



*New Products*

New product

Electric actuator  
ECS Series



ELECTRIC ACTUATOR ECS SERIES

**Motorless type  
Ball screw driven**

**Low dust generation  
specifications**



CKD Corporation

CC-1217A 1

**Ballscrew  
driven**  
Low-dust generation  
specifications

# ECS Series

ETS Series based low dust generation specifications and a **full cover structure**

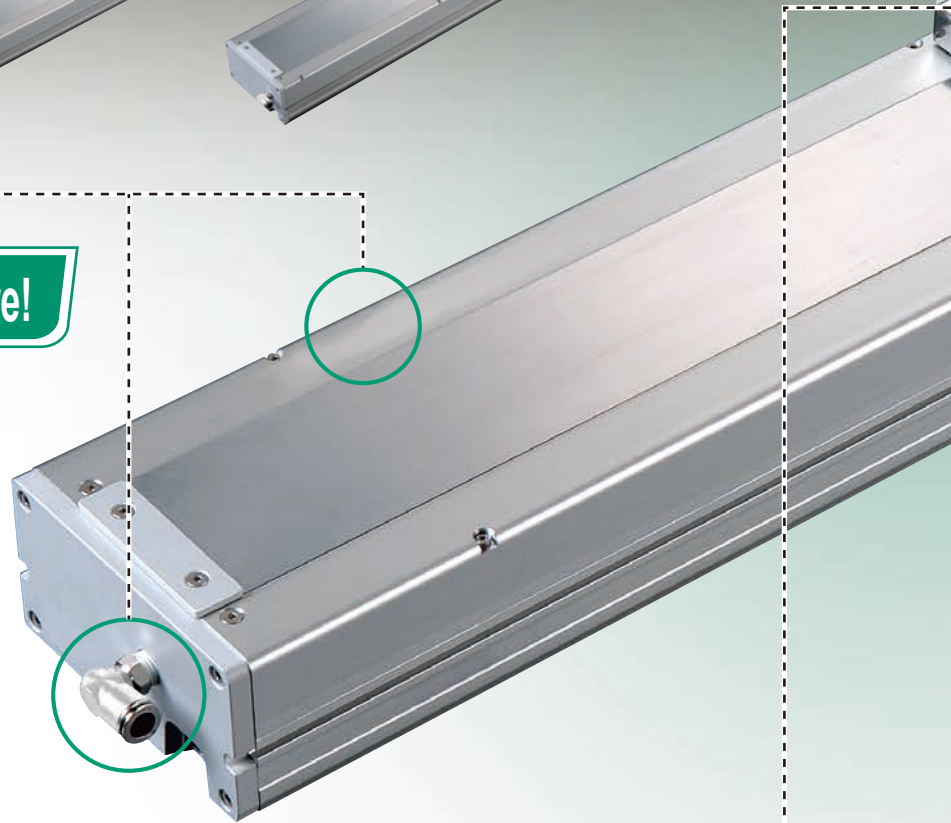
Max. load capacity: up to 150kg Max. stroke length: up to 1500mm Max. speed: up to 2000mm/s

7 sizes are available

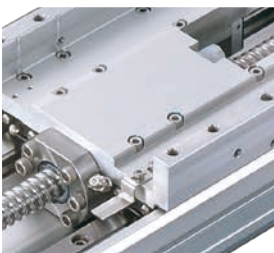


## Low dust generation structure!

Features low dust generation with the full cover structure and suction port. Perfect for liquid crystal panel production lines, food processing lines, etc.

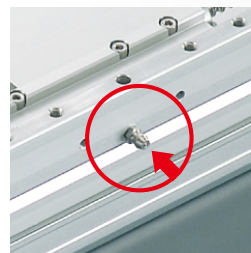


## Wide variety of screw lead!



Suitable lead selection according to speed and load capacity.  
(2mm, 5mm, 10mm, 16mm, 20mm, 25mm, 40mm)

## Easy Maintenance!



Direct oil supply from grease port. Long life with easy maintenance.

\*Option



## Wide selection of popular motor brand

Motor manufacturers, field network-ready list

	General-purpose	SSCNET	CC-Link	MECHATORO LINK-II	MECHATORO LINK-III	Device Net	Ether CAT
MITSUBISHI	○	○	○				
DELTA ELECTRONICS	○						
SANYO DENKI	○						○
YASKAWA	○			○	○	○	
KEYENCE JAPAN	○						
PANASONIC	○						
OMRON	○			○			○

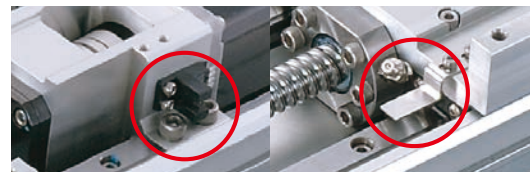
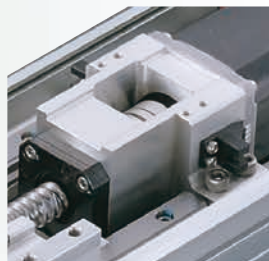
The motor is not installed with this product.  
Please obtain and install and adjust the motor and driver by yourself.

\*Refer to table 3 on page 4 for the details.

## Variety of sensor installation method!

Choices of different installation direction for home position sensor, limit sensor and sensor dog.

\*Option



Inside sensor

Inside sensor dog

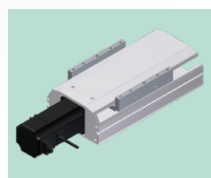


Outside sensor

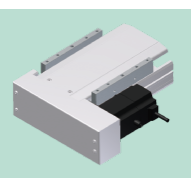
Outside sensor dog

## Flexible motor installation direction

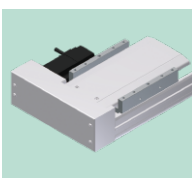
Several brackets available. Manufacturer and installation direction selectable. \*Option



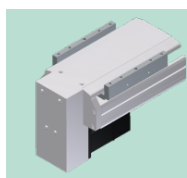
Outside direct



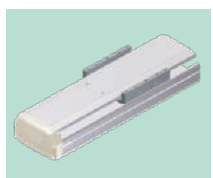
Left turn-up



Right turn-up



Below turn-up



Built-in

The motor is not installed with this product. Please obtain and install and adjust the motor and driver by yourself.

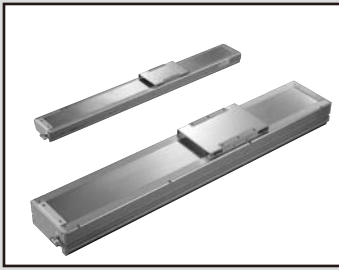
# Selection guide

Type	Model no.	Applicable motor size (W)	Body width (mm)	Ballscrew precision grade: C7		Repeatability (mm)	Max. load capacity (kg)	
				Outer diameter (mm)	Screw lead (mm)		Horizontal	Vertical
Low dust generation type	ECS-05	100	51	12	2	±0.02	10	7
					5		10	3
					10		5	1.5
	ECS-06	100	65	12	2		30	15
					5		30	10
					10		15	5
	ECS-10	100	102	16	5		50	12
					10		30	8
					16		22	5
					20		18	3
	ECS-12	100	102	16	5		50	12
					10		30	8
					16		22	5
					20		18	3
	ECS-14	200	135	16	5		95	27
					10		75	18
					16		44	7
		400	135	16	20		35	6
					5		110	33
					10		88	22
	ECS-17	400	170	20	16		48	10
					20		40	8
					40		35	5
		750	170	20	5		120	50
10	120				40			
20	83				25			
40	50				10			
ECS-22	750	220	25	5	150	55		
				10	150	45		
				25	120	20		
			20	40	5	60	10	
					40			

### Stroke (mm) and Max. speed(mm/s) \*1

100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500 mm
			100								90	80	70	60														
			250								225	200	175	150														
			500								450	400	350	300														
			100								90	80	70	60														
			250								225	200	175	150														
			500								450	400	350	300														
			250								225	200	175	150	125													
			500								450	400	350	300	250													
			800								720	640	560	480	400													
			1000								900	800	700	600	500													
			250								225	200	175	150	125													
			500								450	400	350	300	250													
			800								720	640	560	480	400													
			1000								900	800	700	600	500													
			250								225	200	175	150	125													
			500								450	400	350	300	250													
			800								720	640	560	480	400													
			1000								900	800	700	600	500													
			250								225	200	175	150	125													
			500								450	400	350	300	250													
			800								720	640	560	480	400													
			1000								900	800	700	600	500													
			250								225	200	175	150	125													
			500								450	400	350	300	250													
			800								720	640	560	480	400													
			1000								900	800	700	600	500													
			250								225	200	175	150	125													
			500								450	400	350	300	250													
			1000								900	800	700	600	500													
			2000								1800	1600	1400	1200														
			250								225	200	175	150	125													
			500								450	400	350	300	250	200												
			1250								1125	1000	875	750	625	500												
			2000								1800	1600	1400	1200	1000	800	600											

\*1 Max. speed is estimated at 3,000rpm of installed motor.  
 Max. speed has limitation by stroke. Do not operate faster than limited speed.



Electric actuator low dust generation type

# ECS Series

- Applicable motor size: 100W•200W•400W•750W



## Specifications

[Applicable motor size: 100W]

Descriptions	Model															
	ECS-05			ECS-06			ECS-10				ECS-12					
Ballscrew diameter	mm	12			12			16				16				
Ballscrew precision grade		C7														
Screw lead	mm	2	5	10	2	5	10	5	10	16	20	5	10	16	20	
Repeatability	mm	±0.02														
Max. load capacity	Horizontal	kg	10	10	5	30	30	15	50	30	22	18	50	30	22	18
	*1	Vertical	kg	7	3	1.5	15	10	5	12	8	5	3	12	8	5
Max. speed*1	mm/s	100	250	500	100	250	500	250	500	800	1000	250	500	800	1000	
Stroke length*2	mm	100 to 800			100 to 800			100 to 1050				100 to 1050				
Thrust force	N	825	330	165	854	341	170	341	170	106	85	341	170	106	85	

\*1: Value at 0.2sec of acceleration and deceleration.

\*2: The stroke pitch is 50.

[Applicable motor size: 200W]

Descriptions	Model					
	ECS-14					
Ballscrew diameter	mm	16				
Ballscrew precision grade		C7				
Screw lead	mm	5	10	16	20	
Repeatability	mm	±0.02				
Max. load capacity	Horizontal	kg	95	75	44	35
	*1	Vertical	kg	27	18	7
Max. speed*1	mm/s	250	500	800	1000	
Stroke length*2	mm	100 to 1050				
Thrust force	N	683	341	213	174	

\*1: Value at 0.2sec of acceleration and deceleration.

\*2: The stroke pitch is 50.

[Applicable motor size: 400W]

Descriptions	Model									
	ECS-14				ECS-17					
Ballscrew diameter	mm	16				20				
Ballscrew precision grade		C7								
Screw lead	mm	5	10	16	20	5	10	20	40	
Repeatability	mm	±0.02								
Max. load capacity	Horizontal	kg	110	88	48	40	120	110	75	35
	*1	Vertical	kg	33	22	10	8	40	30	14
Max. speed*1	mm/s	250	500	800	1000	250	500	1000	2000	
Stroke length*2	mm	100 to 1050				100 to 1250				
Thrust force	N	1388	694	433	347	1388	694	347	174	

\*1: Value at 0.2sec of acceleration and deceleration.

\*2: The stroke pitch is 50.

[Applicable motor size: 750W]

Descriptions	Model									
	ECS-17				ECS-22					
Ballscrew diameter	mm	20				25		20		
Ballscrew precision grade		C7								
Screw lead	mm	5	10	20	40	5	10	25	40	
Repeatability	mm	±0.02								
Max. load capacity	Horizontal	kg	120	120	83	50	150	150	120	60
	*1	Vertical	kg	50	40	25	10	55	45	20
Max. speed*1	mm/s	250	500	1000	2000	250	500	1250	2000	
Stroke length*2	mm	100 to 1250				100 to 1500				
Thrust force	N	2100	1050	525	260	2100	1050	420	260	

\*1: Value at 0.2sec of acceleration and deceleration.

\*2: The stroke pitch is 50.

### CAUTION:

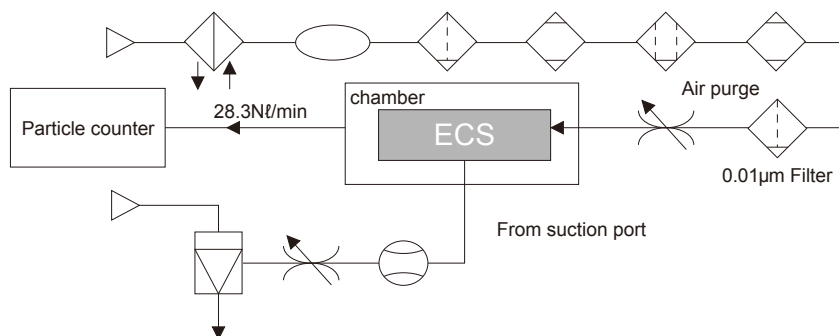
The motor is not installed on this product. Please obtain, install, and adjust the motor and driver by yourself.

Max. speed is estimated at 3,000rpm of installed motor.

Thrust force and max. load capacity is estimated at the rated torque of installed motor.

### Dust generation characteristics Reference data

#### Test circuit



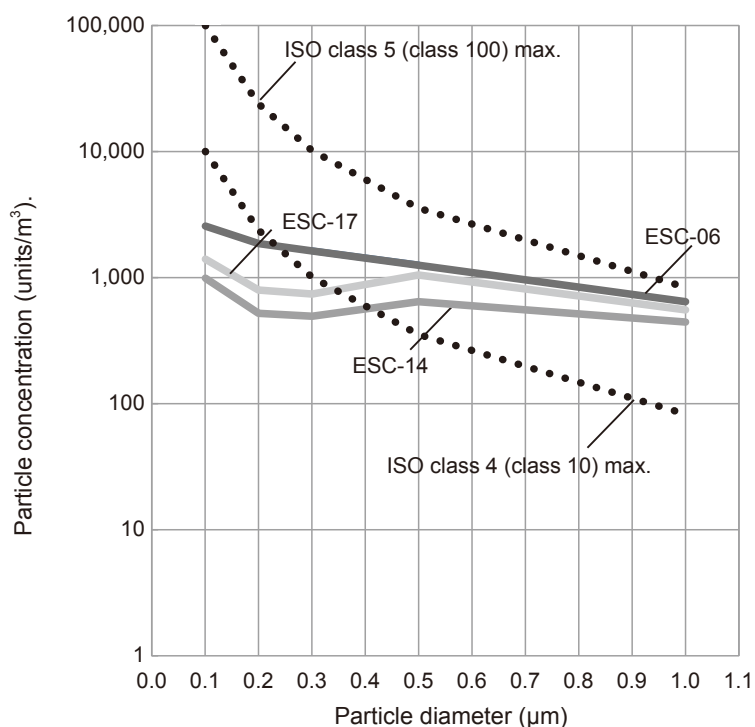
#### Measurement procedure

- ① Set test sample in acrylic resin chamber.
- ② Supply clean air with the same quantity of particle counter intake (28.3 Nl/min).
- ③ Set in the clean bench of inner chamber of ISO class 4 (class 10).
- ④ Start test sample and measure particle concentration change over the required measuring time.
- ⑤ Test sample operation speed

#### Measuring conditions

Descriptions		Descriptions
Test sample	Model no.	Operation speed 400mm/sec at ECS-06-10040
		Operation speed 800mm/sec at ECS-14-20040
		Operation speed 800mm/sec at ECS-17-20040
Test sample	Acceleration/ deceleration time	0.3sec
	Air suction volume	40.0Nl/min at ECS-06-10040
		60.0Nl/min at ECS-14-20040
60.0Nl/min at ECS-17-20040		
Chamber	Internal volume	28.3Nl
Particle counter	Name	Laser dust monitor
	Minimum measurable particle diameter	0.1μm
	Suction rate	28.3Nl/min
Setting conditions	Sampling	10min
	Interval	40min
	Measuring time	50h

#### Dust generation data



## How to order

**ECS** - **06** - **05** **010** - **E** **M** **1** **B** **C** **B** **N**

Model no.

**A** Body size

**B** Screw lead

**C** Stroke length

**D** Motor installation

**E** Installation motor specifications

**F** Motor size

**G** Brake

**H** Home position sensor

**I** Limit sensor

**J** Option

### <Example of model number>

ECS-06-05010-EM1BCBN

- A** Body size: width 65×height 54mm
- B** Screw lead: 5mm
- C** Stroke length: 100mm
- D** Motor installation: External direct installation
- E** Installation motor specifications: MITSUBISHI
- F** Motor size: 100W
- G** Brake: With brake
- H** Home position sensor: Outside motor side
- I** Limit sensor: Outside
- J** Option: Installation direction standard

- \*Except when the motor installation method is B (built-in), the actuator is same as "without brake".
- G** Select "N" as brake in any case.

**E** Installation motor specifications (refer to the following page table 3)

Manufacturer	100W	200W	400W	750W
MITSUBISHI	M	M	M	M
DELTA ELECTRONICS	M	M	M	M
SANYO DENKI	M	M	M	M
YASKAWA	Y	Y	Y	Y
KEYENCE JAPAN	Y	Y	Y	Y
PANASONIC	P	P	P	P
OMRON	M	P	P	P

Symbol	Descriptions
<b>A Body size (mm)</b>	
<b>05</b>	width 51×height 54
<b>06</b>	width 65×height 56
<b>10</b>	width 102×height 78.5
<b>12</b>	width 102×height 82.5
<b>14</b>	width 135×height 91
<b>17</b>	width 170×height 107
<b>22</b>	width 220×height 138
<b>B Screw lead (refer to the following page table 1)</b>	
<b>02</b>	2 mm
<b>05</b>	5 mm
<b>10</b>	10mm
<b>16</b>	16mm
<b>20</b>	20mm
<b>25</b>	25mm
<b>40</b>	40mm
<b>C Stroke length (refer to the following page table 1)</b>	
<b>010</b>	100mm to 150mm
<b>to 150</b>	(50mm pitch) Indication is 1/10.
<b>D Motor installation (refer to the following page table 2)</b>	
<b>E</b>	External direct installation
<b>D</b>	Below turn-up
<b>R</b>	Right turn-up
<b>L</b>	Left turn up installation
<b>B</b>	Built-in type*
<b>E Installation motor specifications</b>	
<b>M</b>	Installation motor specifications select installation motor specifications from below table.
<b>Y</b>	
<b>P</b>	
<b>F Motor size (refer to the following page table 2)</b>	
<b>1</b>	100W
<b>2</b>	200W
<b>4</b>	400W
<b>8</b>	750W
<b>G Brake</b>	
<b>N</b>	Without
<b>B</b>	With brake*
<b>H Home position sensor (1 pc.) (refer to the following page table 4)</b>	
<b>N</b>	Without
<b>A</b>	Inside motor side
<b>B</b>	Inside motor opposition side
<b>C</b>	Outside motor side (Attached to ship)
<b>D</b>	Outside motor opposition side (Attached to ship)
<b>I Limit sensor (with 2 units) (refer to the following page table 4)</b>	
<b>N</b>	Without
<b>A</b>	Inside
<b>B</b>	Outside (Attached to ship)
<b>J Option (refer to the following page table 5)</b>	
<b>N</b>	Body installation direction Standard/Without grease nipple
<b>R</b>	Grease nipple right
<b>L</b>	Grease nipple left

Installation position of the motor and the grease nipple

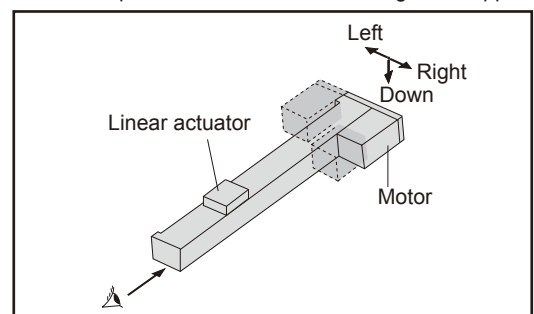




Table 1 **B** Screw lead and **C** Stroke

Model	<b>B</b> Screw lead (mm)							<b>C</b> Stroke length (mm) (50mm pitch)
	02	05	10	16	20	25	40	
ECS-05	○	○	○	-	-	-	-	100-800
ECS-06	○	○	○	-	-	-	-	100-800
ECS-10	-	○	○	○	○	-	-	100-1050
ECS-12	-	○	○	○	○	-	-	100-1050
ECS-14	-	○	○	○	○	-	-	100-1050
ECS-17	-	○	○	-	○	-	○	100-1250
ECS-22	-	○	○	-	-	○	○	100-1500

Table 2 **D** Motor installation method and **F** Motor size

Model						<b>F</b> Motor size			
	External direct installation	Below turn up	Right turn up	Left turn up	Built-in	100W	200W	400W	750W
ECS-05	○	○	○	○	-	○	-	-	-
ECS-06	○	○	○	○	-	○	-	-	-
ECS-10	○	○	○	○	○	○	-	-	-
ECS-12	○	○	○	○	○*2	○	-	-	-
ECS-14	○	○	○	○	○	-	○	○	-
ECS-17	○	○	○	○	○*1	-	-	○	○*1
ECS-22	○	○	○	○	○	-	-	-	○

\*1: 750W type is not available for built-in.

\*2: Please consult with CKD when using OMRON motors.

Table 3 **E** Installation motor specifications and motor model No. and rated output

<b>E</b> Manufacturer	Motor (Without brake)	Motor (With brake)	Rated output	<b>E</b> Manufacturer	Motor (Without brake)	Motor (With brake)	Rated output
MITSUBISHI	HF-KP13	HF-KP13B	100W	KEYENCE	SV-M010□□	SV-B010□□	100W
	HF-KP23	HF-KP23B	200W		SV-M020□□	SV-B020□□	200W
	HF-KP43	HF-KP43B	400W		SV-M040□□	SV-B040□□	400W
	HF-KP73	HF-KP73B	750W		SV-M075□□	SV-B075□□	750W
*1 DELTA ELECTRONICS	ECMA-C10401□S		100W	PANASONIC	MSMD012G1A	MSMD012G1B	100W
	ECMA-C10602□S		200W		MSMD022G1A	MSMD022G1B	200W
	ECMA-C10604□S		400W		MSMD042G1A	MSMD042G1B	400W
	ECMA-C10807□S		750W		MSMD082G1A	MSMD082G1B	750W
SANYO DENKI	R2AA04010FX	R2AA04010FC	100W	OMRON	R88M-K10030H	R88M-K10030H-B	100W
	R2AA06020FX	R2AA06020FC	200W		R88M-K20030□	R88M-K20030□-B	200W
	R2AA06040HX	R2AA06040HC	400W		R88M-K40030□	R88M-K40030□-B	400W
	-	-	750W		R88M-K75030H	R88M-K75030H-B	750W
YASKAWA	SGMJV-01ADA21	SGMJV-01ADA21C	100W	1*: ECMA Series (with brake) of Delta Electronics Inc. cannot use built-in type.			
	SGMJV-02ADA21	SGMJV-02ADA21C	200W	2*: For motors other than those recommended above, or other motor manufacturers' products, please contact CKD.			
	SGMJV-04ADA21	SGMJV-04ADA21C	400W				
	SGMJV-08ADA21	SGMJV-08ADA21C	750W				

Table 4 **H** Home position sensor and **I** Limit sensor

Model	<b>H</b> Home position sensor (1 pc.)					<b>I</b> Limit sensor (with 2 units)		
	Without*1	Inside		Outside		Without*1	Inside	Outside
		Motor side	Motor opposition side	Motor side	Motor opposition side			
ECS-05	○	-	-	○	○	○	-	○
ECS-06	○	-	-	○	○	○	-	○
ECS-10	○	○	○*2	○	○	○	○*2	○
ECS-12	○	○*3	○	○	○	○	○*3	○
ECS-14	○	○	○	○	○	○	○	○
ECS-17	○	○	○	○	○	○	○	○
ECS-22	○	○	○	○	○	○	○	○

\*1: Home position sensor and limit sensor are a set. When either is Nil, select Nil for the other.

Example: Set of home position sensor Nil and limit sensor installed (inside/outside) is not available.

\*2: ETS-10 is not available for the combination of home position sensor B (inside, the opposite side of motor) and limit sensor installed (inside / outside).

Example: ECS-10-\*BA\* ...not available as model number.

\*3: When the mounting direction of ECS-12 is R (mounting clockwise) or L (mounting counter-clockwise), the combination of home position sensor A (inside, motor side) and limit sensor A (inside) is not available.

Example: ECS-12-\*R/L\*AA\* ...not available as model number.

