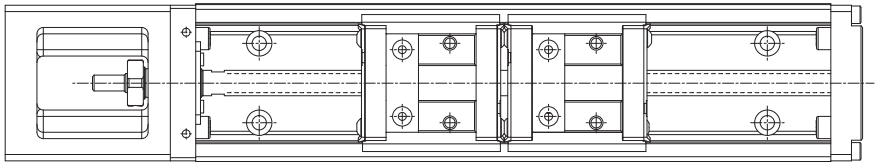
B Type : Two carriage-nuts with standard length



C Type*: A single carriage-nut with short length



D Type*: Two carriage-nuts with short length



Note*: C and D type are only optional for KM30, KM33, KM45 and KM46 model.

Description of Specification

KM33 05 A +400 P 0 -0 0 30 CA AA

Model

Ballscrew Lead

Carriage-Nut type

A : A single carriage-nut with standard length

B : Two carriage-nuts with standard length

C : A single carriage-nut with short length

D : Two carriage-nuts with short length

Rail length (mm)

Accuracy grade

N : Normal grade

P : Precision grade

With / Without a Motor

0 : None

1 : With a Motor (mounted at *PMI*)

With / Without a Cover

0 : None

1 : With a Cover

2 : With a Bellows

Sensor Specification (see **page C1-13**)

Type of Motor Bracket type (see **page C1-15**)

Surface treatment mode :

No symbol : Black Chrome Plating + Special Fluororesin(PS-CF)

CB : Black oxide treatment

CE: Black Chrome Plating(PS-C)

CA : Electroless Nickel

Code of special type

AA : Special process

A1 : Heighten housing

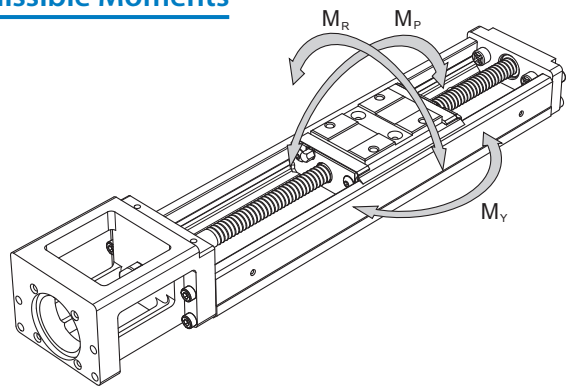
No symbol : Standard housing

Load Ratings

The load ratings of KM series are divided to linear guideway and ballscrew, the load ratings of each part are shown below.

Model		Linear Guideway				Ballscrew					
		Basic dynamic load rating C (kN)		Basic static load rating C_0 (kN)		Basic dynamic load rating Ca (kN)	Basic static load rating C_{0a} (kN)	Ballscrew diameter (mm)	Lead (mm)	Thread minor diameter (mm)	Ball center to center diameter (mm)
		A、B	C、D	A、B	C、D	Normal、Precision N、P	Normal、Precision N、P				
KM 15	KM 15 01	2.35	-	4.32	-	0.54	0.87	5	1	4.28	5.1
	KM 15 02					0.4	0.5		2		
KM 20	KM 20 01	4.75	-	8.33	-	0.76	1.26	6	1	5.28	6.1
	KM 20 02					0.6	0.9		2		
	KM 20 06					0.98	1.37		6	4.6	6.3
KM 26	KM 26 02	7.99	-	15.23	-	2.50	4.02	8	2	6.6	8.3
	KM 26 06					1.18	1.67		6		
KM 30	KM 30 05	12.21	7.91	22.11	11.90	2.94	5.10	12	5	10.3	12.4
	KM 30 10					2.84	4.51		10	9.9	
	KM 30 20					2.45	3.72		20		
KM 33	KM 33 05	12.21	7.91	22.11	11.90	2.94	5.10	12	5	10.3	12.4
	KM 33 10					2.84	4.51		10	9.9	
	KM 33 20					2.45	3.72		20		
KM 45	KM 45 10	26.35	16.26	46 .65	23.33	6.66	11.86	15	10	12.3	15.6
	KM 45 20					5.00	8.53		20	12.3	15.6
	KM 4520C					4.40	7.30		20	12.3	15.6
KM 46	KM 46 10	26.35	16.26	46.65	23.33	6.66	11.86	15	10	12.3	15.6
	KM 46 20					5.00	8.53		20	12.3	15.6
	KM 4620C					4.40	7.30		20	12.3	15.6
KM 55 20		36.73	-	65.29	-	6.08	12.15	20	20	17.3	20.6
KM 65 25		50.75	-	81.62	-	9.02	18.91	25	25	21.6	25.7

Static Permissible Moments



Unit : N-m

Model		Static Permissible Moments											
		Mp				M_Y				M_R			
		A	B	C	D	A	B	C	D	A	B	C	D
KM 15	KM15 01 KM15 02	14.2	74.5	-	-	14.2	74.5	-	-	46.8	93.5	-	-
KM 20	KM20 01 KM20 02 KM20 06	38.2	192.6	-	-	38.2	192.6	-	-	114.6	229.1	-	-
KM 26	KM 26 02 KM 26 06	107.3	501.8	-	-	107.3	501.8	-	-	278.6	557.3	-	-
KM 30	KM 30 05 KM 30 10 KM 30 20	156.6	858.5	43.8	326.4	156.6	858.5	43.8	326.4	462.0	924.0	248.8	497.6
KM 33	KM 33 05 KM 33 10 KM 33 20	156.6	858.5	43.8	326.4	156.6	858.5	43.8	326.4	462.0	924.0	248.8	497.6
KM 45	KM 45 10 KM 45 20 KM 4520C	575.0	2678.0	120.0	1245.6	575.0	2678.0	120.0	1245.6	1334.2	2668.5	762.4	1524.8
KM 46	KM 46 10 KM 46 20 KM 4620C	575.0	2678.0	120.0	1245.6	575.0	2678.0	120.0	1245.6	1397.9	2795.8	798.8	1597.6
KM 55 20		858.4	4617.2	-	-	858.4	4617.2	-	-	2347.2	4694.4	-	-
KM 65 25		1299.6	7001.3	-	-	1299.6	7001.3	-	-	3917.9	7835.8	-	-

Note*: The static permissible moments of B and D type are base on two carrage nuts used in closed contact with each other.

Accuracy Grade

KM series is classified into normal grade (N) and precision grade (P) , the standards are shown below.

Model	Rail Length (mm)	Positioning Repeatability(mm)		Positioning Accuracy(mm)		Running of Parallelism(mm)		Backlash (mm)		Starting Torque (N-cm)	
		Nomal N	Precision P	Nomal N	Precision P	Nomal N	Precision P	Nomal N	Precision P	Nomal N	Precision P
KM 15	75	±0.01	±0.003	-	0.02	-	0.01	0.02	0.002	0.4	0.8
	100										
	125										
	150										
	175										
	200										
KM 20	100	±0.01	±0.003	-	0.02	-	0.01	0.02	0.003	0.5	1.2
	150										
	200										
KM 26	150	±0.01	±0.003	-	0.02	-	0.01	0.02	0.003	2	4
	200										
	250										
	300										
KM 30	150	±0.01	±0.003	-	0.02	-	0.01	0.02	0.003	7	15
	200										
	300										
	400										
	500				0.025		0.015				
	600										
KM 33	150	±0.01	±0.003	-	0.02	-	0.01	0.02	0.003	7	15
	200										
	300										
	400										
	500				0.025		0.015				
	600										
KM 45	340	±0.01	±0.003	-	0.025	-	0.015	0.02	0.003	10	15
	440										
	540										
	640										
	740				0.03		0.02				17
	840										
	940				0.04		0.03				25
KM 46	340	±0.01	±0.003	-	0.025	-	0.015	0.02	0.003	10	15
	440										
	540										
	640										
	740				0.03		0.02				17
	840										
	940				0.04		0.03				25
KM 55	980	±0.01	±0.005	-	0.035	-	0.025	0.05	0.003	12	17
	1080										
	1180				0.04		0.03				20
	1280				0.045		0.035			15	23
	1380				0.05		0.04				25
KM 65	980	±0.01	±0.005	-	0.035	-	0.025	0.05	0.005	12	20
	1180										
	1380									15	22
	1680	±0.012			0.04		0.03				

Maximum Travel Speed and the Maximum Length

KM series is limited by the dangerous speed of the ballscrew and the DN value regardless, the maximum travel speed and the maximum length are shown below.

Unit : mm

Model	Ballscrew Lead	Rail Length	Maximum Travel Speed (mm/s)		Maximum Length	
			Normal N	Precision P	Normal N	Precision P
KM 15	1	75	137	190	200	200
		100				
		125				
		150				
		175				
		200				
	2	75	273	273	200	200
		100				
		125				
		150				
		175				
		200				
KM 20	1	100	100	100	200	200
		150				
		200				
	2	100	200	200	200	200
		150				
		200				
KM 26	2	150	200	200	300	300
		200				
		250				
		300				
	6	150	600	600	300	300
		200				
		250				
		300				
KM 30	5	150	500	500	600	600
		200				
		300				
		400				
		500				
		600	340	340		
	10	150	1000	1000	600	600
		200				
		300				
		400				
		500		980		
		600	980	650		
	20	150	2000	2000	-	-

Model	Ballscrew Lead	Rail Length	Maximum Travel Speed (mm/s)		Maximum Length	
			Normal N	Precision P	Normal N	Precision P
KM 45	10	340	520	740	940	740
		440				
		540				
		640				
		740		730		
		840				
		940	430	-		
	20	340	1050	1480	940	740
		440				
		540				
		640				
		740		1440		
		840				
		940	840	-		
KM 46	10	340	520	740	940	740
		440				
		540				
		640				
		740		730		
		840				
		940	430	-		
	20	340	1050	1480	940	740
		440				
		540				
		640				
		740		1440		
		840				
		940	840	-		
KM 55	20	980	800	1120	1380	1180
		1080		900		
		1180	740	740		
		1280	620	-		
		1380	530	-		
KM 65	25	980	800	1120	1680	1380
		1180				
		1380		830		
		1680	550	-		

Life Calculation

KM series consists of a linear guideway, a ballscrew and a support bearing. The calculation of nominal life of each component is shown below. The nominal life is defined as the total running distance that 90% of identical linear guideways or ballscrew in a group, when they are applied under the same conditions, can work without developing flaking.

Linear Guideway

$$L = \left(\frac{f_c}{f_w} \cdot \frac{C}{P}\right)^3 \times 50 \text{ km}$$

L : Nominal life (km)
fc : Contact factor (see Table 1)
fw : Load factor (see Table 2)
C : Basic dynamic load rating (N)
P : Calculated applied load (N)

Table 1

Carriage-Nut Type	Contact factor fc
A、C	1.00
B、D	0.81

Ballscrew and Bearing

$$L = \left(\frac{1}{f_w} \cdot \frac{C_a}{P_a}\right)^3 \times 10^6 \text{ rev}$$

L : Nominal life (rev)
fw : Load factor (see Table 2)
Ca : Basic dynamic load rating (N)
Pa : Applied axial load (N)

Table 2

Motion Condition	Operating Speed	Load factor fw
No Impact & Vibration	V≦15m/min	1.0~1.2
Slight Impact & Vibration	15＜V≦60m/min	1.2~1.5
Moderate Impact & Vibration	60＜V≦120m/min	1.5~2.0
Strong Impact & Vibration	V≧120m/min	2.0~3.5

Options

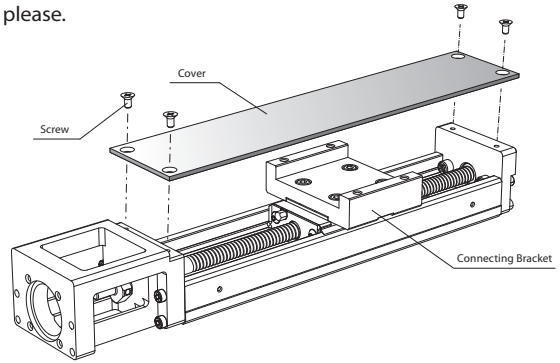
Sensor

For KM series, a optional proximity sensors and photo sensors are available as an option. Models equipped with a sensor are provided with a dedicated sensor rail / detecting plate. Please see the table below.

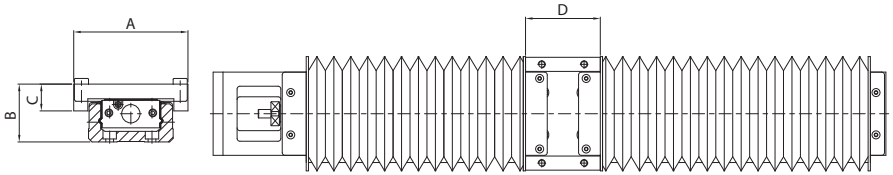
Symbol	Description	Type	Accessory
0	None	-	-
1	with Sensor rail	-	Mounting Screw
2	Photo sensor (3 units)	EE-SX671 (Omron)	Mounting Screw / Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (EE-1001)
3	Photo sensor (3 units)	EE-SX674 (Omron)	Mounting Screw / Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (EE-1001)
4	Proximity sensor a-contact (On when close, 3 units)	GX-F12A(Panasonic)	Mounting Screw/Nut, Detecting Plate, Sensor Rail
5	Proximity sensor b-contact (On when away, 3 units)	GX-F12B(Panasonic)	Mounting Screw/Nut, Detecting Plate, Sensor Rail
6	Photo sensor (3 units)	PM-L65(Pansonic)	Mounting Screw / Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (CN-14A-C1)
7	Photo sensor (3 units)	PM-Y65(Pansonic)	Mounting Screw / Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (CN-14A-C1)
A	Proximity sensor a-contact (Single) b-contact (Double)	GX-F12A(Single) GX-F12B(Double)	Mounting Screw/Nut, Detecting Plate, Sensor Rail

Cover

KM series provides cover and transfer seat option. The detail size could be refered by specification tables of product, please.



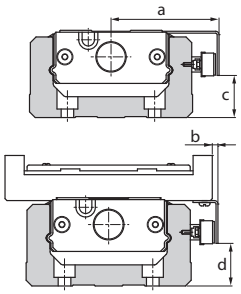
Bellows



Unit : mm

Model	Rail length	Maximum stroke	Minimum expansion	Maximum elongation	a	b	c	d
KM 15	75	22	15	37	47	22.5	15.5	23
	100	37	20	57				
	125	52	25	77				
	150	67	30	97				
	175	82	35	117				
	200	97	40	137				
KM 20	100	35	16	51	60	29.5	19	33
	150	63	27	90				
	200	93	37	130				
KM 26	150	60	21.5	81.5	62	37	19	47
	200	95	29	124				
	250	130	36.5	166.5				
	300	160	46.5	206.5				
KM 30.33	150	56	16	80	84	45.5	24	54
	200	106	20	126				
	300	166	40	206				
	400	234	56	290				
	500	306	70	376				
	600	366	90	456				
KM 45	340	181	42	223	106	62.5	34.5	75
	440	257	54	311				
	540	333	66	399				
	640	409	78	487				
	740	485	90	575				
	940	649	108	757				
KM 46	340	188	36	224	110	61	32	75
	440	260	50	310				
	540	336	62	398				
	640	408	76	484				
	740	480	90	570				
	940	640	110	750				
KM 55	980	769	58	827	150	73	41	95
	1080	855	65	920				
	1180	945	70	1015				
	1280	1029	78	1107				
	1380	1115	85	1200				
KM 65	980	748	62	810	180	89	53	108
	1180	916	78	994				
	1380	1084	94	1178				
	1680	1346	113	1459				

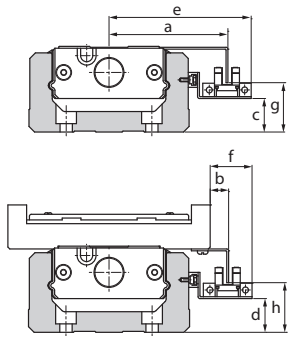
The dimension of installation for sensor:



Panasonic GX-F12A、GX-F12B

Model	a	b	c	d
KM 20	34.2	8.2	3.5	3.5
KM 26	38.9	7.9	6.2	6.2
KM 30	44	4	8.2	8.2
KM 33	44	1	9.2	10
KM 45	54.0	2.0	13.2	13
KM 46	57.0	1.0	22.2	23
KM 55	64	2	21.2	22.7
KM 65	79.0	-6.0	23.3	23.3

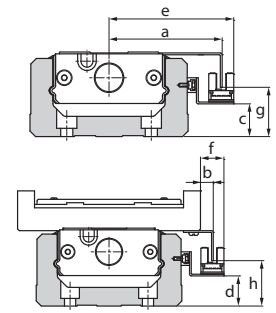
Unit : mm



Omron EE-SX671

Model	a	b	c	d	e	f	g	h
KM 20	41	15	1.5	1.5	53.5	27.5	8	8
KM 26	46.0	15.0	2.0	2.0	58.5	27.5	10.5	10.5
KM 30	50.9	10.9	3.8	3.8	63.4	23.4	12.8	14
KM 33	50.9	7.9	5.0	5.0	63.4	20.4	13.8	15
KM 45	60.5	8.9	8.8	8.8	73.4	21.4	17.7	19
KM 46	63.9	7.9	18.0	18.0	76.4	20.4	26.5	28
KM 55	72	8.8	17.0	17.0	83.3	21.3	25.5	27
KM 65	85.8	0.8	19.0	19.0	98.3	13.3	27.7	27.7

Unit : mm

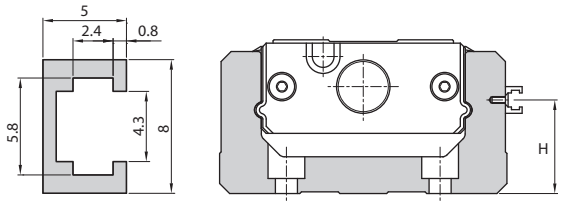


Omron EE-SX674

Model	a	b	c	d	e	f	g	h
KM 20	38.7	12.7	1.3	1.3	45	19	8.5	8.5
KM 26	43.7	12.7	1.8	1.8	50.0	19.0	10.8	10.8
KM 30	48.6	8.6	3.6	3.6	54.9	14.9	12.8	12.6
KM 33	48.6	5.6	4.8	4.8	54.9	11.9	13.8	14
KM 45	58.6	6.6	8.8	8.8	64.9	12.9	18.2	19.3
KM 46	61.6	5.6	17.8	17.8	67.9	11.9	26.8	28.1
KM 55	68.5	6.9	16.8	16.8	74.8	12.8	26.8	27.5
KM 65	83.5	-1.5	19.0	19.0	89.8	4.8	28.3	28.3

Unit : mm

The dimension of sensor rail



Unit : mm

Model	H
KM 15	5.5
KM 20	9.5
KM 26	12
KM 30	14
KM 33	15
KM 45	19
KM 46	28
KM 55	27
KM 65	30

Intermediate Flange

KM series allow different motors to be attached by intermediate flange. Please see the table below when ordering.

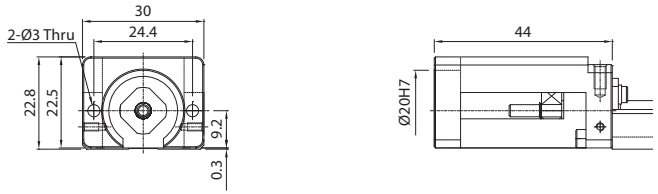
Unit : mm

Brand of Motor	Model	KM 20	KM 26	KM 30	KM 33	KM 45	KM 46	KM 55	KM 65	KM 65
Yaskawa Electric AC servomotor	SGMAH-A3(30W)		1A	2A	3A	3A	4A	4A		
	SGMAH-A5(50W)		1A	2A	3A	3A	4A	4A		
	SGMAH-01(100W)				3A	3A	4A	4A		
	SGMPH-01(100W)						40	40	50	6C
	SGMAH-02(200W)						40	40	50	6C
	SGMAH-04(400W)						40	40	50	6C
	SGMPH-02(200W)								5C	60
	SGMPH-04(400W)								5C	60
	SGMAH-08(750W)								5C	6G
Mitsubishi Electric AC servomotor	HC-MFS053(50W)		1A	2A	3A	3A	4A	4A		
	HC-MFS13(100W)				3A	3A	4A	4A		
	HC-MFS23(200W)						40	40	50	6C
	HC-KFS23(200W)						40	40	50	6C
	HC-MFS43(400W)						40	40	50	6C
	HC-KFS43(400W)						40	40	50	6C
	HC-MFS73(750W)								5C	6G
	HC-KFS73(750W)								5C	6G
Matsushita Electric AC servomotor	MSMD5A(50W)		1D	2D	3D	3D	4D	4D		
	MSMD01(100W)				3D	3D	4D	4D		
	MSMD02(200W)							40		
	MSMD04(400W)							40		
	MSMD08(750W)								5F	6F
Fastech Stepping motor	EzM-28	0G	1G	2G						
	EzM-42		1H	2H	3H	3H	4H	4H		
	EzM-56				3I	3I	4I	4I		
	EzM-60				3J	3J	4J	4J		
Oriental Motor Stepping motor	PK22	0G	1G	2G						
	PK24		1H	2H	3H	3H	4H	4H		
	PK26(Standard)				3I	3I	4I	4I		
	RK54		1H	2H	3H	3H	4H	4H		
	RK56				3J	3J	4J	4J		
	RK59								5K	6K

