

ECS-14 Series

Straight motor mounting

● Stepper motor size: ☐56, ☐60

How to order

ECS - 14 - 05 040 - E A B N N N N P

A Body size
14 Body width 135 mm

D Motor mounting direction
E Straight mounting

H Origin sensor (1 pc) *1 *2 *3
N None
A Inside motor side
B Inside motor opposite side
C Outside motor side
D Outside motor opposite side

K Positioning pin hole
N None
P Yes

B Screw lead
05 5 mm
10 10 mm
16 16 mm
20 20 mm

E Mounted motor specification
A Select the mounted
B motor specification from
C the table below.

I Limit sensor (2 pcs) *1 *2 *3
N None
A Inside
B Outside

J Grease nipple *3 *4
N None (Body mounting direction: Standard)
R Right
L Counterclockwise

C Stroke length
005 50 mm
to (In 50 mm increments)
105 1050 mm

F Motor size
B ☐ 56
C ☐ 60

G Brake
N None

Manufacturer	☐ 56	☐ 60
Oriental Motor Co., Ltd.	-	A
MinebeaMitsumi Inc.	B	-
Dyadic Systems Co., Ltd.	C	-

*1: Origin sensor and limit sensor are available as a set. As it is both-or-nothing, select "None" for both.

*2: For sensor inside mounting, the user cannot adjust the position. (Assembled at shipment)
For sensor outside mounting, the user can adjust the position. (Included at shipment)

*3: Contact CKD to use the origin sensor, limit sensor and grease nipple in the same direction.

*4: "Body mounting direction: Standard" here refers to mounting from the bottom side.

*Refer to page 641 for the motor model No.

Specifications

Applicable motor sizes	☐ 56, ☐ 60 stepper motor			
Drive method	Ball screw ϕ 16			
Ball screw accuracy grade	C7			
Stroke length mm	50 to 1050			
Screw lead mm	5	10	16	20
Max. load capacity *1	Horizontal kg	110	88	48
	Vertical kg	33	22	10
Max. speed mm/s		250	500	800
Rated thrust *1	N	1388	694	433
Repeatability mm		± 0.01		
Lost motion mm		0.1 or less		
Drive system weight kg		1.6		
Other inertia kg·cm ²		0.074		
Coefficient of friction		0.05		
Mechanical efficiency		0.8		
Ball screw length		Stroke + 200		
Dynamic allowable load N		6567		
Static allowable moment N·m		MP: 552, MY: 551, MR: 485		
Dynamic allowable moment N·m		MP: 262.7, MY: 262.7, MR: 261.0		
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)		
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)		
Atmosphere		No corrosive gas, explosive gas, or dust		

*1 The rated thrust and max. load capacity values are the allowable values for the actuator body; the actual thrust and load capacity are limited by the motor used.

Stroke and max. speed

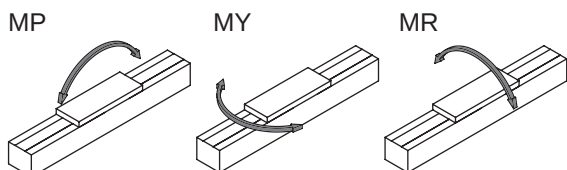
		(mm/s)					
Screw lead	Stroke length	100 to 750	800	850	900	950	1050
5		250	225	200	175	150	125
10		500	450	400	350	300	250
16		800	720	640	560	480	400
20		1000	900	800	700	600	500

*The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000 rpm.
The max. speed is restricted by the stroke. Do not move at speeds beyond the limit.

Allowable overhang length

*Refer to page 674 for details.