\*4: When the sensor is mounted internally, position adjustment cannot be done by the customer. (Assembled to ship)

When the sensor is mounted externally, position adjustment can be done by the customer. (Attached to ship)

Table 5 **J** Motor installation method and options

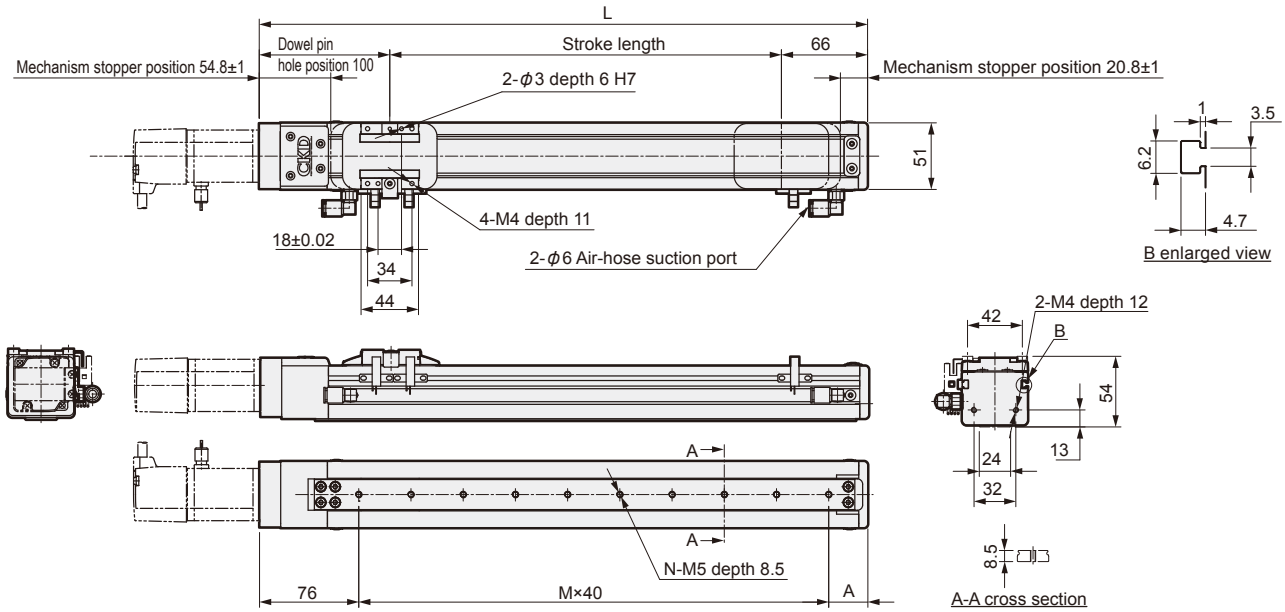
Model	<b>J</b> Option				
	B Built-in	E External direct installation	D Below turn up	R Right turn up	L Left turn up
ECS-05・06	N only (Body installation direction: standard)				
ECS-10 to 22	N/R/L		N/L		N/R

\*1: Grease nipple cannot be mounted on ECS 05 and 06.

\*2: ECS-10 to 22 are the grease nipple installation option indication. Please choose "N": none, "R": Right, "L": Left.

## Dimensions (ECS-05)

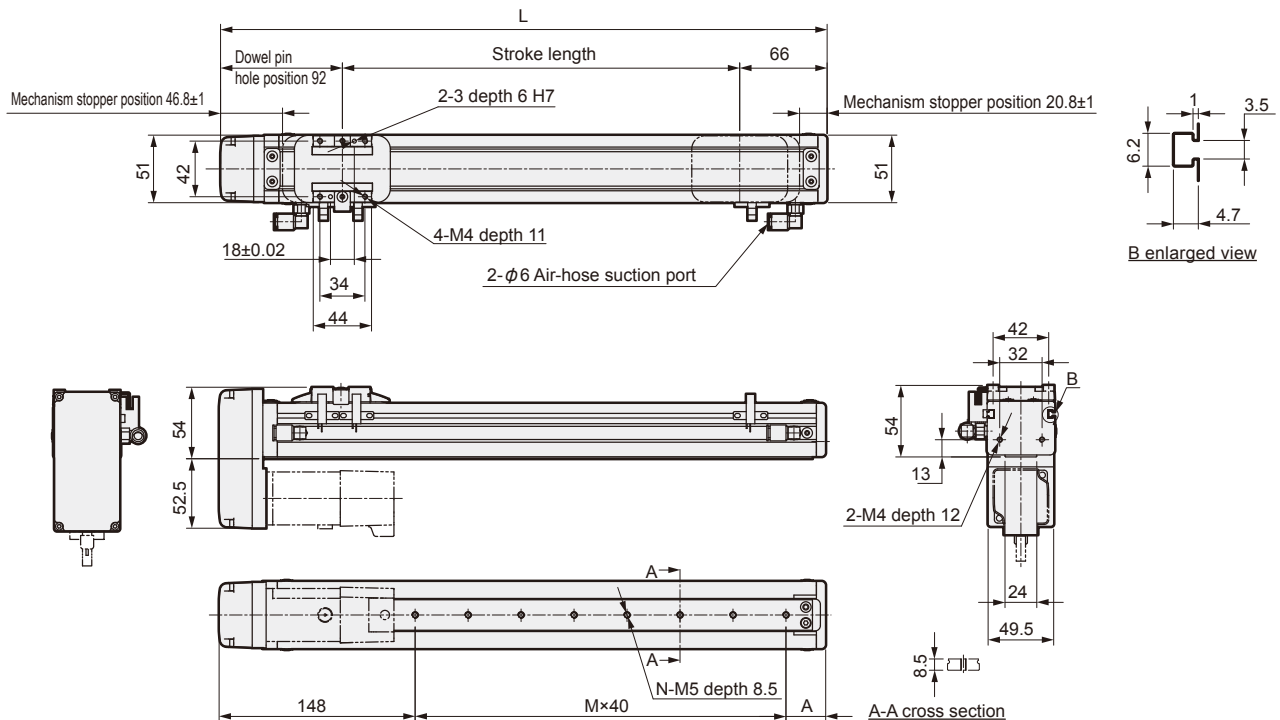
### • ECS-05-\*\*-E (Motor installation: External direct installation)



Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	266	316	366	416	466	516	566	616	666	716	766	816	866	916	966
A	30	40	50	60	30	40	50	60	30	40	50	60	30	40	50
M	4	5	6	7	9	10	11	12	14	15	16	17	19	20	21
N	5	6	7	8	10	11	12	13	15	16	17	18	20	21	22
Weight (kg)	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.6	3.8

Note: Refer to page 9 for motor installation part dimensions.

### • ECS-05-\*\*-D (Motor installation: Below turn-up)

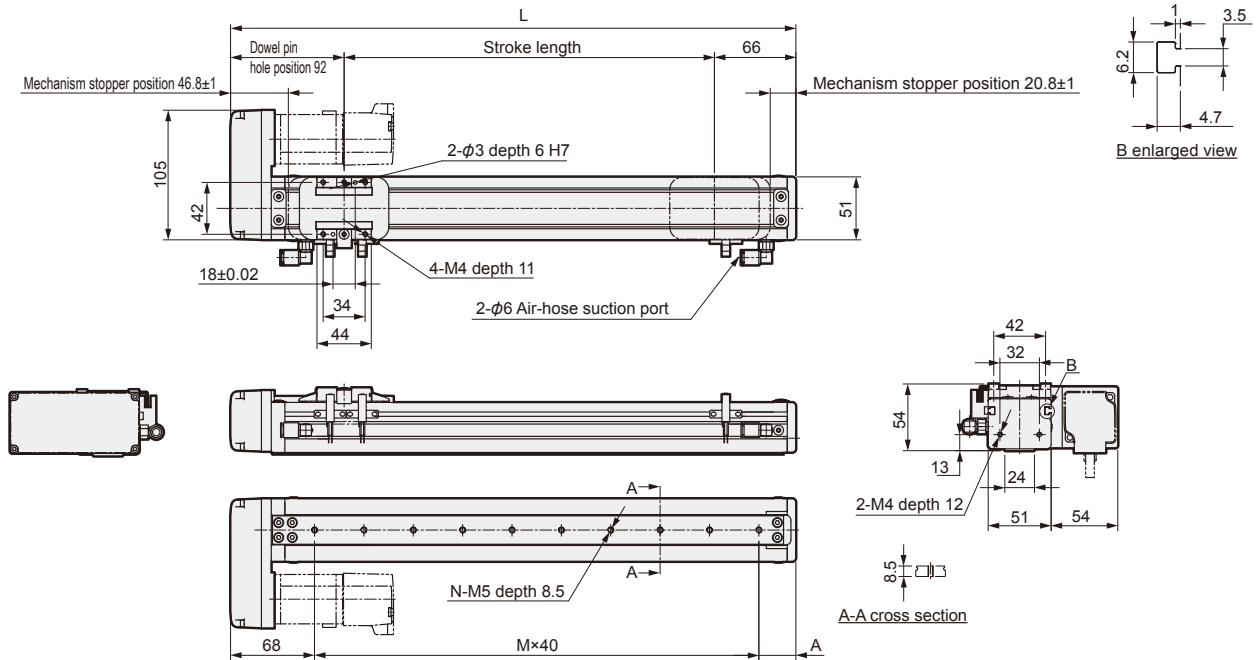


Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	258	308	358	408	458	508	558	608	658	708	758	808	858	908	958
A	30	40	50	60	30	40	50	60	30	40	50	60	30	40	50
M	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19
N	3	4	5	6	8	9	10	11	13	14	15	16	18	19	20
Weight (kg)	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.6	3.7	3.9

Note: Refer to page 9 for motor installation part dimensions.

## Dimensions (ECS-05)

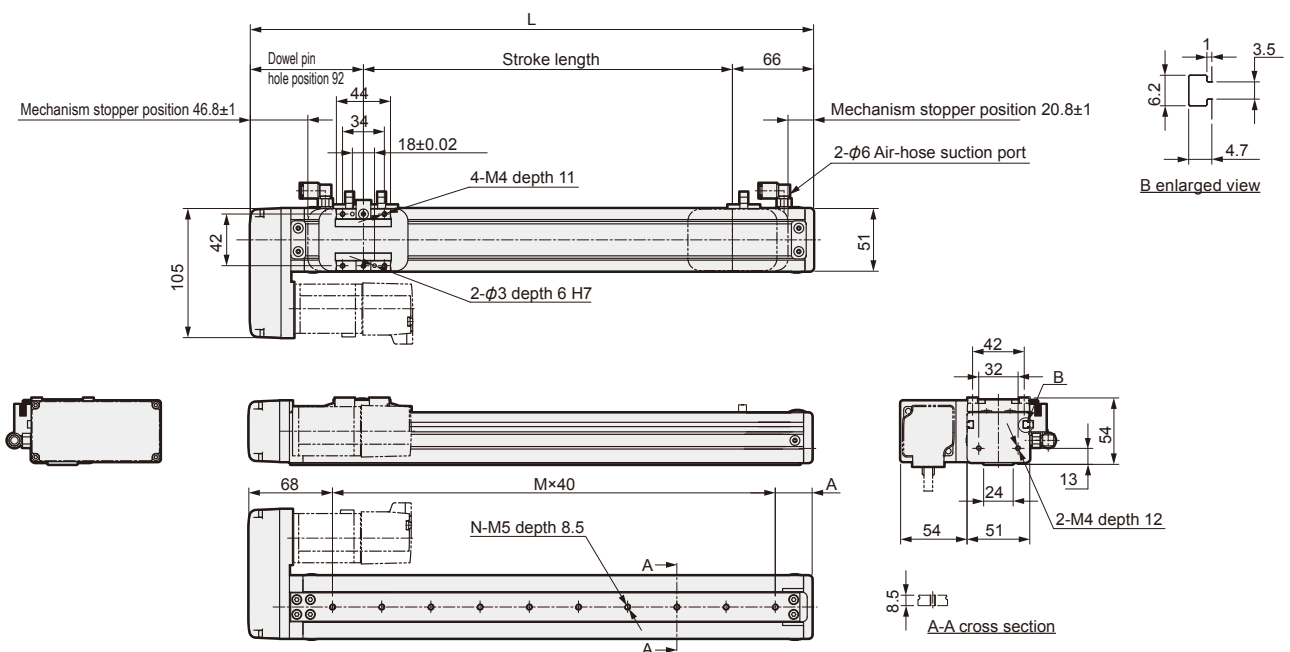
### • ECS-05-\*\*-R (Motor installation: Right turn-up)



Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	258	308	358	408	458	508	558	608	658	708	758	808	858	908	958
A	30	40	50	60	30	40	50	60	30	40	50	60	30	40	50
M	4	5	6	7	9	10	11	12	14	15	16	17	19	20	21
N	5	6	7	8	10	11	12	13	15	16	17	18	20	21	22
Weight (kg)	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.6	3.7	3.9

Note: Refer to page 9 for motor installation part dimensions.

### • ECS-05-\*\*-L (Motor installation: Left turn up installation)

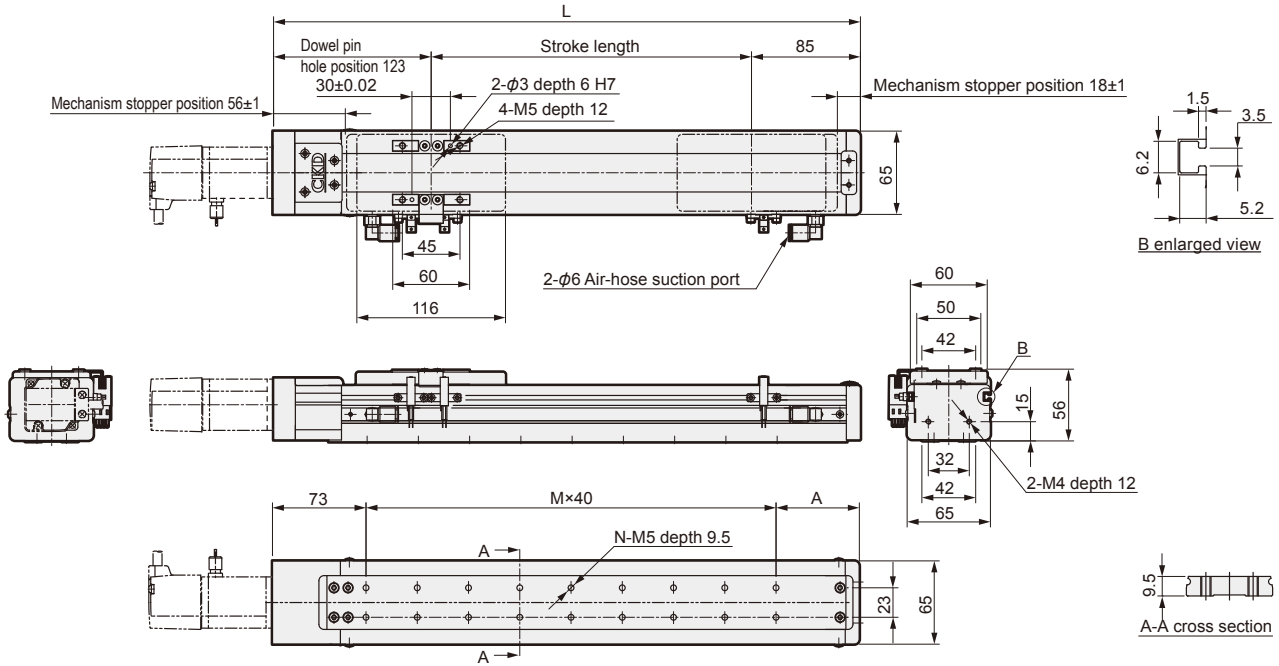


Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	258	308	358	408	458	508	558	608	658	708	758	808	858	908	958
A	30	40	50	60	30	40	50	60	30	40	50	60	30	40	50
M	4	5	6	7	9	10	11	12	14	15	16	17	19	20	21
N	5	6	7	8	10	11	12	13	15	16	17	18	20	21	22
Weight (kg)	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.6	3.7	3.9

Note: Refer to page 9 for motor installation part dimensions.

## Dimensions (ECS-06)

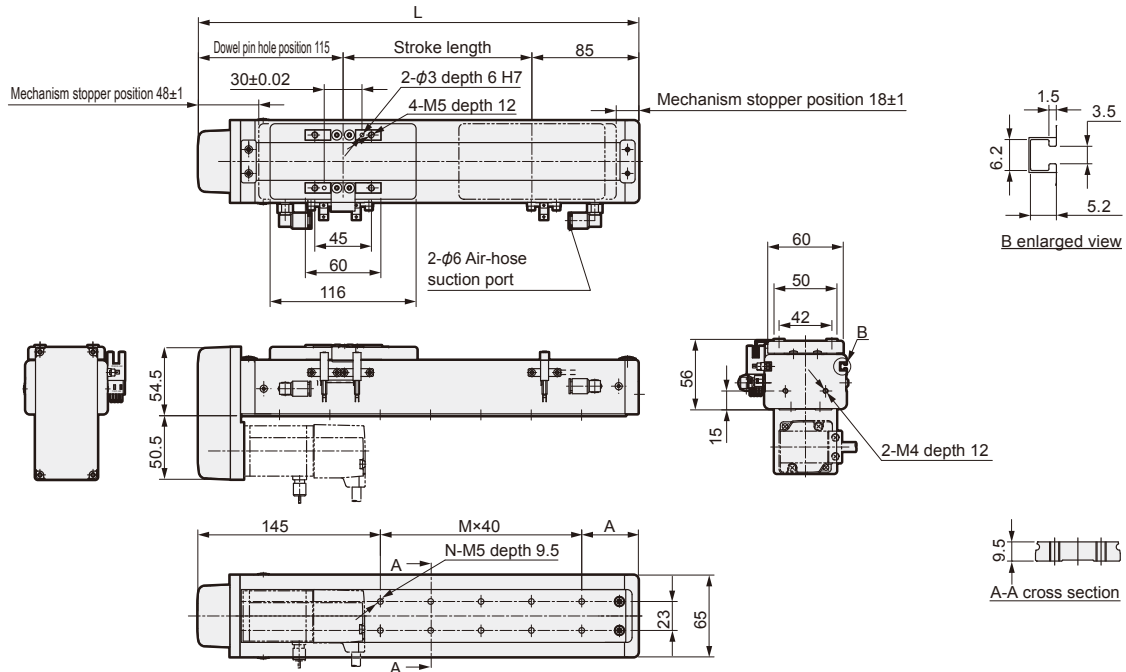
### • ECS-06-\*\*-E (Motor installation: External direct installation)



Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	308	358	408	458	508	558	608	658	708	758	808	858	908	958	1008
A	35	45	55	65	35	45	55	65	35	45	55	65	35	45	55
M	5	6	7	8	10	11	12	13	15	16	17	18	20	21	22
N	12	14	16	18	22	24	26	28	32	34	36	38	42	44	46
Weight (kg)	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.3	5.6	5.8	6.0

Note: Refer to page 10 for motor installation part dimensions.

### • ECS-06-\*\*-D (Motor installation: Below turn-up)

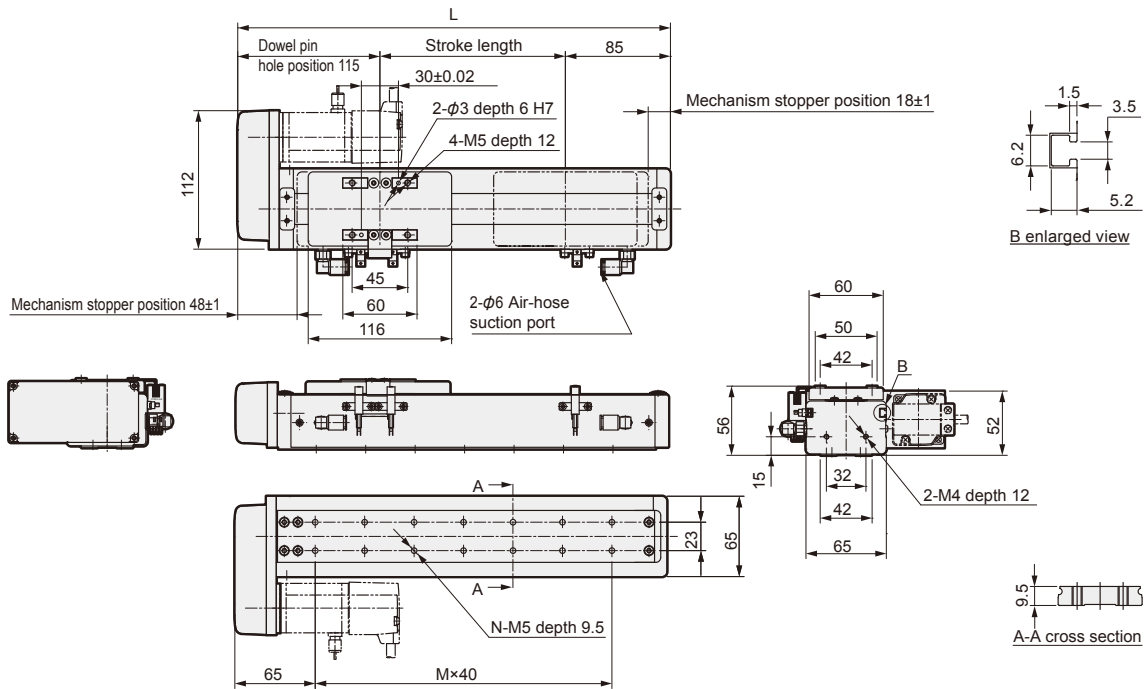


Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	35	45	55	65	35	45	55	65	35	45	55	65	35	45	55
M	3	4	5	6	8	9	10	11	13	14	15	16	18	19	20
N	8	10	12	14	18	20	22	24	28	30	32	34	38	40	42
Weight (kg)	2.9	3.1	3.4	3.6	3.8	4.0	4.3	4.5	4.7	5.0	5.2	5.4	5.6	5.8	6.0

Note: Refer to page 10 for motor installation part dimensions.

## Dimensions (ECS-06)

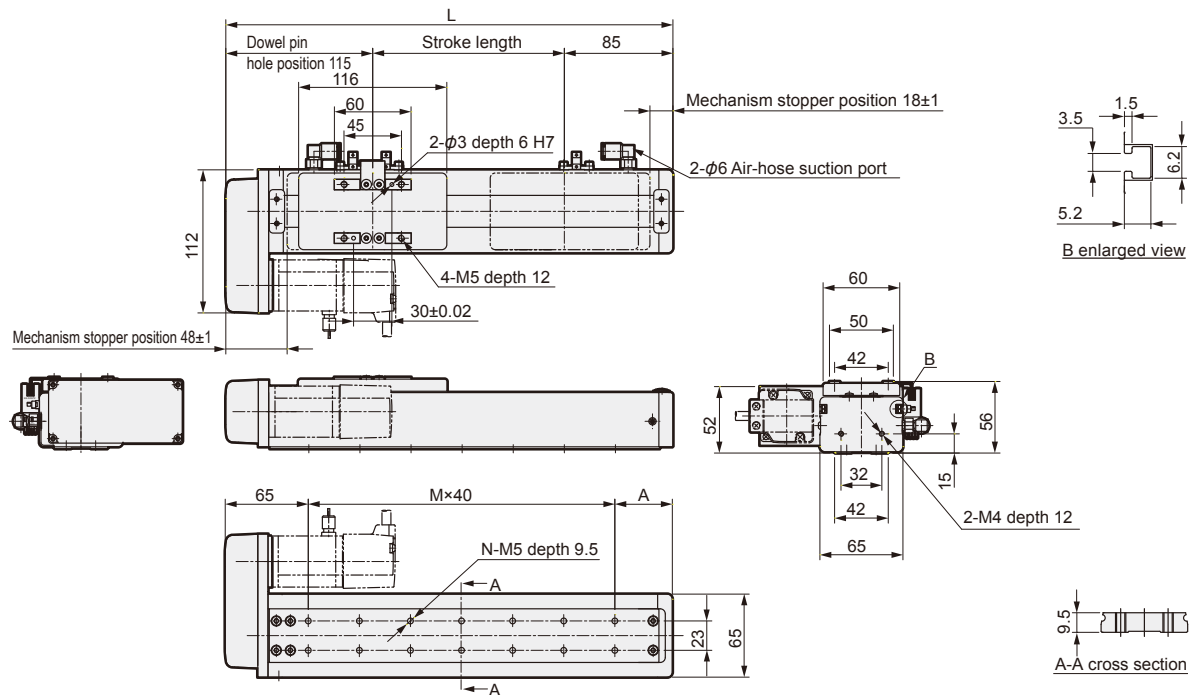
### • ECS-06-\*\*-R (Motor installation: Right turn-up)



Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	35	45	55	65	35	45	55	65	35	45	55	65	35	45	55
M	5	6	7	8	10	11	12	13	15	16	17	18	20	21	22
N	12	14	16	18	22	24	26	28	32	34	36	38	42	44	46
Weight (kg)	2.9	3.1	3.4	3.6	3.8	4.0	4.3	4.5	4.7	4.9	5.2	5.4	5.6	5.8	6.0

Note: Refer to page 10 for motor installation part dimensions.