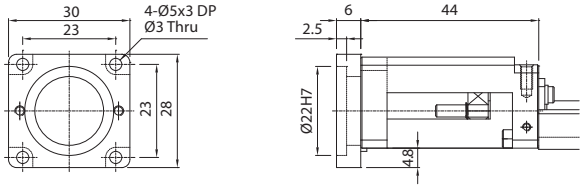
The dimension of intermediate flange

KM15

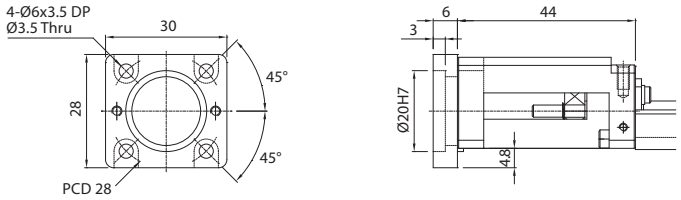
00



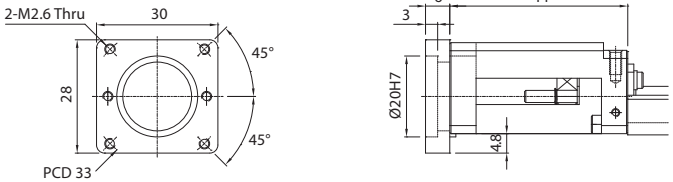
0G



0M



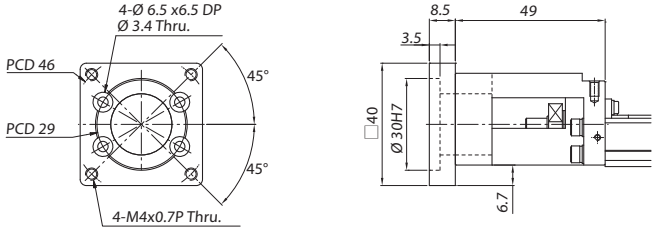
0N



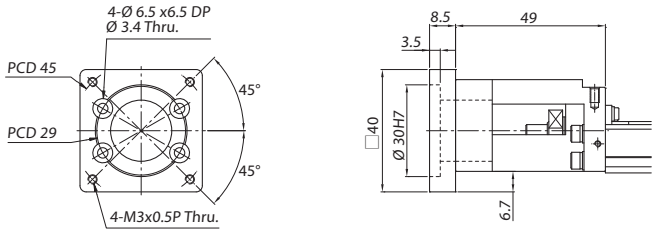
KM20

10

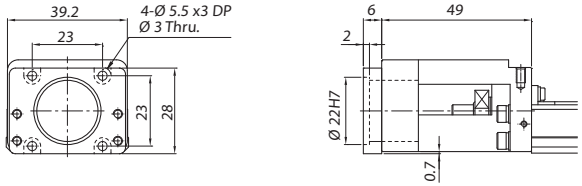
1A



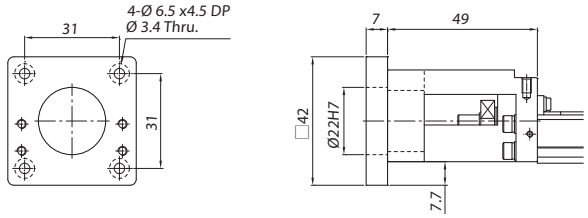
1D



1G

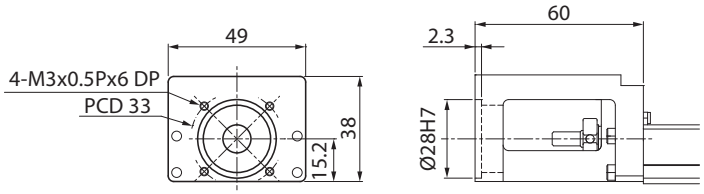


1H

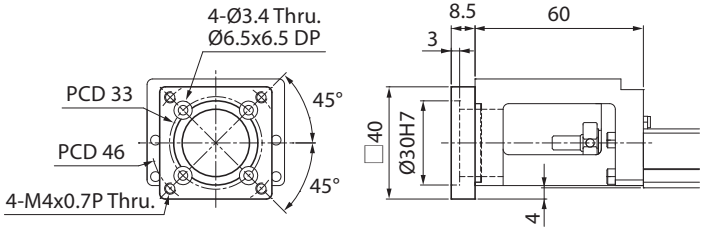


KM26

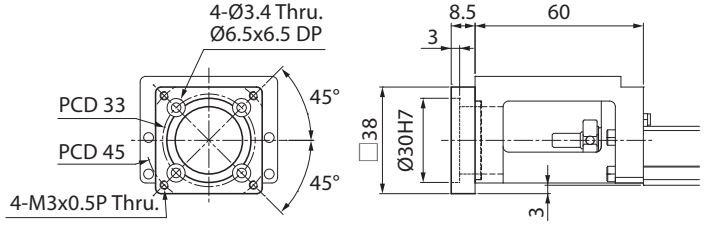
20



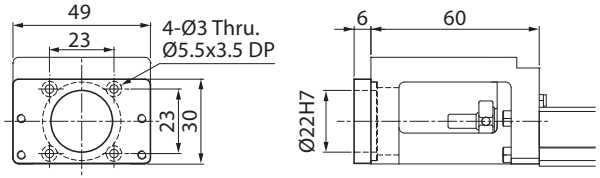
2A



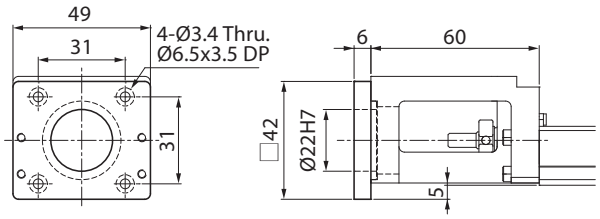
2D



2G

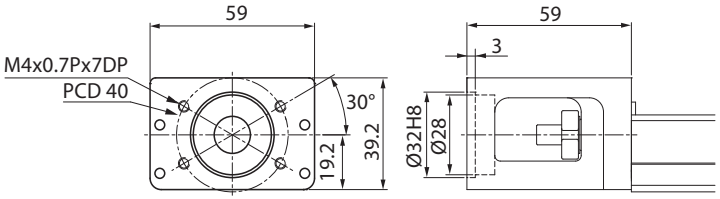


2H

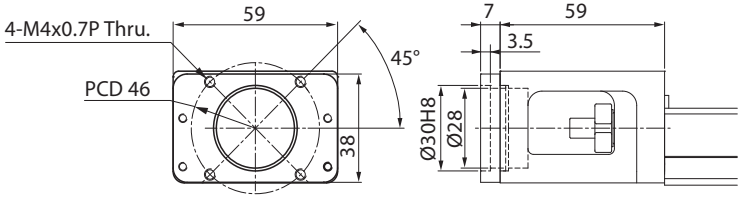


KM30

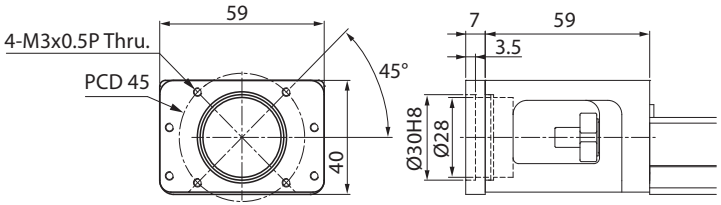
30



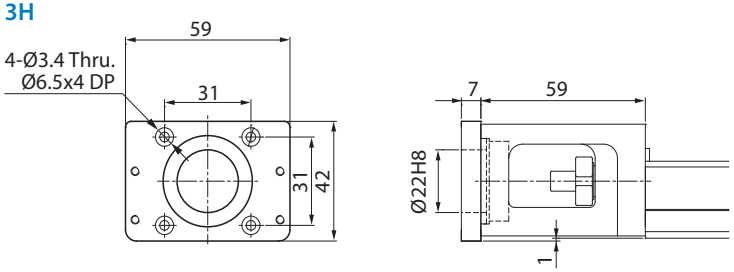
3A



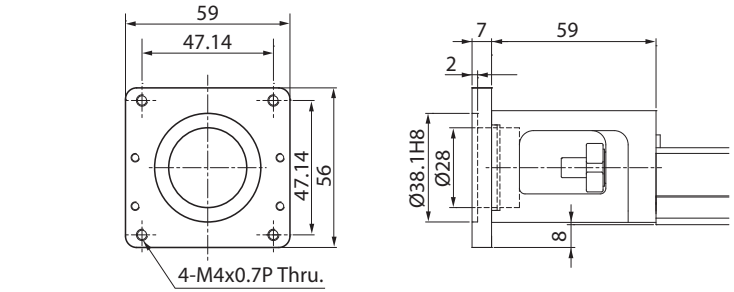
3D



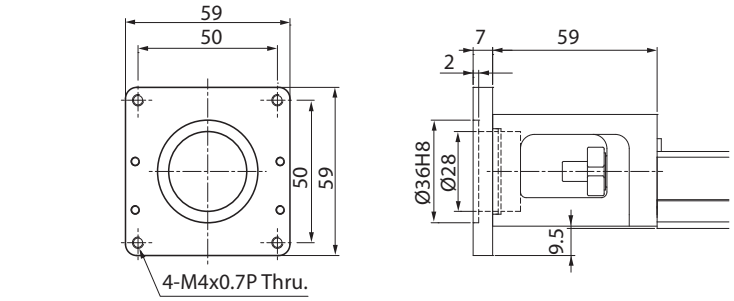
3H



3I

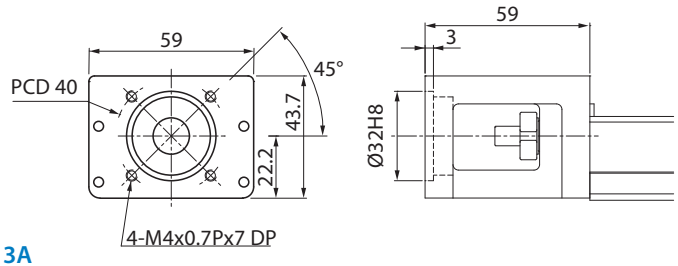


3J

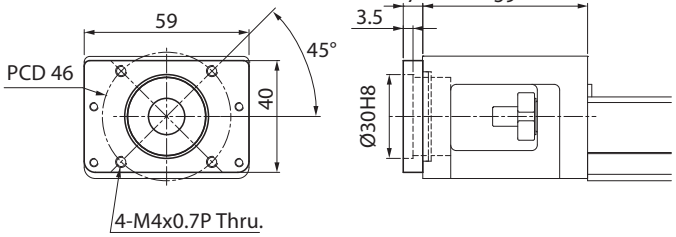


KM33

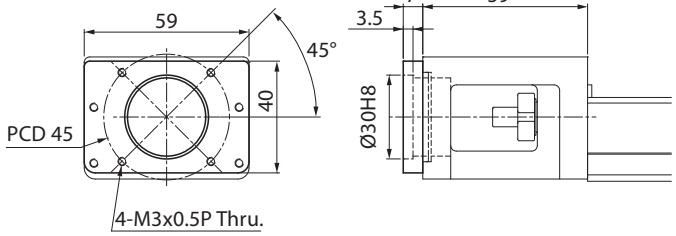
30



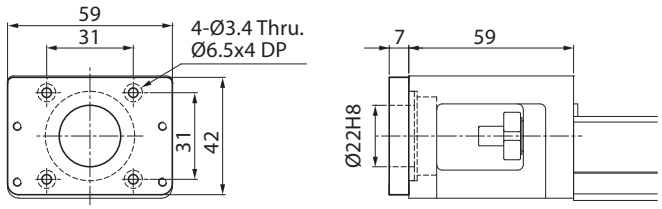
3A



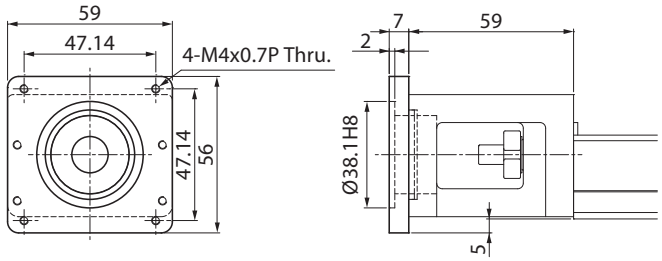
3D



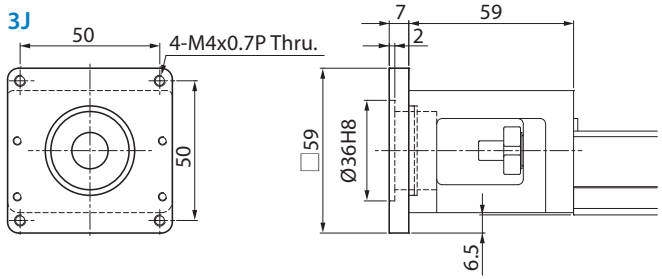
3H



3I

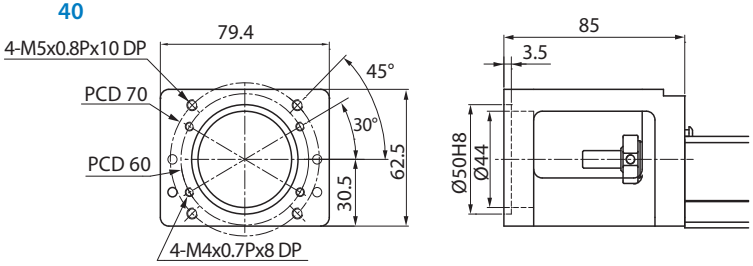


3J

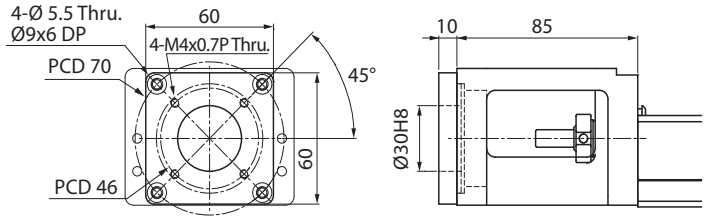


KM45

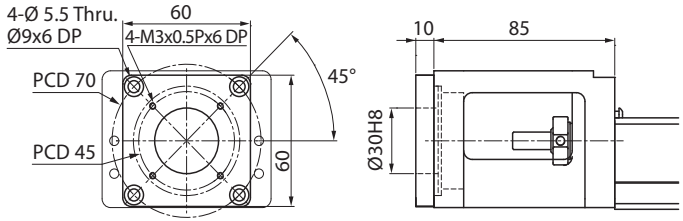
40



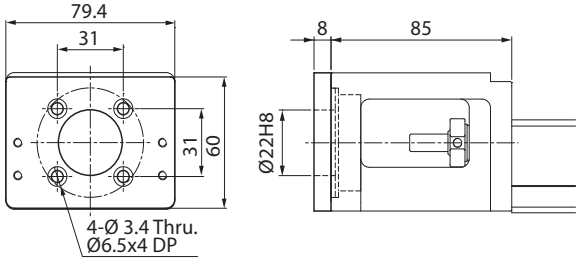
4A



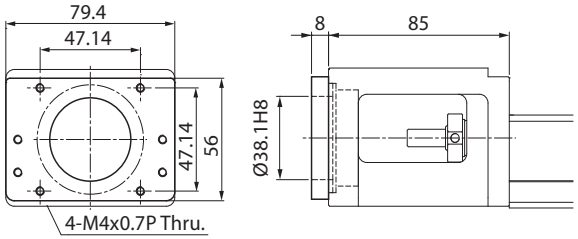
4D



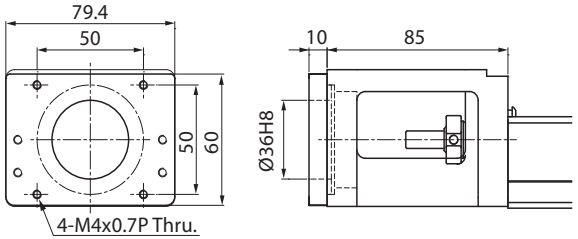
4H



4I

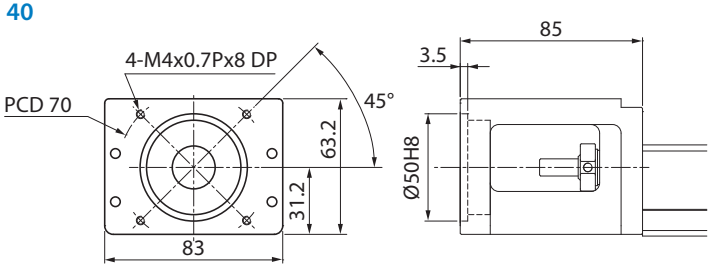


4J

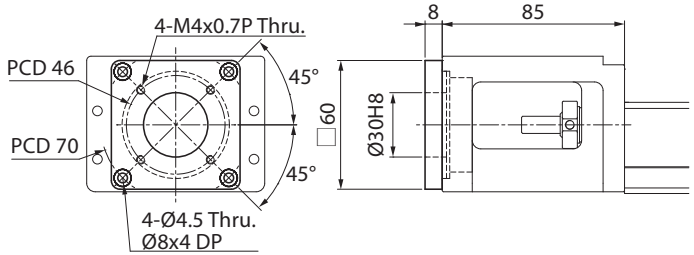


KM46

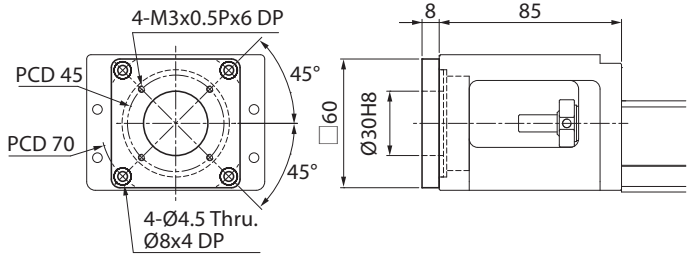
40



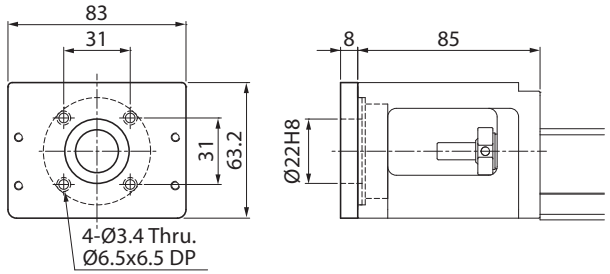
4A



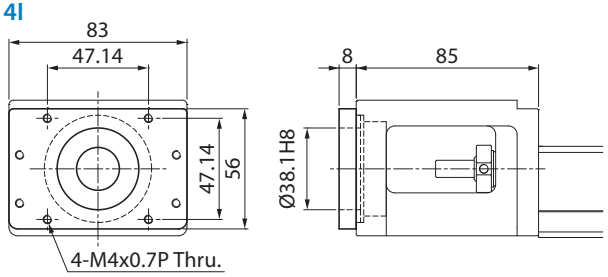
4D



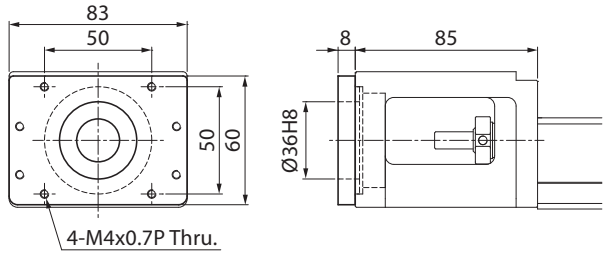
4H



4I

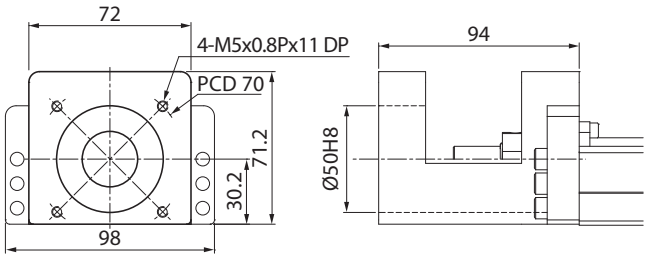


4J

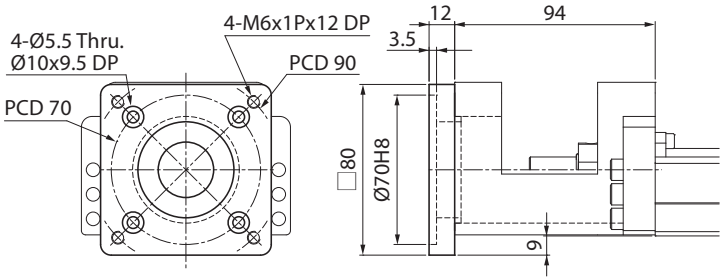


KM55

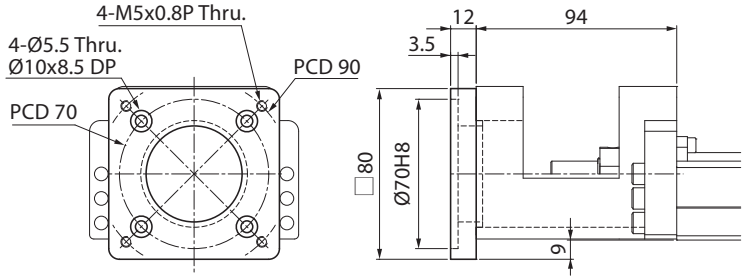
50



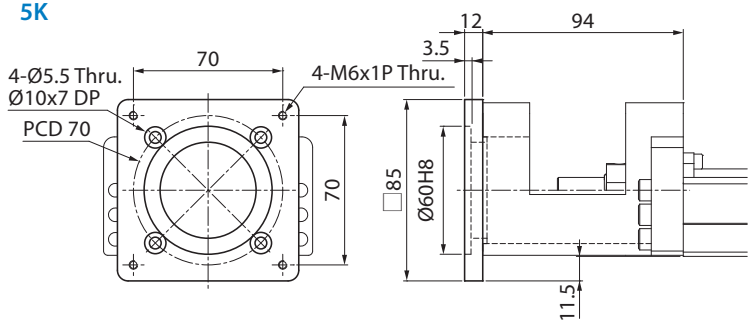
5C



5F

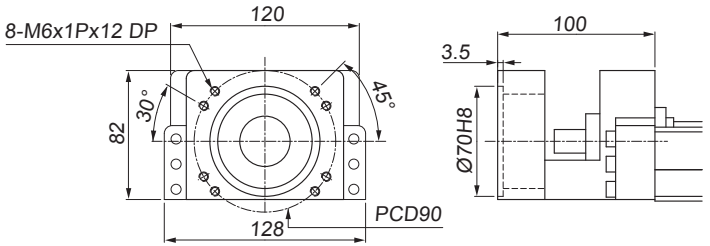


5K

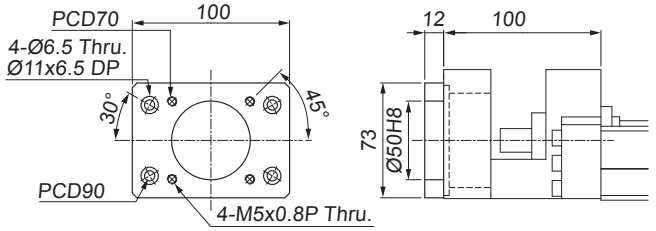


KM65

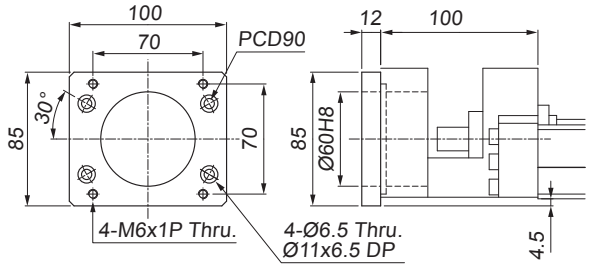
60



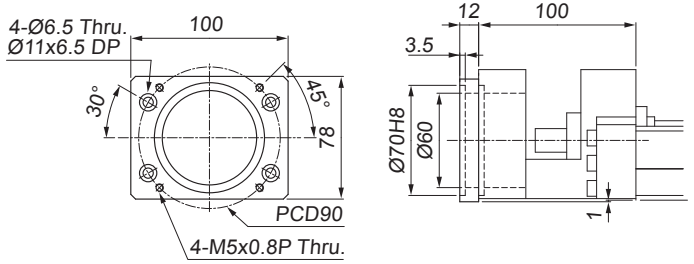
6C



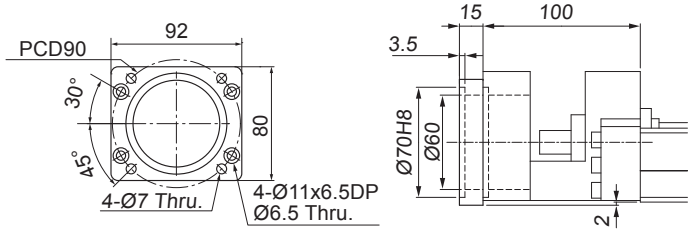
6K



6F

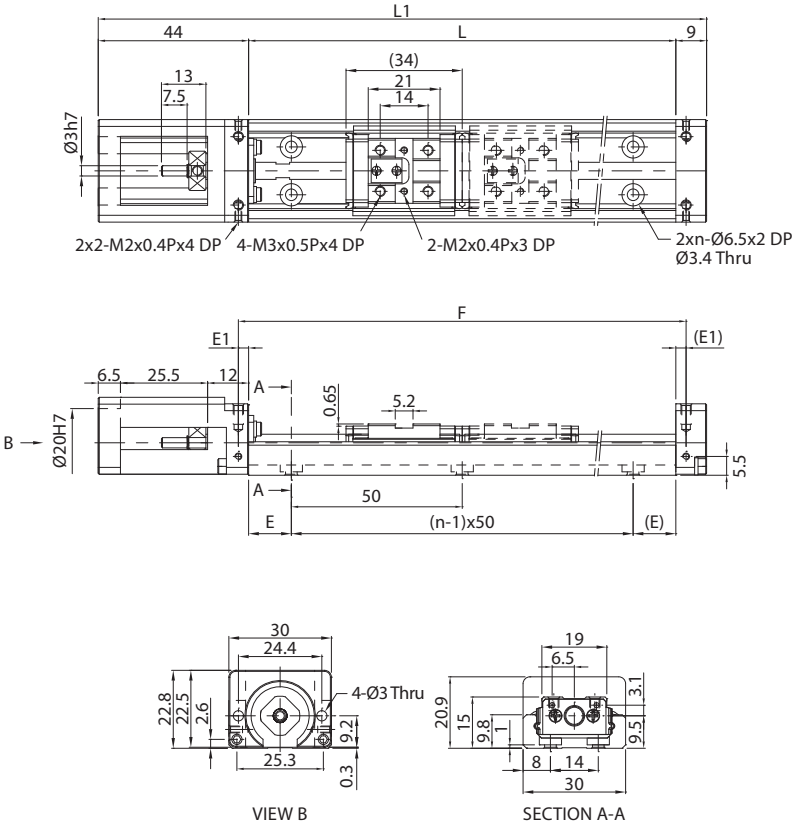


6G



KM15 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



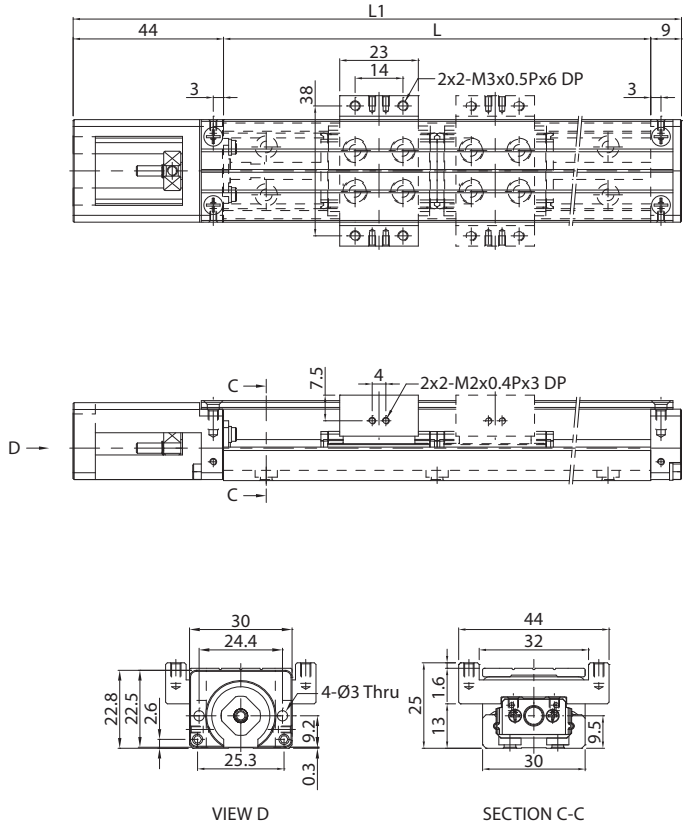
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E1	F	Weight (kg)	
		A Type	B Type					A Type	B Type
75	128	31	-	12.5	2	3	81	0.183	-
100	153	56	-	25	2	3	106	0.214	-
125	178	81	45	12.5	3	3	131	0.244	0.278
150	203	106	70	25	3	3	156	0.275	0.309
175	228	131	95	12.5	4	3	181	0.306	0.340
200	253	156	120	25	4	3	206	0.337	0.371

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM15 Cover Type



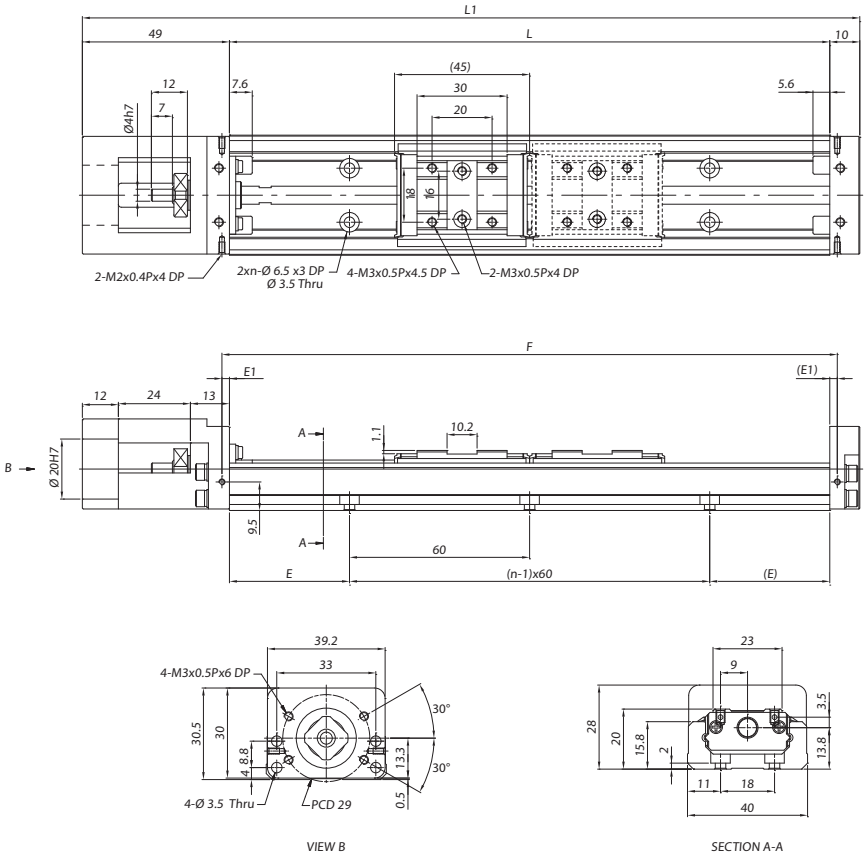
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
75	128	31	-	0.216	-
100	153	56	-	0.252	-
125	178	81	45	0.287	0.321
150	203	106	70	0.323	0.357
175	228	131	95	0.359	0.393
200	253	156	120	0.395	0.429

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM20 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



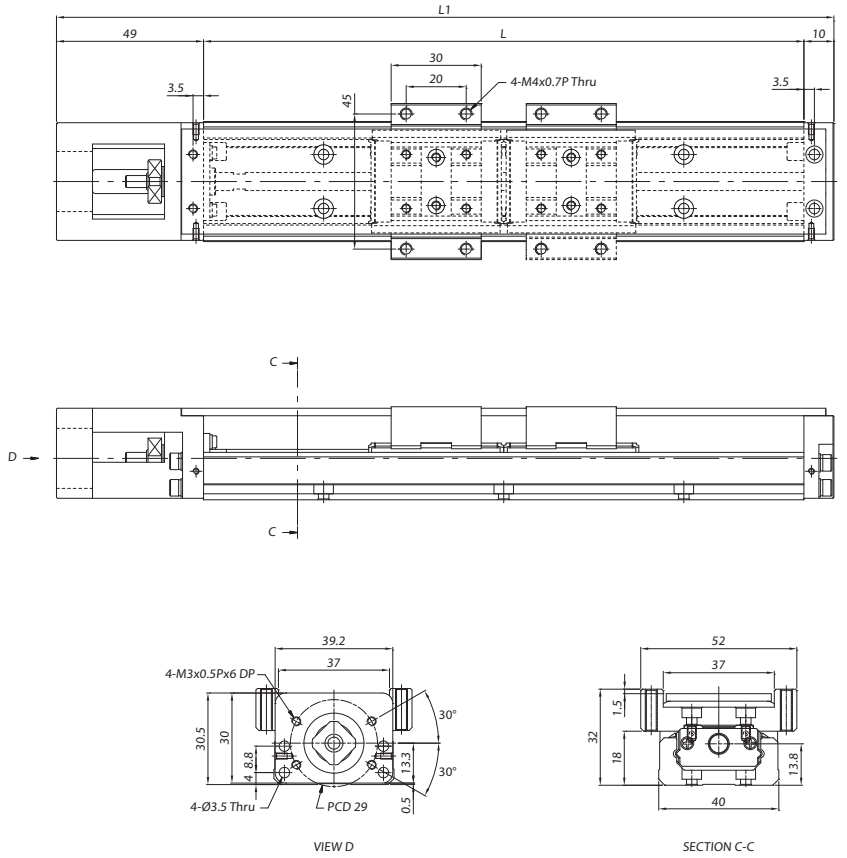
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	F	Weight (kg)	
		A Type	B Type					A Type	B Type
100	159	36	-	20	2	2.5	105	0.473	-
150	209	86	34	15	3	2.5	155	0.593	0.693
200	259	136	84	40	3	2.5	205	0.713	0.813

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM20 Cover Type



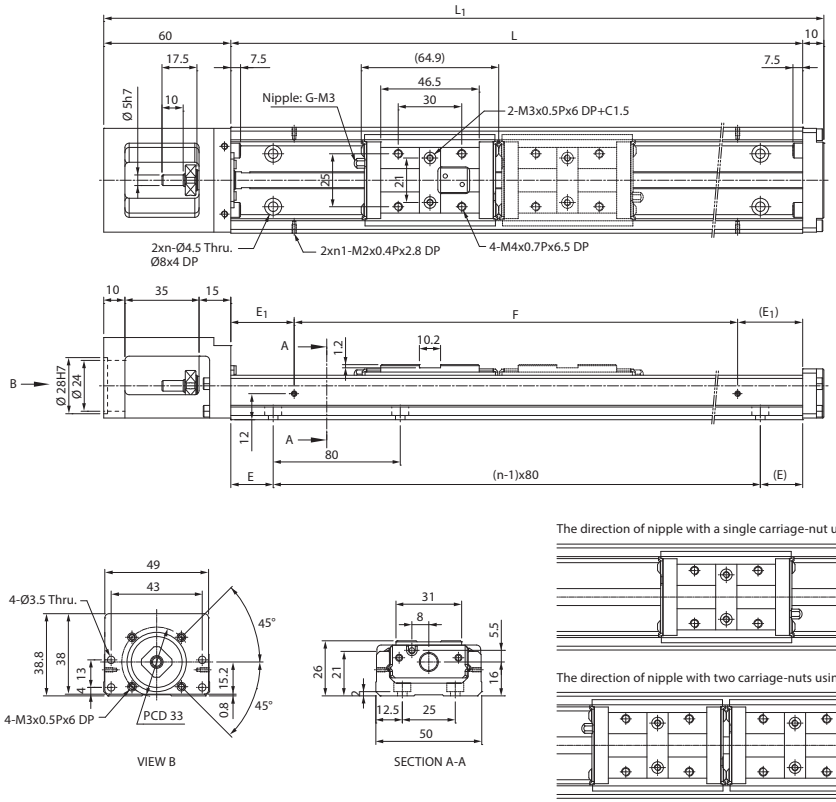
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
100	159	36	-	0.764	-
150	209	86	34	0.776	0.879
200	259	136	84	0.788	0.891

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM26 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



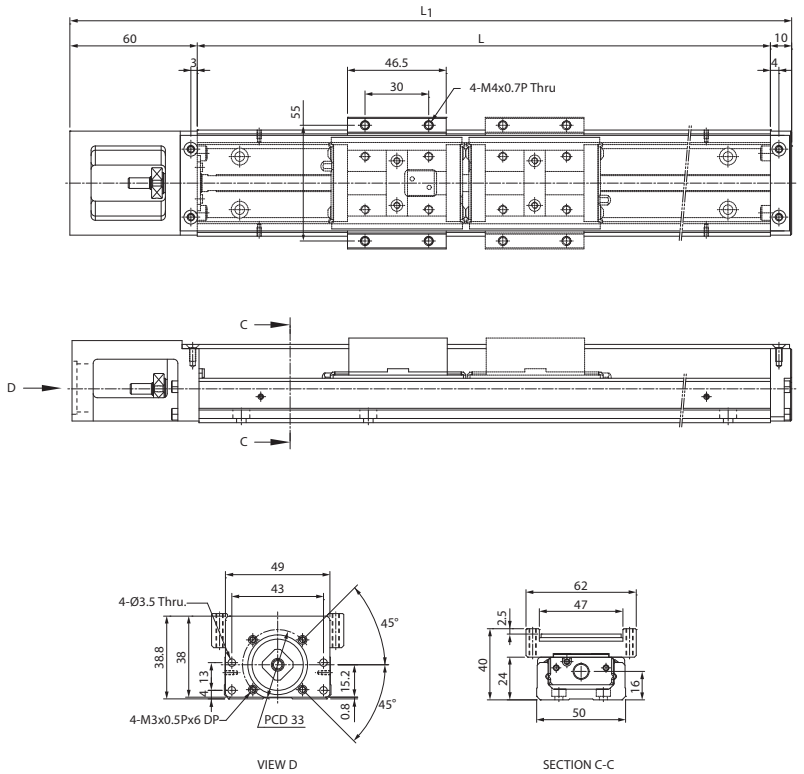
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	220	70	-	35	2	35	2	80	0.98	-
200	270	120	55	20	3	20	2	160	1.18	1.37
250	320	170	105	45	3	45	2	160	1.38	1.57
300	370	220	155	30	4	30	2	240	1.59	1.78

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM26 Cover Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



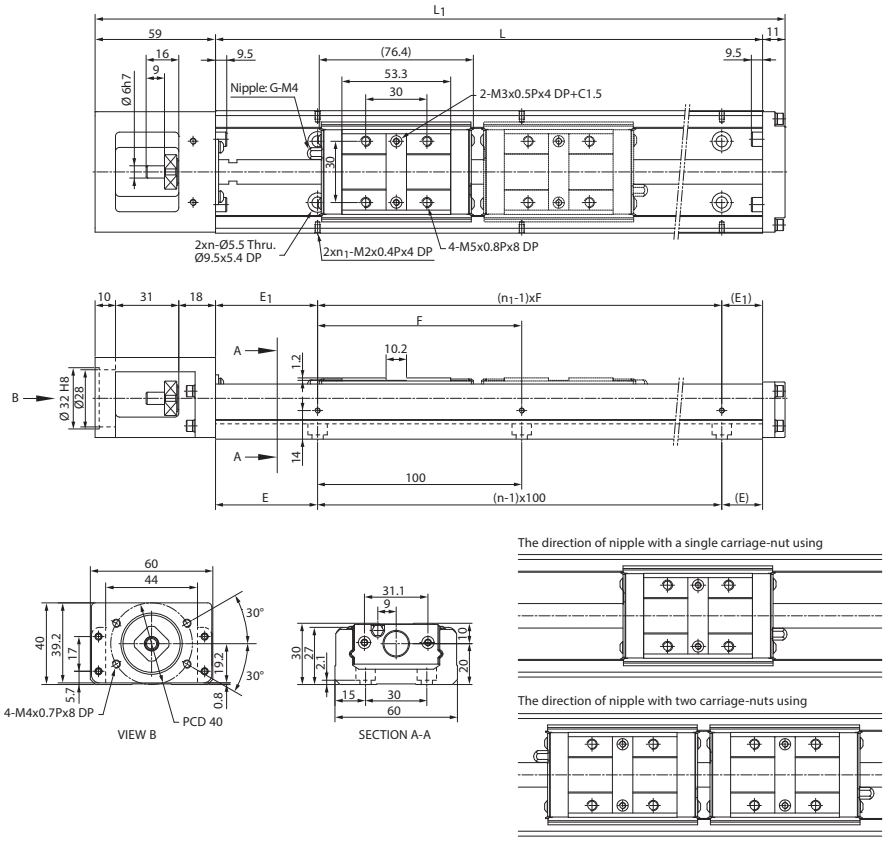
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	220	70	-	1.06	-
200	270	120	55	1.26	1.45
250	320	170	105	1.46	1.65
300	370	220	155	1.67	1.86

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM30 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



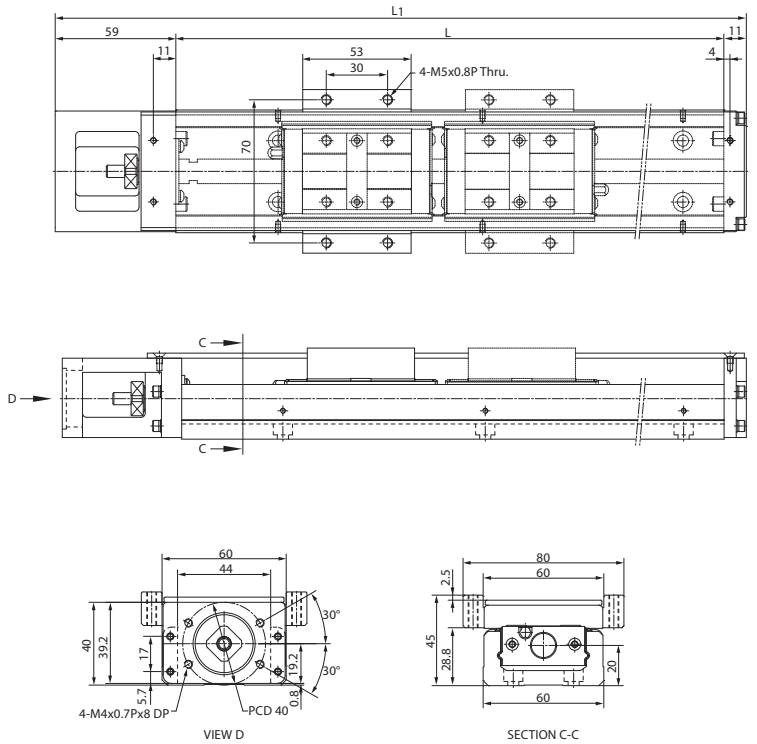
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	220	45	-	25	2	25	2	100	1.5	-
200	270	95	-	50	2	50	2	100	1.81	-
300	370	195	120	50	3	50	2	200	2.39	2.74
400	470	295	220	50	4	100	2	200	2.98	3.33
500	570	395	320	50	5	50	3	200	3.68	4.03
600	670	495	420	50	6	100	3	200	4.29	4.64

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM30 Cover Type



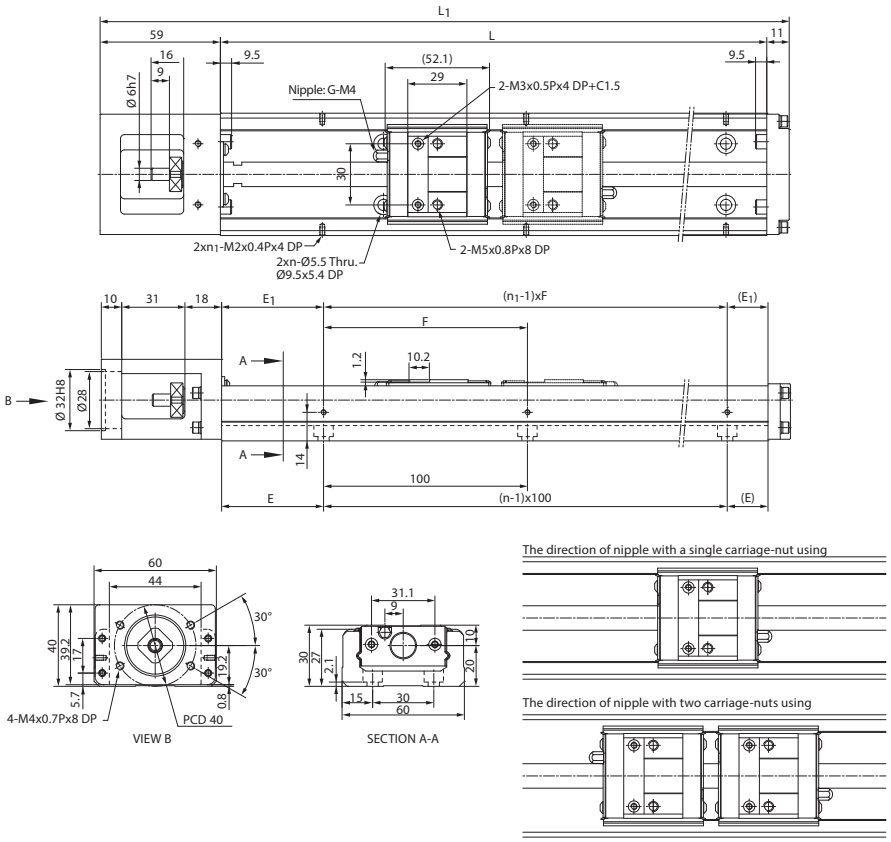
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	220	45	-	1.7	-
200	270	95	-	2.01	-
300	370	195	120	2.59	3.04
400	470	295	220	3.21	3.66
500	570	395	320	3.92	4.37
600	670	495	420	4.54	4.99

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM30 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



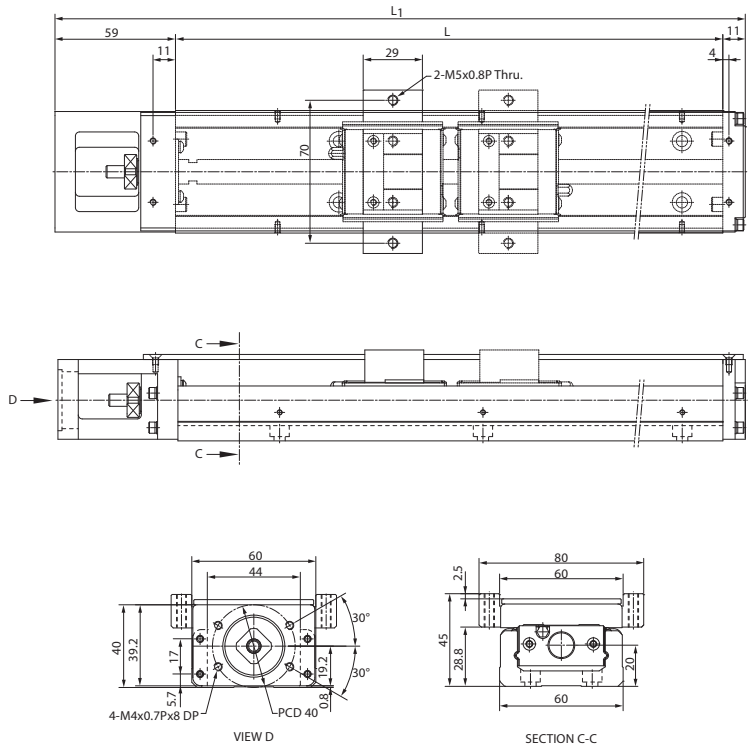
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		C Type	D Type						C Type	D Type
150	220	70	20	25	2	25	2	100	1.4	1.63
200	270	120	70	50	2	50	2	100	1.69	1.92
300	370	220	170	50	3	50	2	200	2.28	2.51
400	470	320	270	50	4	100	2	200	2.88	3.11
500	570	420	370	50	5	50	3	200	3.56	3.79
600	670	520	470	50	6	100	3	200	4.17	4.4

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length

KM30 Cover Type



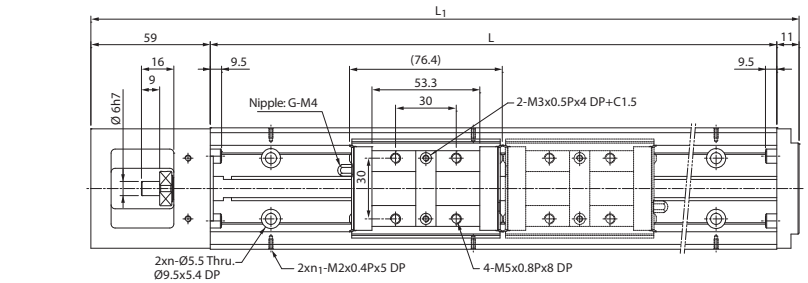
Unit : mm

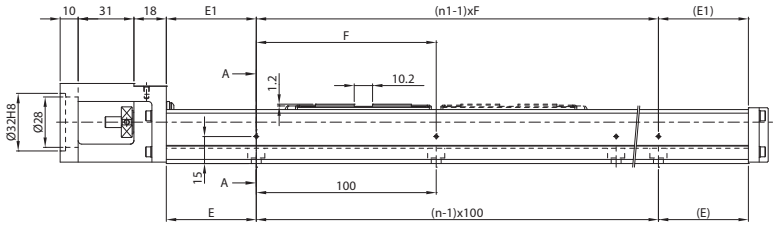
Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
150	220	70	20	1.51	1.76
200	270	120	70	1.82	2.07
300	370	220	170	2.45	2.70
400	470	320	270	3.09	3.34
500	570	420	370	3.82	4.07
600	670	520	470	4.47	4.72

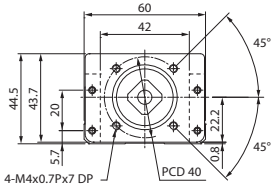
Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM33 Standard Type

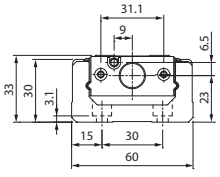
A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length





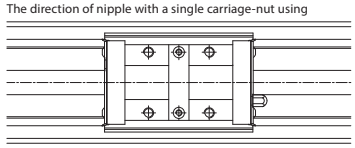


VIEW B

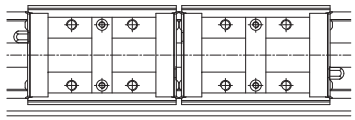


SECTION A-A

The direction of nipple with a single carriage-nut using



The direction of nipple with two carriage-nuts using



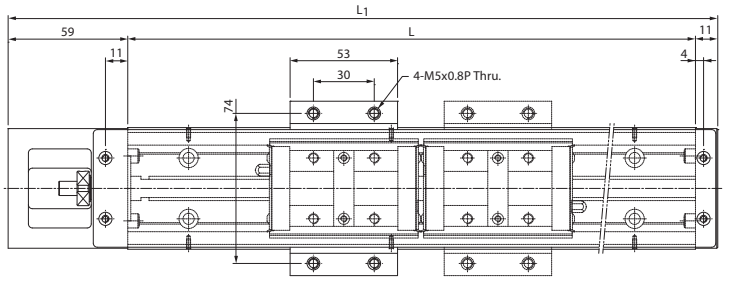
Unit : mm

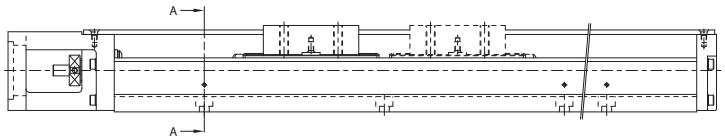
Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	220	45	-	25	2	25	2	100	1.67	-
200	270	95	-	50	2	50	2	100	1.98	-
300	370	195	120	50	3	50	2	200	2.56	2.91
400	470	295	220	50	4	100	2	200	3.15	3.5
500	570	395	320	50	5	50	3	200	3.85	4.2
600	670	495	420	50	6	100	3	200	4.46	4.81

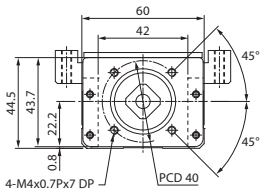
Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

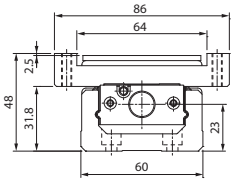
KM33 Cover Type







VIEW D



SECTION C-C

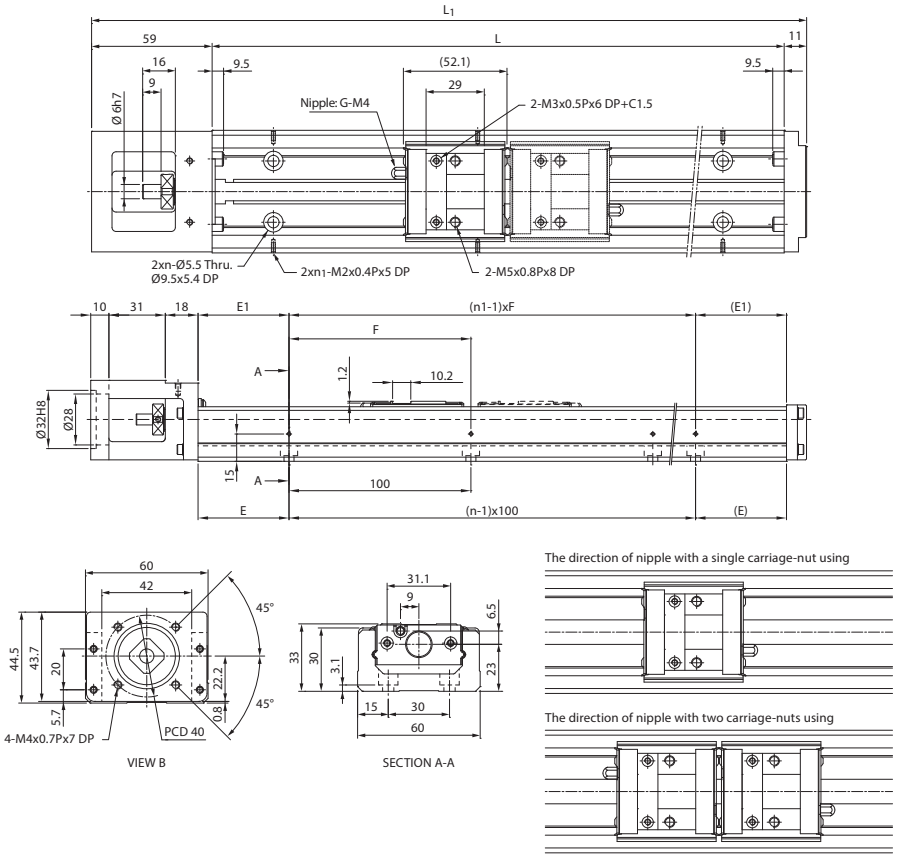
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	220	45	-	1.87	-
200	270	95	-	2.18	-
300	370	195	120	2.76	3.21
400	470	295	220	3.38	3.83
500	570	395	320	4.09	4.54
600	670	495	420	4.71	5.16

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM33 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



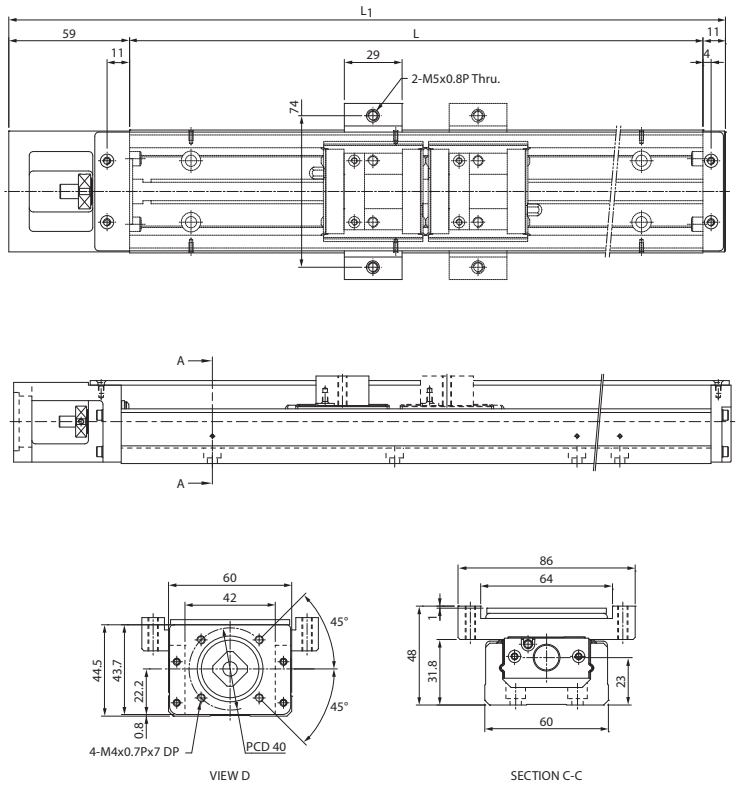
Unit : mm

Rail Length L	Overall Length L1	Max. Stroke		E	n	E1	n1	F	Weight (kg)	
		C Type	D Type						C Type	D Type
150	220	70	20	25	2	25	2	100	1.57	1.8
200	270	120	70	50	2	50	2	100	1.86	2.09
300	370	220	170	50	3	50	2	200	2.45	2.68
400	470	320	270	50	4	100	2	200	3.05	3.28
500	570	420	370	50	5	50	3	200	3.73	3.96
600	670	520	470	50	6	100	3	200	4.34	4.57

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length

KM33 Cover Type



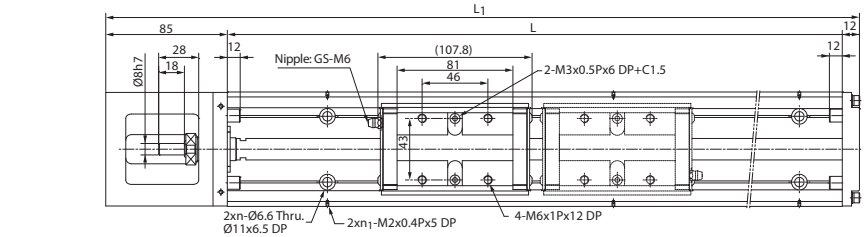
Unit : mm

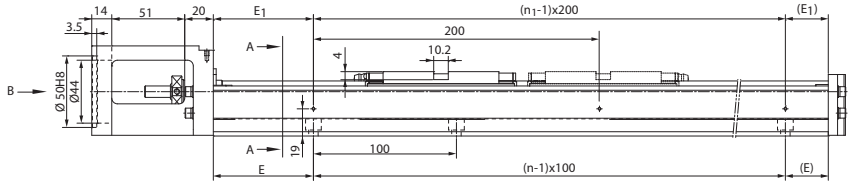
Rail Length L	Overall Length L1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
150	220	70	20	1.68	1.93
200	270	120	70	1.99	2.24
300	370	220	170	2.62	2.87
400	470	320	270	3.26	3.51
500	570	420	370	3.99	4.24
600	670	520	470	4.64	4.89

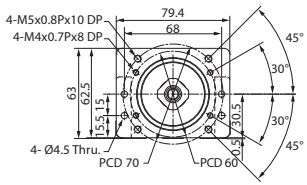
Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM45 Standard Type

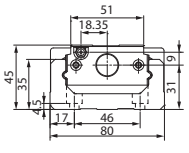
A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



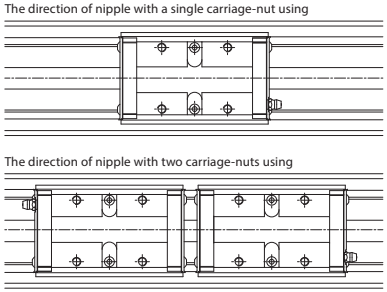




VIEW B



SECTION A-A



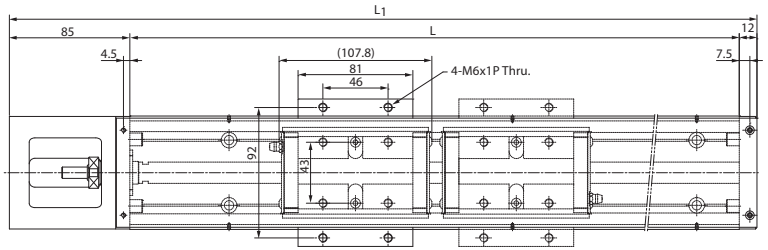
Unit : mm

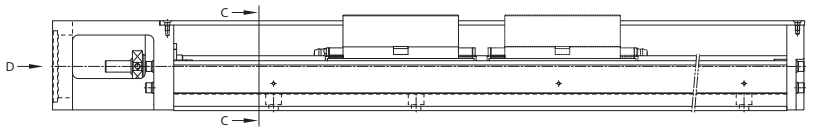
Rail Length L	Overall Length L1	Max. Stroke		E	n	E1	n1	Weight (kg)	
		A Type	B Type					A Type	B Type
340	437	190	80	70	3	70	2	6.78	7.98
440	537	290	180	70	4	20	3	8.07	9.27
540	637	390	280	70	5	70	3	9.37	10.57
640	737	490	380	70	6	20	4	10.68	11.88
740	837	590	480	70	7	70	4	12.08	13.28
840	937	690	580	70	8	20	5	13.2	14.4
940	1037	790	680	70	9	70	5	14.37	15.57

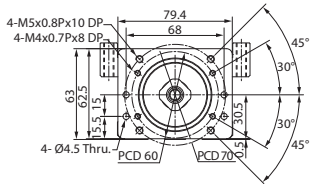
Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM45 Cover Type

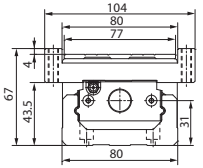
A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length