### • ECS-06-\*\*-L (Motor installation: Left turn up installation)



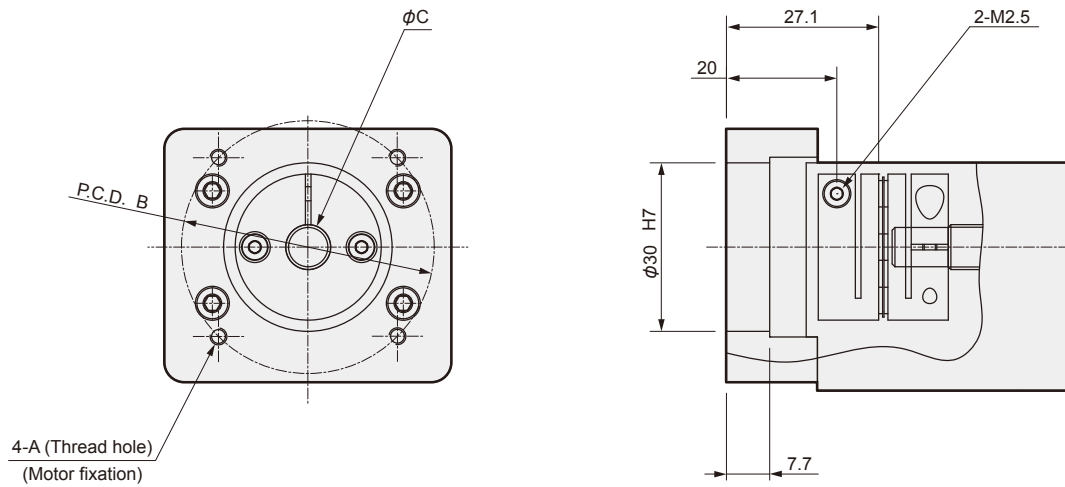
Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
A	35	45	55	65	35	45	55	65	35	45	55	65	35	45	55
M	5	6	7	8	10	11	12	13	15	16	17	18	20	21	22
N	12	14	16	18	22	24	26	28	32	34	36	38	42	44	46
Weight (kg)	2.9	3.1	3.4	3.6	3.8	4.0	4.3	4.5	4.7	4.9	5.2	5.4	5.6	5.8	6.0

Note: Refer to page 10 for motor installation part dimensions.



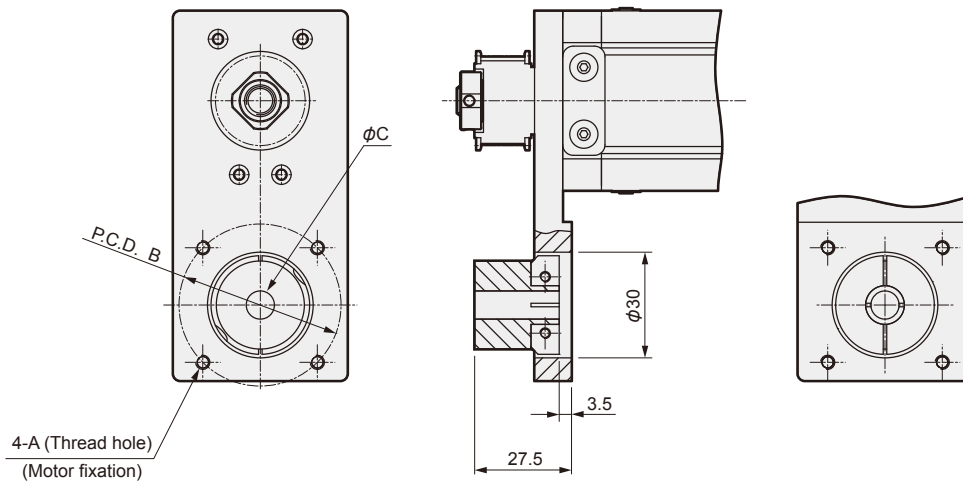
## Motor installation Dimensions (ECS-05)

### • ECS-05-E



ECS-05-E					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	φ46	φ8	4-M4×L12
Y	100W	M4	φ46	φ8	4-M4×L12
P	100W	M3	φ45	φ8	4-M3×L12

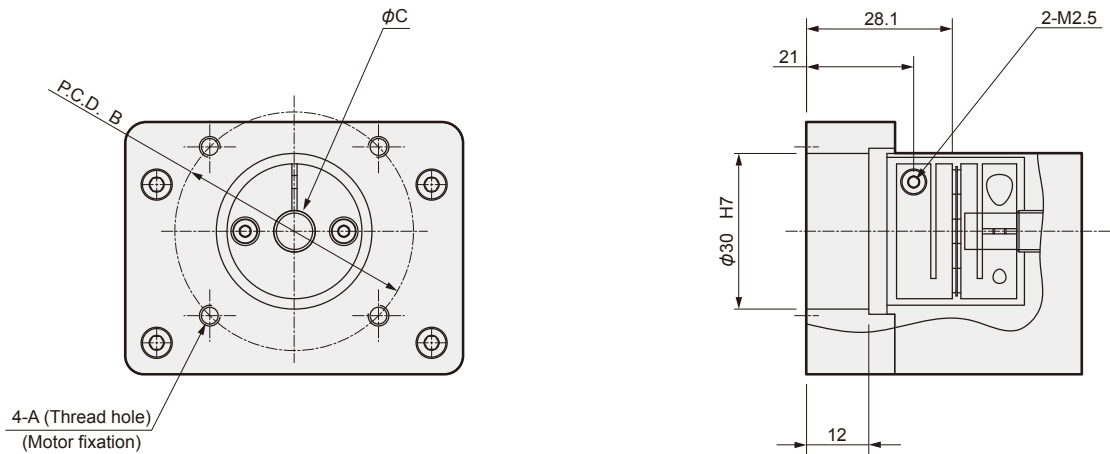
### • ECS-05-L/R/D



ECS-05-L/R/D					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	φ46	φ8	4-M4×L12
Y	100W	M4	φ46	φ8	4-M4×L12
P	100W	M3	φ45	φ8	4-M3×L12

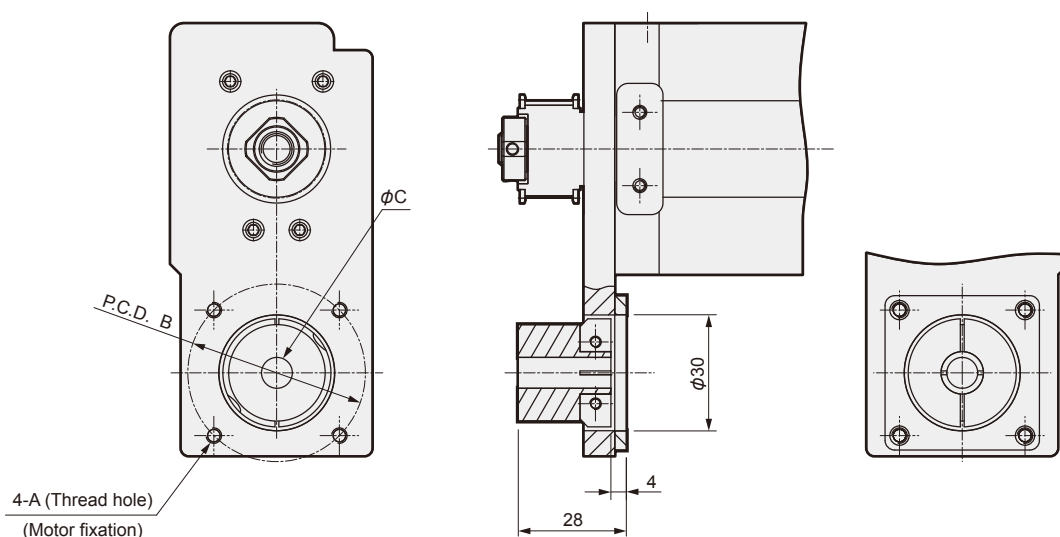
Motor installation Dimensions (ECS-06)

• ECS-06-E



ECS-06-E					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	$\phi 46$	$\phi 8$	4-M4×L12
Y	100W	M4	$\phi 46$	$\phi 8$	4-M4×L12
P	100W	M3	$\phi 45$	$\phi 8$	4-M3×L12

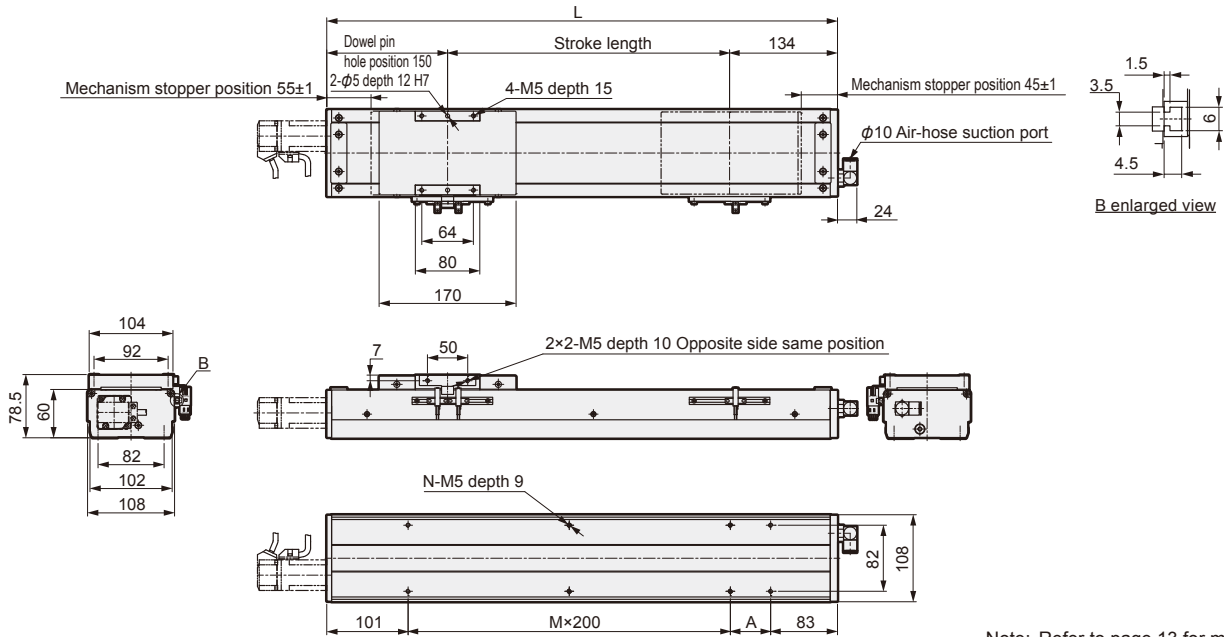
• ECS-06-L/R/D



ECS-06-L/R/D					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	$\phi 46$	$\phi 8$	4-M4×L12
Y	100W	M4	$\phi 46$	$\phi 8$	4-M4×L12
P	100W	M3	$\phi 45$	$\phi 8$	4-M3×L12

## Dimensions (ECS-10)

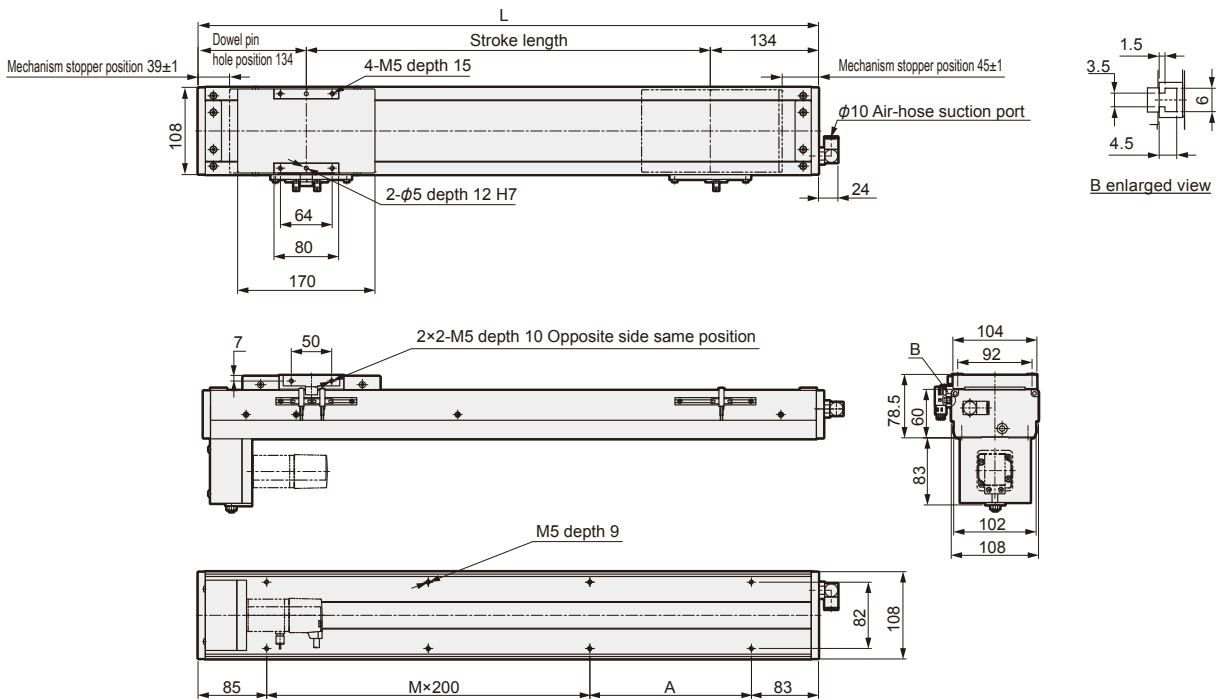
### • ECS-10-\*\*-E (Motor installation: External direct installation)



Note: Refer to page 13 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	5.5	6.0	6.4	6.8	7.2	7.6	8.1	8.5	8.9	9.3	9.7	10.2	10.6	11.0	11.4	11.8	12.3	12.7	13.1	13.5

### • ECS-10-\*\*-D (Motor installation: Below turn-up)

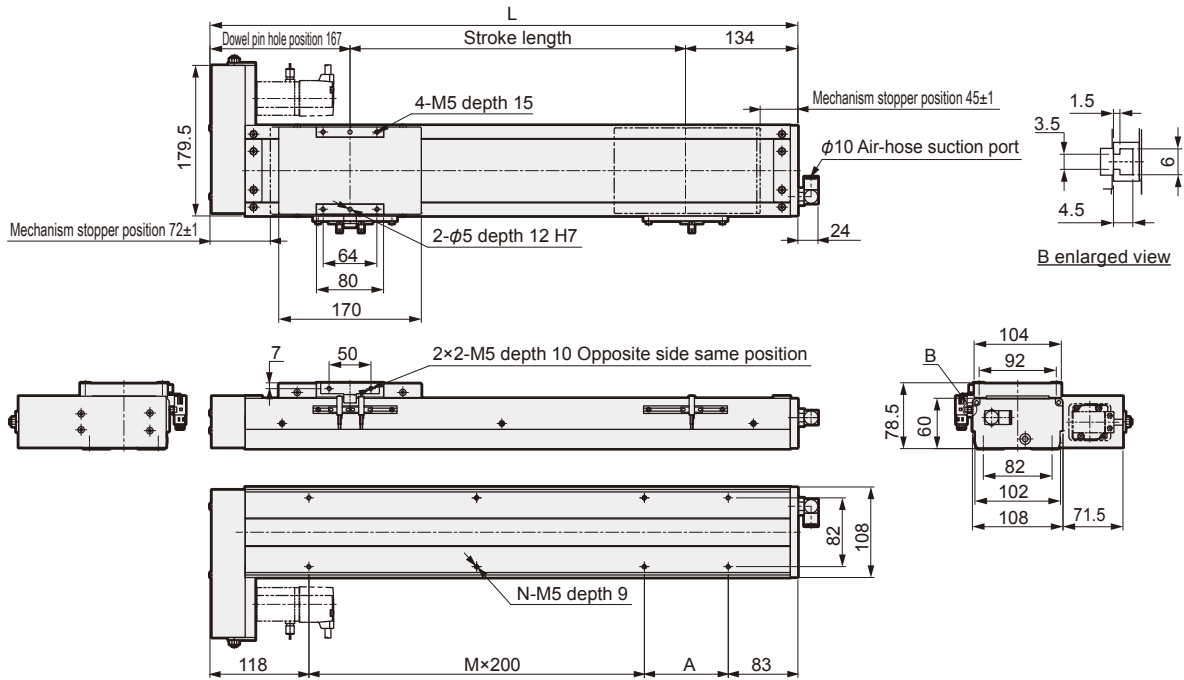


Note: Refer to page 14 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	368	418	468	518	568	618	668	718	768	818	868	918	968	1018	1068	1118	1168	1218	1268	1318
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	5.9	6.4	6.8	7.2	7.6	8.0	8.4	8.8	9.2	9.7	10.1	10.5	10.9	11.3	11.7	12.1	12.5	13.0	13.4	13.8

## Dimensions (ECS-10)

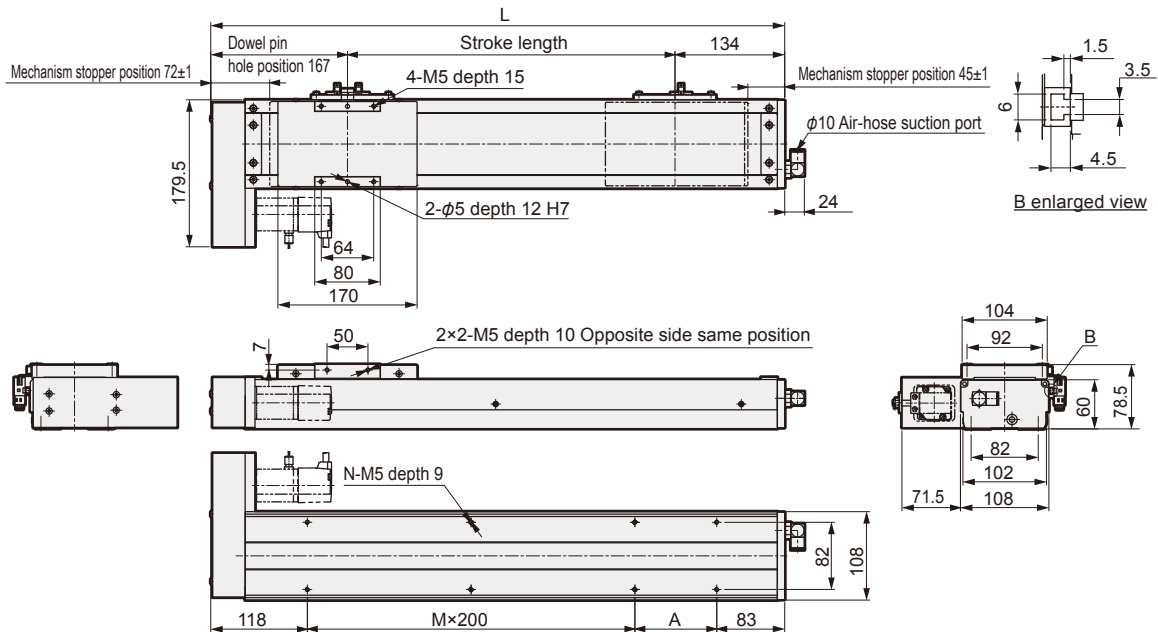
### • ECS-10-\*\*-R (Motor installation: Right turn-up)



Note: Refer to page 14 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	401	451	501	551	601	651	701	751	801	851	901	951	1001	1051	1101	1151	1201	1251	1301	1351
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	5.9	6.4	6.8	7.2	7.6	8.0	8.4	8.8	9.2	9.7	10.1	10.5	10.9	11.3	11.7	12.1	12.5	13.0	13.4	13.8

### • ECS-10-\*\*-L (Motor installation: Left turn up installation)

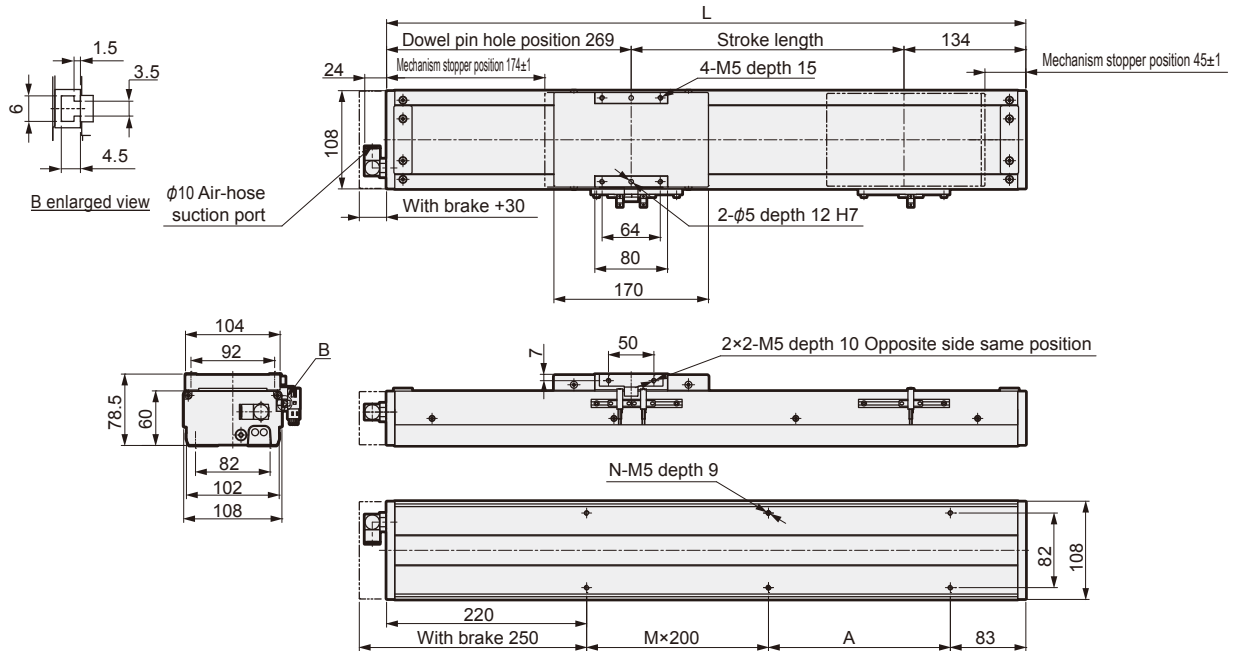


Note: Refer to page 14 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	401	451	501	551	601	651	701	751	801	851	901	951	1001	1051	1101	1151	1201	1251	1301	1351
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	5.9	6.4	6.8	7.2	7.6	8.0	8.4	8.8	9.2	9.7	10.1	10.5	10.9	11.3	11.7	12.1	12.5	13.0	13.4	13.8

## Dimensions (ECS-10)

### • ECS-10-\*\*-B (Motor installation: Built-in)

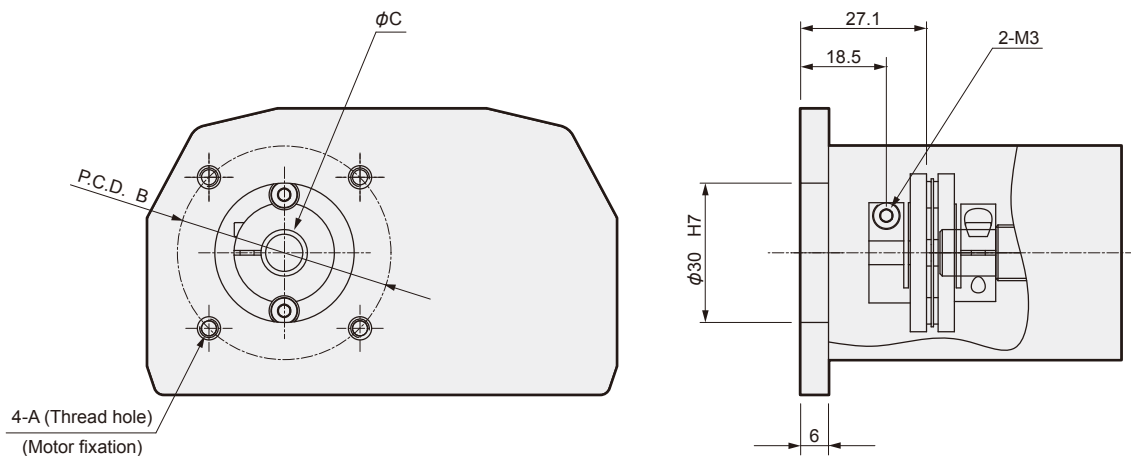


Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	503	553	603	653	703	753	803	853	903	953	1003	1053	1103	1153	1203	1253	1303	1353	1403	1453
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	6.0	6.4	6.9	7.3	7.7	8.1	8.5	8.9	9.3	9.7	10.2	10.6	11.0	11.4	11.8	12.2	12.6	13.0	13.5	13.9

Note1: Refer to page 14 for motor installation part dimensions.

## Motor installation Dimensions

### • ECS-10-E

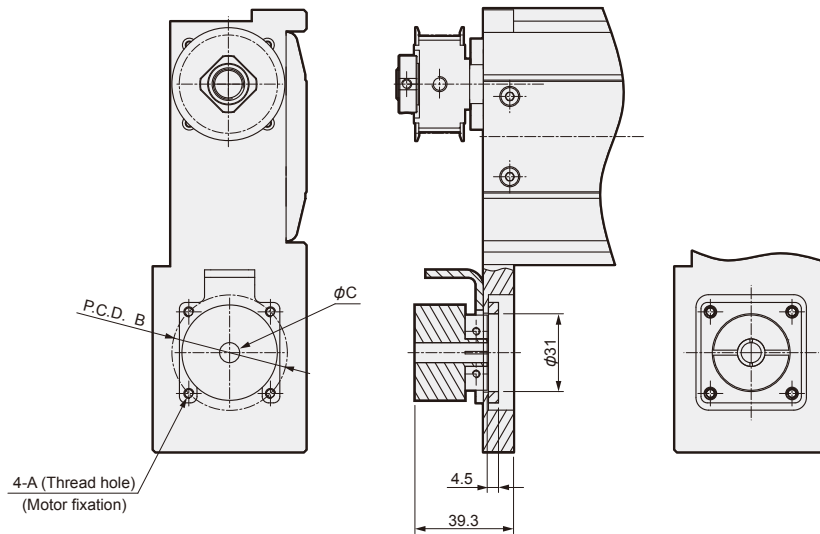


ECS-10-E					
Installation motor specifications		A	B	C	Motor screw
M 100W		M4	φ46	φ8	4-M4×L10
Y 100W		M4	φ46	φ8	4-M4×L10
P 100W		M3	φ45	φ8	4-M3×L10



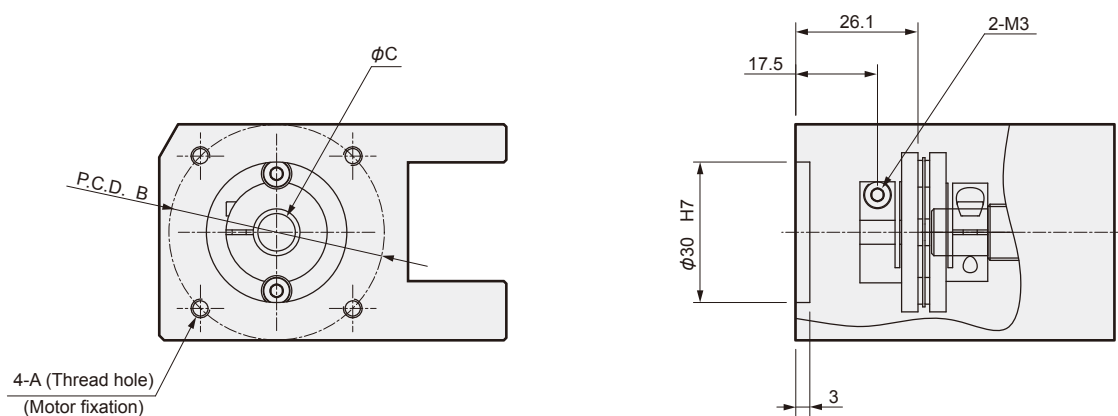
Motor installation Dimensions

• ECS-10-L/R/D



ECS-10-L/R/D					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	φ46	φ8	4-M4×L10
Y	100W	M4	φ46	φ8	4-M4×L10
P	100W	M3	φ45	φ8	4-M3×L10

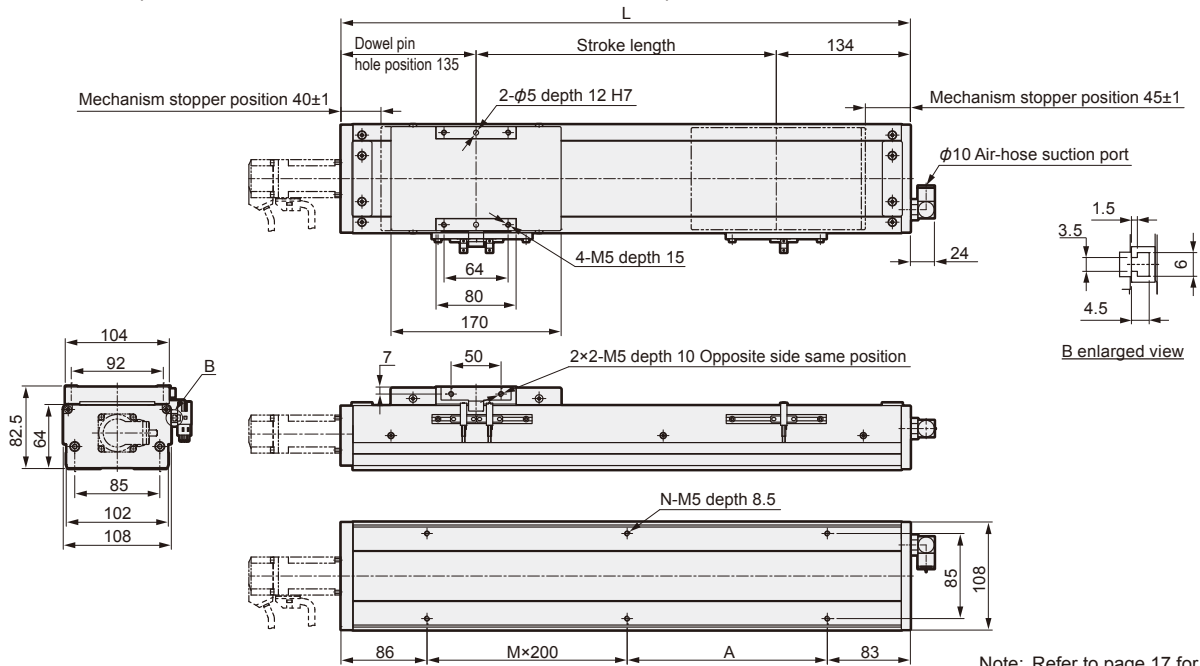
• ECS-10-B



ECS-10-B					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	φ46	φ8	4-M4×L10
Y	100W	M4	φ46	φ8	4-M4×L10
P	100W	M3	φ45	φ8	4-M3×L10

## Dimensions (ECS-12)

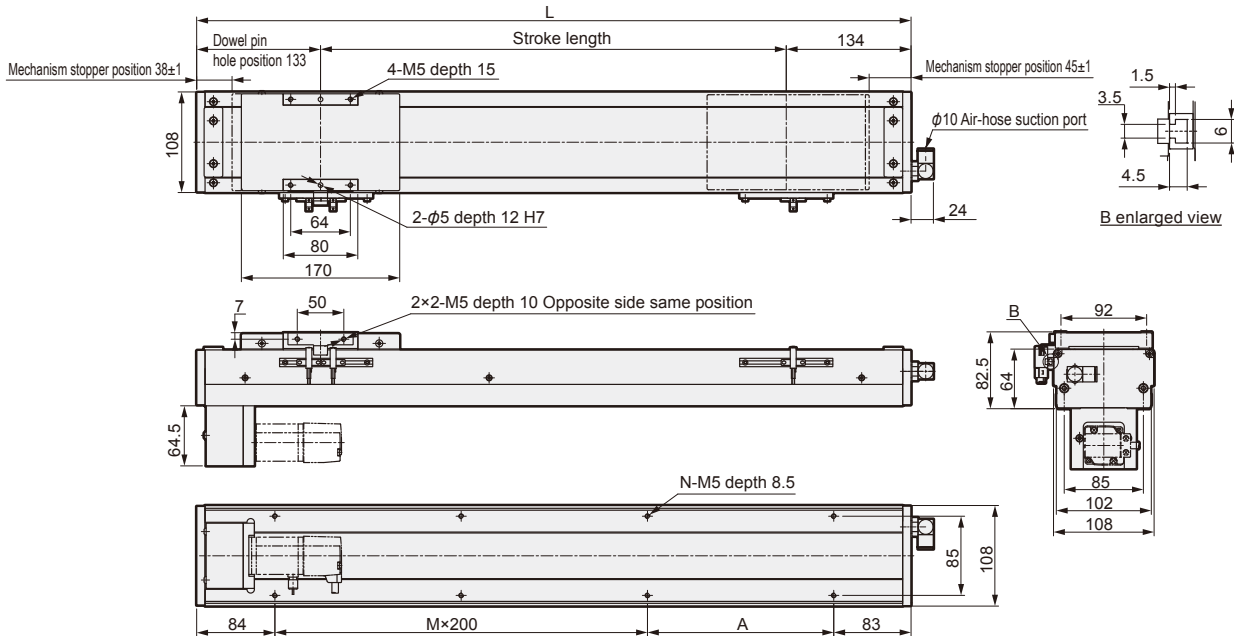
### • ECS-12-\*\*-E (Motor installation: External direct installation)



Note: Refer to page 17 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269	1319
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	6.1	6.5	6.9	7.3	7.8	8.2	8.6	9.0	9.5	9.9	10.3	10.7	11.2	11.6	12.0	12.4	12.9	13.3	13.7	14.1

### • ECS-12-\*\*-D (Motor installation: Below turn-up)

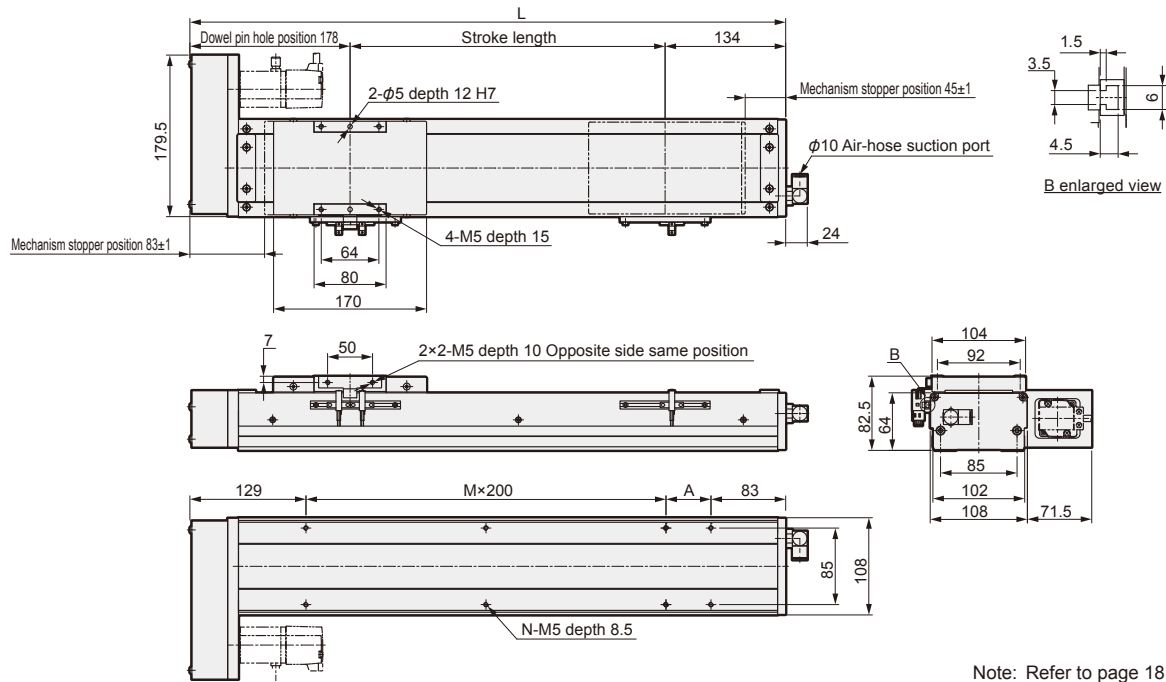


Note: Refer to page 18 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	367	417	467	517	567	617	667	717	767	817	867	917	967	1017	1067	1117	1167	1217	1267	1317
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	6.9	7.3	7.7	8.2	8.6	9.0	9.4	9.9	10.3	10.7	11.1	11.6	12.0	12.4	12.8	13.3	13.7	14.1	14.5	15.0

## Dimensions (ECS-12)

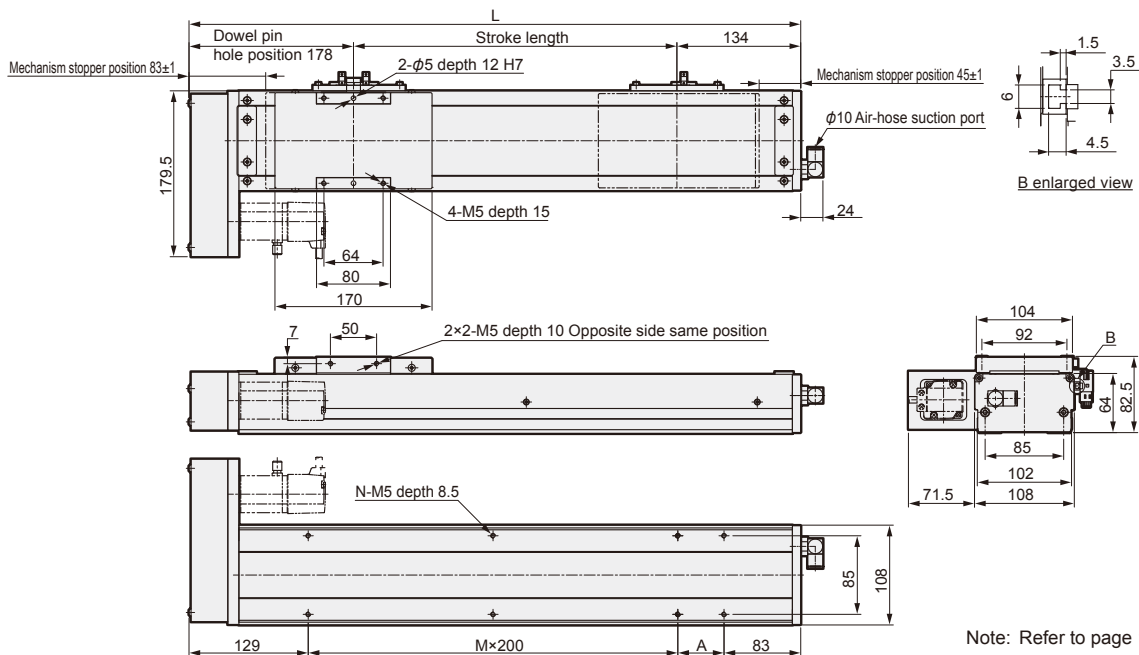
### • ECS-12-\*\*-R (Motor installation: Right turn-up)



Note: Refer to page 18 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062	1112	1162	1212	1262	1312	1362
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	6.9	7.3	7.7	8.2	8.6	9.0	9.4	9.9	10.3	10.7	11.1	11.6	12.0	12.4	12.8	13.3	13.7	14.1	14.5	15.0

### • ECS-12-\*\*-L (Motor installation: Left turn up installation)

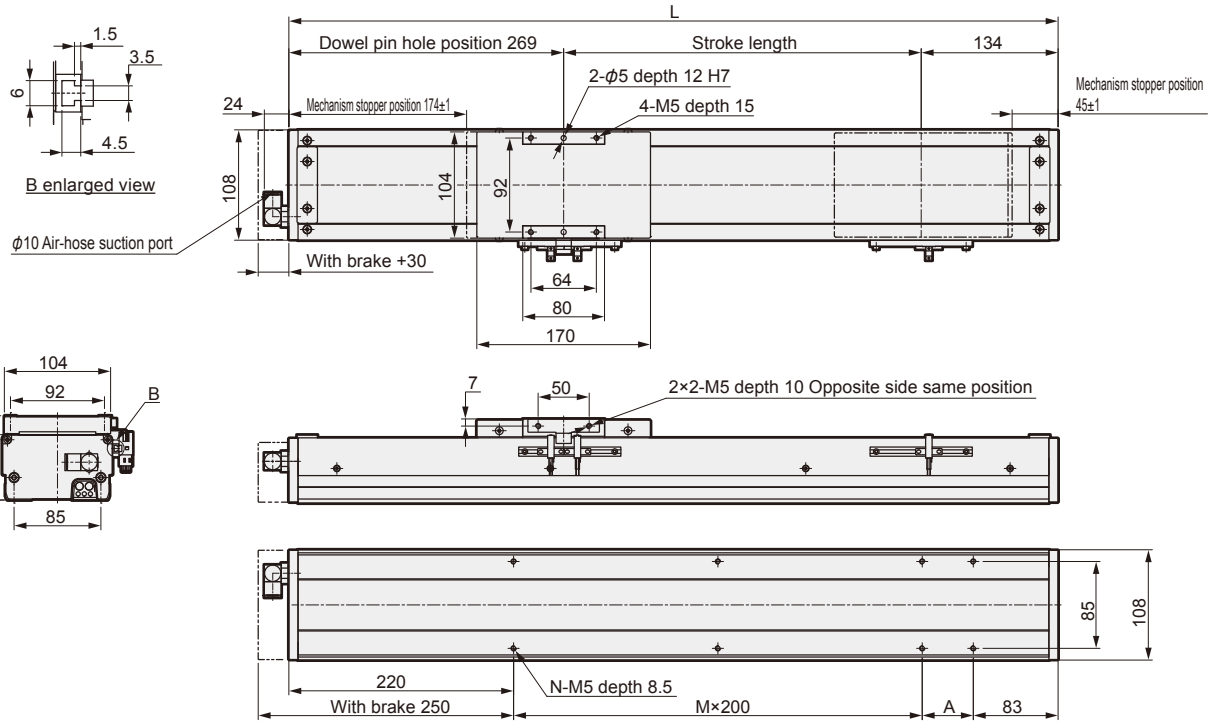


Note: Refer to page 18 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062	1112	1162	1212	1262	1312	1362
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	6.9	7.3	7.7	8.2	8.6	9.0	9.4	9.9	10.3	10.7	11.1	11.6	12.0	12.4	12.8	13.3	13.7	14.1	14.5	15.0

## Dimensions (ECS-12)

### • ECS-12-\*\*-B (Motor installation: Built-in)

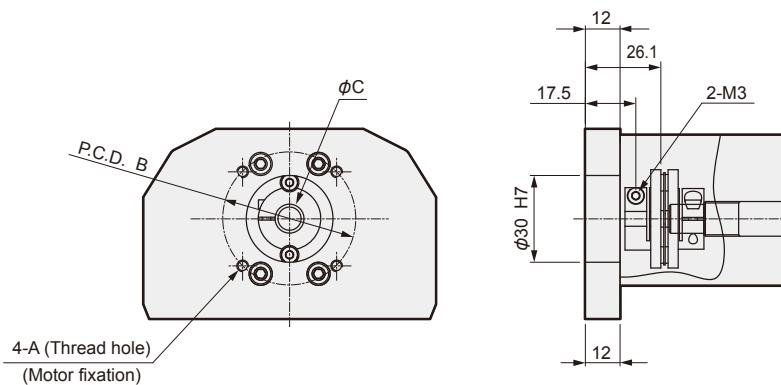


Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	503	553	603	653	703	753	803	853	903	953	1003	1053	1103	1153	1203	1253	1303	1353	1403	1453
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Weight (kg)	6.0	6.4	6.9	7.3	7.7	8.1	8.5	8.9	9.3	9.7	10.2	10.6	11.0	11.4	11.8	12.2	12.6	13.0	13.5	13.9

Note1: Refer to page 18 for motor installation part dimensions.

## Motor installation Dimensions

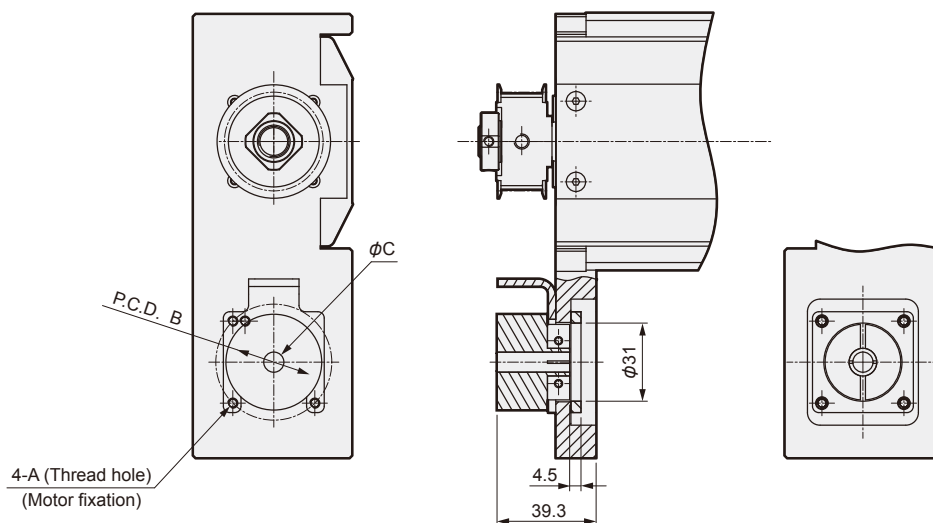
### • ECS-12-E



ECS-12-E					
Installation motor specifications		A	B	C	Motor screw
M 100W		M4	φ46	φ8	4-M4×L16
Y 100W		M4	φ46	φ8	4-M4×L16
P 100W		M3	φ45	φ8	4-M3×L16

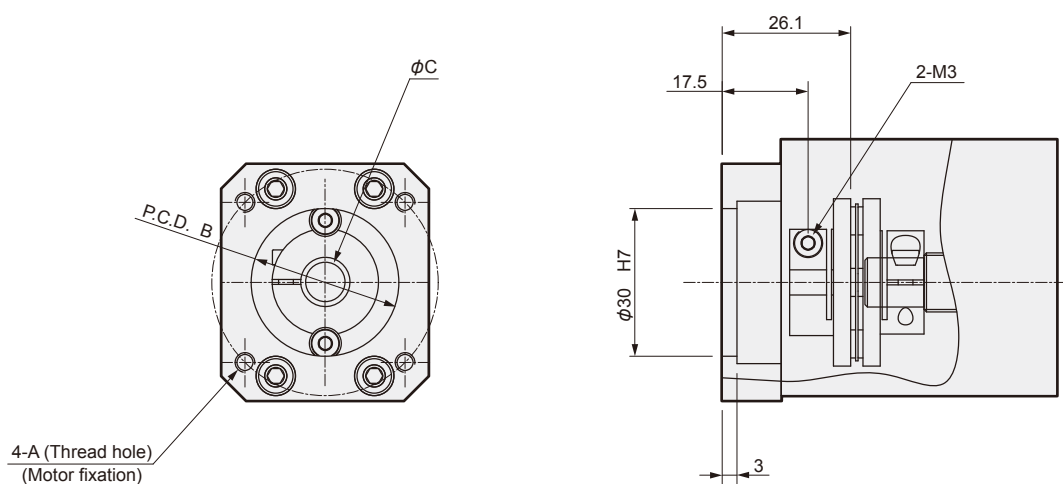
## Motor installation Dimensions

### • ECS-12-L/R/D



ECS-12-L/R/D					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	ϕ46	ϕ8	4-M4×L16
Y	100W	M4	ϕ46	ϕ8	4-M4×L16
P	100W	M3	ϕ45	ϕ8	4-M3×L16

### • ECS-12-B

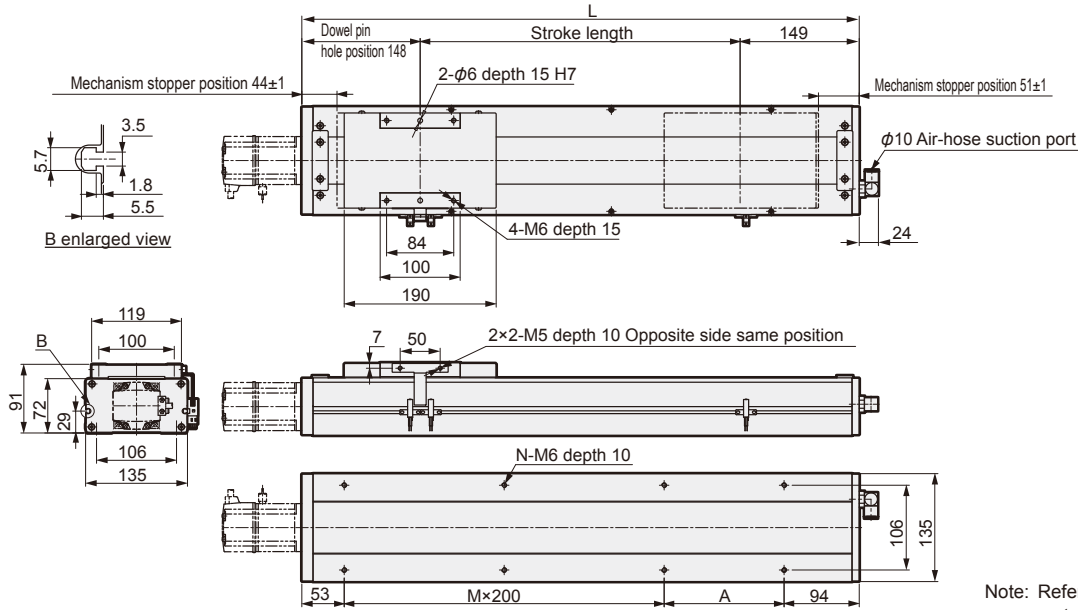


ECS-12-B					
Installation motor specifications		A	B	C	Motor screw
M	100W	M4	ϕ46	ϕ8	4-M4×L16
Y	100W	M4	ϕ46	ϕ8	4-M4×L16
P	100W	M3	ϕ45	ϕ8	4-M3×L16