VIEW D



SECTION C-C

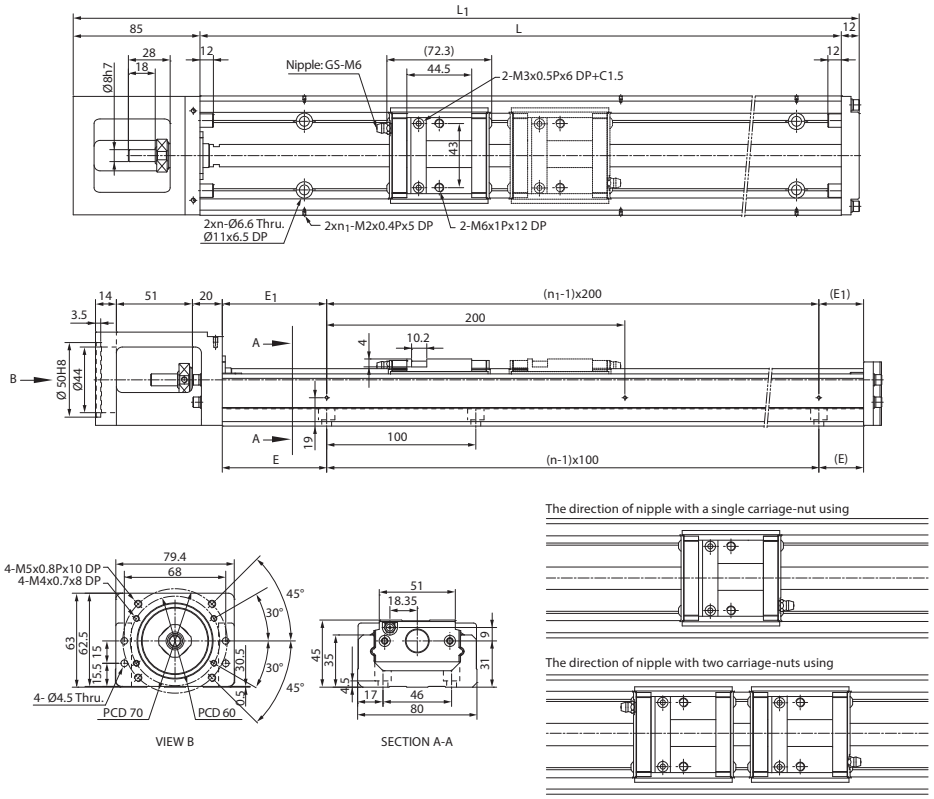
Unit : mm

Rail Length L	Overall Length L1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
340	437	190	80	7.38	8.78
440	537	290	180	8.67	10.07
540	637	390	280	9.97	11.37
640	737	490	380	11.28	12.68
740	837	590	480	12.68	14.08
840	937	690	580	13.78	15.18
940	1037	790	680	14.97	16.37

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM45 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



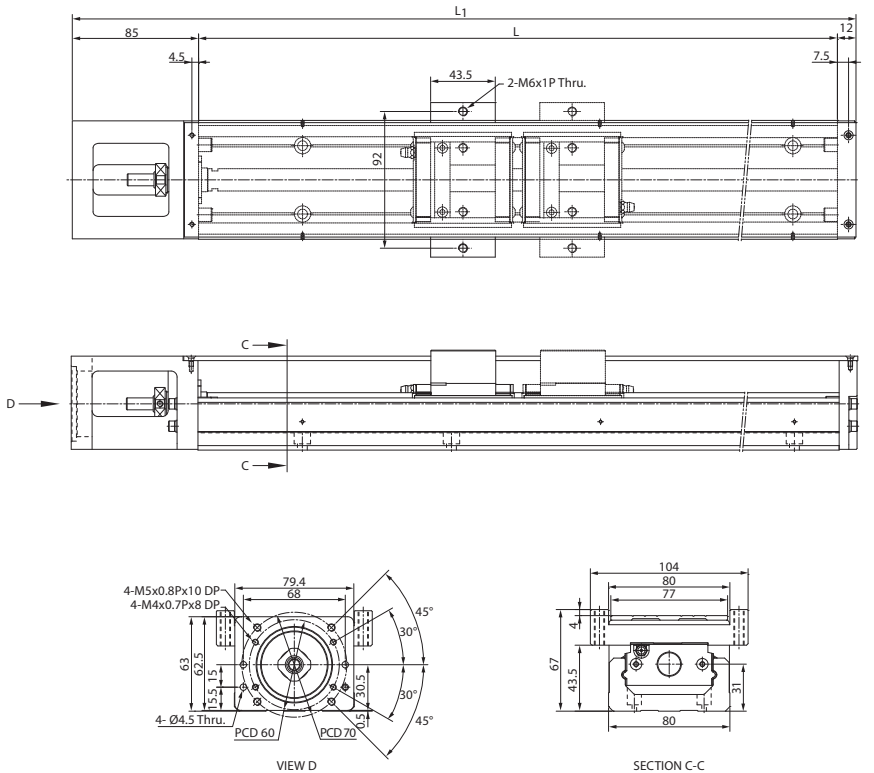
Unit : mm

Rail Length L	Overall Length L1	Max. Stroke		E	n	E1	n1	Weight (kg)	
		C Type	D Type					C Type	D Type
340	437	220	150	70	3	70	2	6.38	7.18
440	537	320	250	70	4	20	3	7.67	8.47
540	637	420	350	70	5	70	3	8.97	9.77
640	737	520	450	70	6	20	4	10.28	11.08
740	837	620	550	70	7	70	4	11.68	12.48
840	937	720	650	70	8	20	5	12.78	13.58
940	1037	820	750	70	9	70	5	13.97	14.77

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM45 Cover Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



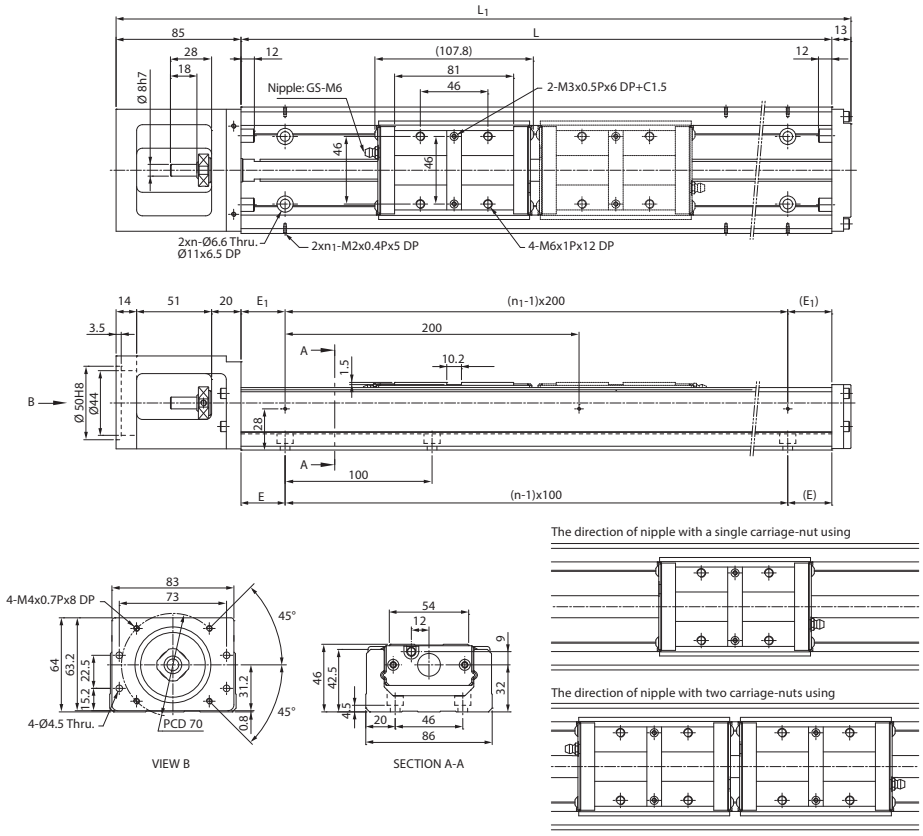
Unit : mm

Rail Length L	Overall Length L1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
340	437	220	150	6.58	7.58
440	537	320	250	7.87	8.87
540	637	420	350	9.17	10.17
640	737	520	450	10.48	11.48
740	837	620	550	11.88	12.88
840	937	720	650	12.98	13.98
940	1037	820	750	14.17	15.17

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM46 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



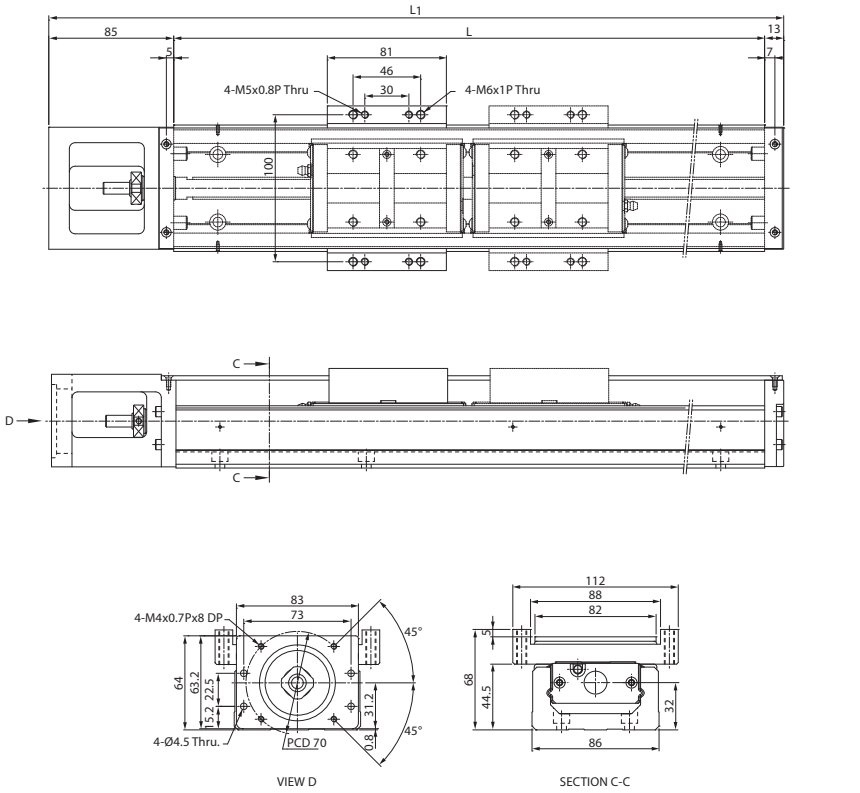
Unit : mm

Rail Length L	Overall Length L1	Max. Stroke		E	n	E1	n1	Weight (kg)	
		A Type	B Type					A Type	B Type
340	438	190	80	70	3	70	2	7.65	8.85
440	538	290	180	70	4	20	3	8.94	10.14
540	638	390	280	70	5	70	3	10.24	11.44
640	738	490	380	70	6	20	4	11.55	12.75
740	838	590	480	70	7	70	4	12.95	14.15
840	938	690	580	70	8	20	5	14.1	15.3
940	1038	790	680	70	9	70	5	15.24	16.44

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM46 Cover Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



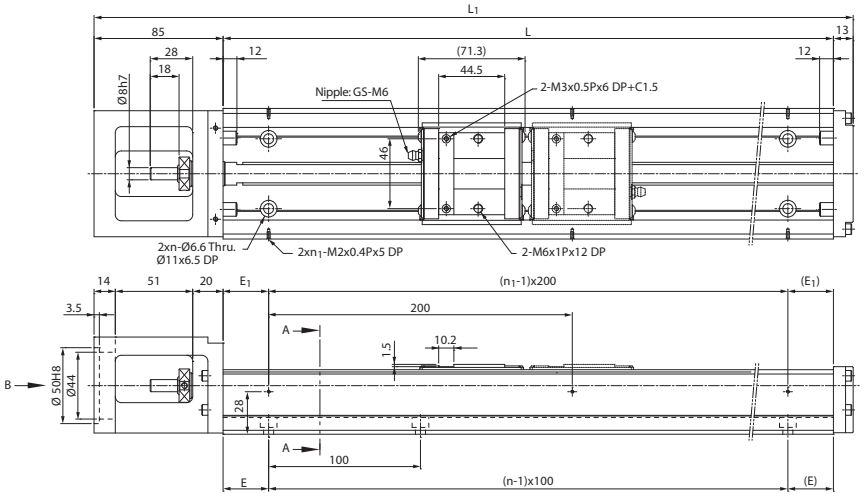
Unit : mm

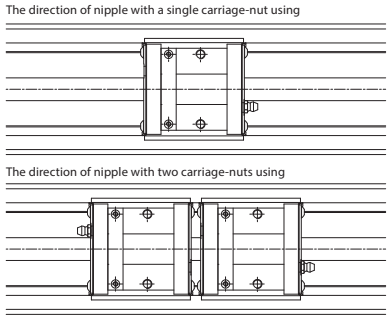
Rail Length L	Overall Length L1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
340	438	190	80	8.25	9.65
440	538	290	180	9.54	10.94
540	638	390	280	10.84	12.24
640	738	490	380	12.15	13.55
740	838	590	480	13.55	14.95
840	938	690	580	14.65	16.05
940	1038	790	680	15.84	17.24

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM46 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length





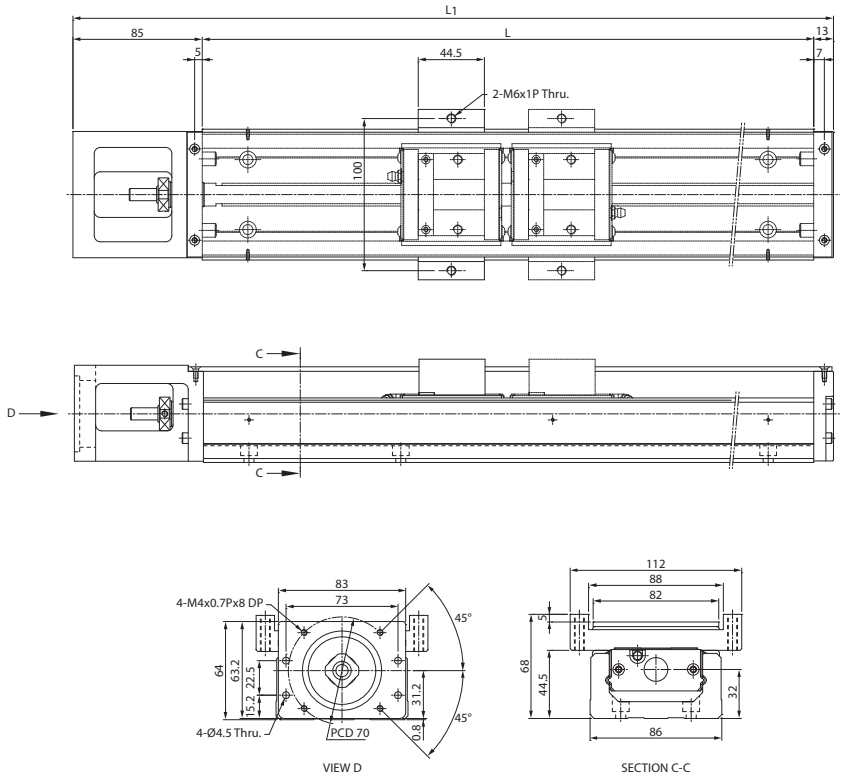
Unit : mm

Rail Length L	Overall Length L1	Max. Stroke		E	n	E1	n1	Weight (kg)	
		C Type	D Type					C Type	D Type
340	438	220	150	70	3	70	2	7.25	8.05
440	538	320	250	70	4	20	3	8.54	9.34
540	638	420	350	70	5	70	3	9.84	10.64
640	738	520	450	70	6	20	4	11.15	11.95
740	838	620	550	70	7	70	4	12.55	13.35
840	938	720	650	70	8	20	5	13.65	14.45
940	1038	820	750	70	9	70	5	14.84	15.64

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM46 Cover Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



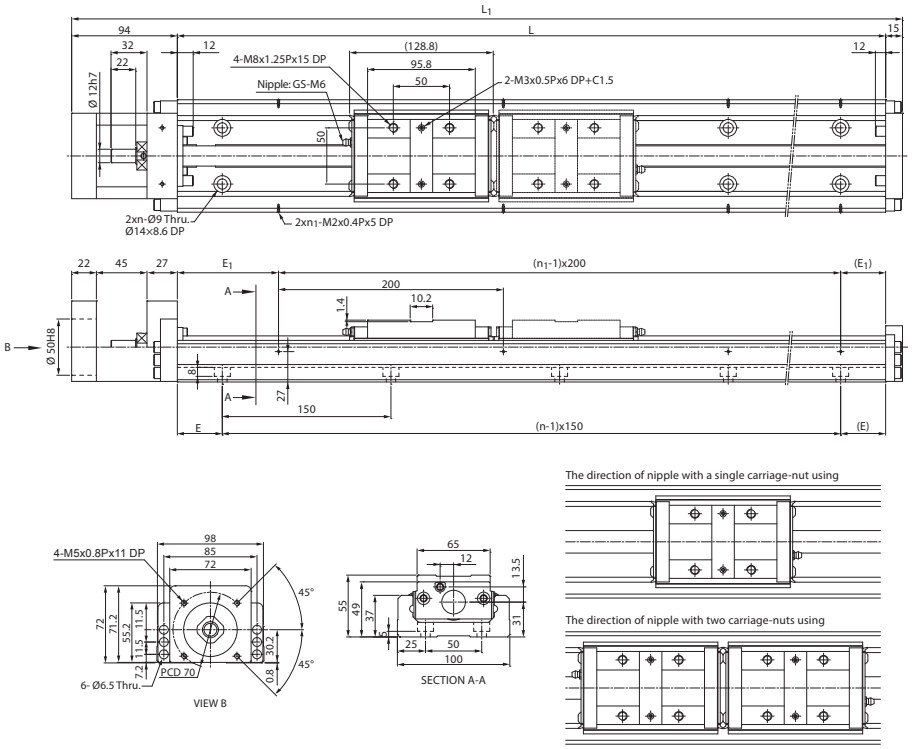
Unit : mm

Rail Length L	Overall Length L1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
340	438	220	150	7.45	8.45
440	538	320	250	8.74	9.74
540	638	420	350	10.04	11.04
640	738	520	450	11.35	12.35
740	838	620	550	12.75	13.75
840	938	720	650	13.85	14.85
940	1038	820	750	15.04	16.04

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM55 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



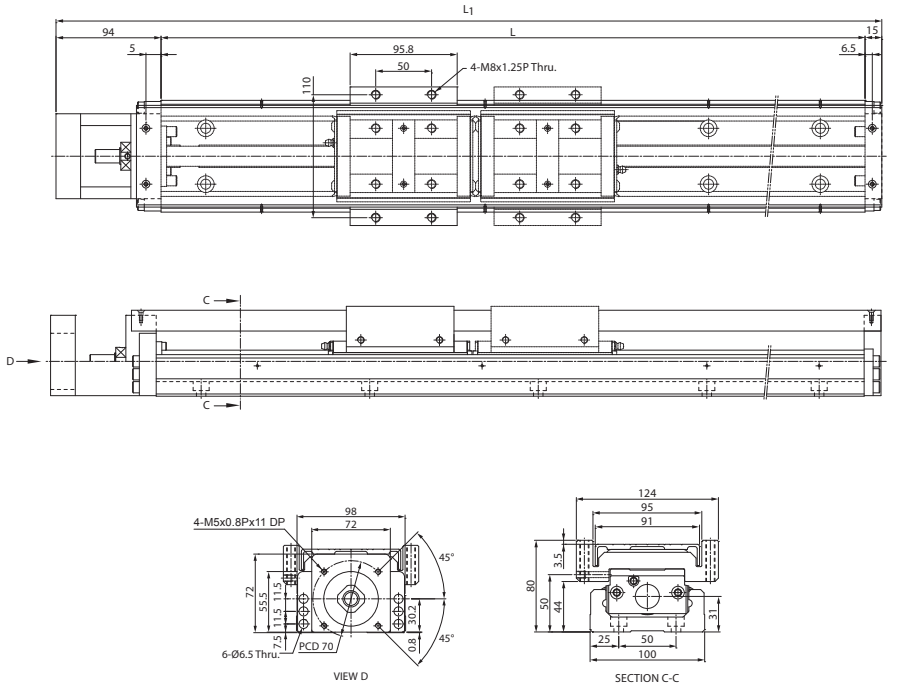
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	Weight (kg)	
		A Type	B Type					A Type	B Type
980	1089	800	680	40	7	90	5	19.90	21.62
1080	1189	900	780	15	8	40	6	21.63	23.35
1180	1289	1000	880	65	8	90	6	23.36	25.08
1280	1389	1100	980	40	9	40	7	25.09	26.81
1380	1489	1200	1080	15	10	90	7	26.82	28.54

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM55 Cover Type



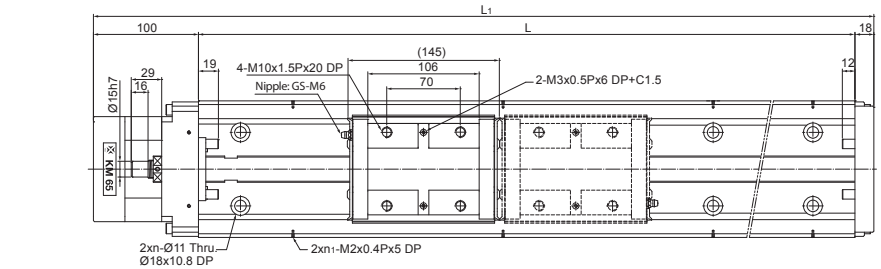
Unit : mm

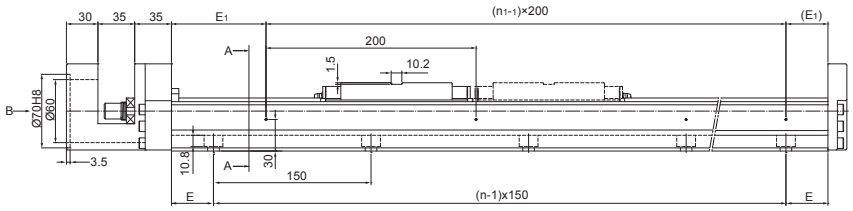
Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
980	1089	800	680	21.78	24.25
1080	1189	900	780	23.61	26.08
1180	1289	1000	880	25.44	27.91
1280	1389	1100	980	27.26	29.73
1380	1489	1200	1080	29.09	31.56

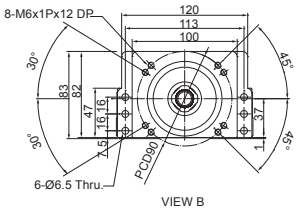
Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

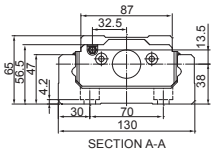
KM65 Standard Type

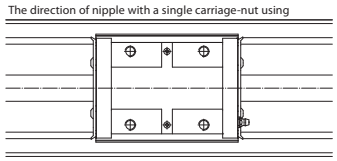
A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

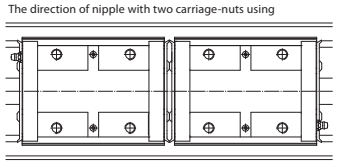












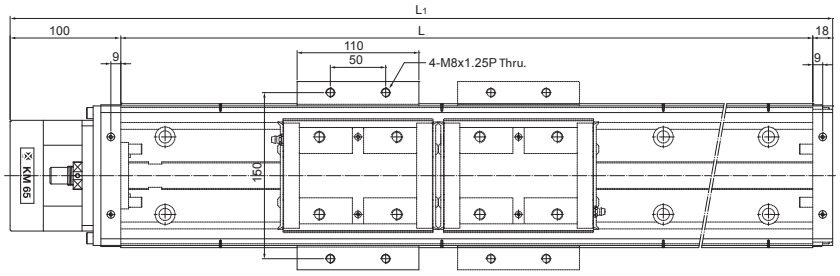
Unit : mm

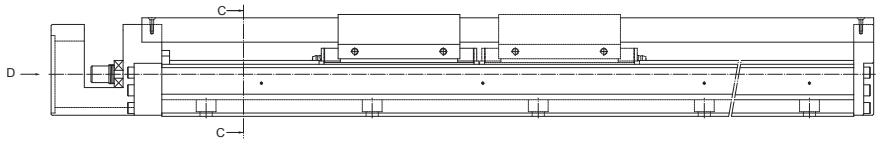
Rail Length L	Overall Length L1	Max. Stroke		E	n	E1	n1	Weight (kg)	
		A Type	B Type					A Type	B Type
980	1098	790	640	40	7	90	5	31.60	34.60
1180	1298	990	840	65	8	90	6	37.00	40.00
1380	1498	1190	1040	90	9	90	7	42.40	45.40
1680	1798	1490	1340	90	11	40	9	50.50	53.50

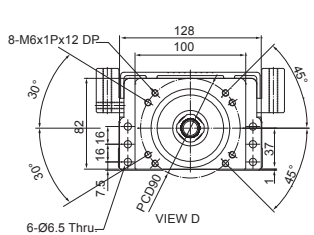
Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

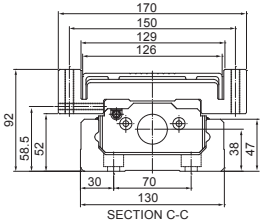
A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM65 Cover Type









Unit : mm

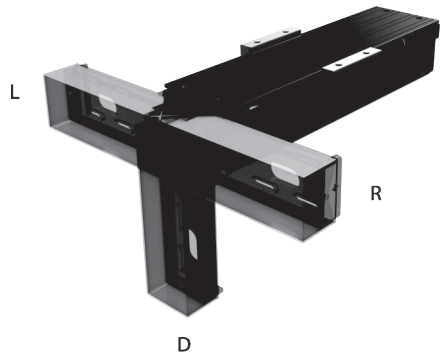
Rail Length L	Overall Length L1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
980	1098	790	640	31.60	34.60
1180	1298	990	840	37.00	40.00
1380	1498	1190	1040	42.40	45.40
1680	1798	1490	1340	50.50	53.50

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

Parallel Type

Characteristics

It is special type that allows the motor to be turn around in order to minimize the dimension in the longitudinal direction (pulley ratio 1:1). Please contact *PMI* for details.



User could change direction to meet the requirement.