## Dimensions (ECS-14)

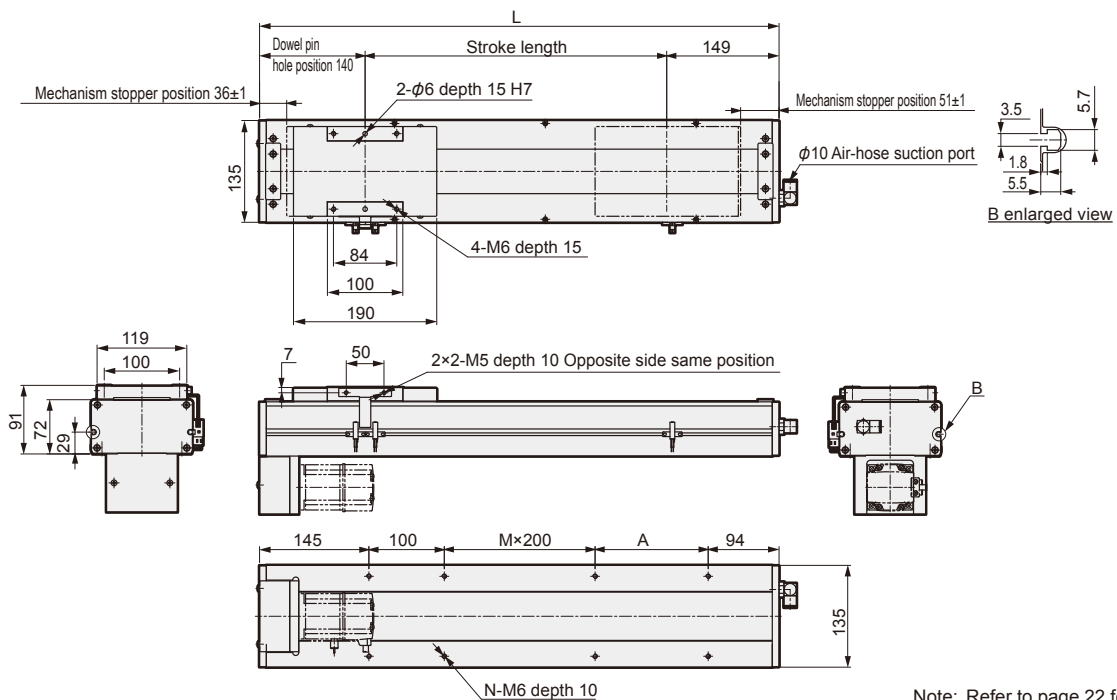
### • ECS-14-\*\*-E (Motor installation: External direct installation)



Note: Refer to page 21 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297	1347
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Weight (kg)	11.1	11.7	12.3	12.9	13.5	14.1	14.7	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.5	20.1	20.7	21.3	21.9	22.5

### • ECS-14-\*\*-D (Motor installation: Below turn-up)

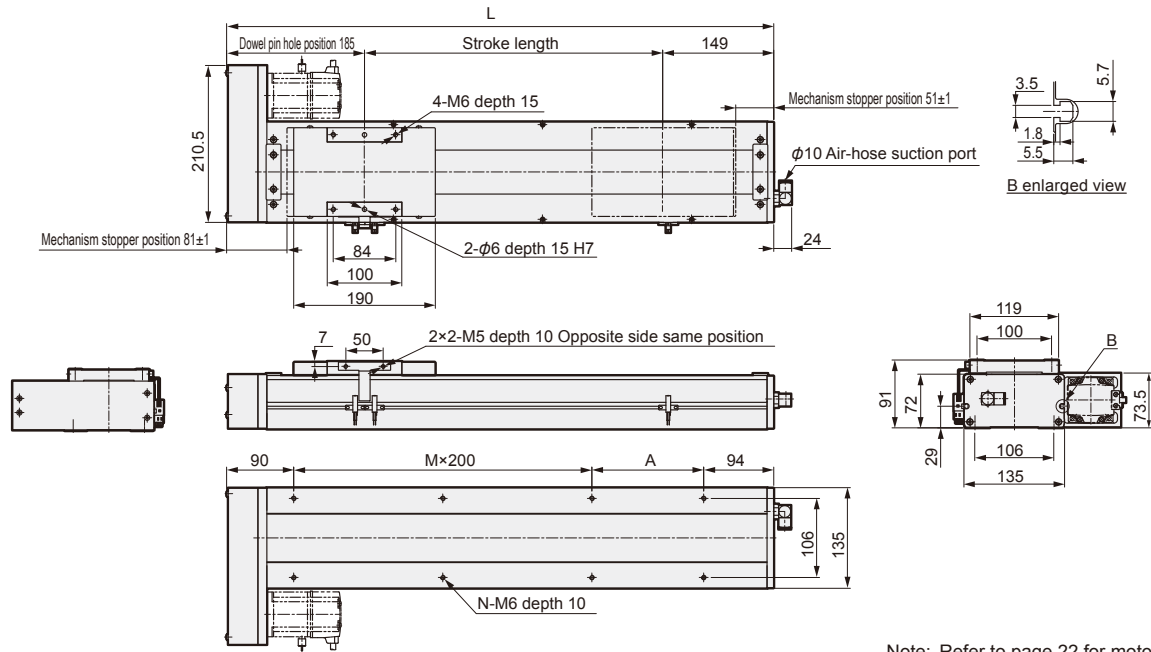


Note: Refer to page 22 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	389	439	489	539	589	639	689	739	789	839	889	939	989	1039	1089	1139	1189	1239	1289	1339
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Weight (kg)	11.6	12.2	12.8	13.4	14.0	14.7	15.3	15.9	16.5	17.1	17.8	18.4	19.0	19.6	20.2	20.9	21.5	22.1	22.7	23.3

Dimensions (ECS-14)

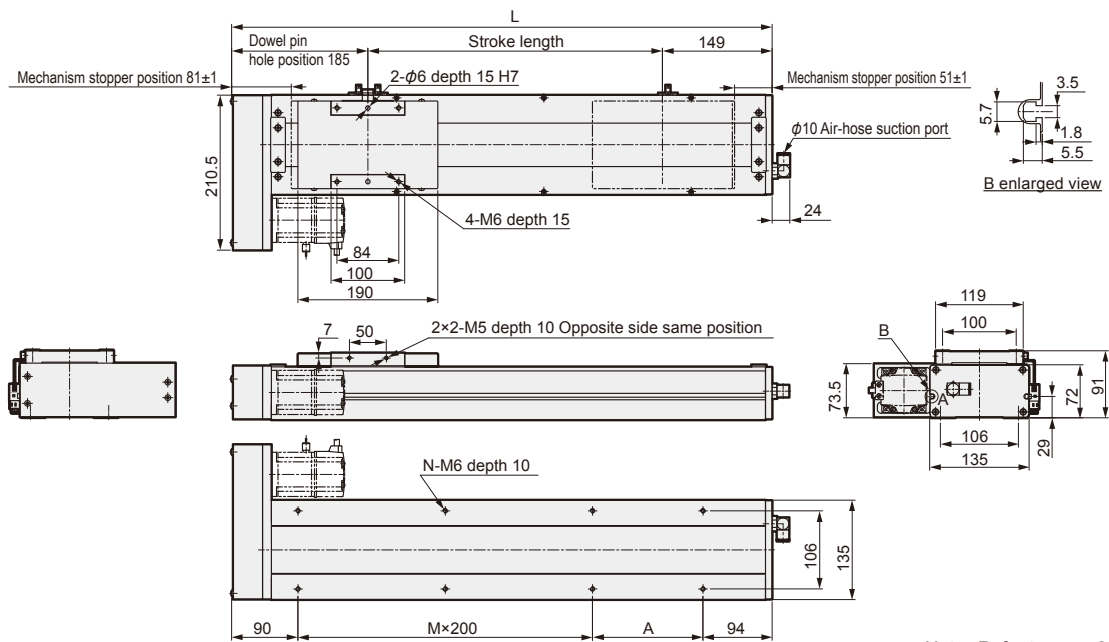
• ECS-14-\*\*-R (Motor installation: Right turn-up)



Note: Refer to page 22 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Weight (kg)	11.6	12.2	12.8	13.4	14.0	14.7	15.3	15.9	16.5	17.1	17.8	18.4	19.0	19.6	20.2	20.9	21.5	22.1	22.7	23.3

• ECS-14-\*\*-L (Motor installation: Left turn up installation)

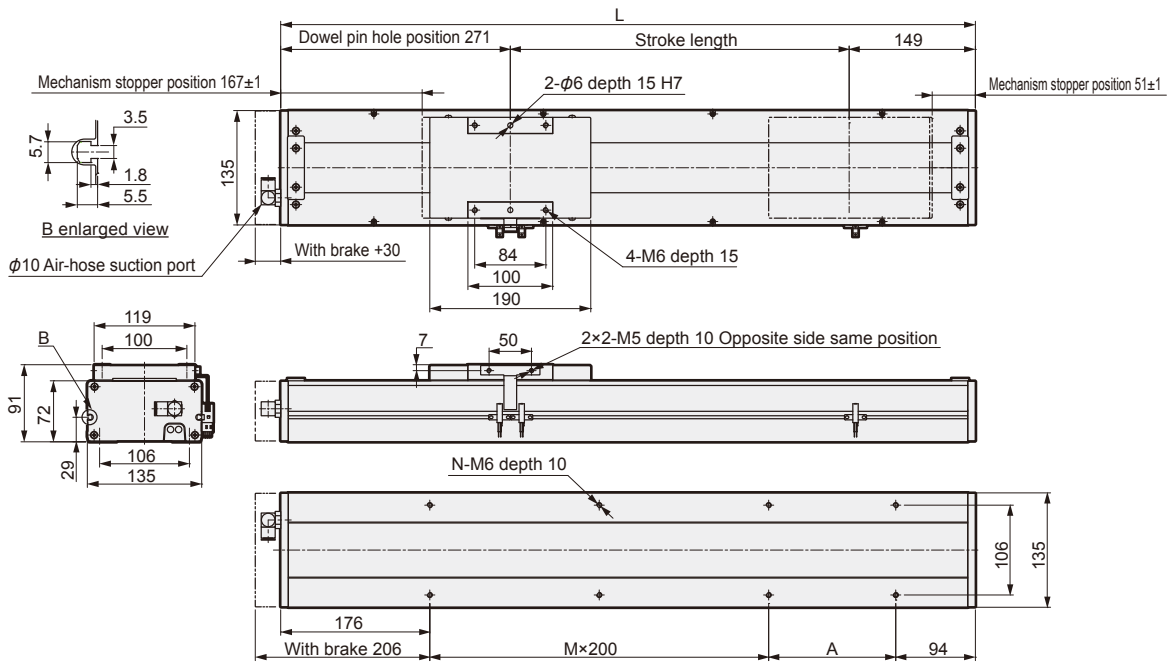


Note: Refer to page 22 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Weight (kg)	11.6	12.2	12.8	13.4	14.0	14.7	15.3	15.9	16.5	17.1	17.8	18.4	19.0	19.6	20.2	20.9	21.5	22.1	22.7	23.3

## Dimensions (ECS-14)

### • ECS-14-\*\*-B (Motor installation: Built-in)

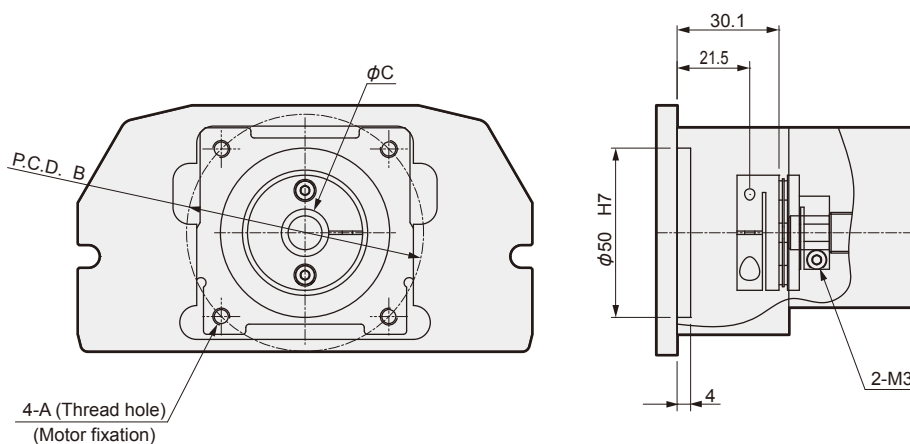


Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Weight (kg)	12.1	12.7	13.3	13.9	14.5	15.1	15.7	16.3	16.9	17.5	18.1	18.7	19.3	19.9	20.5	21.1	21.7	22.3	22.9	23.5

Note1: Refer to page 26 for motor installation part dimensions.

## Motor installation Dimensions

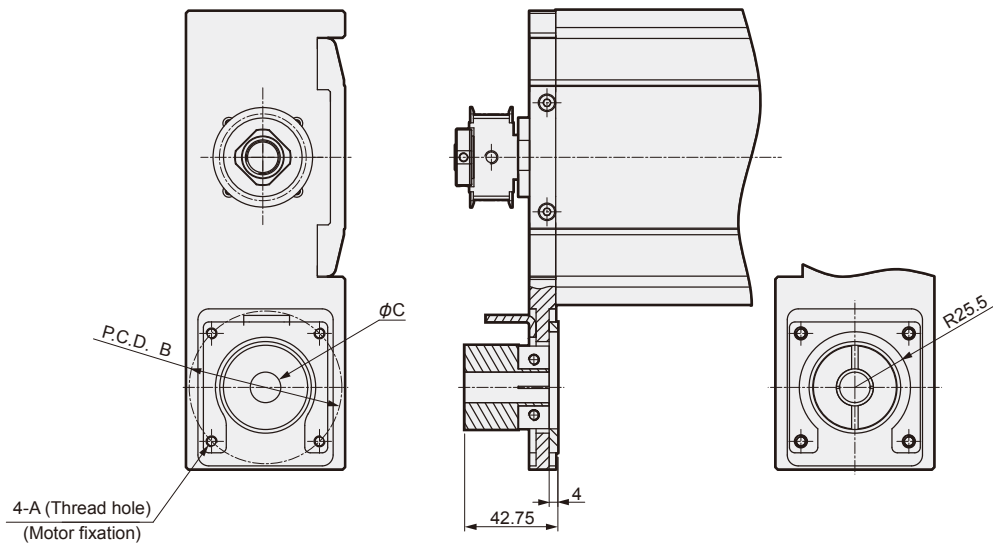
### • ECS-14-E



ECS-14-E				
Installation motor specifications	A	B	C	Motor screw
M 200W/400W	M5	$\phi 70$	$\phi 14$	4-M5×L18
Y 200W/400W	M5	$\phi 70$	$\phi 14$	4-M5×L18
P 200W/400W	M4	$\phi 70$	$\phi 11$	4-M4×L18

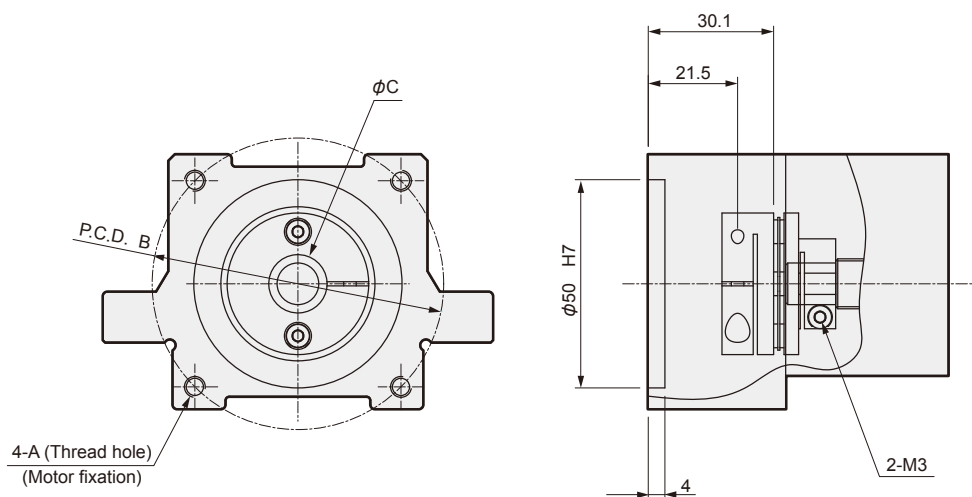
Motor installation Dimensions

• ECS-14-L/R/D



ECS-14-L/R/D				
Installation motor specifications	A	B	C	Motor screw
M 200W/400W	M5	φ 70	φ 14	4-M5×L18
Y 200W/400W	M5	φ 70	φ 14	4-M5×L18
P 200W/400W	M4	φ 70	φ 11	4-M4×L18

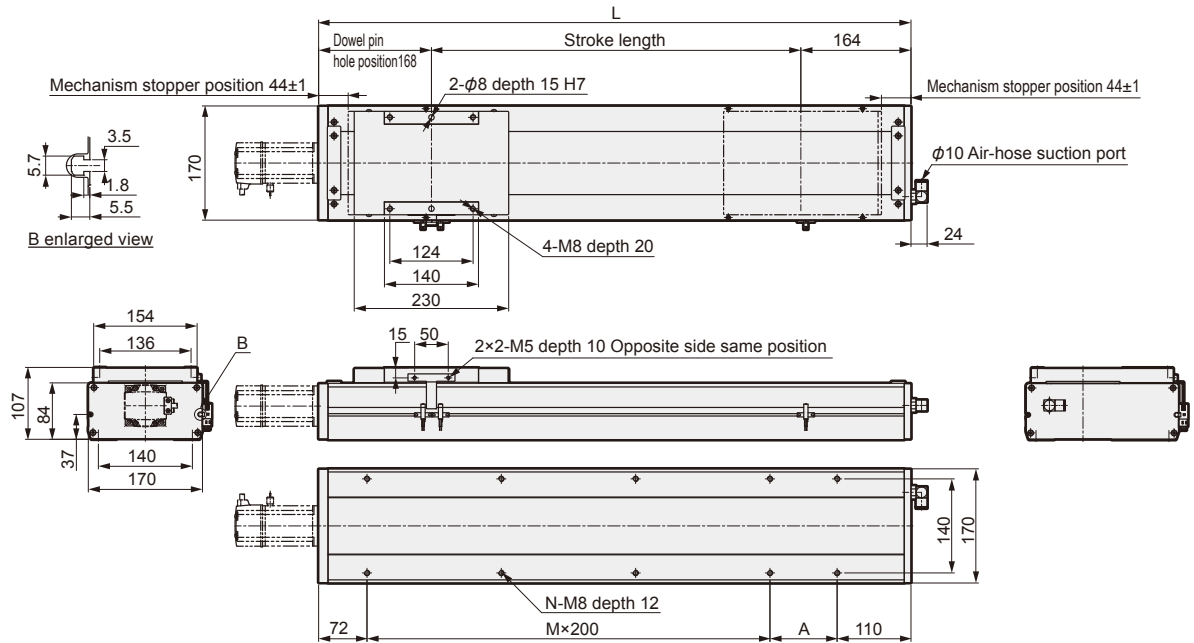
• ECS-14-B



ECS-14-B				
Installation motor specifications	A	B	C	Motor screw
M 200W/400W	M5	φ 70	φ 14	4-M5×L18
Y 200W/400W	M5	φ 70	φ 14	4-M5×L18
P 200W/400W	M4	φ 70	φ 11	4-M4×L18

## Dimensions (ECS-17)

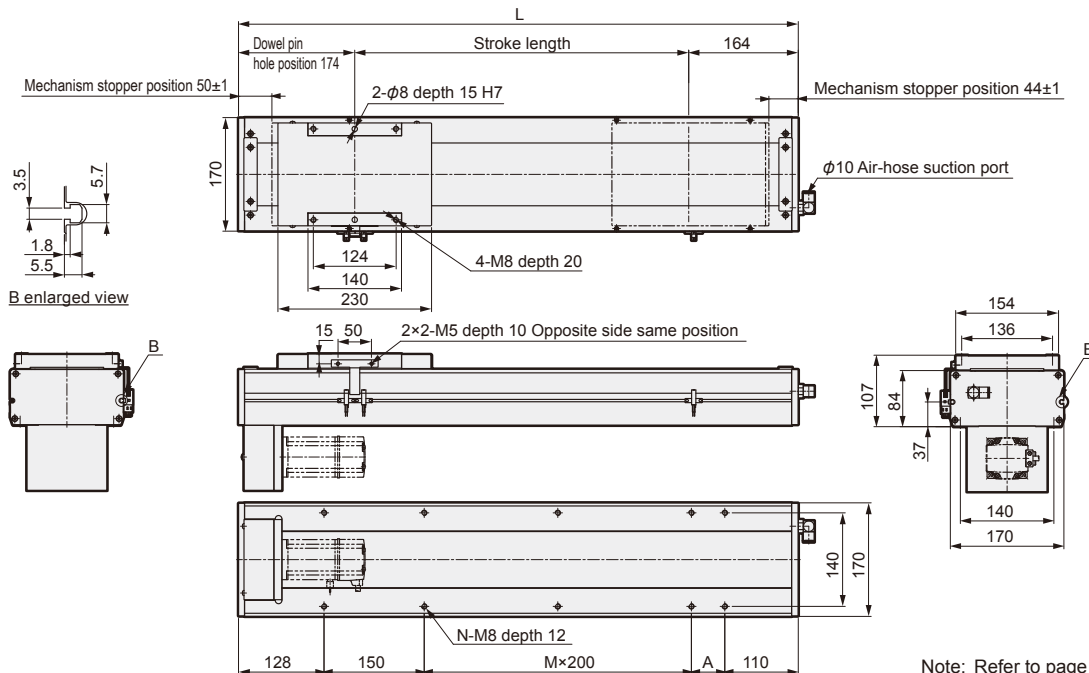
### • ECS-17-\*\*-E (Motor installation: External direct installation)



Note: Refer to page 25 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	432	482	532	582	632	682	732	782	832	882	932	982	1032	1082	1132	1182	1232	1282	1332	1382	1432	1482	1532	1582
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
Weight (kg)	12.7	13.4	14.2	15.0	15.8	16.6	17.3	18.1	18.9	19.7	20.5	21.2	22.0	22.8	23.6	24.4	25.1	25.9	26.7	27.5	28.3	29.0	29.8	30.6

### • ECS-17-\*\*-D (Motor installation: Below turn-up)

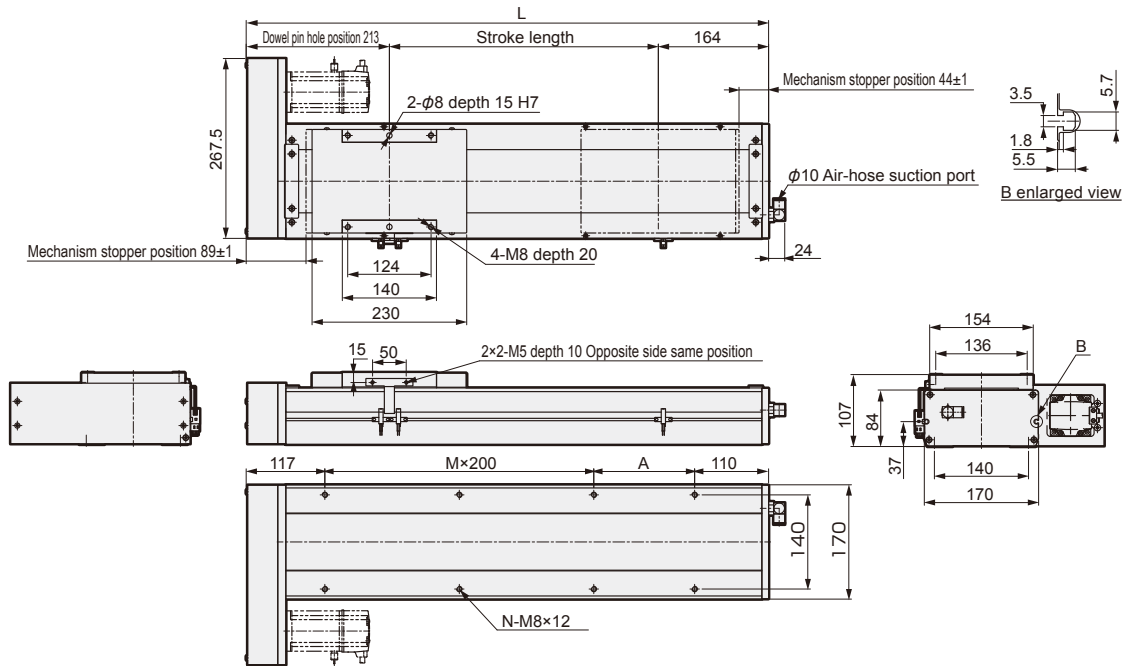


Note: Refer to page 26 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
Weight (kg)	13.4	14.2	15.0	15.8	16.6	17.4	18.1	18.9	19.7	20.5	21.3	22.1	22.9	23.6	24.4	25.2	26.0	26.8	27.6	28.4	29.1	29.9	30.7	31.5