Description of Specification

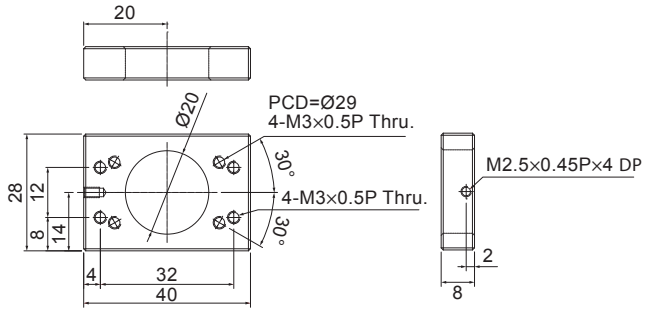
KM33 | 05 | A | +400 | P | R | 1 | -0 | 0 | 30 | CA | AA

- Model
- Ballscrew Lead
- Carriage-Nut type
  - **A:** A single carriage-nut with standard length
  - **B:** Two carriage-nuts with standard length
  - **C:** A single carriage-nut with short length
  - **D:** Two carriage-nuts with short length
- Rail length (mm)
- Accuracy grade
  - **N:** Normal grade
  - **P:** Precision grade
- Motor direction
  - **R:** Right
  - **L:** Left
  - **U:** Up
  - **D:** Down
- With / Without a Motor
  - **0:** None
  - **1:** With a Motor
- With / Without a Cover
  - **0:** None
  - **1:** With a Cover
  - **2:** With a Bellows
- Sensor Specification
- Type of Motor Bracket type
- Surface treatment mode:
  - **No symbol :** Black Chrome Plating + Special Fluororesin(PS-CF)
  - **CB:** Black oxide treatment
  - **CE:** Black Chrome Plating(PS-C)
  - **CA:** Electroless Nickel
- Code of special type
  - **AA:** Special process
  - **A1:** Heighten housing
  - **No symbol:** Standard housing

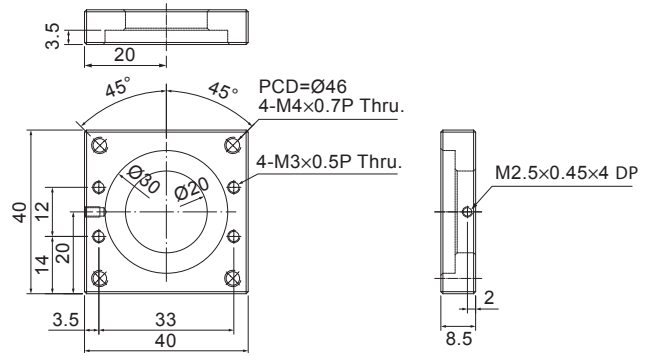
The dimension of intermediate flange

KM20

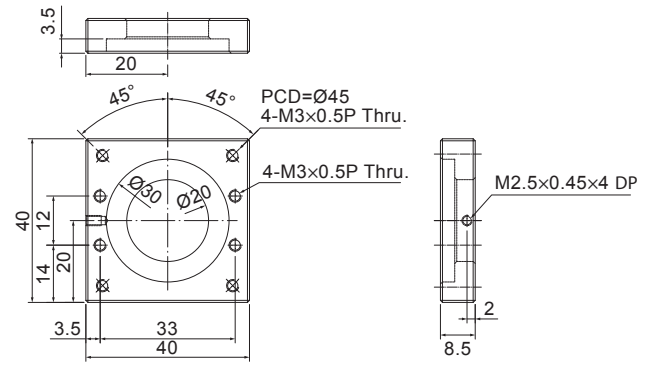
1I



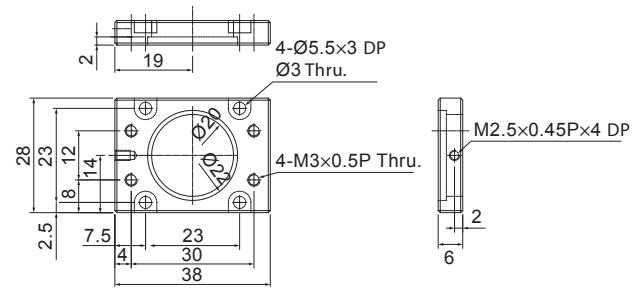
1J



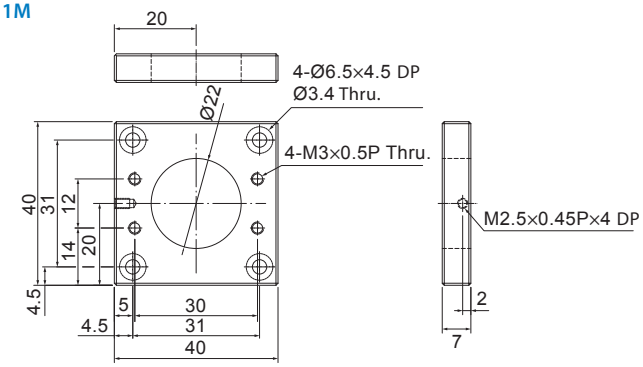
1K



1L

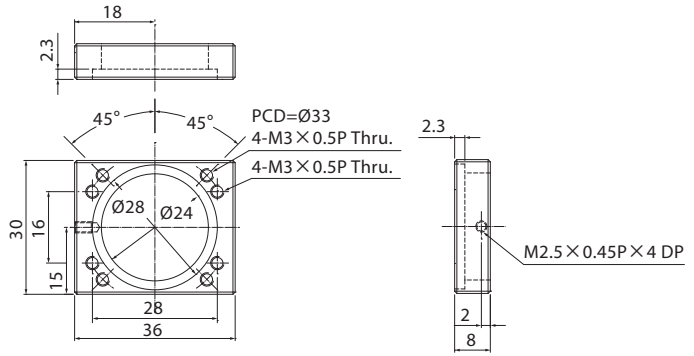


1M

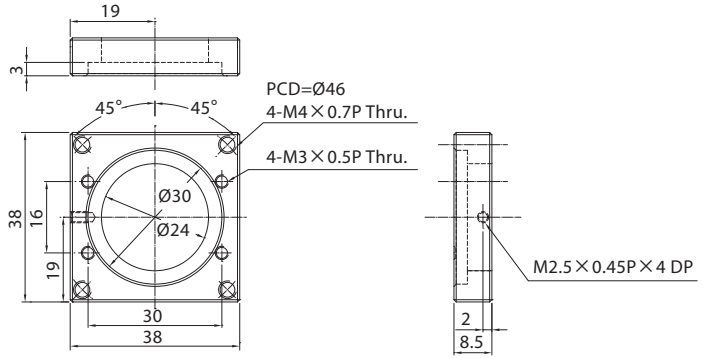


KM26

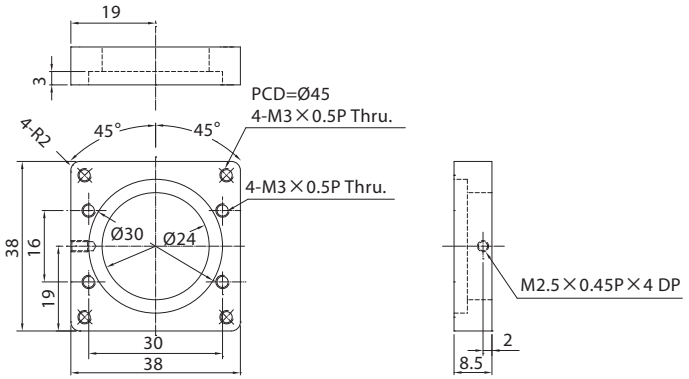
2I



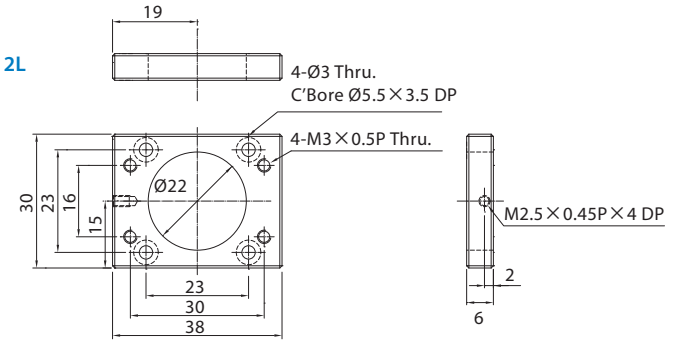
2J



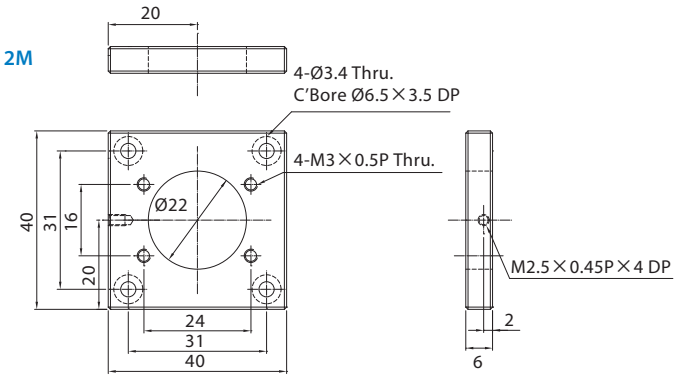
2K



2L

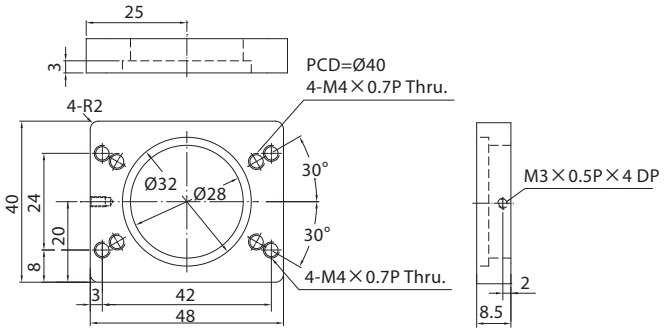


2M

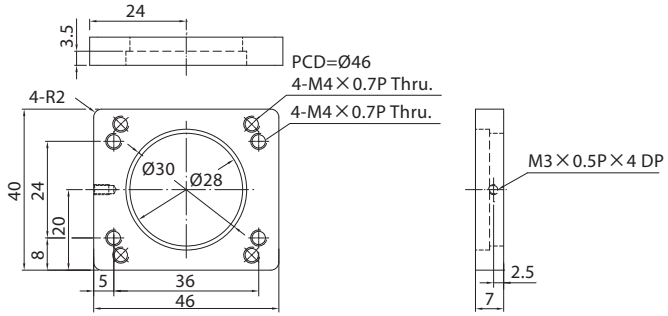


KM30

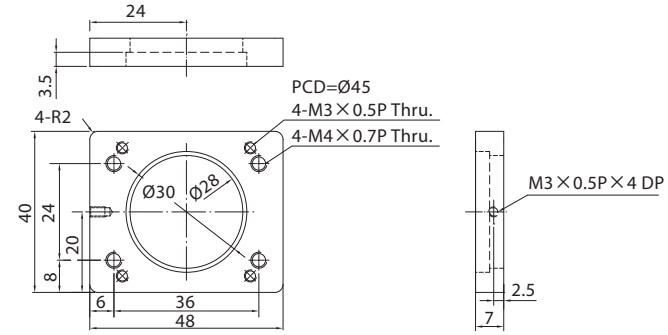
3K



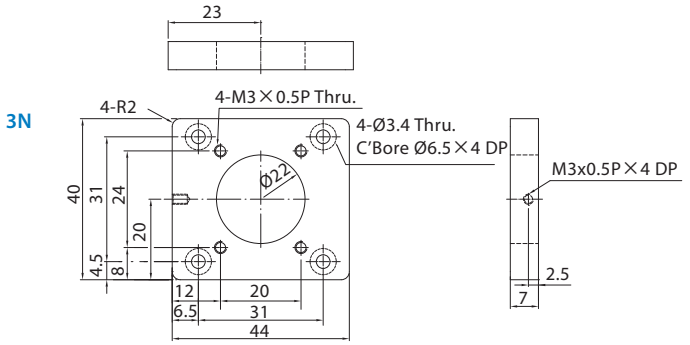
3L



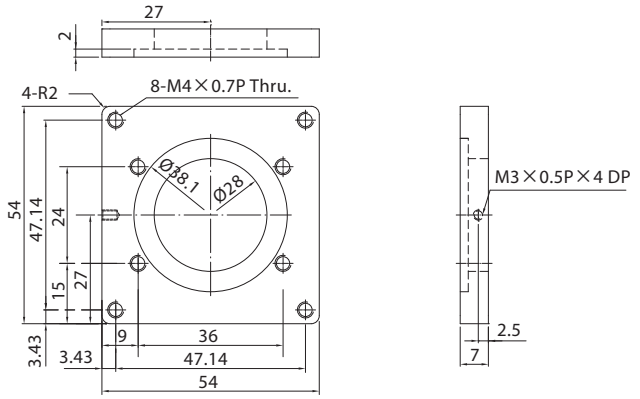
3M



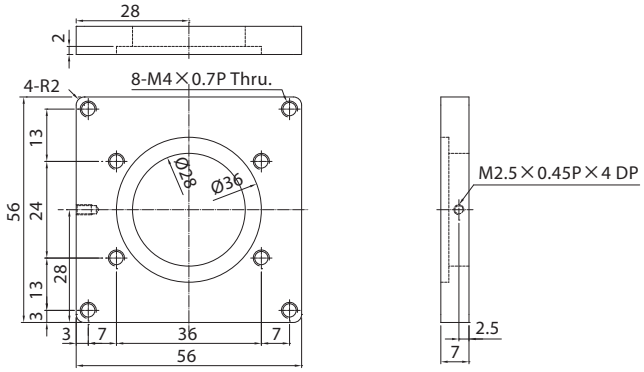
3N



3O

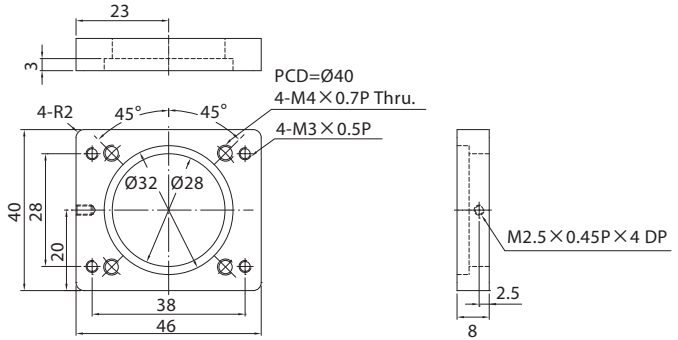


3P

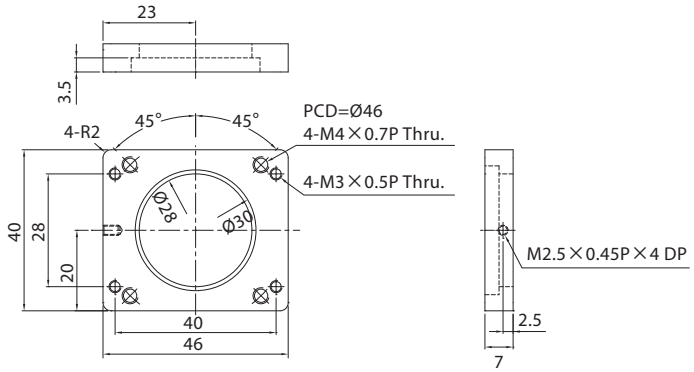


KM33

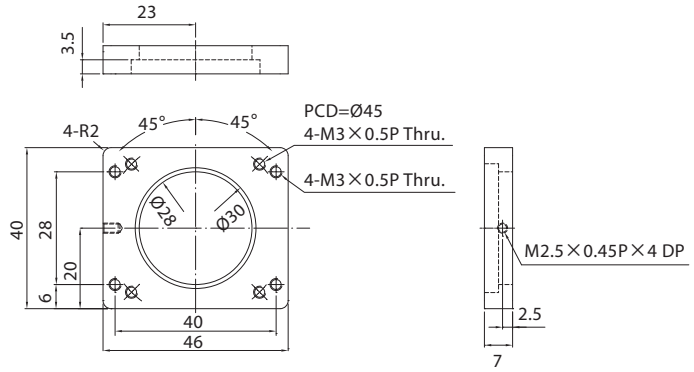
3K



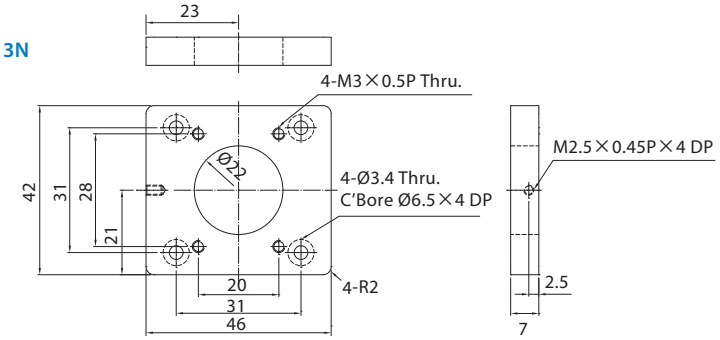
3L



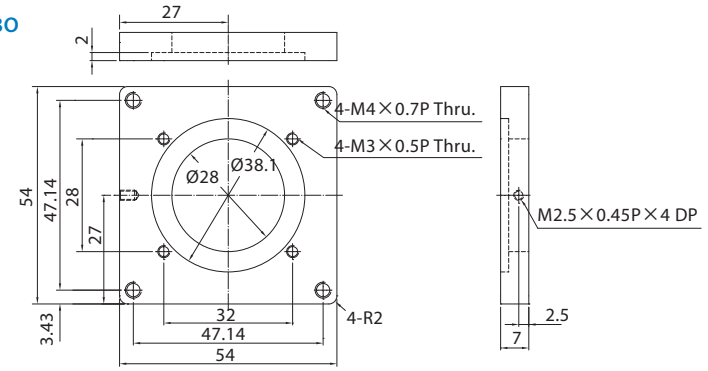
3M



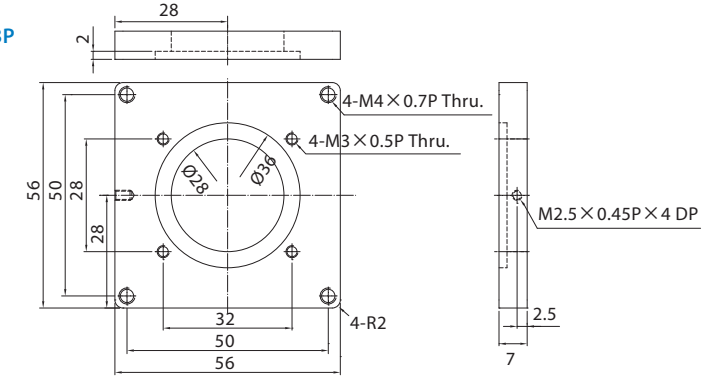
3N



3O

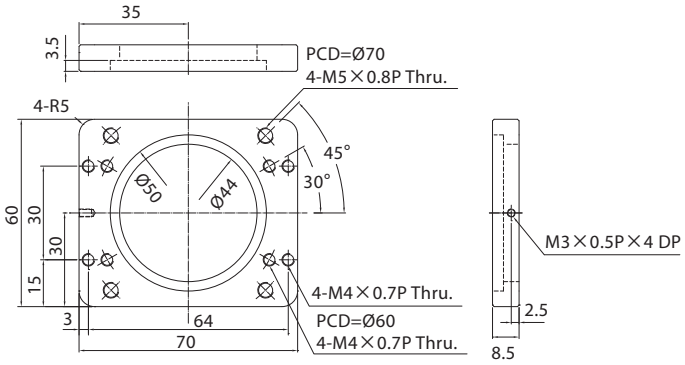


3P

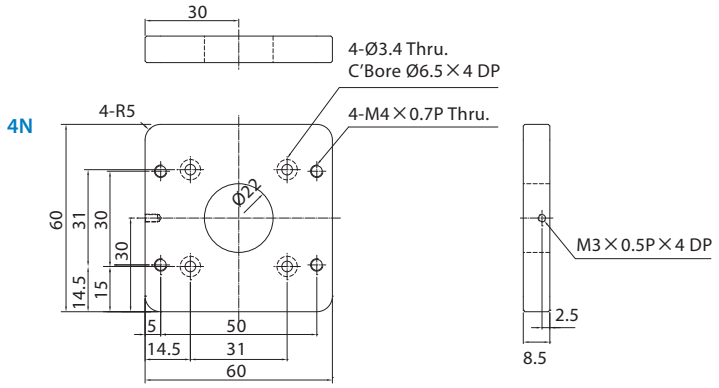


KM45

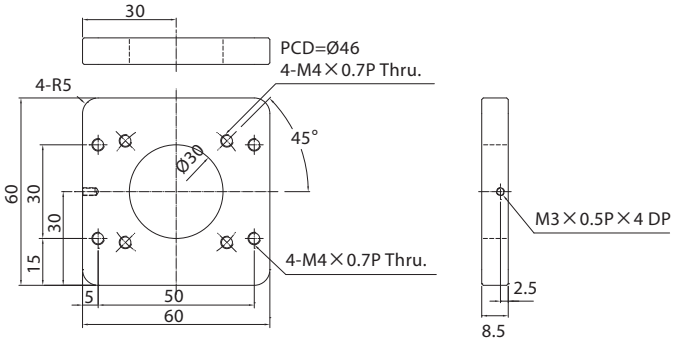
4K



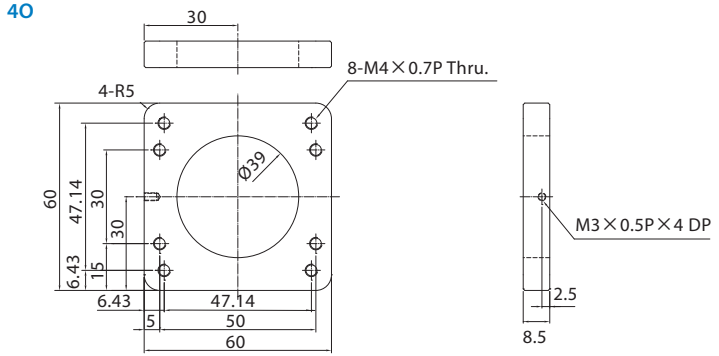
4N



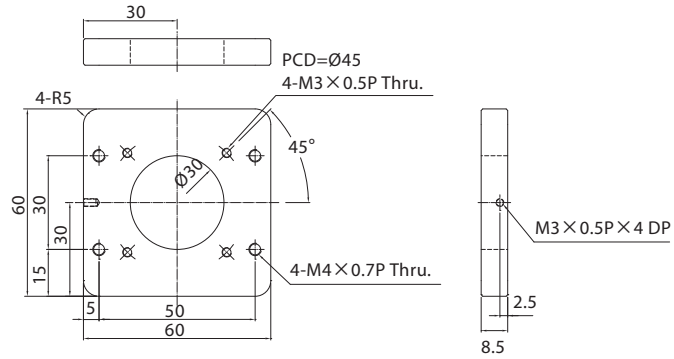
4L



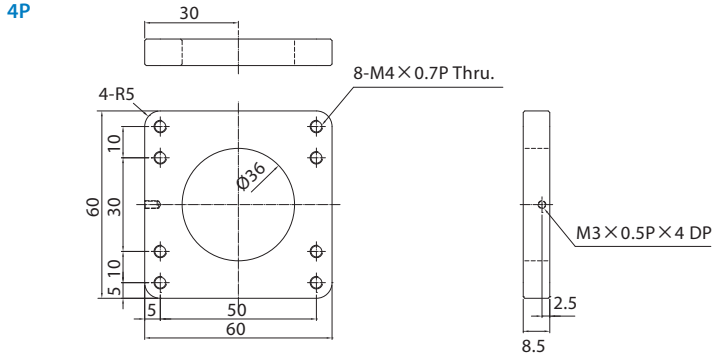
4O



4M

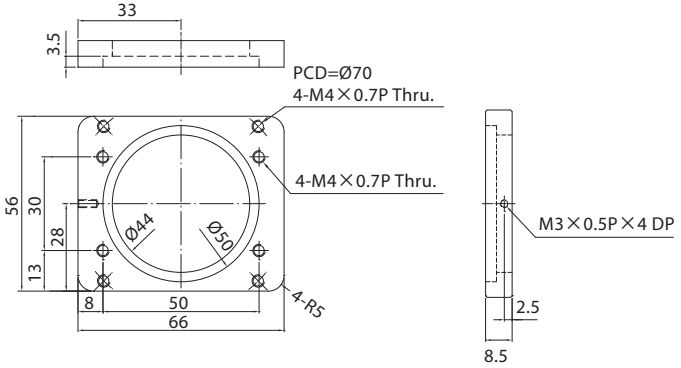


4P

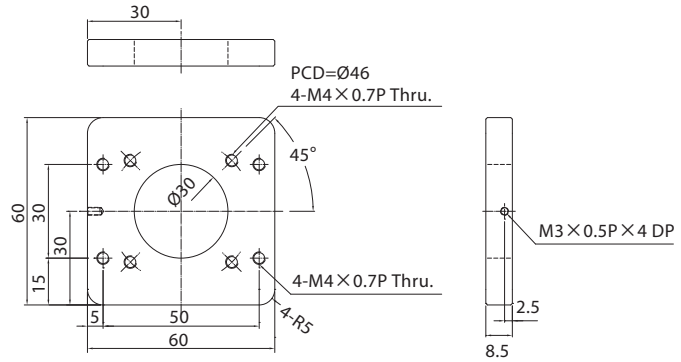


KM46

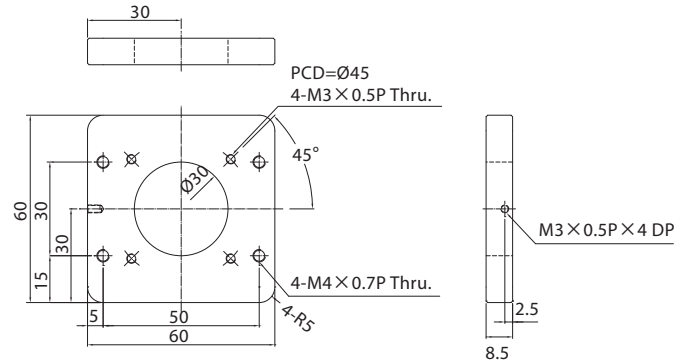
4K



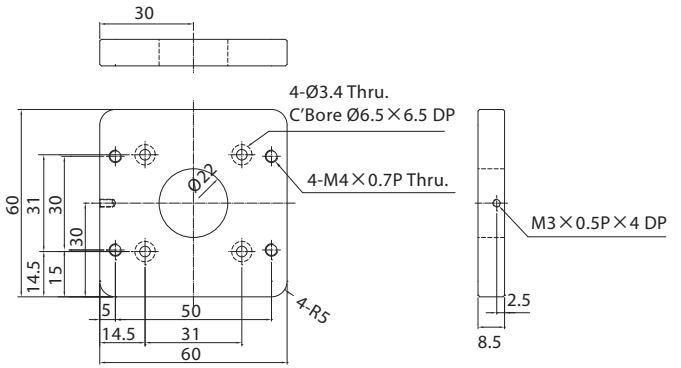
4L



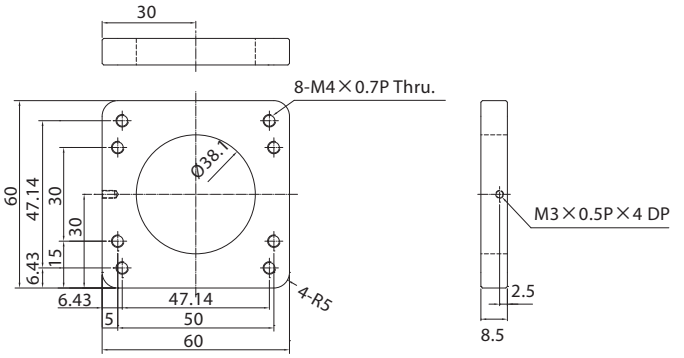
4M



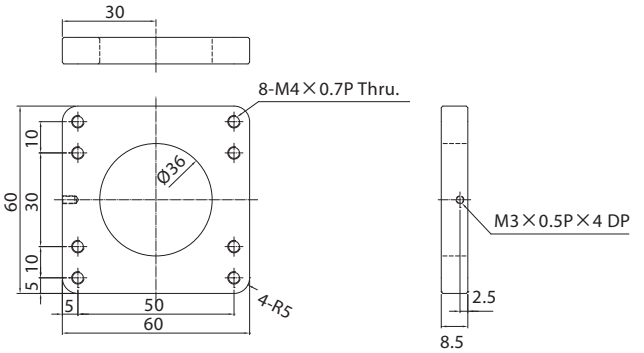
4N



4O

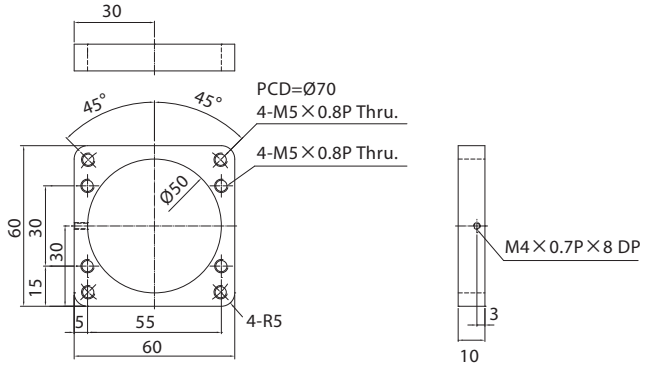


4P

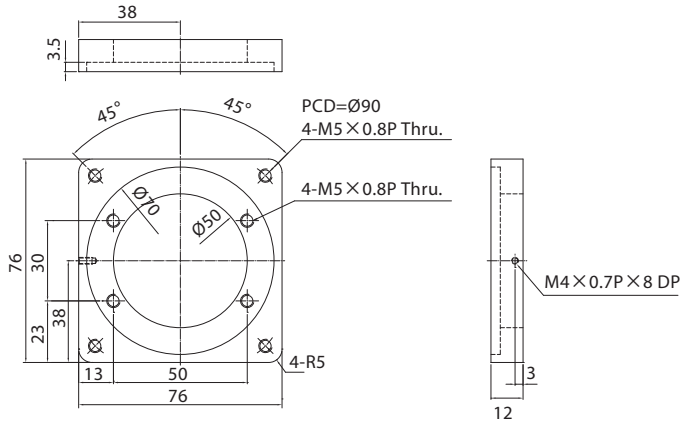


KM55

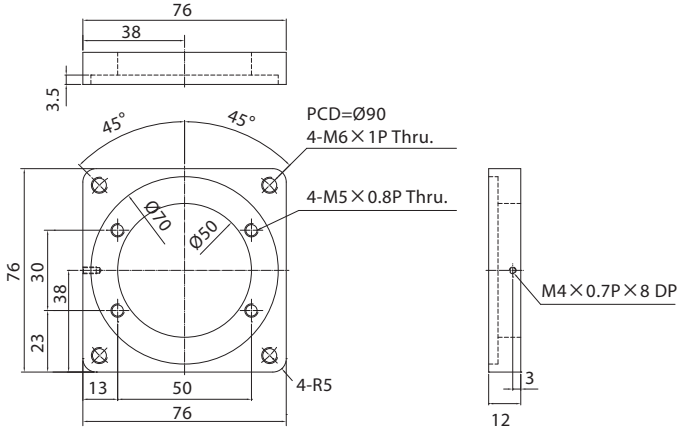
5L



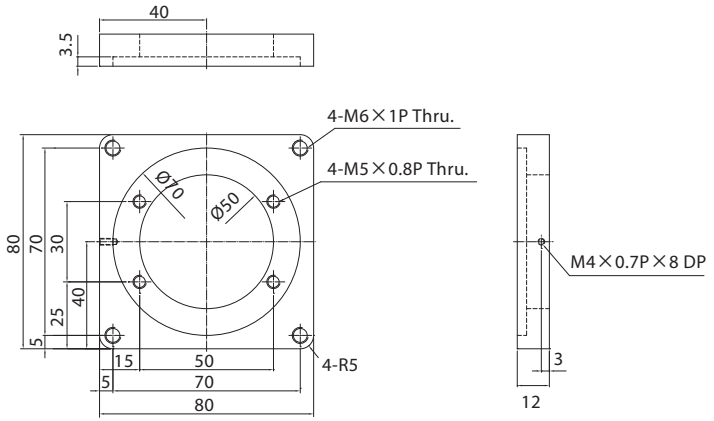
5N



5M

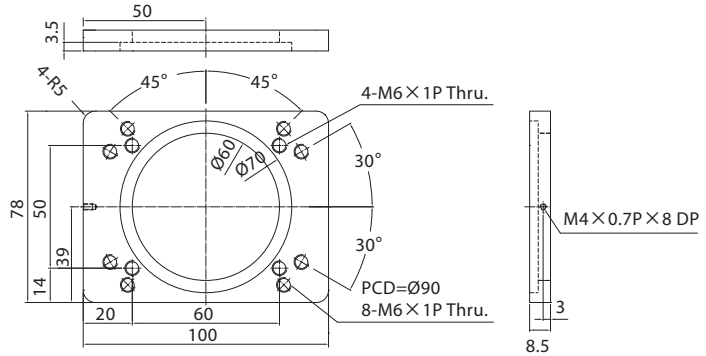


5O

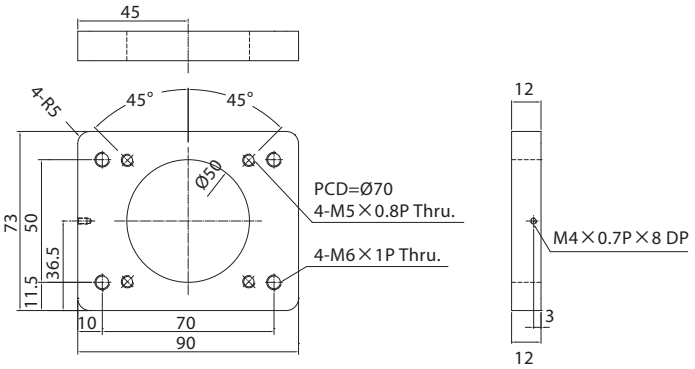


KM65

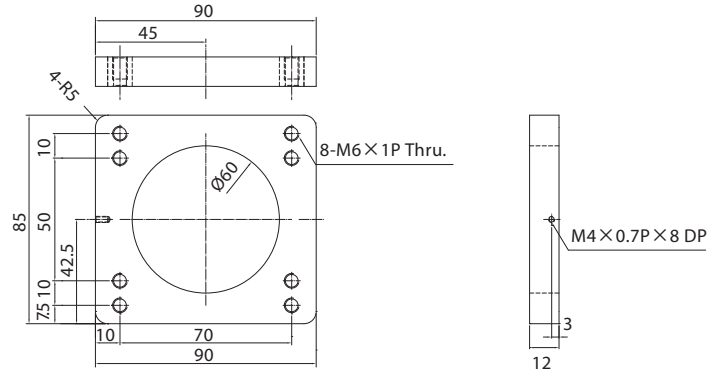
6L



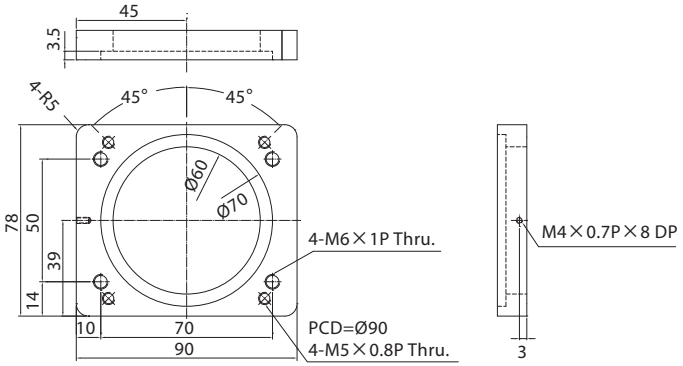
6M



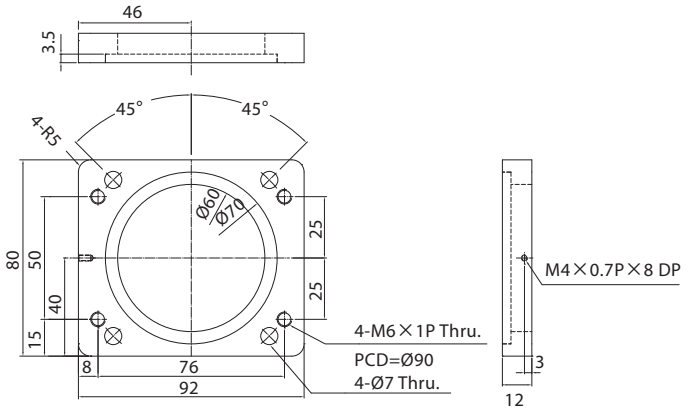
6N



6O

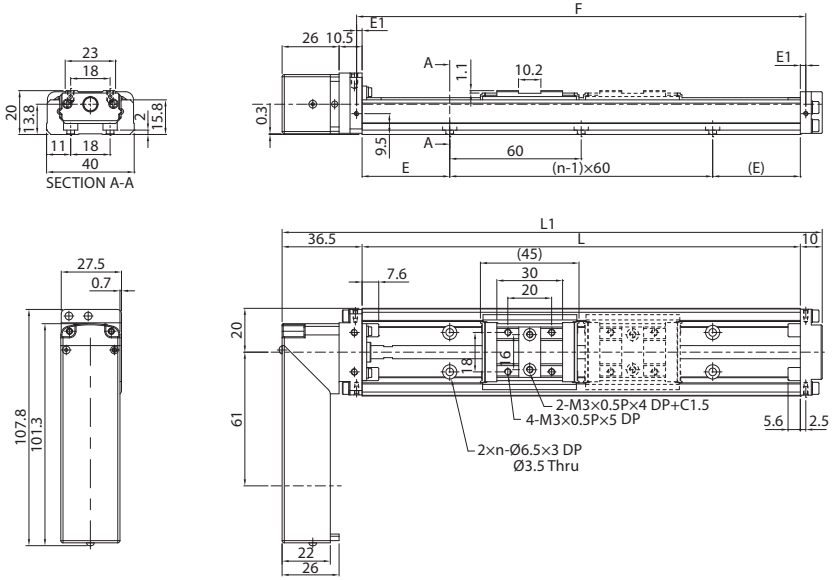


6P



KM20 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



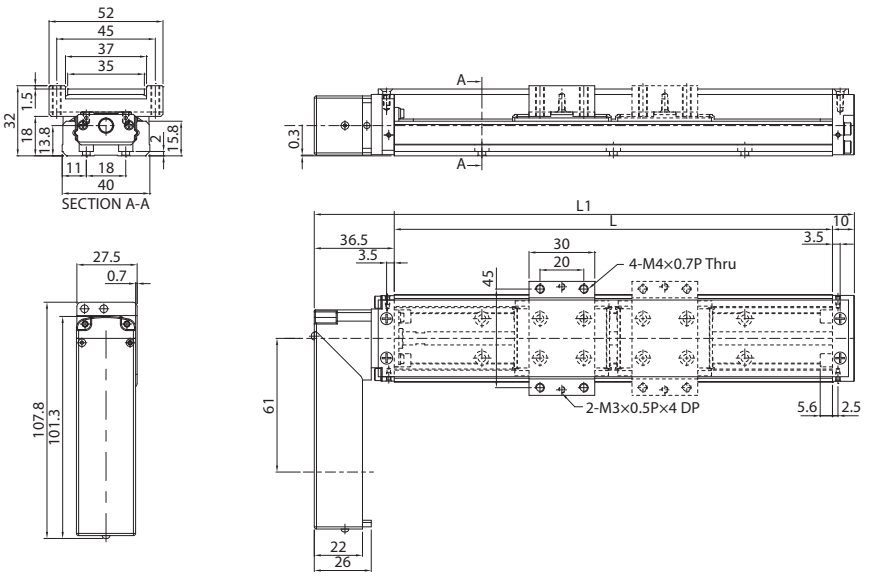
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	F	Weight (kg)	
		A Type	B Type					A Type	B Type
100	146.5	36	-	20	2	2.5	105	0.473	-
150	196.5	86	34	15	3	2.5	155	0593	0.693
200	246.5	136	84	40	3	2.5	205	0.713	0.813

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM20 Cover Type



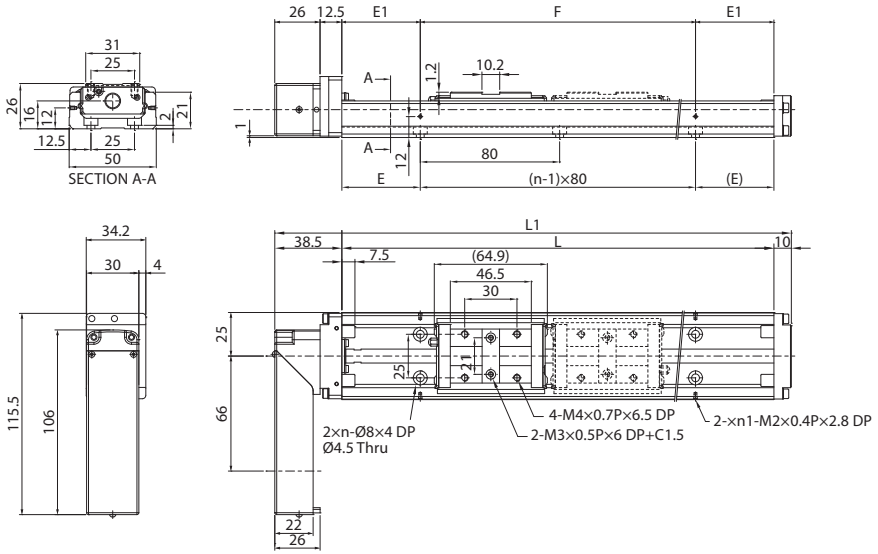
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
100	146.5	36	-	0.764	-
150	196.5	86	34	0.776	0.879
200	246.5	136	84	0.788	0.891

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM26 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



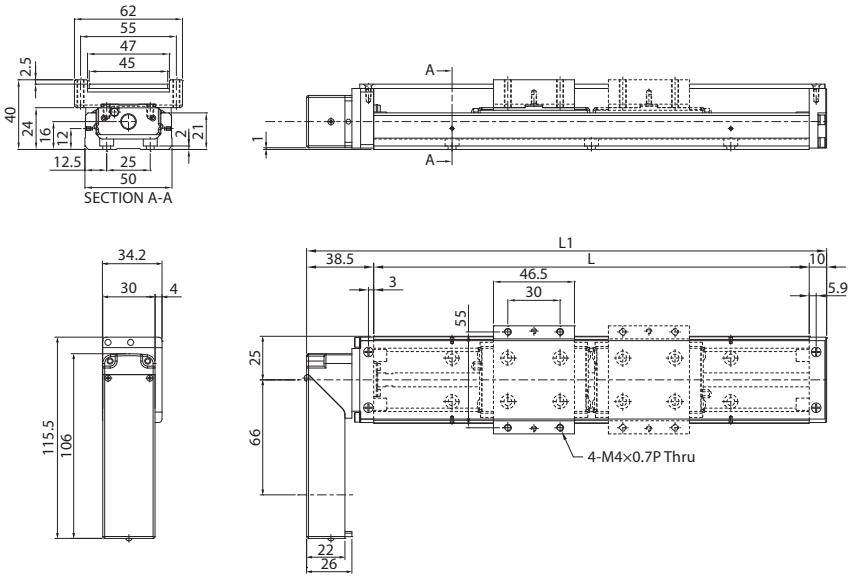
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	N_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	198.5	70	-	35	2	35	2	80	0.98	-
200	248.5	120	55	20	3	20	2	160	1.18	1.37
250	298.5	170	105	45	3	45	2	160	1.38	1.57
300	348.5	220	155	30	4	30	2	240	1.59	1.78

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM26 Cover Type



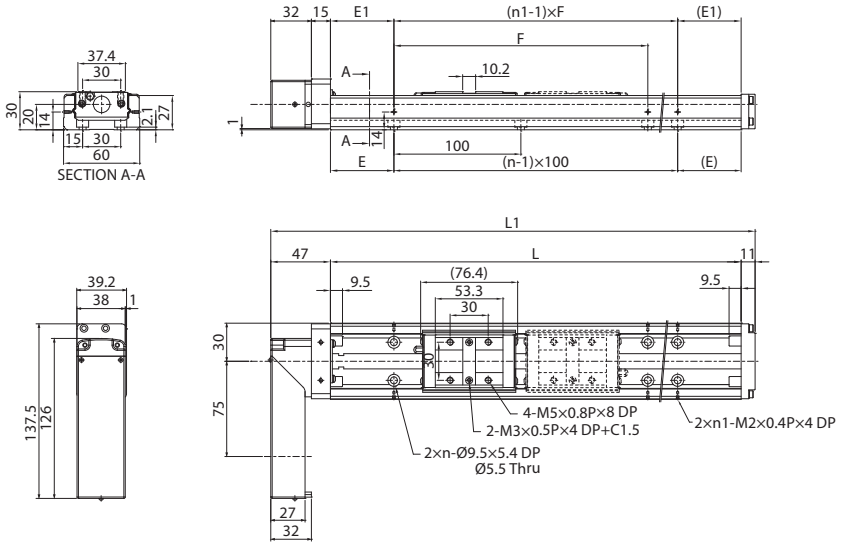
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	198.5	70	-	1.06	-
200	248.5	120	55	1.26	1.45
250	298.5	170	105	1.46	1.65
300	348.5	220	155	1.67	1.86

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM30 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



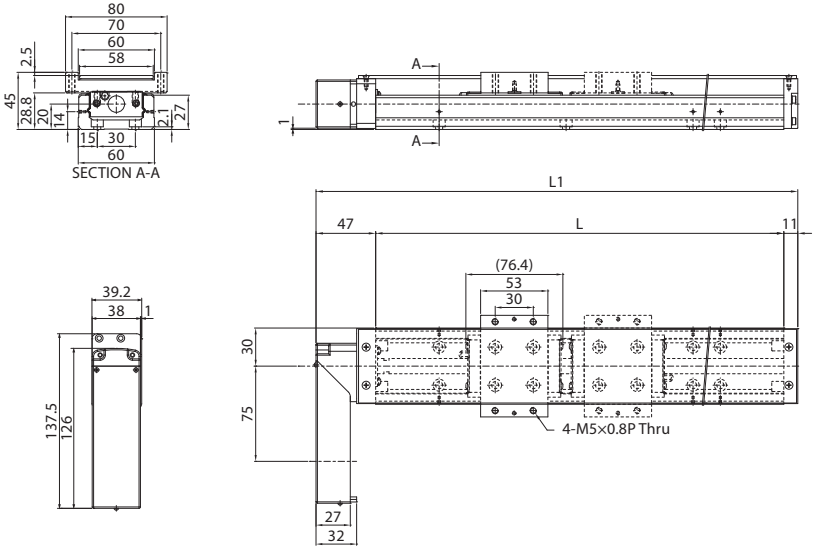
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	208	49	-	25	2	25	2	100	1.5	-
200	258	95	-	50	2	50	2	100	1.81	-
300	358	195	120	50	3	50	2	200	2.39	2.74
400	458	295	220	50	4	100	2	200	2.98	3.33
500	558	395	320	50	5	50	3	200	3.68	4.03
600	658	495	420	50	6	100	3	200	4.29	4.64

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM30 Cover Type



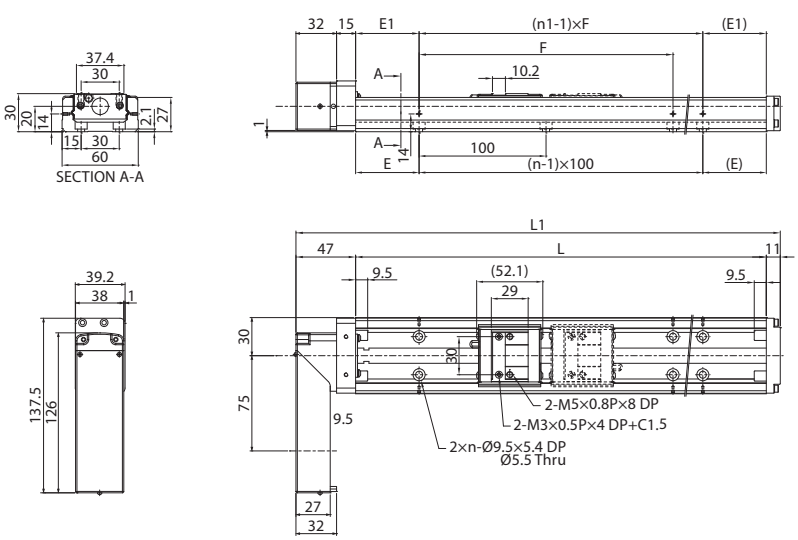
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	208	45	-	1.7	-
200	258	95	-	2.01	-
300	358	195	120	2.59	3.04
400	458	295	220	3.21	3.66
500	558	395	320	3.92	4.37
600	658	495	420	4.54	4.99

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM30 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



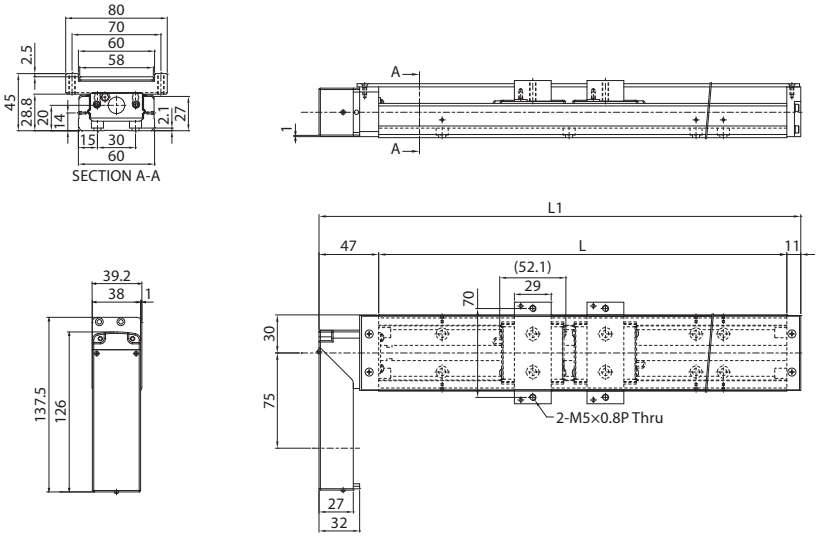
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		C Type	D Type						C Type	D Type
150	208	70	20	25	2	25	2	100	1.4	1.63
200	258	120	70	50	2	50	2	100	1.69	1.92
300	358	220	170	50	3	50	2	200	2.28	2.51
400	458	320	270	50	4	100	2	200	2.88	3.11
500	558	420	370	50	5	50	3	200	3.56	3.79
600	658	520	470	50	6	100	3	200	4.17	4.4

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length

KM30 Cover Type



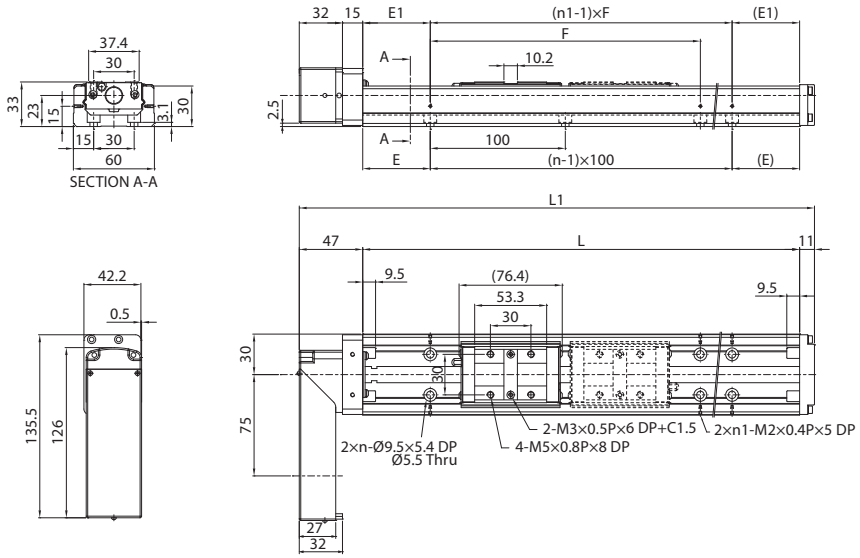
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
150	208	70	20	1.51	1.76
200	258	120	70	1.82	2.07
300	358	220	170	2.45	2.70
400	458	320	270	3.09	3.34
500	558	420	370	3.82	4.07
600	658	520	470	4.47	4.72

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM33 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



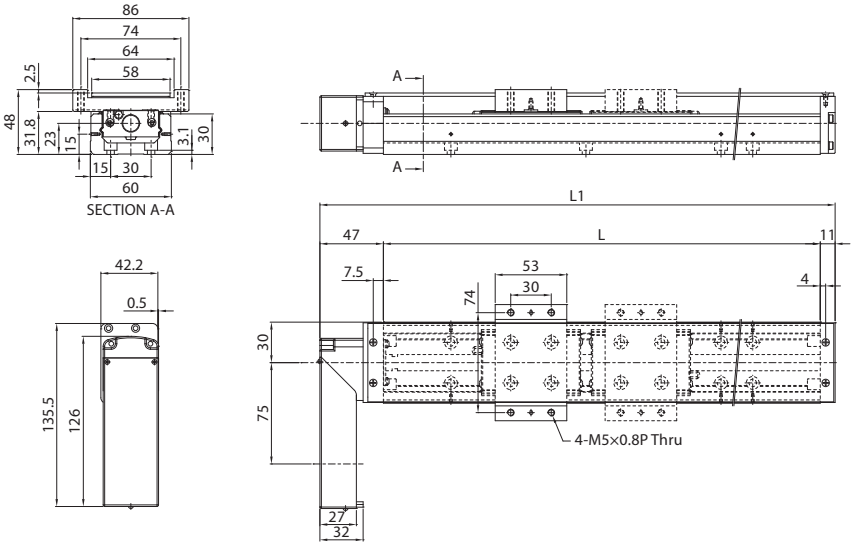
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	208	45	-	25	2	25	2	100	1.67	-
200	258	95	-	50	2	50	2	100	1.98	-
300	358	195	120	50	3	50	2	200	2.56	2.91
400	458	295	220	50	4	100	2	200	3.15	3.5
500	558	395	320	50	5	50	3	200	3.85	4.2
600	658	495	420	50	6	100	3	200	4.46	4.81

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM33 Cover Type



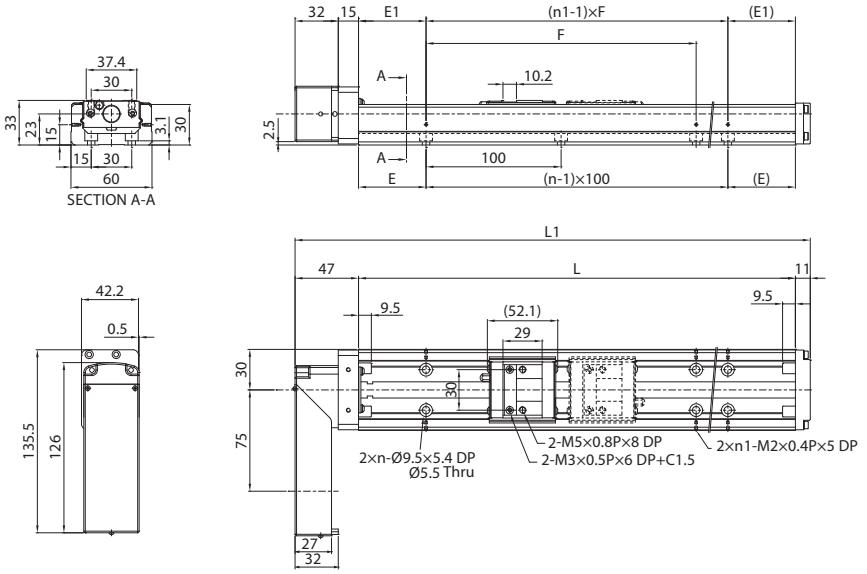
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	208	45	-	1.87	-
200	258	95	-	2.18	-
300	358	195	120	2.76	3.21
400	458	295	220	3.38	3.83
500	558	395	320	4.09	4.54
600	658	495	420	4.71	5.16

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM33 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



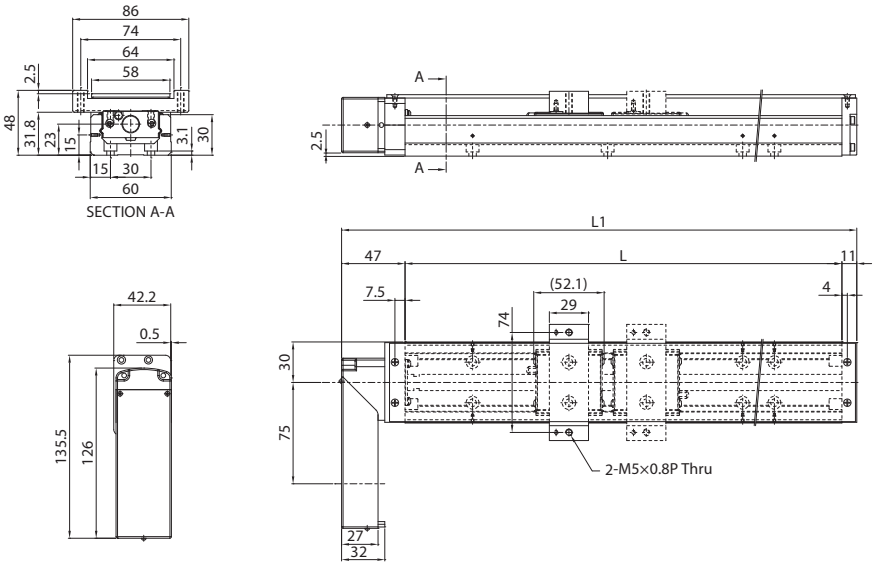
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		C Type	D Type						C Type	D Type
150	208	70	20	25	2	25	2	100	1.57	1.8
200	258	120	70	50	2	50	2	100	1.86	2.09
300	358	220	170	50	3	50	2	200	2.45	2.68
400	458	320	270	50	4	100	2	200	3.05	3.28
500	558	420	370	50	5	50	3	200	3.73	3.96
600	658	520	470	50	6	100	3	200	4.34	4.57