## Dimensions (ECS-17)

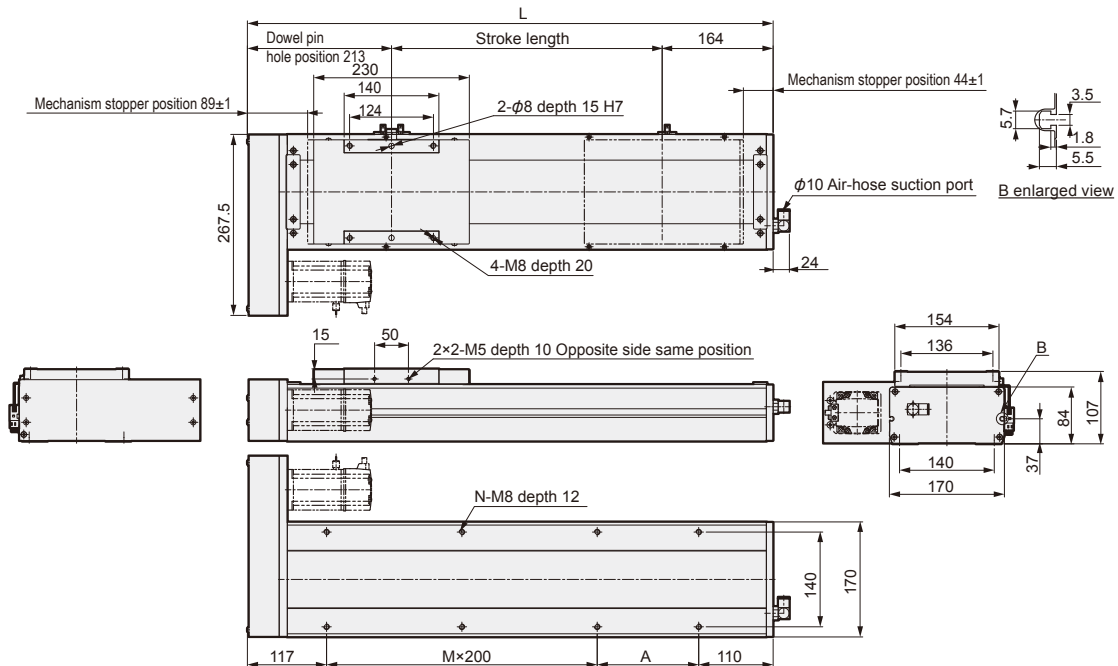
### • ECS-17-\*\*-R (Motor installation: Right turn-up)



Note: Refer to page 26 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
Weight (kg)	13.4	14.2	15.0	15.8	16.6	17.4	18.1	18.9	19.7	20.5	21.3	22.1	22.9	23.6	24.4	25.2	26.0	26.8	27.6	28.4	29.1	29.9	30.7	31.5

### • ECS-17-\*\*-L (Motor installation: Left turn up installation)



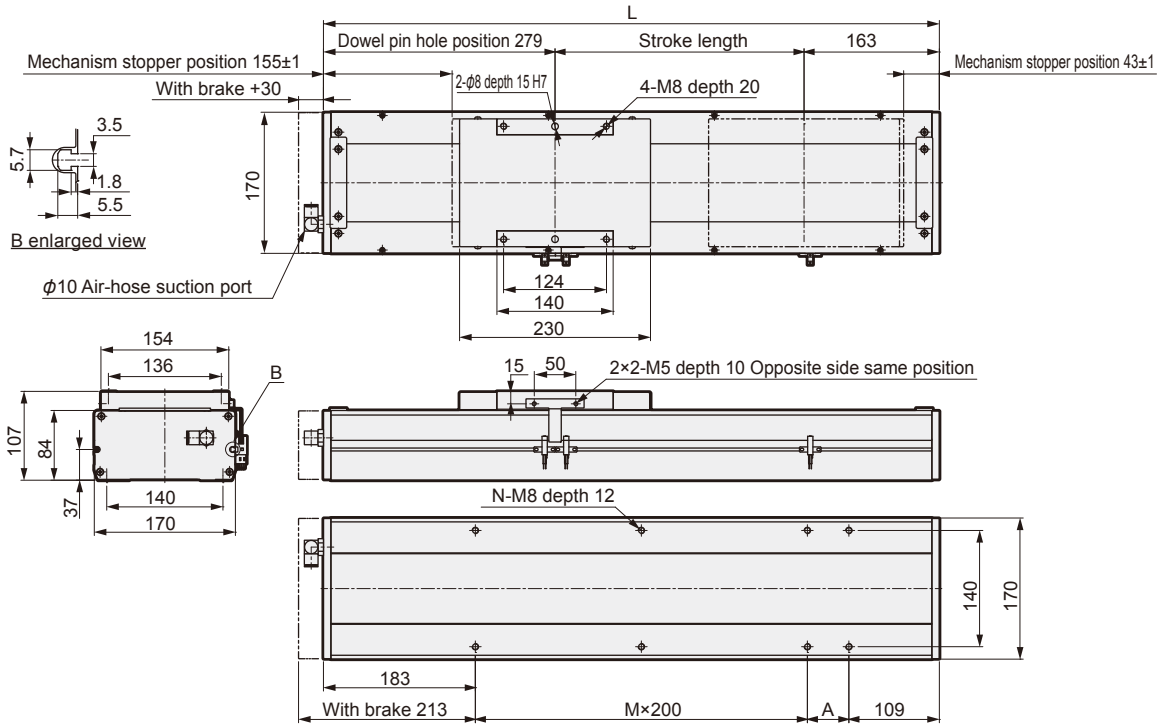
Note: Refer to page 26 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
Weight (kg)	13.4	14.2	15.0	15.8	16.6	17.4	18.1	18.9	19.7	20.5	21.3	22.1	22.9	23.6	24.4	25.2	26.0	26.8	27.6	28.4	29.1	29.9	30.7	31.5

## Dimensions (ECS-17)

● ECS-17-\*\*-B (Motor installation: Built-in)

\*750W type is not available for built-in.



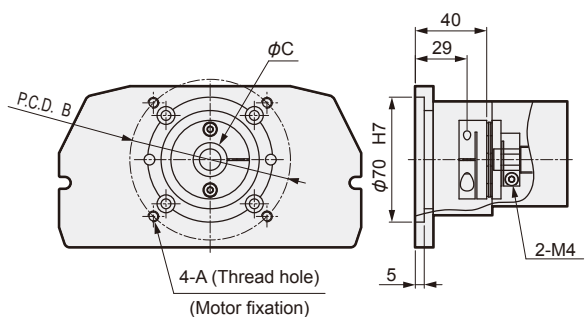
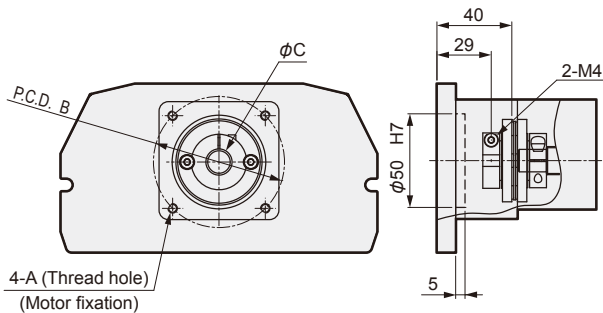
Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
L	542	592	642	692	742	792	842	892	942	992	1042	1092	1142	1192	1242	1292	1342	1392	1442	1492	1542	1592	1642	1692
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16
Weight (kg)	13.3	14.1	14.9	15.7	16.5	17.3	18.1	18.9	19.7	20.5	21.3	22.1	22.9	23.7	24.5	25.3	26.1	26.9	27.7	28.6	29.4	30.2	31.0	31.8

Note1: Refer to page 30 for motor installation part dimensions.

## Motor installation Dimensions

● ECS-17-400W-E

● ECS-17-750W-E



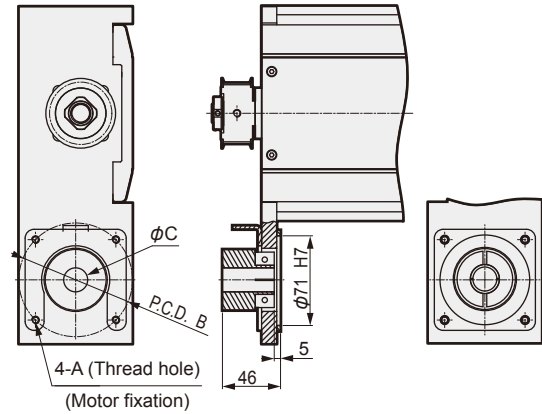
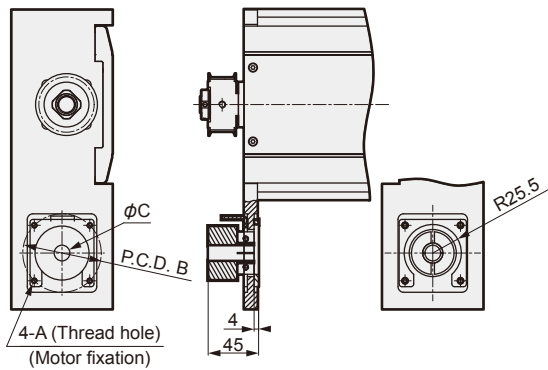
ECS-17-E				
Installation motor specifications	A	B	C	Motor screw
M 400W/750W	M5/M6	φ70/φ90	φ14/φ19	4-M5×L18/4-M6×L16
Y 400W/750W	M5/M6	φ70/φ90	φ14/φ19	4-M5×L18/4-M6×L16
P 400W/750W	M4/M5	φ70/φ90	φ14/φ19	4-M4×L18/4-M5×L16



## Motor installation Dimensions

● ECS-17-400W-L/R/D

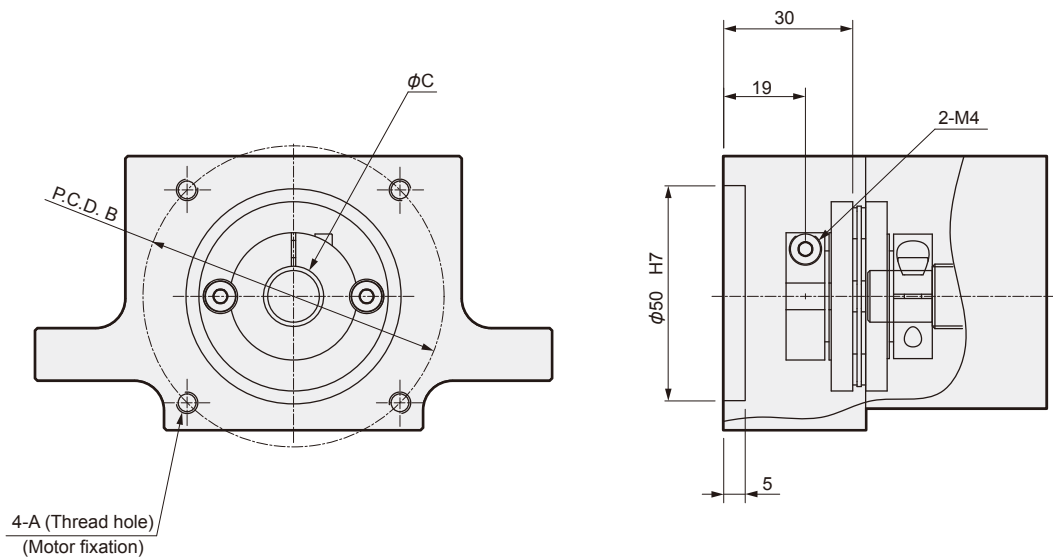
● ECS-17-750W-L/R/D



ECS-17-L/R/D					
Installation motor specifications		A	B	C	Motor screw
M	400W/700W	M5/M6	$\phi 70/\phi 90$	$\phi 14/\phi 19$	4-M5×L18/4-M6×L16
Y	400W/700W	M5/M6	$\phi 70/\phi 90$	$\phi 14/\phi 19$	4-M5×L18/4-M6×L16
P	400W/700W	M4/M5	$\phi 70/\phi 90$	$\phi 14/\phi 19$	4-M4×L18/4-M5×L16

● ECS-17-400W-B

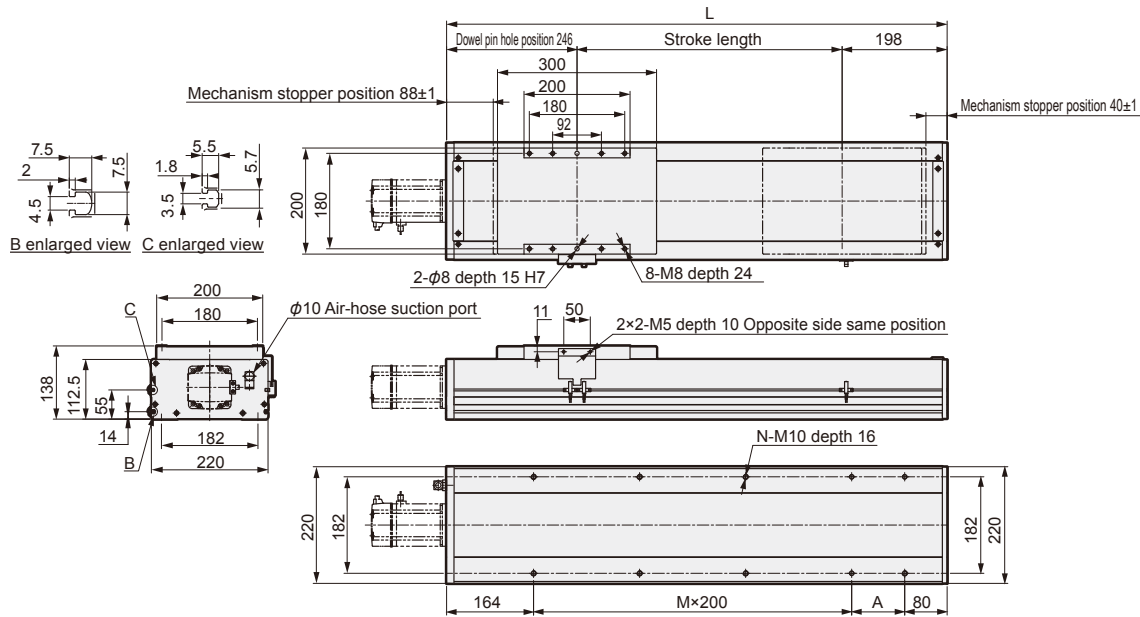
\*750W type is not available for built-in.



ECS-17-B					
Installation motor specifications		A	B	C	Motor screw
M	400W	M5	$\phi 70$	$\phi 14$	4-M5×L18
Y	400W	M5	$\phi 70$	$\phi 14$	4-M5×L18
P	400W	M4	$\phi 70$	$\phi 14$	4-M4×L18

## Dimensions (ECS-22)

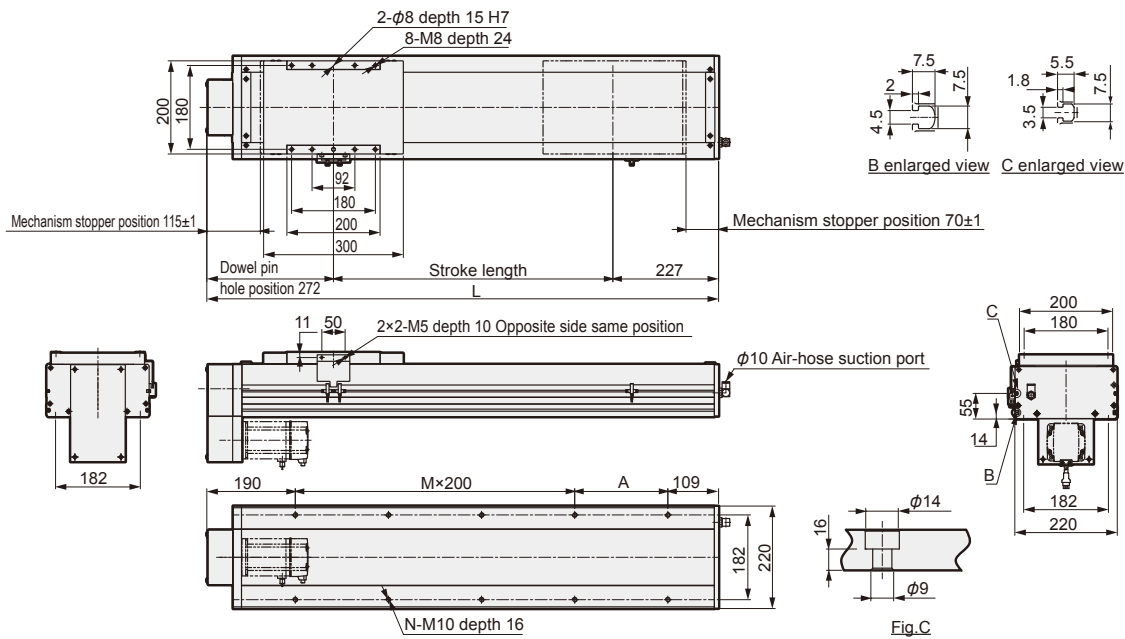
### • ECS-22-\*\*-E (Motor installation: External direct installation)



Note: Refer to page 29 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	544	594	644	694	744	794	844	894	944	994	1044	1094	1144	1194	1244	1294	1344	1394	1444	1494	1544	1594	1644	1694	1744	1794	1844	1894	1944
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
Weight (kg)	28.9	30.5	31.9	33.4	34.9	36.3	37.8	39.2	40.7	42.1	43.6	45.1	46.5	48.0	49.4	50.9	52.4	53.8	55.3	56.7	58.2	59.7	61.1	62.6	64.0	65.5	67.0	68.4	69.9

### • ECS-22-\*\*-D (Motor installation: Below turn-up)

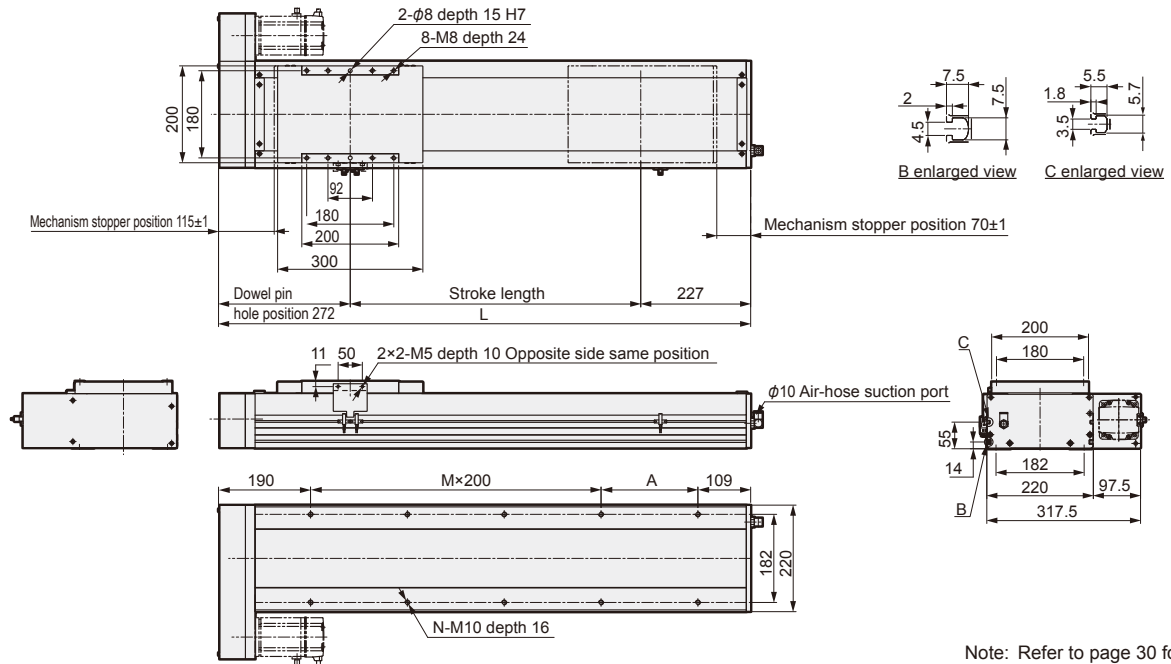


Note: Refer to page 30 for motor installation part dimensions.

Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1948	1999
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
Weight (kg)	30.1	31.6	33.0	34.5	35.9	37.4	38.9	40.3	41.8	43.2	44.7	46.2	47.6	49.1	50.5	52.0	53.5	54.9	56.4	57.8	59.3	60.8	62.2	63.7	65.1	66.6	68.1	69.5	71.0

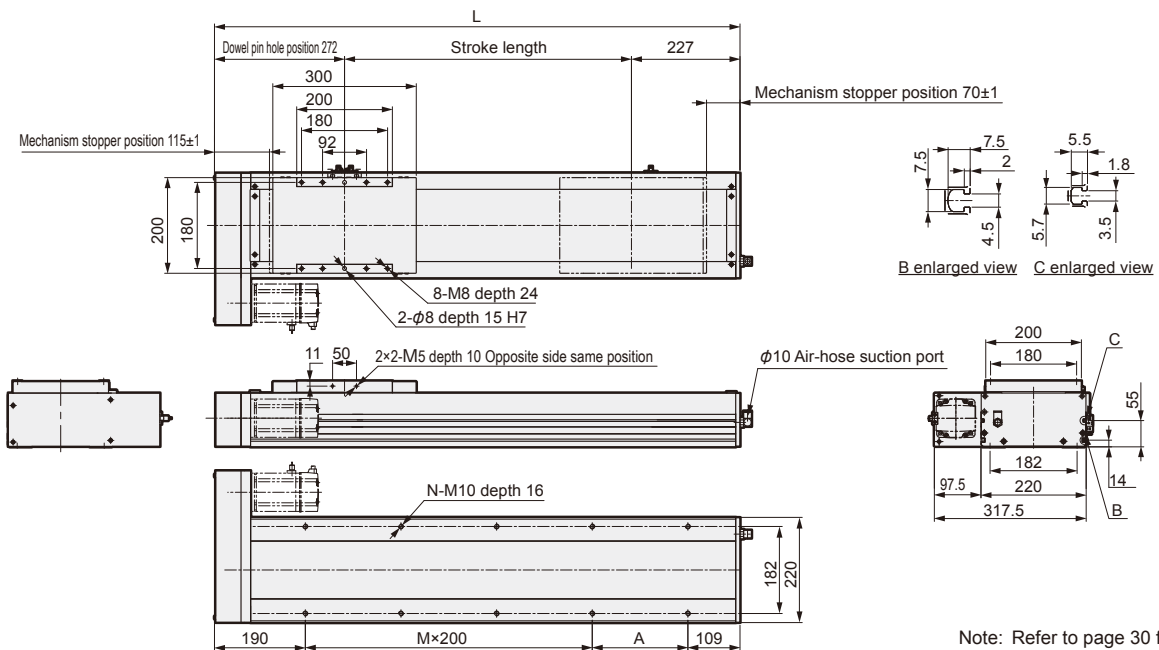
## Dimensions (ECS-22)

### • ECS-22-\*\*-R (Motor installation: Right turn-up)



Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
Weight (kg)	30.1	31.6	33.0	34.5	35.9	37.4	38.9	40.3	41.8	43.2	44.7	46.2	47.6	49.1	50.5	52.0	53.5	54.9	56.4	57.8	59.3	60.8	62.2	63.7	65.1	66.6	68.1	69.5	71.0

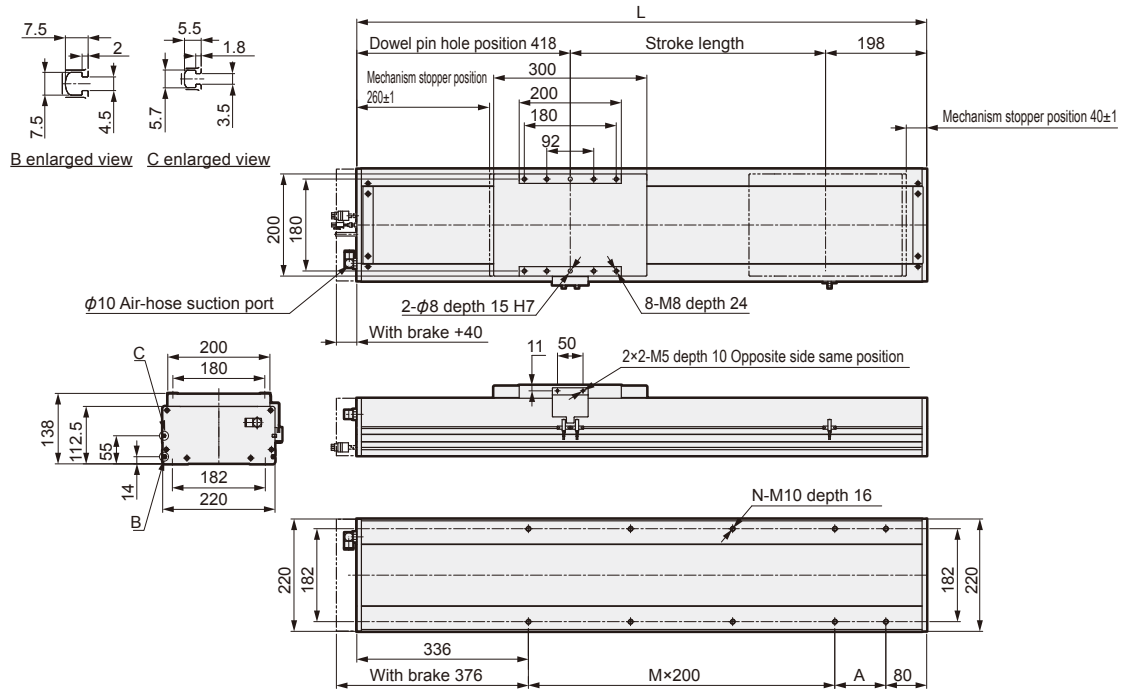
### • ECS-22-\*\*-L (Motor installation: Left turn up installation)



Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
Weight (kg)	30.1	31.6	33.0	34.5	35.9	37.4	38.9	40.3	41.8	43.2	44.7	46.2	47.6	49.1	50.5	52.0	53.5	54.9	56.4	57.8	59.3	60.8	62.2	63.7	65.1	66.6	68.1	69.5	71.0

## Dimensions (ECS-22)

### • ECS-22-\*\*-B (Motor installation: Built-in)

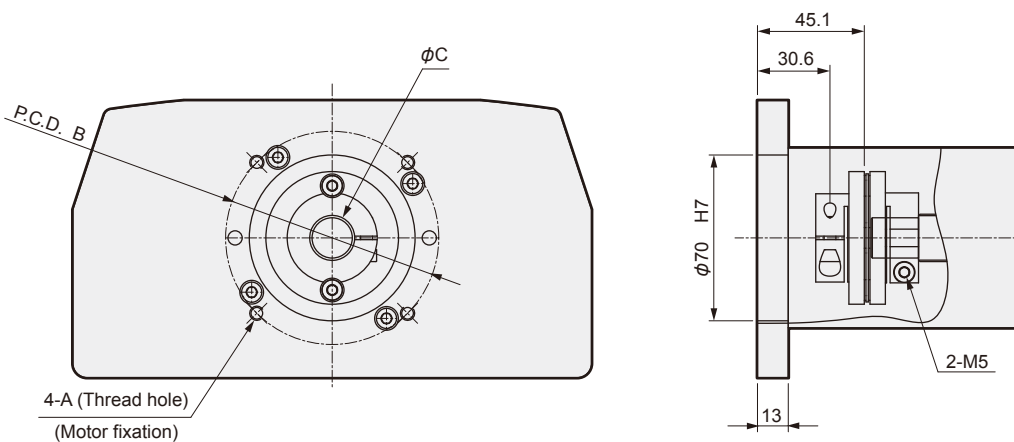


Stroke length (mm)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
L	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966	2016	2066	2116
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
N	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
Weight (kg)	31.3	32.7	34.2	35.7	37.1	38.6	40.1	41.6	43.0	44.5	46.0	47.4	48.9	50.4	51.8	53.3	54.8	56.3	57.7	59.2	60.7	62.1	63.6	65.1	66.5	68.0	69.5	71.0	72.4

Note1: Refer to page 34 for motor installation part dimensions.