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length

KM33 Cover Type



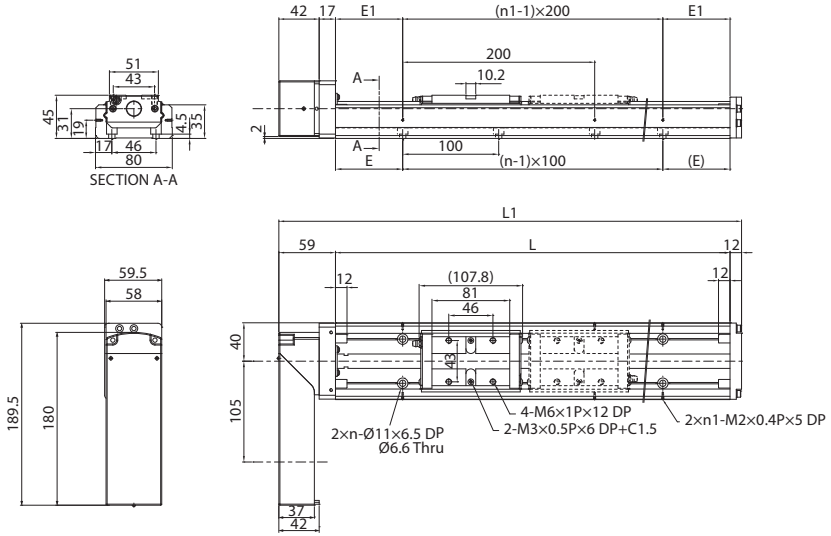
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
150	208	70	20	1.68	1.93
200	258	120	70	1.99	2.24
300	358	220	170	2.62	2.87
400	458	320	270	3.26	3.51
500	558	420	370	3.99	4.24
600	658	520	470	4.64	4.89

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM45 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



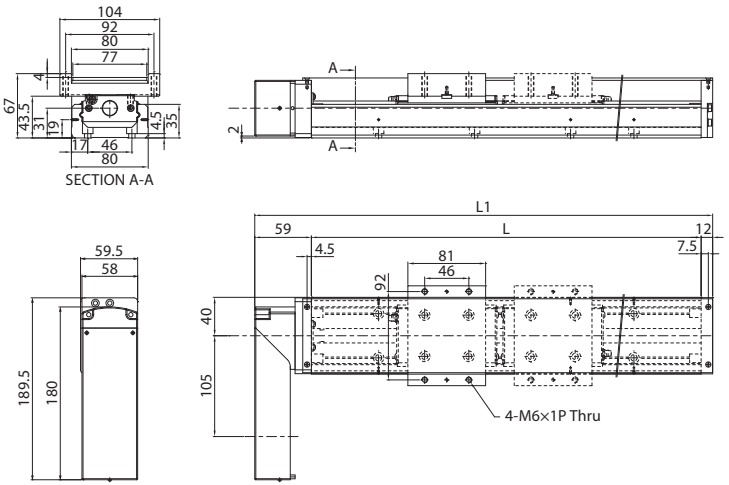
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	Weight (kg)	
		A Type	B Type					A Type	B Type
340	411	190	80	70	3	70	2	6.78	7.98
440	511	290	180	70	4	20	3	8.07	9.27
540	611	390	280	70	5	70	3	9.37	10.57
640	711	490	380	70	6	20	4	10.68	11.88
740	811	590	480	70	7	70	4	12.08	13.28
840	911	690	580	70	8	20	5	13.2	14.4
940	1111	790	680	70	9	70	5	14.37	15.57

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM45 Cover Type



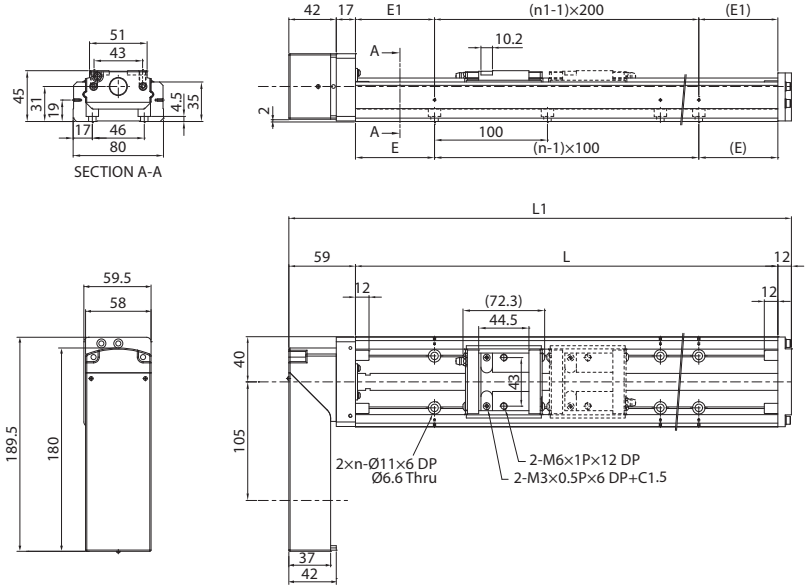
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
340	411	190	80	7.38	8.78
440	511	290	180	8.67	10.07
540	611	390	280	9.97	11.37
640	711	490	380	11.28	12.68
740	811	590	480	12.68	14.08
840	911	690	580	13.78	15.18
940	1111	790	680	14.97	16.37

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM45 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



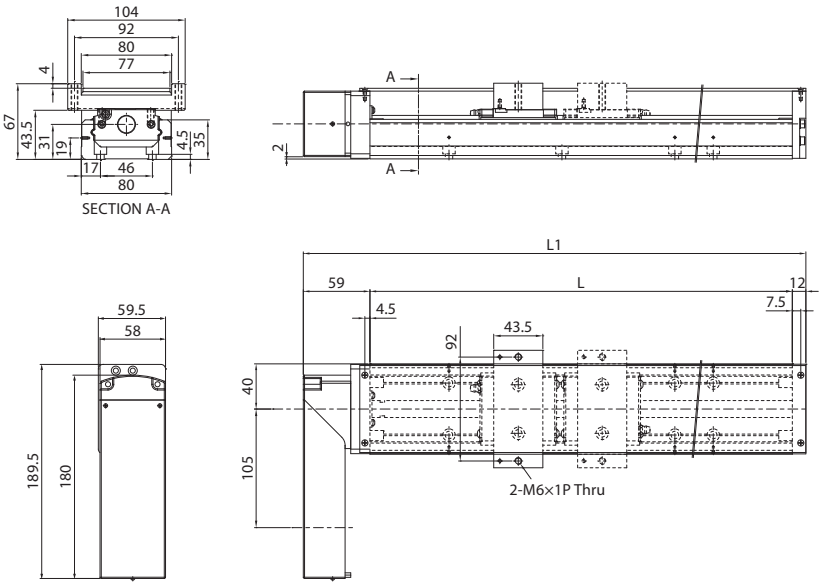
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	Weight (kg)	
		C Type	D Type					C Type	D Type
340	411	220	150	70	3	70	2	6.38	7.18
440	511	320	250	70	4	20	3	7.67	8.47
540	611	420	350	70	5	70	3	8.97	9.77
640	711	520	450	70	6	20	4	10.28	11.08
740	811	620	550	70	7	70	4	11.68	12.48
840	911	720	650	70	8	20	5	12.78	13.58
940	1111	820	750	70	9	70	5	13.97	14.77

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length

KM45 Cover Type



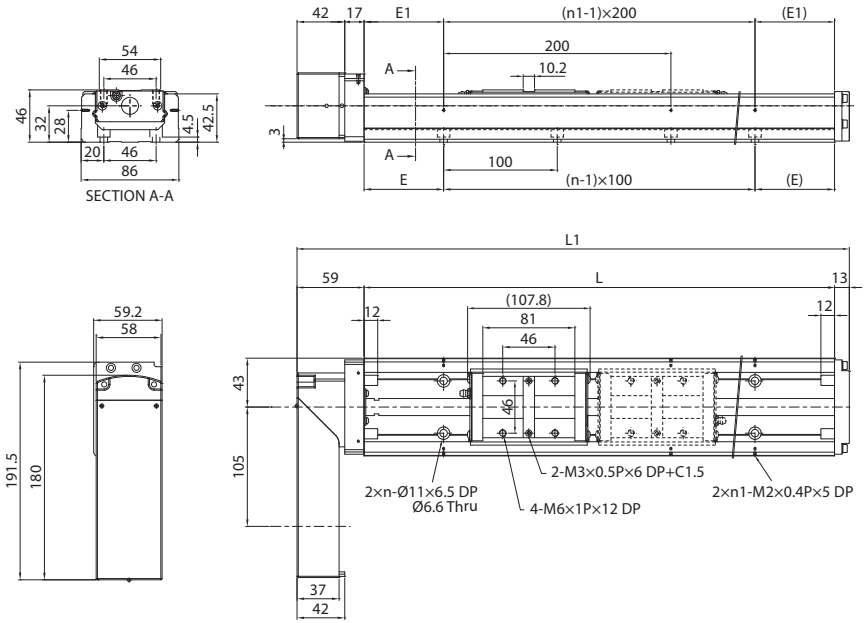
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
340	411	220	150	6.58	7.58
440	511	320	250	7.87	8.87
540	611	420	350	9.17	10.17
640	711	520	450	10.48	11.48
740	811	620	550	11.88	12.88
840	911	720	650	12.98	13.98
940	1111	820	750	14.17	15.17

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM46 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



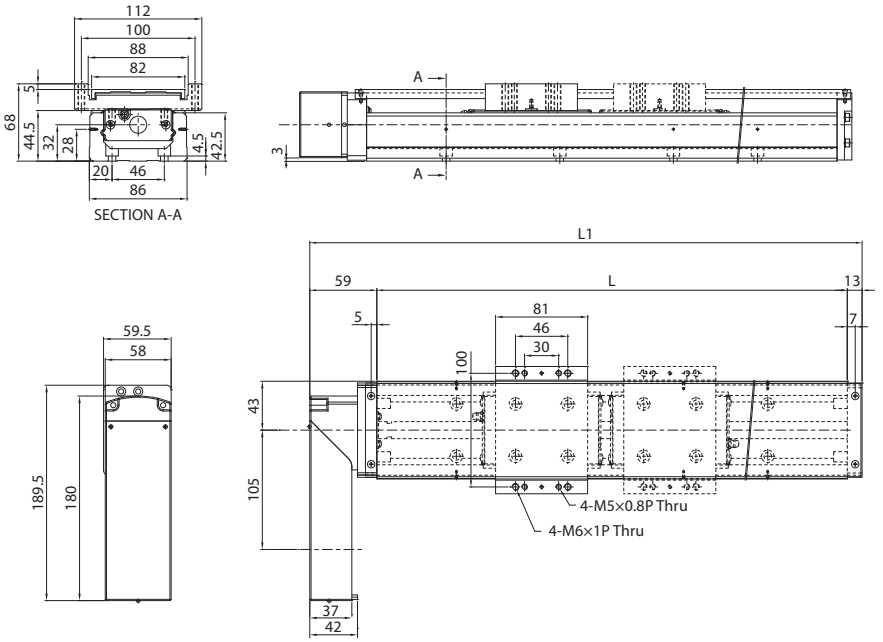
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	Weight (kg)	
		A Type	B Type					A Type	B Type
340	412	190	80	70	3	70	2	7.65	8.85
440	512	290	180	70	4	20	3	8.94	10.14
540	612	390	280	70	5	70	3	10.24	11.44
640	712	490	380	70	6	20	4	11.55	12.75
740	812	590	480	70	7	70	4	12.95	14.15
840	912	690	580	70	8	20	5	14.1	15.3
940	1112	790	680	70	9	70	5	15.24	16.44

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM46 Cover Type



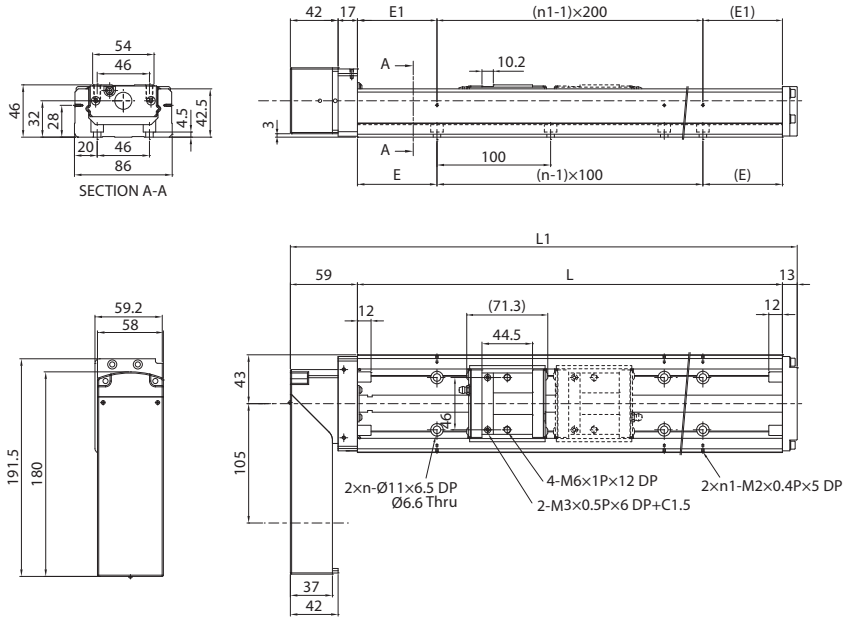
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
340	412	190	80	8.25	9.65
440	512	290	180	9.54	10.94
540	612	390	280	10.84	12.24
640	712	490	380	12.15	13.55
740	812	590	480	13.55	14.95
840	912	690	580	14.65	16.05
940	1112	790	680	15.84	17.24

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM46 Standard Type

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length



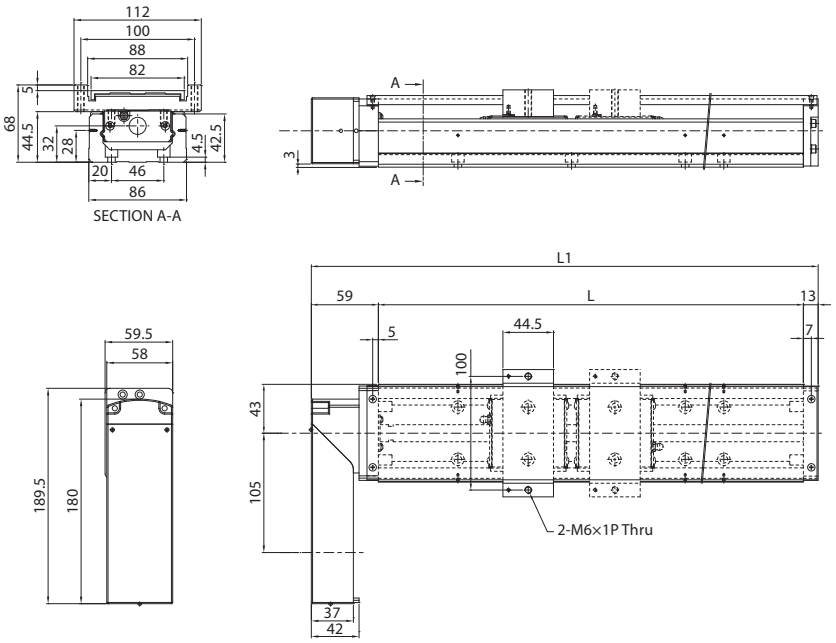
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	Weight (kg)	
		C Type	D Type					C Type	D Type
340	412	220	150	70	3	70	2	7.25	8.05
440	512	320	250	70	4	20	3	8.54	9.34
540	612	420	350	70	5	70	3	9.84	10.64
640	712	520	450	70	6	20	4	11.15	11.95
740	812	620	550	70	7	70	4	12.55	13.35
840	912	720	650	70	8	20	5	13.65	14.45
940	1112	820	750	70	9	70	5	14.84	15.64

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

C type : A single carriage-nut with short length
D type : Two carriage-nuts with short length

KM46 Cover Type



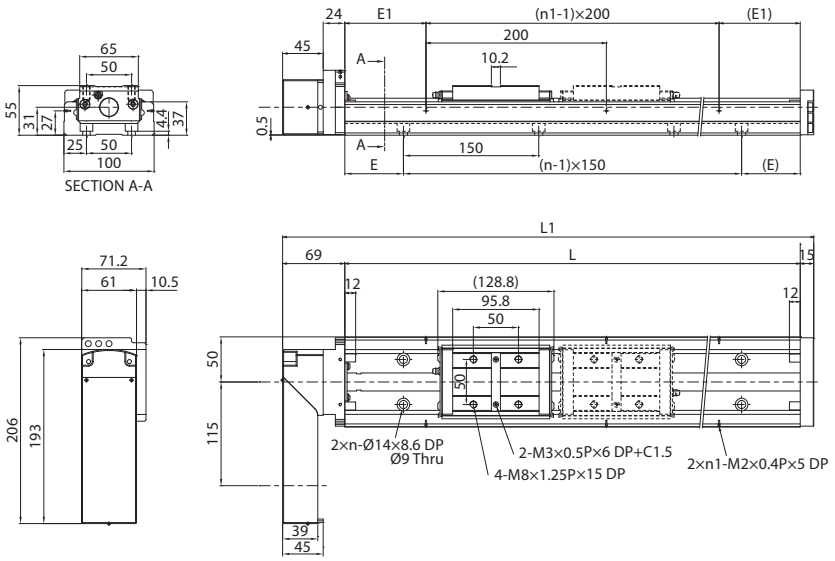
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		C Type	D Type	C Type	D Type
340	412	220	150	7.45	8.45
440	512	320	250	8.74	9.74
540	612	420	350	10.04	11.04
640	712	520	450	11.35	12.35
740	812	620	550	12.75	13.75
840	912	720	650	13.85	14.85
940	1112	820	750	15.04	16.04

Note*: The max. stroke of D type is base on two carriage-nuts used in closed contact with each other.

KM55 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



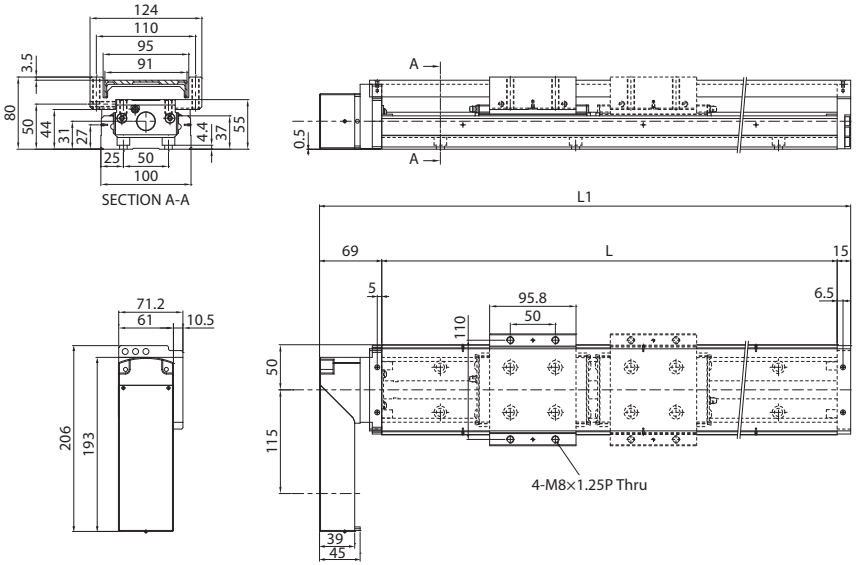
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	Weight (kg)	
		A Type	B Type					A Type	B Type
980	1064	800	680	40	7	90	5	19.90	21.62
1080	1164	900	780	15	8	40	6	21.63	23.35
1180	1264	1000	880	65	8	90	6	23.36	25.08
1280	1364	1100	980	40	9	40	7	25.09	26.81
1380	1464	1200	1080	15	10	90	7	26.82	28.54

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM55 Cover Type



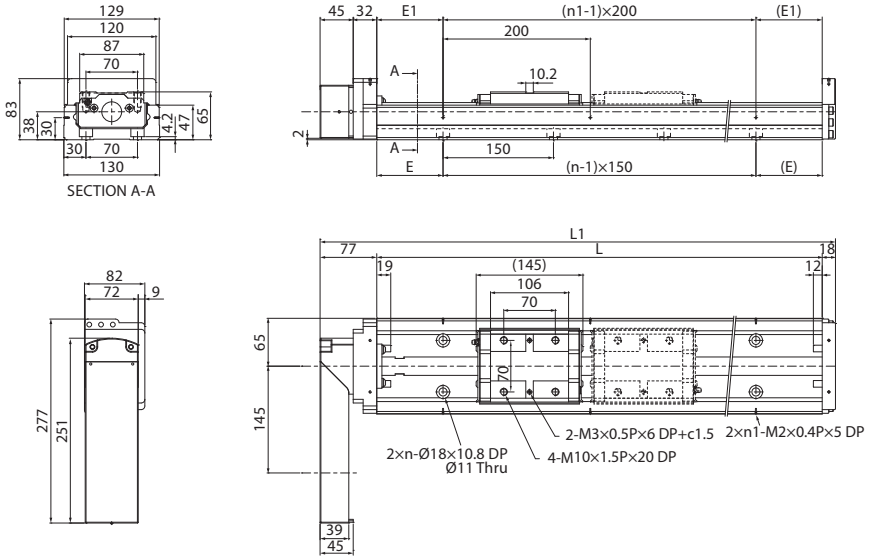
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
980	1064	800	680	21.78	24.25
1080	1164	900	780	23.61	26.08
1180	1264	1000	880	25.44	27.91
1280	1364	1100	980	27.26	29.73
1380	1464	1200	1080	29.09	31.56

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

KM65 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



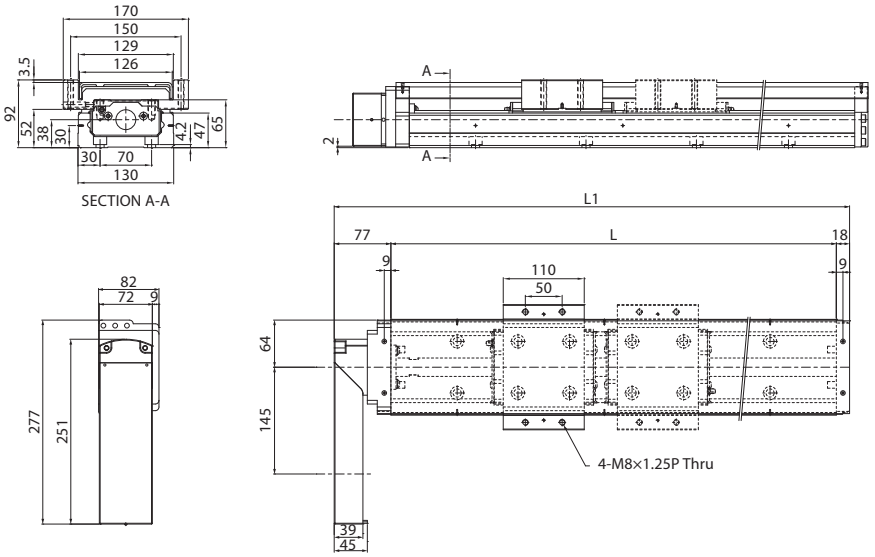
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	Weight (kg)	
		A Type	B Type					A Type	B Type
980	1075	790	640	40	7	90	5	31.60	34.60
1180	1275	990	840	65	8	90	6	37.00	40.00
1380	1475	1190	1040	90	9	90	7	42.40	45.40
1680	1775	1490	1340	90	11	40	9	50.50	53.50

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

KM65 Cover Type



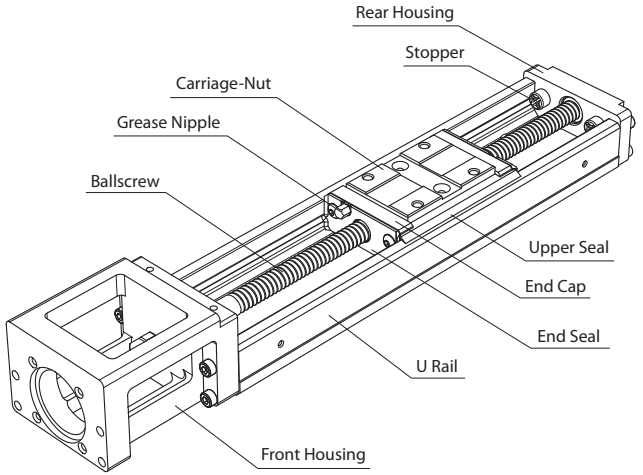
Unit: *mm*

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
980	1075	790	640	31.60	34.60
1180	1275	990	840	37.00	40.00
1380	1475	1190	1040	42.40	45.40
1680	1775	1490	1340	50.50	53.50

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

Ball Chain Type, SKM Series

Construction

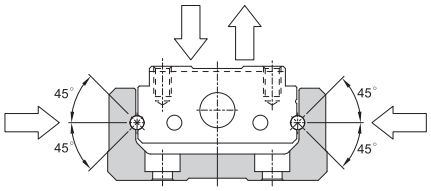


Characteristics

KM series consist of linear guideway unit and ballscrew unit. For saving space, PMI combine the carriage of linear guideway and nut of ballscrew to a integral Carriage-Nut. The carriage-nut cooperate with the U rail designed for high rigidity to achieve the high rigidity and high accuracy in the minimal space, especially to saving time of installation. Moreover, the design of two rows with Gothic-arch groove and contact angle of 45°can bear four directional loading.

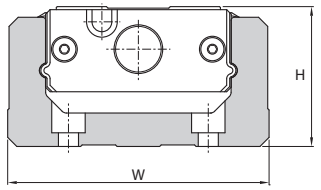
Four Directional Equal Load

KM series are applied two rows with Gothic-arch groove and designed to contact angle of 45° which enables it to carry an equal load in radial, reversed radial and lateral directions to suit to any mounting orientation.



Saving Space

Combine the carriage of linear guideway and nut of ballscrew to a carriage-nut, SKM series can achieve the best use of space.

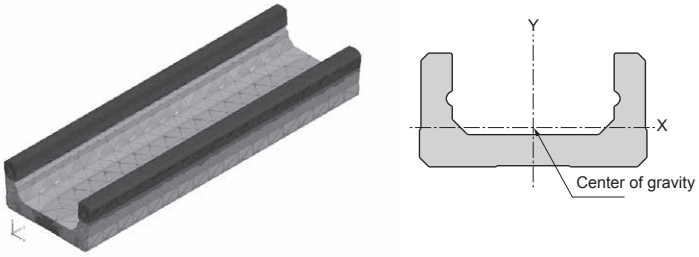


Unit : mm

Model	H	W
SKM26	26	50
SKM33	33	60

High Rigidity

Base on the optimal analysis of FEM for the shape of U rail, it has the balance between light weight and high rigidity.



Unit : mm^4

Model	I_X	I_Y
SKM26	$1.6x10^4$	$1.5x10^5$
SKM33	$6.1×10^4$	$3.8×10^5$

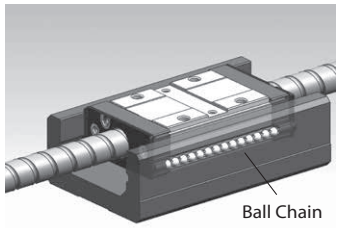
Note* I_X : Geometrical moment of inertia around X axis
I_Y : Geometrical moment of inertia around Y axis

High Accuracy

The design of two rows with Gothic-arch groove and stable manufacturing technology can control the variation by load at the minimum. It can provide the smooth feed with high accuracy.

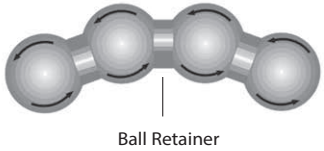
Ball Chain Design, Smooth Movement

The U rail and carriage-nut circulating system with the ball chain design which use the strengthened synthetic resin of accessorie and avoid interference between balls to make it more stable during passing the load district. Besides, the ball chain can keep the ball move in line and improve the movement.



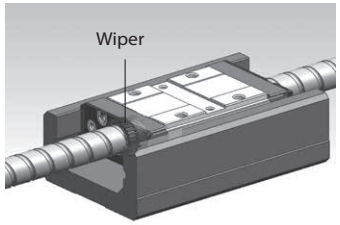
Low Noise

The retaining pieces of the carrige-nut can avoids collision between balls then decrease the noise. Non-mutual friction can decrease heat generation and keep the accuracy in the range.