## Motor installation Dimensions

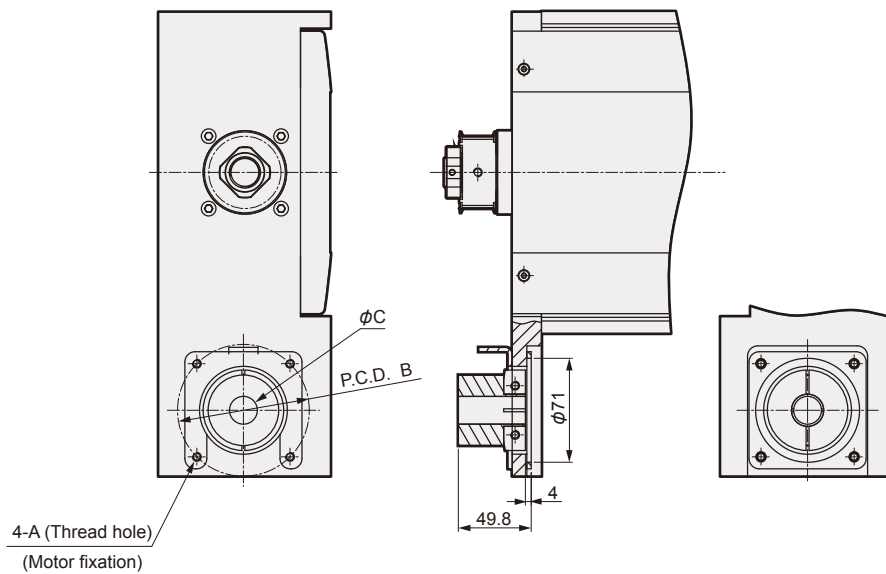
### • ECS-22-E



ECS-22-E					
Installation motor specifications		A	B	C	Motor screw
M	750W	M6	φ90	φ19	4-M6×L16
Y	750W	M6	φ90	φ19	4-M6×L16
P	750W	M5	φ90	φ19	4-M5×L16

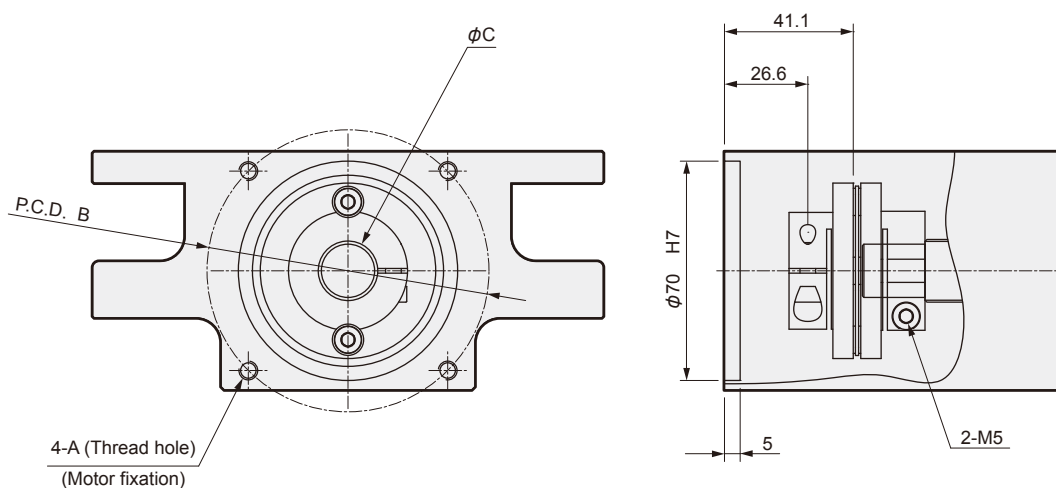
Motor installation Dimensions

• ECS-22-L/R/D



ECS-22-L/R/D					
Installation motor specifications		A	B	C	Motor screw
M	750W	M6	$\phi 90$	$\phi 19$	4-M6×L16
Y	750W	M6	$\phi 90$	$\phi 19$	4-M6×L16
P	750W	M5	$\phi 90$	$\phi 19$	4-M5×L16

• ECS-22-B



ECS-22-B					
Installation motor specifications		A	B	C	Motor screw
M	750W	M6	$\phi 90$	$\phi 19$	4-M6×L16
Y	750W	M6	$\phi 90$	$\phi 19$	4-M6×L16
P	750W	M5	$\phi 90$	$\phi 19$	4-M5×L16

## Selection guide

### STEP-1 Load capacity confirmation

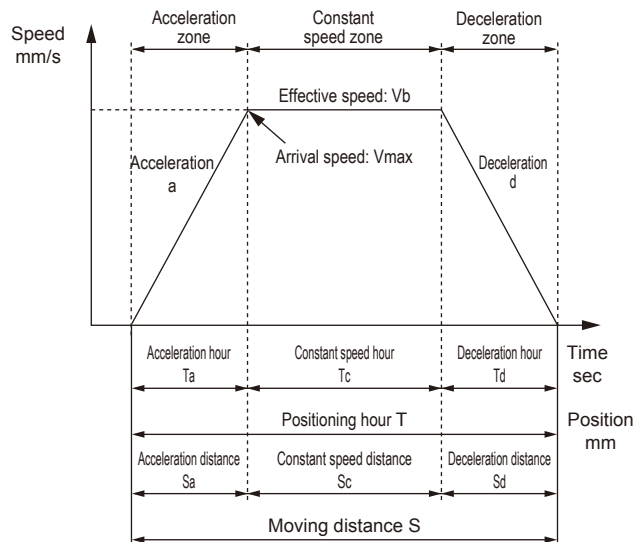
Load capacity changes according to mounting orientation and transferring speed.

Select size and screw lead referring selection table (Intro 1 and 2) and specification table (page 1 and 2) of each models.

### STEP-2 Tact time confirmation

Confirm that tact time matches to required one by calculating the tact time according to the following example.

Select rotation speed and rotation acceleration and deceleration speed by specification tables of each models (page 1 and 2).



	Descriptions	Symbol	Unit	Remarks
Set value	Set speed	V	mm/s	
	Set acceleration	a	mm/s <sup>2</sup>	
	Set deceleration degree	d	mm/s <sup>2</sup>	
	Moving distance	S	mm	
Calculated value	Arrival speed	Vmax	mm/s	$= (2 \times a \times d \times S / (a + d))^{1/2}$
	Effective speed	Vb	mm/s	V and Vmax smaller one
	Acceleration hour	Ta	s	$= Vb/a < 0.2 \text{ sec or more} >$
	Deceleration hour	Td	s	$= Vb/d < 0.2 \text{ sec or more} >$
	Constant speed hour	Tc	s	$= Sc/Vb$
	Acceleration distance	Sa	mm	$= (a \times Ta^2)/2$
	Deceleration distance	Sd	mm	$= (d \times Td^2)/2$
	Constant speed distance	Sc	mm	$= S - (Sa + Sd)$
Positioning hour	T	s	$= Ta + Tc + Td$	

- Do not exceed speed in the specifications.
- Setting of acceleration and deceleration by acceleration time and deceleration time changes depending on the set speed and the stroke length.
- The velocity curve may not be available (unreachable to set speed) depending on acceleration speed and the stroke length. Compare Vmax with set speed.
- Acceleration and deceleration time should be over 0.4 sec.

### STEP-3 Allowable moment confirmation

Confirm that actual moment is less than allowable moment and overhang amount.

#### Allowable moment confirmation when operating

Confirm that actual moment is less than allowable moment. (satisfying the following formula)

$$M_T = \frac{W}{W_{max}} + \frac{MR}{MR_{max}} + \frac{MP}{MP_{max}} + \frac{MY}{MY_{max}} < 1$$

$M_T$ : composition of moment (must be less than 1)

W: vertical load

MR: rolling moment

MP: pitching moment

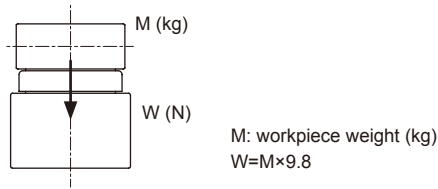
MY: yawing moment

$W_{max}$ : Allowable load

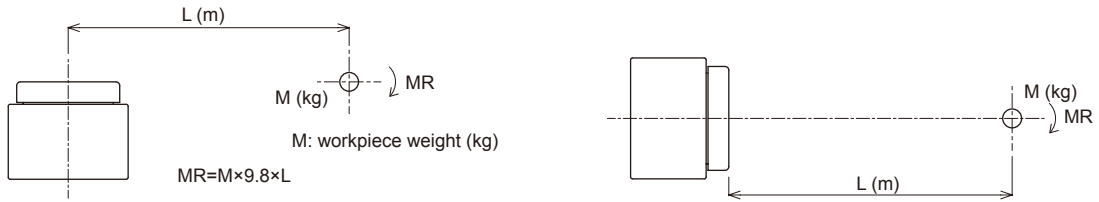
MR (max) , MP (max) , MY (max) : Refer to page 33 to 36 for dynamic allowable moment.

Please set the "L" on page 32 below the allowable overhang amount A, B and C on page 33 to 36.

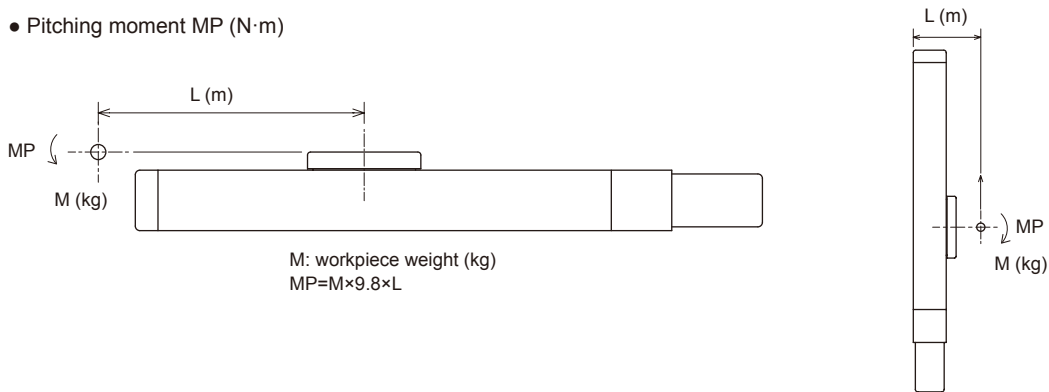
• Vertical load W (N)



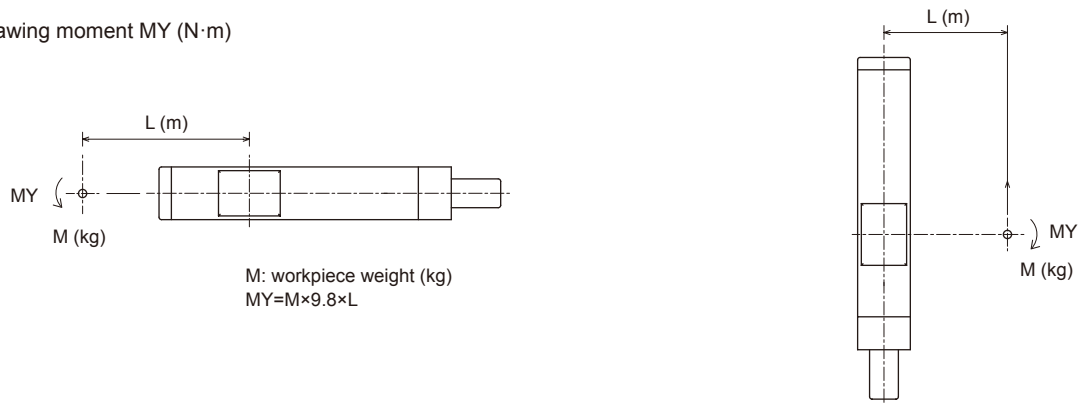
• Rolling moment (N·m)



• Pitching moment MP (N·m)



• Yawing moment MY (N·m)

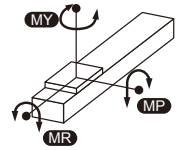




[Dynamic allowable moment and overhang amount] Applicable motor size: 100W

[Dynamic load capacity and allowable moment]

	Dynamic allowable load		Dynamic allowable moment		
	W (max) (N)	MR (max) (N·m)	MP (max) (N·m)	MY (max) (N·m)	
ECS-05	551	6.8	2.8	2.8	
ECS-06	1209	24.8	8.9	8.9	
ECS-10	2651	24.8	24.1	24.1	
ECS-12	1660	53.1	42.3	42.3	



[Overhang amount]

ECS-05

Mounting orientation	Lead	Load kg	Overhang mm		
			A	B	C
Horizontal 	2	5	750	45	105
		10	350	20	47
	5	4	480	45	105
		7	300	25	55
	10	3	300	55	110
		5	180	30	65
Side surface 	2	5	105	45	750
		10	47	20	350
	5	4	100	45	450
		7	55	23	240
	10	3	110	55	400
		5	60	30	230
Vertical 	2	3	80	-	80
		7	35	-	35
	5	3	65	-	65
		10	1.5	120	-

ECS-10

Mounting orientation	Lead	Load kg	Overhang mm			
			A	B	C	
Horizontal 	5	30	560	50	50	
		50	310	27	27	
	10	15	440	90	90	
		25	250	50	50	
	16	30	200	40	40	
		5	950	270	230	
	20	10	480	130	110	
		22	200	55	45	
	Side surface 	5	10	160	160	1400
			20	75	75	650
		10	30	45	45	400
			10	130	140	690
16		20	60	65	330	
		30	40	40	210	
20		5	230	250	750	
		10	110	120	370	
Vertical 		5	5	310	-	310
			10	155	-	155
		10	12	130	-	130
			4	360	-	360
	16	6	240	-	240	
		8	180	-	180	
	20	1	1050	-	1050	
		2	525	-	525	
	20	5	210	-	210	
		1	850	-	850	
		2	425	-	425	
		3	283	-	283	

ECS-06

Mounting orientation	Lead	Load kg	Overhang mm		
			A	B	C
Horizontal 	2	10	400	65	150
		30	150	15	40
	5	10	520	50	110
		30	130	10	25
	10	3	800	145	330
		8	280	50	120
Side surface 	2	15	110	42	400
		30	45	15	180
	5	5	240	95	1150
		10	115	50	540
	10	30	25	10	140
		3	320	150	700
10	8	110	50	250	
	15	50	25	120	
Vertical 	2	5	160	-	160
		15	53	-	53
	5	2	300	-	300
		4	150	-	150
	10	10	60	-	60
		1	410	-	410
10	2	205	-	205	
	5	82	-	82	

ECS-12

Mounting orientation	Lead	Load kg	Overhang mm			
			A	B	C	
Horizontal 	5	30	900	70	80	
		50	420	30	40	
	10	15	900	150	160	
		25	490	80	85	
	16	30	400	60	70	
		5	1700	430	450	
	20	10	800	200	220	
		22	330	80	85	
	Side surface 	5	10	330	270	2200
			20	145	120	1000
		10	30	90	70	600
			10	260	240	850
16		20	115	110	520	
		30	70	60	300	
20		5	450	450	1300	
		10	210	210	600	
Vertical 		5	5	600	-	600
			10	300	-	300
		10	12	250	-	250
			4	650	-	650
	16	6	430	-	430	
		8	320	-	320	
	20	1	1050	-	1050	
		2	525	-	525	
	20	5	210	-	210	
		-	-	-	-	
		3	650	-	700	

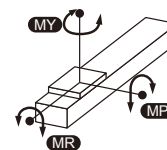
Note: When using with roof suspension, please select 1/3 for allowable weight, allowable dynamic moment, and an overhang amount.

For overhang amount to the load center of gravity, please use the overhang amount within each A, B, C orientation.

[Dynamic allowable moment and overhang amount] Applicable motor size: 200W

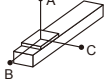
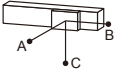

[Dynamic load capacity and allowable moment]

	Dynamic allowable load	Dynamic allowable moment		
	W (max) (N)	MR (max) (N·m)	MP (max) (N·m)	MY (max) (N·m)
ECS-14	6567	261.0	262.7	262.7



[Overhang amount]

ECS-14 (200W)

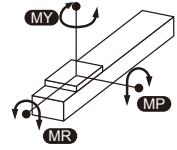
Mounting orientation	Lead	Load kg	Overhang mm		
			A	B	C
Horizontal 	5	60	2300	250	240
		80	1600	180	170
		95	1150	145	140
	10	30	2000	500	450
		50	1400	280	250
		75	1000	170	160
		10	2200	1200	1000
		20	1600	600	500
		44	800	260	220
	16	10	2300	1200	1000
		20	1400	600	500
		35	1000	330	290
Side surface 	5	60	240	250	1600
		80	170	180	1200
		95	140	145	1050
	10	30	420	460	1500
		50	240	250	1000
		75	150	160	700
	16	10	1050	1200	2650
		20	500	620	1450
		44	230	270	800
	20	10	1000	1200	1900
		20	500	600	1000
		35	270	300	600
Vertical 	5	20	755	-	755
		25	605	-	605
		27	560	-	560
	10	10	1350	-	1350
		15	900	-	900
		18	750	-	750
	16	2	2400	-	2400
		4	1700	-	1700
		7	1300	-	1300
	20	6	1700	-	1700
		-	-	-	-
		-	-	-	-

Note: When using with roof suspension, please select 1/3 for allowable weight, allowable dynamic moment, and an overhang amount.  
For overhang amount to the load center of gravity, please use the overhang amount within each A, B, C orientation.

[Dynamic allowable moment and overhang amount] Applicable motor size: 400W

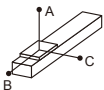
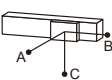
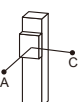
[Dynamic load capacity and allowable moment]

	Dynamic allowable load	Dynamic allowable moment		
	W (max) (N)	MR (max) (N·m)	MP (max) (N·m)	MY (max) (N·m)
ECS-14	6567	261.0	262.7	262.7
ECS-17	10102	520.3	424.3	424.3

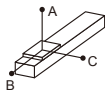
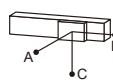
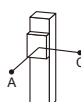


[Overhang amount]

ECS-14 (400W)

Mounting orientation	Lead	Load kg	Overhang mm		
			A	B	C
Horizontal 	5	60	2300	250	240
		80	1600	180	170
		110	1150	120	115
	10	30	2000	500	450
		50	1400	280	250
		88	700	140	125
	16	10	2200	1200	1000
		20	1600	600	500
		48	800	260	220
	20	10	2300	1200	1000
		20	1400	600	500
		40	600	280	230
Side surface 	5	60	240	250	1600
		80	170	180	1200
		110	115	120	1050
	10	30	420	460	1500
		50	240	250	1000
		88	120	130	700
	16	10	1050	1200	2650
		20	500	620	1450
		48	200	230	800
	20	10	1000	1200	1900
		20	500	600	1000
		40	230	290	600
Vertical 	5	20	755	-	755
		25	605	-	605
		33	455	-	455
	10	10	1350	-	1350
		15	900	-	900
		22	650	-	650
	16	2	2400	-	2400
		4	1700	-	1700
		10	1000	-	1000
	20	4	1800	-	1800
		6	1200	-	1200
		8	900	-	900

ECS-17 (400W)

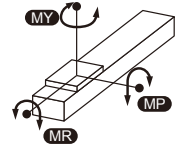
Mounting orientation	Lead	Load kg	Overhang mm		
			A	B	C
Horizontal 	5	60	2950	400	475
		100	2000	220	265
		110	1850	200	240
	10	60	1600	350	400
		75	1350	270	320
		90	1050	220	230
	20	30	1850	650	650
		50	1100	380	380
		75	700	240	240
	40	10	1700	1150	900
		20	850	550	430
		35	450	300	240
Side surface 	5	60	500	420	2450
		100	280	240	1600
		110	250	215	1400
	10	60	420	380	1950
		75	330	300	1500
		90	270	240	1200
	20	30	650	650	1600
		50	375	380	900
		75	245	240	600
	40	10	900	1100	1750
		20	450	550	850
		35	240	300	470
Vertical 	5	20	1400	-	1400
		30	950	-	950
		40	700	-	700
	10	15	1700	-	1700
		25	1000	-	1000
		30	850	-	850
	20	5	2000	-	2000
		10	1800	-	1800
		14	1400	-	1400
	40	7	650	-	650
		-	-	-	-
		-	-	-	-

Note: When using with roof suspension, please select 1/3 for allowable weight, allowable dynamic moment, and an overhang amount.  
For overhang amount to the load center of gravity, please use the overhang amount within each A, B, C orientation.

[Dynamic allowable moment and overhang amount] Applicable motor size: 750W

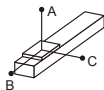
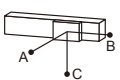
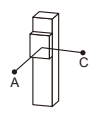
[Dynamic load capacity and allowable moment]

	Dynamic allowable load	Dynamic allowable moment		
	W (max) (N)	MR (max) (N·m)	MP (max) (N·m)	MY (max) (N·m)
ECS-17	10102	520.3	424.3	424.3
ECS-22	14174	999.3	1098.5	1098.5

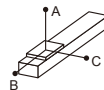
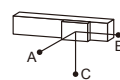
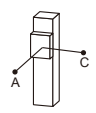


[Allowable overhang amount]

ECS-17 (750W)

Mounting orientation	Lead	Load kg	Overhang mm		
			A	B	C
Horizontal 	5	60	3300	410	470
		100	2000	230	260
		120	1700	180	210
	10	60	2300	400	440
		75	1850	310	350
		95	1450	230	270
	20	30	2000	650	620
		50	1150	370	370
		83	650	210	210
	40	10	1650	1150	850
		20	530	350	270
		50	300	190	150
Side surface 	5	60	500	430	2700
		100	280	240	1650
		120	230	200	1350
	10	60	420	380	2300
		75	330	300	1800
		95	250	230	1400
	20	30	640	650	1700
		50	370	380	1000
		83	210	210	560
	40	10	900	1150	1700
		20	280	350	550
		50	160	195	310
Vertical 	5	20	1500	-	1500
		30	1000	-	1000
		50	600	-	600
	10	15	1700	-	1700
		25	1000	-	1000
		40	620	-	620
	20	5	2200	-	2200
		10	1900	-	1900
		25	730	-	730
	40	12	700	-	700
		-	-	-	-
		-	-	-	-

ECS-22

Mounting orientation	Lead	Load kg	Overhang mm		
			A	B	C
Horizontal 	5	60	3600	650	650
		100	2800	350	340
		150	2300	260	230
	10	60	2850	960	810
		100	2000	570	460
		150	1450	340	310
	25	50	2000	850	610
		80	1200	500	360
		120	770	300	220
	40	10	4200	2850	1850
		30	1400	900	600
		60	650	420	270
Side surface 	5	60	940	1100	3850
		100	540	620	2450
		150	340	400	2150
	10	60	800	980	3700
		100	460	540	2200
		150	280	350	1450
	25	50	600	790	1950
		80	360	480	1200
		120	220	290	750
	40	10	1950	2900	3500
		30	620	950	1400
		60	290	430	650
Vertical 	5	30	2400	-	2400
		50	1450	-	1450
		70	1050	-	1050
	10	20	3000	-	3000
		30	2000	-	2000
		45	1350	-	1350
	25	15	2600	-	2600
		20	1950	-	1950
		25	1550	-	1550
	40	5	2600	-	2600
		10	1950	-	1950
		-	-	-	-

Note: When using with roof suspension, please select 1/3 for allowable weight, allowable dynamic moment, and an overhang amount.  
For overhang amount to the load center of gravity, please use the overhang amount within each A, B, C orientation.

## Summary of attachments

### Basic type

Motor mounting screw (Common motor installation direction)

Model no.	Installation motor	Motor size	Thread size	Number of attachments
ECS-05	M	100W	M4	2
ECS-06	Y		M4	2
ECS-10	P		M3	4
ECS-12				
ECS-14	M	200W 400W	M5	4
	Y		M5	4
	P		M4	4
ECS-17	M	400W	M5	4
	Y		M5	4
	P		M4	4
	M	750W	M6	4
	Y		M6	4
	P		M5	4
ECS-22	M	750W	M6	4
	Y		M6	4
	P		M5	4

### Motor installation direction discrepancy

Model no.	Attachment names	Number of attachments
E (External direct installation) B (Built-in)	Coupling (Assembled shipping)	1 pc.
R (Right turn up) L (Left turn up installation)	Pulley	1 pc.
D (Below turn up)	Belt	1 programs

### When home position / limit sensor selected\*1

Sensor installation direction	Shipping format	Quantity
Inside sensor	Fixed position assembled shipping	3 pcs.*2
Outside sensor	Attached to ship*3	

\*1 Because home position sensor and limit sensors are mounted internally / externally, the configuration on delivery differs.

\*2 When "Nil" is selected for one of the home sensor or the limit sensor, the other will also be "Nil". If "Nil" is selected, the center dog will also be "Nil".

\*3 Sensor installation thread included.

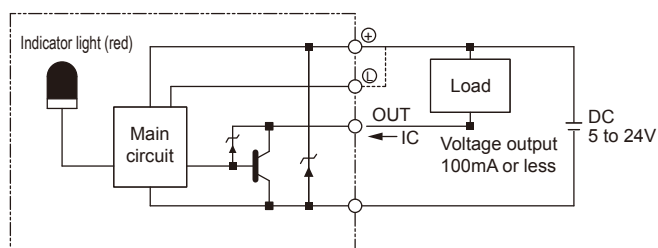
## Home position sensor, Limit sensor

	Manufacturer	Type
Outside installation sensor	OMRON	EE-SX672
Inside installation sensor	OMRON	EE-SX674

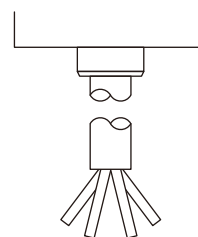
### Performance

Descriptions	Specifications
Hysteresis	0.025mm or less
Light source (peak emission wavelength)	GaAs infrared LED (940nm)
Indicator light	Lighting when light on (red)
Power voltage	5 to 24 VDC $\pm$ 10% ripple(p-p) less than 10%
Current consumption	35mA or less (NPN type)
Control output	NPN type: NPN open collector Output 5 to 24 VDC less than 100mA Current less than 0.5mA when off residual voltage less than 0.8V (When load current 100mA) residual voltage less than 0.4V (When load current 40mA)
Ambient illuminance	Acceptance surface luminance fluorescent: less than 1,000lx
Ambient temperature	When Operation: -25 to +55°C Storage: -30 to +80°C (No freezing)
Ambient humidity	When Operation: 5 to 85%RH Storage: 5 to 95%RH (No freezing)
Degree of protection	IP50 IEC60529 standards
Code length	1m (connector with code (EE-1010 1M) )

### Output circuit



### Wiring diagram



### Terminal arrangement

Brown	DC5V to 24V
Pink	L
Blue	0V
Black	OUTPUT



# Safety precautions

Be sure to read the instructions before use

When designing and manufacturing devices using electric actuator, the manufacturer has an obligation to manufacture a safe device, and to check that the safety of the device's mechanical mechanism and the system operated by the electrical control that controls the device is secured.

Product selection, its usage and handling, as well as adequate maintenance management are important in order to safely use CKD products.

Observe warnings and precautions to ensure device safety.

In addition, use without shock applying to the moving part. Check that device safety is ensured, and manufacture a safe device.

## WARNING

- 1** This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience in handling.
- 2** Use within the product's specification range.

This product must be used within its stated specifications. Do not attempt to modify or additionally machine the product.

This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.  
(If you consult CKD upon adoption and consent to CKD product specification, it will be applicable, however, safeguards should be adopted that will circumvent dangers in the event of failure.)

  - 1** Use for special applications including nuclear energy, railway, aircraft, marine vessel, vehicle, medical equipment, equipment or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits or for safeguard.
  - 2** Use for applications where life or assets could be adversely affected, and special safety measures are required.
- 3** Observe corporate standards and regulations, etc., related to the safety of device design.
- 4** Do not remove devices until safety is confirmed.
  - 1** Inspect and service the machine and devices after securing the safety of all the systems related to this product.
  - 2** Exercise caution as high temperature and charged parts can be present even when operation is stopped.
  - 3** Before starting device inspection or maintenance, turn off the device power and other powers to related devices and check leakage current.
- 5** Observe warnings and cautions in the instruction manual of each product.
  - 1** Unexpected movement may occur during robot teaching or test operation, so keep hands, etc., away from the actuator. When conducting operation with the shaft not visible, be sure before starting operation that safety is ensured even if the actuator moves.
- 6** To prevent electric shock, observe warnings and cautions.
  - 1** Do not touch the heat sink, cement resistor and motor installed in the controller.

Failure to do so may cause burn because these parts are hot.  
Take sufficient time before conducting inspection and other operations.  
Even immediately after the power is turned off, a high voltage is applied until the electric charge accumulated in the internal capacitor is discharged. Wait three minutes or so after turning the power off before touching these parts.
  - 2** Turn off the controller power source before conducting maintenance or inspection.

Electric shocks from high voltage may occur.
  - 3** Do not connect or disconnect connectors while power is on. Misoperation, faults, or electrical shock may occur.
- 7** Set up the overcurrent protection device.

In carrying out wiring to the controller, install over-current protective devices (such as wiring breaker and circuit protector) to the primary power supply for power (terminal block number L1, L2 and L3) and control (connector number CN3-24VDC) in accordance with "JIS B 9960-1:2008 Safety of machinery - Electrical equipment of machines - Part 1: General requirements".


(Excerpt from JIS B9960-1 7.2.1 General Requirements)


Overcurrent protection shall be provided where the current in a machine circuit can exceed either the rating of any component or the allowable current capacity of the conductors, whichever is the lesser value. The ratings or settings to be selected are specified in 7.2.10.




**8** Unexpected accident may happen. Observe the following cautions to prevent accidents.

■ The safety cautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

 **DANGER:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.

 **WARNING:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

 **CAUTION:** When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

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Note that some items described as "CAUTION" may lead to serious results depending on the situation. In any case, important information that must be observed is explained.

## Disclaimer

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### **1** Warranty period

"Warranty Period" of this product is one (1) year from the first delivery to the place you specified.

### **2** Scope of warranty

In case of a fault which is proved to be the responsibility of the CKD during the above warranty period, we shall offer a replacement part or a spare part of this product free of charge or repair the part in our plant free of charge.

Note that the following faults are excluded from the warranty:

- ① Operation under the conditions or in the environment derailing from those specified in the product specifications.
- ② Failure caused by lack of attention or erroneous control.
- ③ Failure caused by other than the delivered product.
- ④ Failure caused by operation derailing from the purposes for which the product is designed.
- ⑤ Failure caused by modification in the structure, performance, specification or other features made by other than us after delivery, or failure caused by repairs done by other than our designated contractor.
- ⑥ Loss in our product assembled to your machine or equipment, which would be avoided if your machine or equipment were provided with general functions, structures or other features common in the industry.
- ⑦ Failure caused by reason that is unforeseeable with technology put into practical use at the time of delivery.
- ⑧ Failure caused by fire, earthquake, flood, lightning, or other majeure, earth shock, pollution, salt hazard, gas Intoxication, excessive voltage, or other external causes.

The warranty mentioned here covers the discrete delivered product. Only the scope of warranty shall not cover losses induced by the failure of the delivered product

### **3** Warranty for exported products

- (1) Products returned to the CKD factory or to a company or factory designated by CKD shall be repaired. Work and cost necessary for transportation shall not be compensated for.
- (2) The repaired product shall be returned to a designated place in Japan with domestic packaging specifications. This warranty specifies basic conditions. If warranty details in individual specification drawings or specifications differ from these warranty conditions, specification drawings or specifications shall take priority.

### **4** Compatibility confirmation

The suitability of our products with system, machines, equipment that you are going to use, please check with your own risk.

### **5** Scope of service

Technician dispatch service expense is not included in the price of delivered products. We shall receive the expense separately in the following cases:

- (1) Installation adjustment instruction and presence in test operation
- (2) Maintenance, adjustment and repair
- (3) Technical guidance and technical training (operation, program, wiring method, safety education, etc.)



# Safety precautions

Be sure to read the instructions before use.

Individual precautions: Electric driven actuator ECS Series

## Design & Selection

### Danger

- Do not operate the product in flammable or explosive atmospheres.  
Doing so may create the risk of ignition and explosion.
- Keep the actuator away from drop of water or oil.  
Failure to do so may result in a fire or faulty operation.
- Make sure to hold and lock (including workpieces) when installing the product.  
The operator could be injured due to falling or abnormal operation of the product.

### Warning

- Use the product within the product-specific specification scope.
- Install a protection cover in case of possible danger to the operator.
  - If the electric actuator's movable portions may pose danger to the operator, be sure that the actuator has a structure preventing the operator from entering its operation range or touching the movable portions directly.
- In case the safety device stops the machine due to emergency stop, power outage or other system errors, the electric actuator must be designed so that its movement causes no damage to the operator and equipment.
- Install the actuator inside and keep away from humid places.  
Electrical leakage or a fire may occur in places where rainwater drips or is humid (under the conditions its humidity is more than 85% and condensation occurs). Drop of oil and oil mist should also be prohibited.
  - Failure to do so may result in damage or faulty operation.
- Use and store the product under the right use/ storage temperature in atmospheres without condensation.  
(Storage temperature: -10°C to 50°C, Storage humidity: 35% to 80%, Working temperature: 0°C to 40°C, Working humidity: 35% to 80%)  
Failure to do so may result in shorter life or abnormal stop of the actuator. Please ventilate if the heat is muffled.
- To prevent failure, explosion, or ignition, install the product away from direct sun, dust, flammable items, corrosive gas, explosive gas, and flammable gas.  
The product is not considered for chemical resistance.  
Failure to do so may result in the cause of break, explosion or ignition.
- Do not use and store the actuator in the places with strong electromagnetic waves, ultraviolet rays and radiation.  
Doing so may cause malfunction or failure.

- Take possibility of power source failure into consideration.
  - In case of a failure in the power source, take countermeasures without causing trouble or damage to the operator or equipment.
- Consider the operation status if the machine is reactivated after emergency stop or abnormal stop.
  - The machine must be designed so that reactivation causes no damage to the operator or equipment.  
If the electric actuator must be reset to the start position, be sure to provide the machine with safe control device.  
Take possibility of motor failure into consideration.  
In case of a failure in the power source, take countermeasures without causing damage to the operator or equipment.
- Do not use the actuator under shock or vibration conditions.
- Do not apply load exceeding the allowance specified in the selection document to the actuator.

### Caution

- Do not hit the trolley table against the stroke end.
- Read through the instruction manual to perform installation, adjustment and maintenance properly.
- Specify the maintenance conditions in the equipment instruction manual.
  - Product functions may be deteriorated significantly due to usage, service conditions or maintenance. Conducting maintenance with accuracy allows the product to fully exert its functions.
- The product is manufactured in conformity with the related standards. Never attempt to modify the product.
- Please check the motor/control manual, and wire and design it carefully.
- The suitability of our products with system, machines, equipment that you are going to use, please check with your own risk.
- Do not pressurize from the suction port. Lubricating grease splashes, possibly reducing the lifespan of the product.
- The required air suction volume of the product will vary depending on the model. Please use the appropriate air suction volume for the specific model.

ECS-05	ECS-06	ECS-10	ECS-12	ECS-14	ECS-17	ECS-22
30Nℓ/min or less	40Nℓ/min or less	50Nℓ/min or less	50Nℓ/min or less	60Nℓ/min or less	80Nℓ/min or less	100Nℓ/min or less

## Installation & Adjustment

### Danger

- Do not enter the operating range of the actuator when the product is ready to operate. The product may move suddenly and injure the operator.

### Warning

- Overturn, vibration, and shock should be avoided during transportation due to the integrated precision components. Parts could damage.
- In case of locating temporarily, place the actuator in a horizontal position.
- Set ambient temperature  $-10^{\circ}$  to  $50^{\circ}$  and ambient humidity 35 to 80% when transporting without condensation or freezing. If not, failure may occur.
- Attachment to incombustible items is necessary. Direct attachment to flammable items or near the items could cause a fire. There is a risk of burns.
- Do not climb on top of the product, use it as a footstool or, place any object. That could be the causes of accidents by falling, turnover of the product, injury from falling, damage to the product, or operation errors caused by the damage.
- Even if there is a power failure, take countermeasures so as to cause no damage to human body, or to machines. This may result in failure to ensure safety.
- If any abnormality is found, stop using immediately and contact our sales office nearest to you.

### CAUTION

- Installing the actuator in places under large vibration or impact conditions may lead to malfunction. Malfunction could occur.
- Do not operate the moving part of the product or decelerate rapidly by an external force. There is a possibility to damage or malfunction by the regenerative current.
- During home position return, do not hit the mechanical stopper etc. other than the pressing action. Damaged feed screw may cause malfunction.
- Durability can be changed by transport load or environment. Sufficient setting for transport load etc. is required. Only the scope of warranty shall not cover losses induced by the failure of the delivered product.
- Do not apply an excessive moment on the slider. The product can be damaged or malfunction.
- Flatness of the mounting surface should be 0.05mm/200mm, and do not give twist or bending force to the actuator.
- Flatness of the side of a workpiece attaching to the slider should be less than 0.02. Do not give twist or bending force to it. The product can be damaged or malfunction.
- For tightening screws to mount the body, apply an appropriate torque described in the table below.

Thread size	Tightening torque (N·m)
M3	0.7
M4	1.5
M5	3
M6	5.2
M8	12.5
M10	24.5

## During Use & Maintenance

### Danger

- Do not work with wet hands. This could lead to electric shock.

### CAUTION

- Conduct a regular check 2 to 3 times in a year to make sure to work properly.
- Grease lubrication interval is usually 100km. However, it varies depending on the use conditions. It is recommended to determine the lubrication interval by the initial inspection.

- When performing maintenance, inspection, repair, stop the power supply to the product before. Call attention to the others around you not to turn the power on, or operate carelessly by a third party.
- In case of disposing the product, follow the law of waste disposal and public cleaning outsource to professional waste disposal service.

# ECS model selection check sheet → CKD (in-charge: )

Please fill in the sheet and send it to the nearest sales office. We will respond to the model selection results.

Customer:

Your company name		Division	
Your name		e-mail	
TEL		FAX	

Selecting conditions:

Desired model	ECS-		
Basic specs	Max. stroke length:	mm	Ballscrew lead:
Operating conditions	Stroke:	mm	Movement time:
	Set speed:	mm/s	
	Set acceleration/deceleration speed:	mm/s <sup>2</sup> (Set acceleration/deceleration time: sec.)	
	Repeatability: ±	mm	
Load conditions	Mounting orientation: Horizontal (Upward) / Horizontal (Side surface) / Vertical / Others		
	Load weight:	kg	
	Overhang amount (Distance from slider center to load center) :	A direction	mm
		mm	C direction
		mm	
	Pressed down load:	Present / Absent ( N)	
		When operates / At stop	
	Direction of the force exerted on the slider center (	)	
Working environment	Ambient temperature:	°C	Ambient humidity:
			%
Using motor	Atmosphere:		
	Manufacturer:	Model no.:	
	Motor volume:	W	
Special notes			

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MEMO

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## Related products

### Electric actuator ERL2/ESD2 Series

- **Positioning point number**  
The versatile "high position (63 point positioning) is added to the conventional" 7 point positioning
- **Easy setting tool**  
Easy PC setting software (E-tools) is added to teaching pendant (ETP2)
- **Fully compatible**  
"Full Compatibility" that features free combination of actuator and controller

Catalog No.CC-1219A



### Electric actuator ESSD/ELCR Series

- **Space saving**  
Wiring and installation space for the controller are no longer required.
- **Design pneumatically**  
Shaped, used, operated like pneumatic cylinder.
- **Flexible motion control**  
3 control modes, speed & acceleration control and positioning completion width (imposition) can be set.
- **Easy teaching**  
Easy setting with 5 buttons. Direct configuration is available.

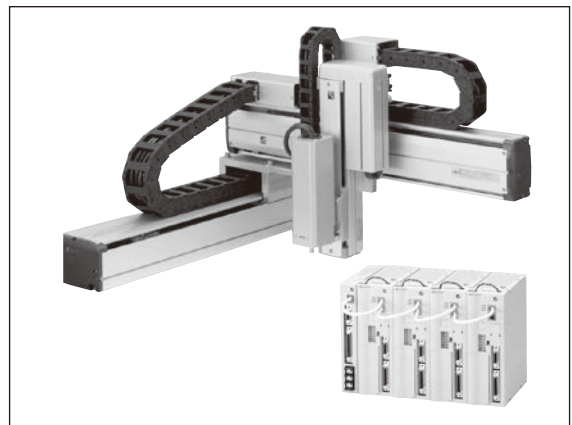
Catalog No.CC-1002A



### Electric actuator KBB Series

- **High speed operation**  
Max. 2000mm/s (timing belt drive)
- **High precision**  
Repeatability:  $\pm 0.01$ mm (ballscrew driver)
- **Absolute specifications for all models**  
All models are unified to no home position return required specifications by using long service life lithium batteries (service life: 50,000 hours)
- **High level process by high speed CPU**  
Delivered high level process performance by adopting high speed CPU
- **Plenty variation**  
7 types of ball screws, 6 timing belts  
4 directions of motor installation position are selectable for each shaft

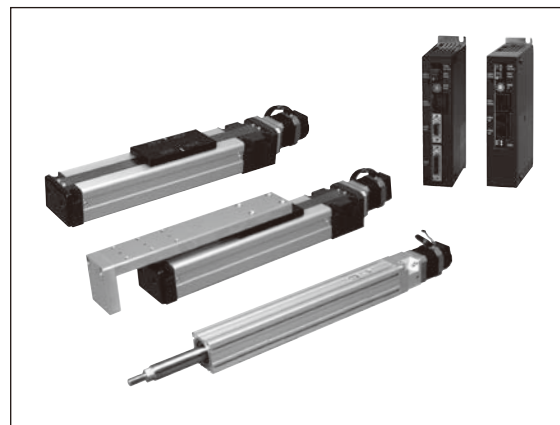
Catalog No.CC-783A



## Electric actuator KBZ Series

- **High speed operation**  
Max. operation speed of 800mm/s possible
- **Servo motor**  
Servo motor for a compact shaft enables to high speed operation, quick acceleration and deceleration, and high load capacity.
- **Absolute specifications**  
No need for home position return routine
- **Compact controller**  
Drastic downsizing

Catalog No.CC-1102A



## Direct drive actuator ABSODEX compact type AX6000M Series

- **Space saving**  
In addition to industry's minimum dimensions, for the concentric shape (the fixed shaft and the rotation shaft are the same) enables compact machine design that saves space.
- **Flexible**  
Operation can be realized as imagined because it has abundant program creation functions.  
Furthermore, it corresponds to simple operation setting such as automatic creation point specified program.
- **High reliable and maintenance free**  
Because of the direct drive system (gearless), there is no need to worry about gear damage or accuracy changes through wear of the gear unit.

Catalog No.CC-1148A



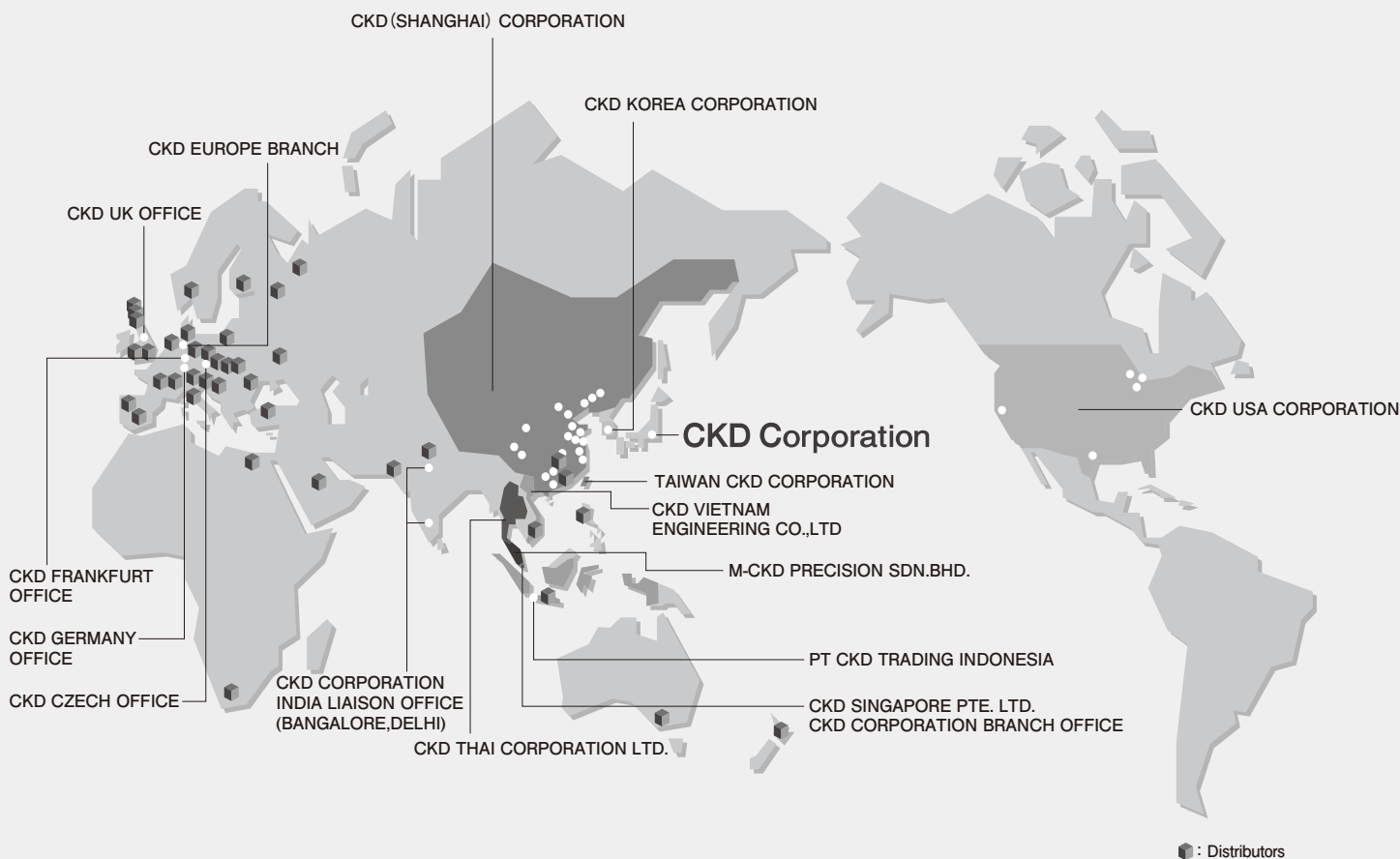
## Direct drive actuator ABSODEX quick response type AX1000T, AX2000T, AX4000T Series

- **Plenty actuator**  
12 types of actuators are available from 6 to 1000N•m
- **5 options for interface**  
5 types(Parallel I/O, (NPN,PNP), CC-Link, DeviceNet, PROFIBUS-DP) are available for driver interface

Catalog No.CC-995A







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