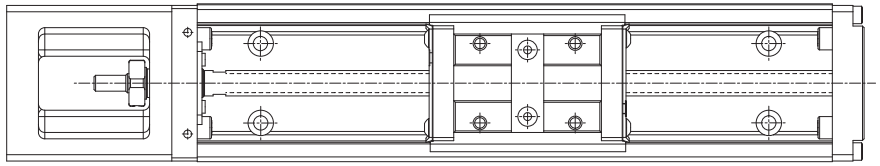
High Dustproof, Extend The Maintenance Intervals

The carriage-nut with the wiper at both ends can reduce grease leakage. Besides, Besides, the wiper with a special lips structure can matches the threads that ensures the removal of scraps as well as insulation dust.

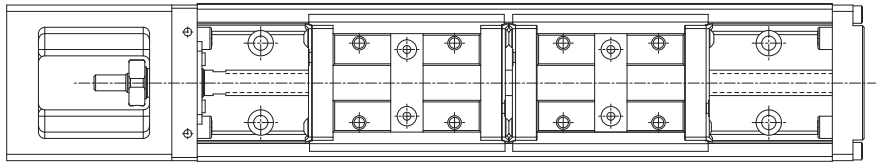


Carriage-Nut Type

A Type : A single carriage-nut with standard length



B Type : Two carriage-nuts with standard length



Description of Specification

SKM33 05 A +400 P 0 -0 0 30 CA AA

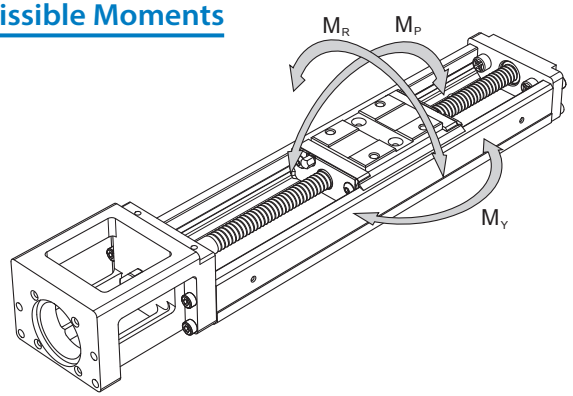
- Model
- Ballscrew Lead
- Carriage-Nut type
  - **A** : A single carriage-nut with standard length
  - **B** : Two carriage-nuts with standard length
- Rail length (mm)
- Accuracy grade
  - **N** : Normal grade
  - **P** : Precision grade
- With / Without a Motor
  - **0** : None
  - **1** : With a Motor (mounted at *PMI*)
- With / Without a Cover
  - **0** : None
  - **1** : With a Cover
  - **2** : With a Bellows
- Sensor Specification (see **page C1-13**)
- Type of Motor Bracket type (see **page C1-15**)
- Surface treatment mode :
  - **No symbol** : Black Chrome Plating + Special Fluororesin(PS-CF)
  - **CB :** Black oxide treatment
  - **CE:**Black Chrome Plating(PS-C)
  - **CA** : Electroless Nickel
- Code of special type
  - **AA** : Special process
  - **A1** : Heighten housing
  - **No symbol** : Standard housing

Load Ratings

The load ratings of SKM series are divided to linear guideway and ballscrew, the load ratings of each part are shown below.

Model	Linear Guideway		Ballscrew					
	Basic dynamic load rating C (kN)	Basic static load rating C_0 (kN)	Basic dynamic load rating Ca (kN)	Basic static load rating C_0a (kN)	Ballscrew diameter (mm)	Lead (mm)	Thread minor diameter (mm)	Ball center to center diameter (mm)
	A、B	A、B	Normal、Precision N、P	Normal、Precision N、P				
SKM26 SKM2602 SKM2606	7.61	14.15	2.50	4.02	8	2	6.6	8.3
			1.18	1.67		6		
SKM33 SKM3305 SKM3310	11.57	20.41	2.94	5.10	12	5	10.3	12.4
			2.84	4.51		10	9.9	

Static Permissible Moments



Unit : N-m

Model	Static Permissible Moments					
	M_P		M_Y		M_R	
	A	B	A	B	A	B
SKM26 SKM2602 SKM2606	107.3	501.8	107.3	501.8	278.6	557.3
SKM33 SKM3305 SKM3310	156.6	858.5	156.6	858.5	462.0	924.0

Note*: The static permissible moments of B type are base on two carriage nuts used in closed contact with each other.

Accuracy Grade

SKM series is classified into normal grade (N) and precision grade (P) , the standards are shown below.

Model	Rail Length (mm)	Positioning Repeatability(mm)		Positioning Accuracy(mm)		Running of Parallelism(mm)		Backlash (mm)		Starting Torque (N-cm)	
		Nomal N	Precision P	Nomal N	Precision P	Nomal N	Precision P	Nomal N	Precision P	Nomal N	Precision P
SKM 26	150	±0.01	±0.003	-	0.02	-	0.01	0.02	0.003	2	4
	200										
	250										
	300										
SKM 33	150	±0.01	±0.003	-	0.02	-	0.01	0.02	0.003	7	15
	200										
	300										
	400										
	500				0.025		0.015				
	600										

Maximum Travel Speed and the Maximum Length

SKM series is limited by the dangerous speed of the ballscrew and the DN value regardless, the maximum travel speed and the maximum length are shown below.

Unit : mm

Model	Ballscrew Lead	Rail Length	Maximum Travel Speed (mm/s)		Maximum Length	
			Normal N	Precision P	Normal N	Precision P
SKM 26	2	150	200	200	300	300
		200				
		250				
		300				
	6	150	600	600	300	300
		200				
		250				
		300				
SKM 33	5	150	500	500	600	600
		200				
		300				
		400				
		500				
		600	340	340		
	10	150	1000	1000	600	600
		200				
		300				
		400				
		500	980	980		
		600	650	650		

Life Calculation

SKM series consists of a linear guideway, a ballscrew and a support bearing. The calculation of nominal life of each component is shown below. The nominal life is defined as the total running distance that 90% of identical linear guideways or ballscrew in a group, when they are applied under the same conditions, can work without developing flaking.

Linear Guideway

$$L = \left(\frac{f_c}{f_w} \cdot \frac{C}{P}\right)^3 \times 50 \text{ km}$$

L : Nominal life (km)
fc : Contact factor (see Table 1)
fw : Load factor (see Table 2)
C : Basic dynamic load rating (N)
P : Calculated applied load (N)

Table 1

Carriage-Nut Type	Contact factor fc
A	1.00
B	0.81

Ballscrew and Bearing

$$L = \left(\frac{1}{f_w} \cdot \frac{Ca}{Pa}\right)^3 \times 10^6 \text{ rev}$$

L : Nominal life (rev)
fw : Load factor (see Table 2)
Ca : Basic dynamic load rating (N)
Pa : Applied axial load (N)

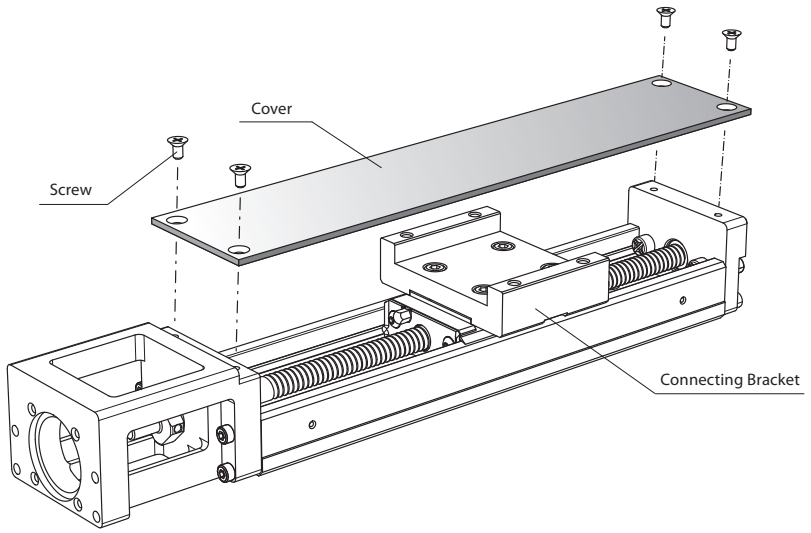
Table 2

Motion Condition	Operating Speed	Load factor fw
No Impact & Vibration	V≦15m/min	1.0~1.2
Slight Impact & Vibration	15＜V≦60m/min	1.2~1.5
Moderate Impact & Vibration	60＜V≦120m/min	1.5~2.0
Strong Impact & Vibration	V≧120m/min	2.0~3.5

Options

Cover

SKM series provides cover and transfer seat option. The detail size could be refered by specification tables of product, please.



Bellows

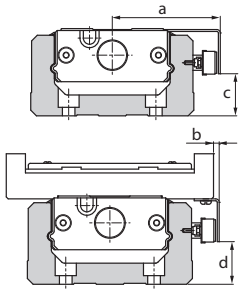
For SKM series, a bellows is available for option. Please contact ***PMI***.

Sensor

For SKM series, a optional proximity sensors and photo sensors are available as an option. Models equipped with a sensor are provided with a dedicated sensor rail / detecting plate. Please see the table below.

Symbol	Description	Type	Accessory
0	None	-	-
1	with Sensor rail	-	Mounting Screw
2	Photo sensor (3 units)	EE-SX671 (Omron)	Mounting Screw / Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (EE-1001)
3	Photo sensor (3 units)	EE-SX674 (Omron)	Mounting Screw / Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (EE-1001)
4	Proximity sensor a-contact (On when close, 3 units)	GX-F12A(Panasonic)	Mounting Screw/Nut、Detecting Plate、Sensor Rail
5	Proximity sensor b-contact (On when away, 3 units)	GX-F12B(Panasonic)	Mounting Screw/Nut、Detecting Plate、Sensor Rail
A	Proximity sensor a-contact (Single) b-contact (Double)	GX-F12A(Single) GX-F12B(Double)	Mounting Screw/Nut、Detecting Plate、Sensor Rail

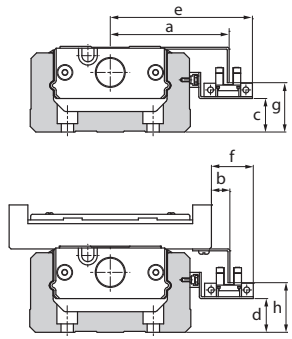
The dimension of installation for sensor:



Panasonic GX-F12A 、GX-F12B

Model	a	b	c	d
SKM 26	38.9	7.9	6.2	6.2
SKM 33	44	1	9.2	10

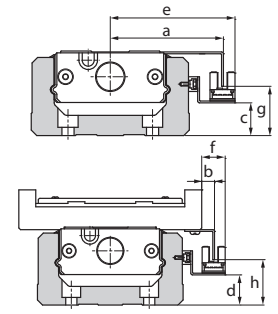
Unit : mm



Omron EE-SX671

Model	a	b	c	d	e	f	g	h
SKM 26	46.0	15.0	2.0	2.0	58.5	27.5	10.5	10.5
SKM 33	50.9	7.9	5.0	5.0	63.4	20.4	13.8	15

Unit : mm

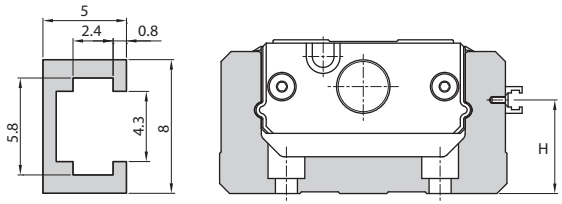


Omron EE-SX674

Model	a	b	c	d	e	f	g	h
SKM 26	43.7	12.7	1.8	1.8	50.0	19.0	10.8	10.8
SKM 33	48.6	5.6	4.8	4.8	54.9	11.9	13.8	14

Unit : mm

The dimension of sensor rail



Unit : mm

Model	H
SKM 26	12
SKM 33	15

Intermediate Flange

SKM series allow different motors to be attached by intermediate flange. Please see the table below when ordering.

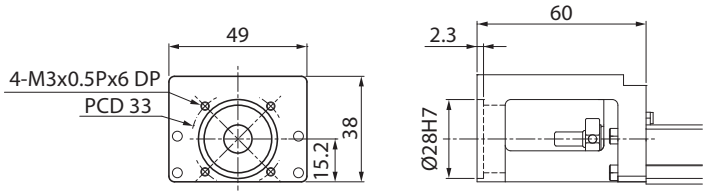
Unit : mm

Brand of Motor	Model	SKM 26	SKM 33
Yaskawa Electric AC servomotor	SGMAH-A3(30W)	2A	3A
	SGMAH-A5(50W)	2A	3A
	SGMAH-01(100W)		3A
	SGMPH-01(100W)		
	SGMAH-02(200W)		
	SGMAH-04(400W)		
	SGMPH-02(200W)		
	SGMPH-04(400W)		
	SGMAH-08(750W)		
Mitsubishi Electric AC servomotor	HC-MFS053(50W)	2A	3A
	HC-MFS13(100W)		3A
	HC-MFS23(200W)		
	HC-KFS23(200W)		
	HC-MFS43(400W)		
	HC-KFS43(400W)		
	HC-MFS73(750W)		
	HC-KFS73(750W)		
Matsushita Electric AC servomotor	MSMD5A(50W)	2D	3D
	MSMD01(100W)		3D
	MSMD02(200W)		
	MSMD04(400W)		
	MSMD08(750W)		
Fastech Stepping motor	EzM-28	2G	
	EzM-42	2H	3H
	EzM-56		3I
	EzM-60		3J
Oriental Motor Stepping motor	PK22	2G	
	PK24	2H	3H
	PK26(標準)		3I
	RK54	2H	3H
	RK56		3J
	RK59		

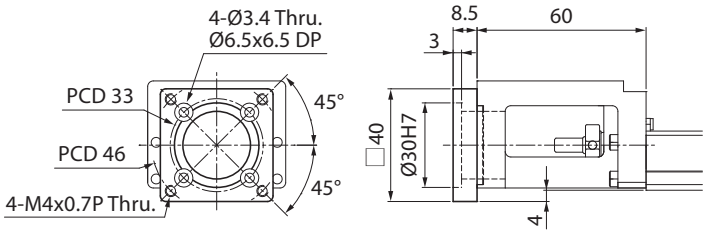
The dimension of intermediate flange

SKM26

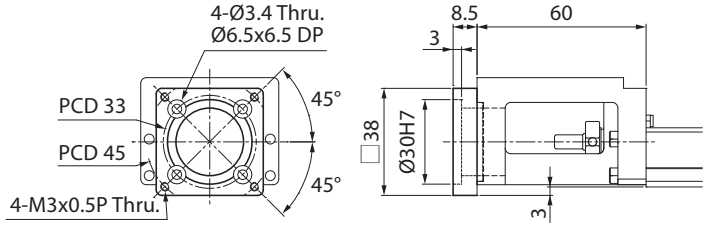
20



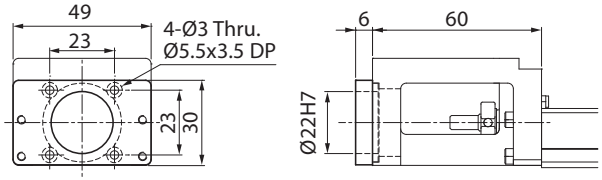
2A



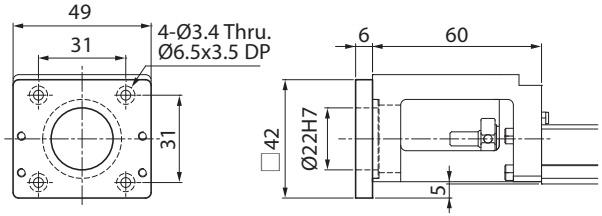
2D



2G

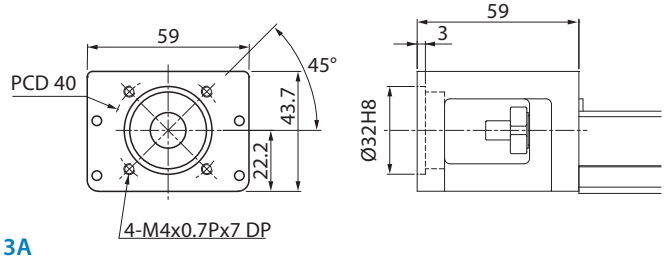


2H

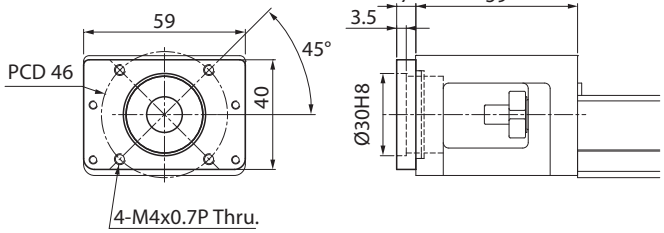


SKM33

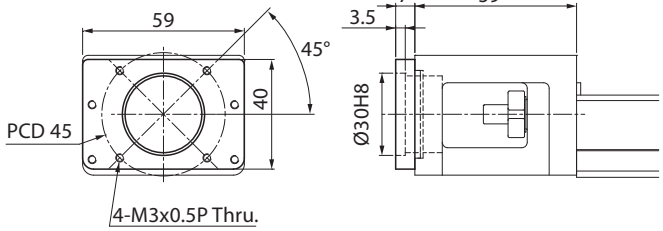
30



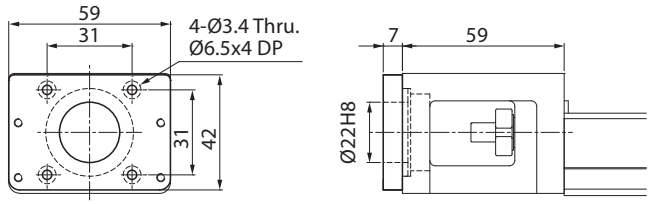
3A



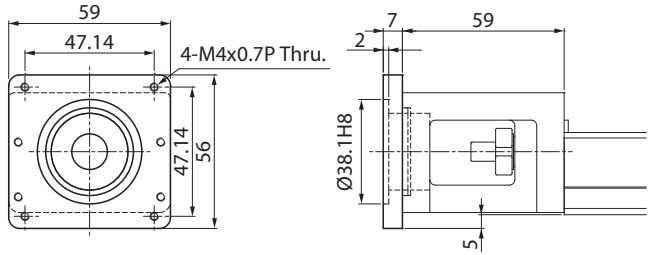
3D



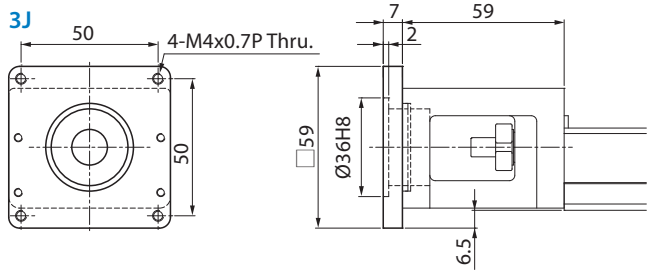
3H



3I

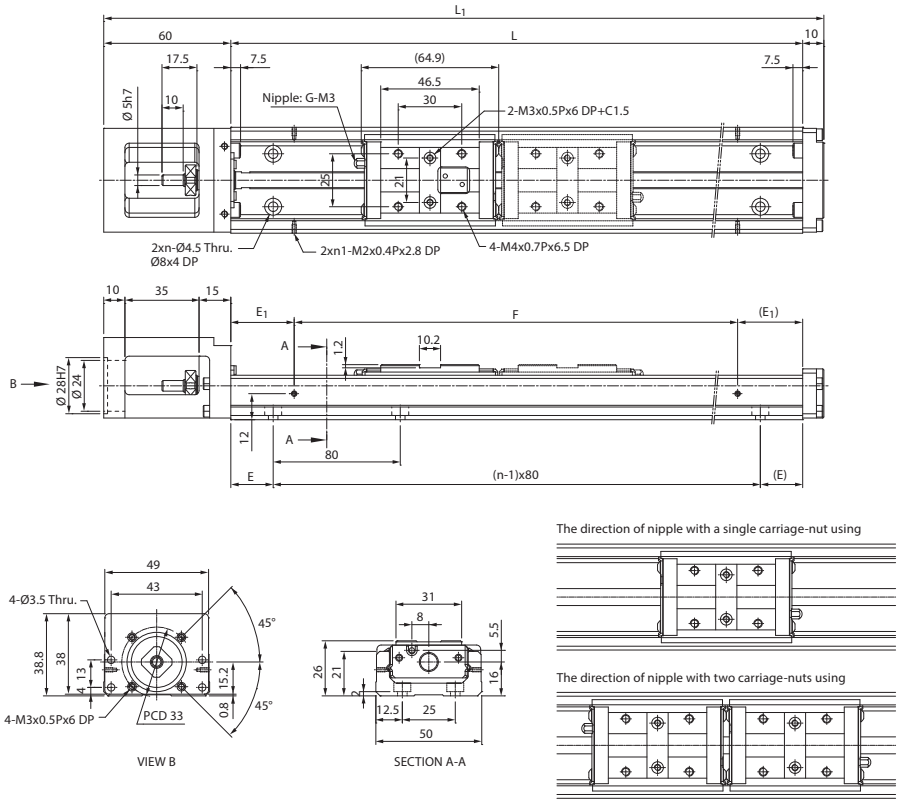


3J



SKM26 Standard Type

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length



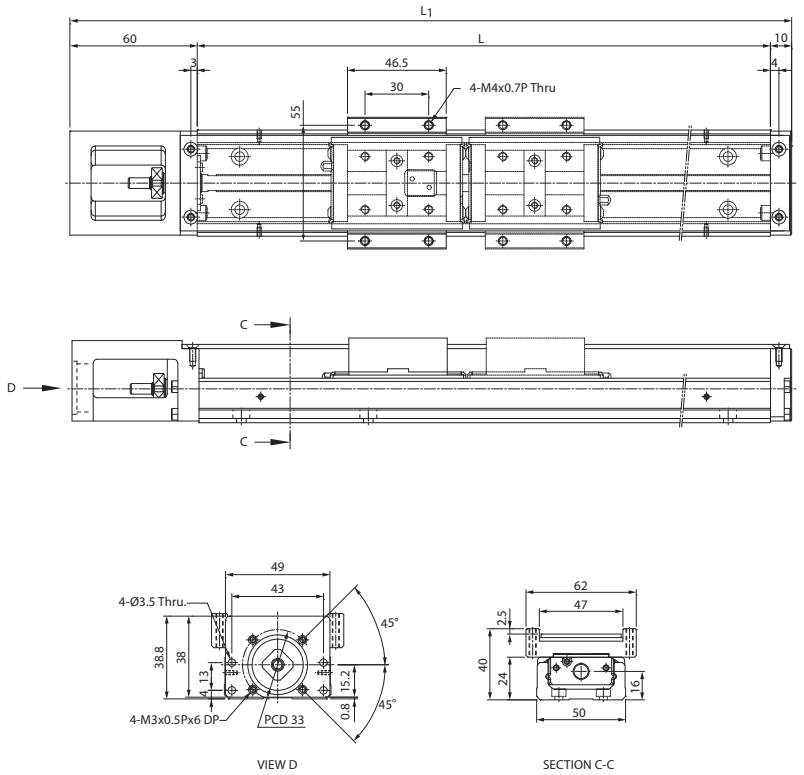
Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	220	70	-	35	2	35	2	80	0.98	-
200	270	120	55	20	3	20	2	160	1.18	1.37
250	320	170	105	45	3	45	2	160	1.38	1.57
300	370	220	155	30	4	30	2	240	1.59	1.78

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

SKM26 Cover Type



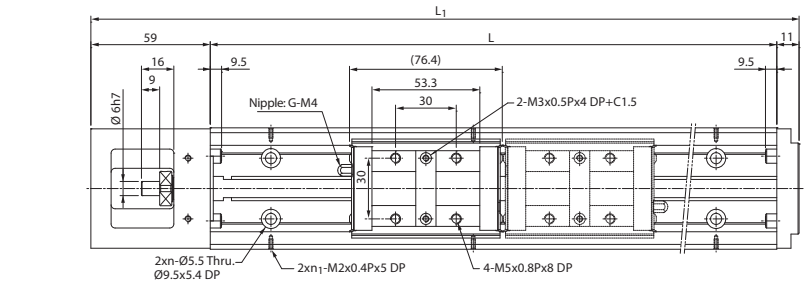
Unit : mm

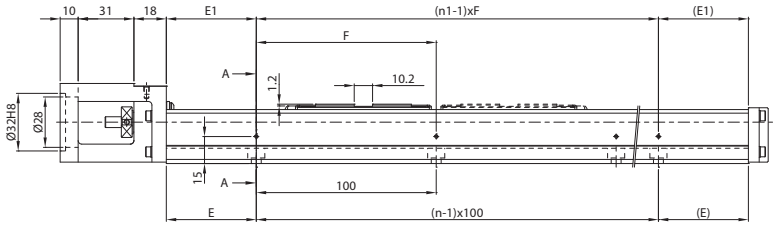
Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	220	70	-	1.06	-
200	270	120	55	1.26	1.45
250	320	170	105	1.46	1.65
300	370	220	155	1.67	1.86

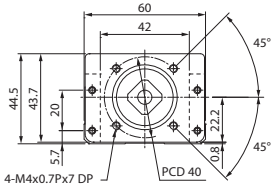
Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

SKM33 Standard Type

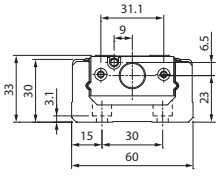
A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length





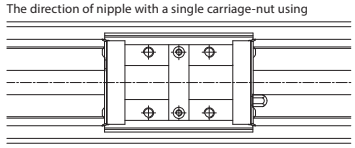


VIEW B

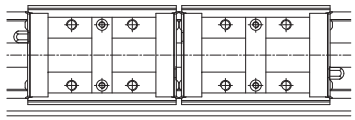


SECTION A-A

The direction of nipple with a single carriage-nut using



The direction of nipple with two carriage-nuts using



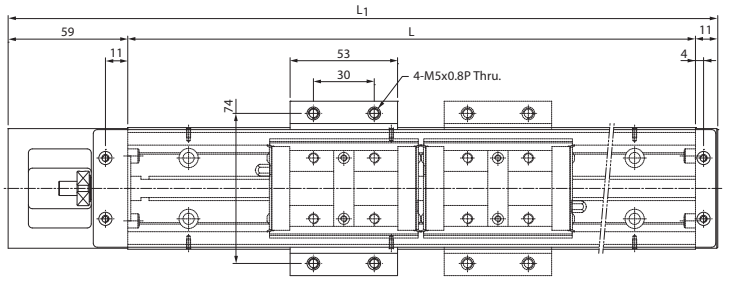
Unit : mm

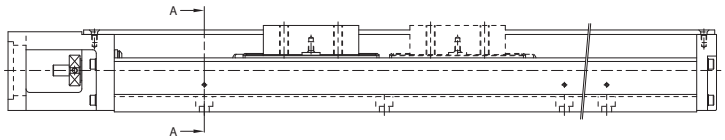
Rail Length L	Overall Length L_1	Max. Stroke		E	n	E_1	n_1	F	Weight (kg)	
		A Type	B Type						A Type	B Type
150	220	45	-	25	2	25	2	100	1.67	-
200	270	95	-	50	2	50	2	100	1.98	-
300	370	195	120	50	3	50	2	200	2.56	2.91
400	470	295	220	50	4	100	2	200	3.15	3.5
500	570	395	320	50	5	50	3	200	3.85	4.2
600	670	495	420	50	6	100	3	200	4.46	4.81

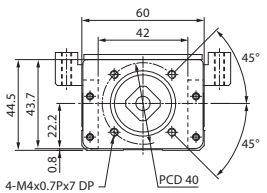
Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.

A type : A single carriage-nut with standard length
B type : Two carriage-nuts with standard length

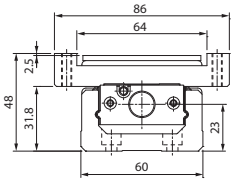
SKM33 Cover Type







VIEW D



SECTION C-C

Unit : mm

Rail Length L	Overall Length L_1	Max. Stroke		Weight (kg)	
		A Type	B Type	A Type	B Type
150	220	45	-	1.87	-
200	270	95	-	2.18	-
300	370	195	120	2.76	3.21
400	470	295	220	3.38	3.83
500	570	395	320	4.09	4.54
600	670	495	420	4.71	5.16

Note*: The max. stroke of B type is base on two carriage-nuts used in closed contact with each other.