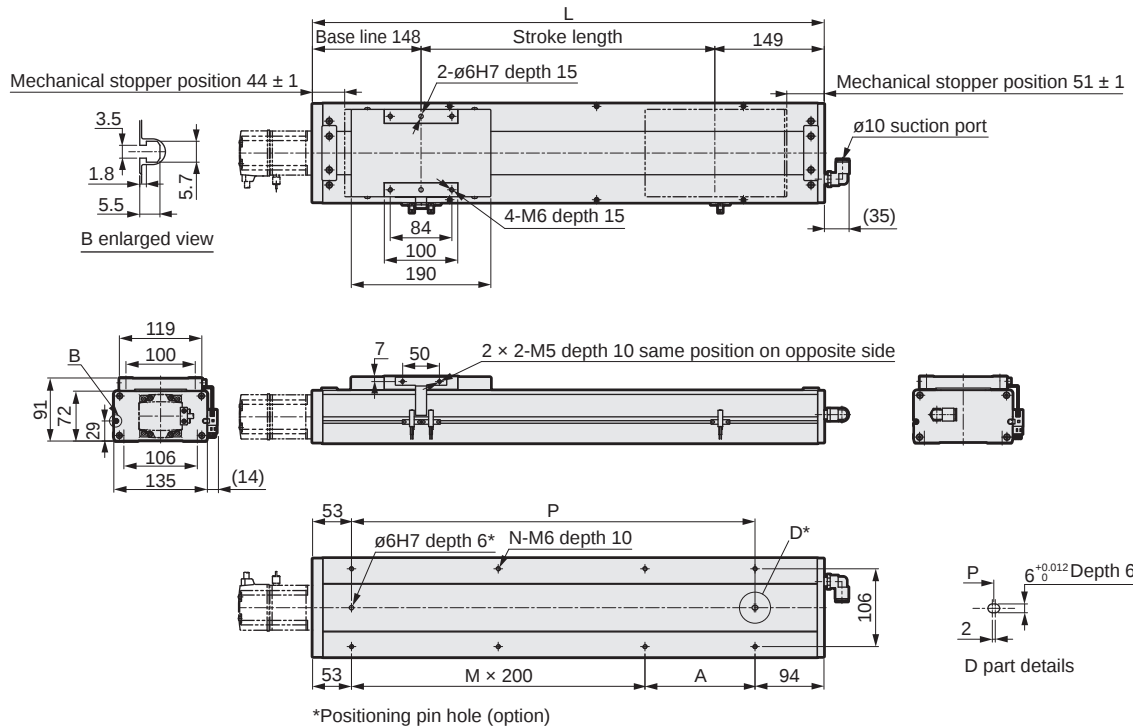
Moment direction



Dimensions Straight motor mounting

● ECS-14-*****-E

· Refer to page 680 for grease nipple dimensions.

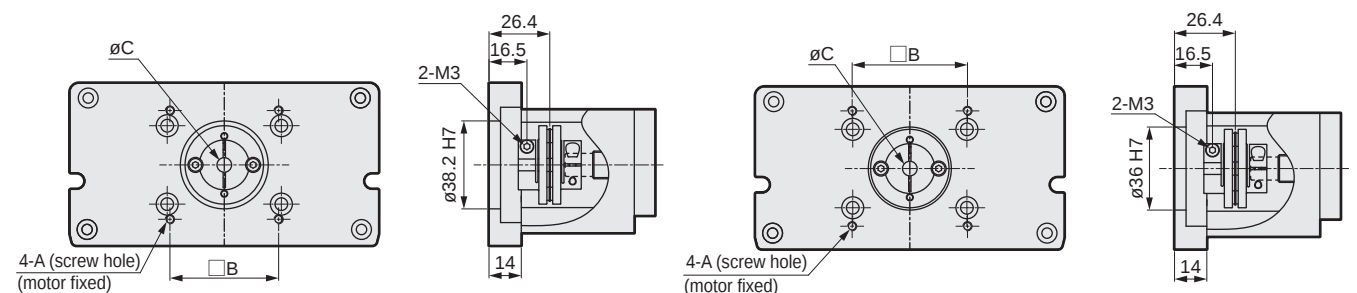


Stroke length (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297	1347
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
P	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
Weight (kg)	10.5	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

Motor mounting part

● ECS-14-E (□ 56)

● ECS-14-E (□ 60)



Mounted motor specification		A	B	C	Motor mounting bolt
A	□60	M4 depth 14	50	10	4-M4 × L16
B	□56	M4 depth 14	47.14	6.35	4-M4 × L16
C	□56	M4 depth 14	47.14	8	4-M4 × L16

List of attachments

[Motor mounting parts]

Mounted motor specification	Coupling	Fitting	Motor size	Motor mounting bolt
				Size Quantity
A	Assembled at shipment	Included at shipment	□56	M4 4
B			□60	M4 4
C				M4 4

*Refer to page 682 for fitting details.

[Origin sensor/Limit sensor]

Manufacturer	Model	Quantity
OMRON Corporation	EE-SX672	3

*Refer to page 678 for sensor specifications.

ECS-14 Series

Motor side mounting (left, right, bottom)

● Stepper motor size: ☐56, ☐60

How to order

ECS - 14 - 05 050 - R A B N N N N P

A	B	C	D	E	F	G	H	I	J	K
A Body size	B Screw lead	C Stroke length	D Motor mounting direction *5	E Mounted motor specification	F Motor size	G Brake	H Origin sensor (1 pc) *1 *2 *3	I Limit sensor (2 pcs) *1 *2 *3	J Grease nipple *3 *4 *5	K Positioning pin hole
14 Body width 135 mm	05 5 mm 10 10 mm 16 16 mm 20 20 mm	005 50 mm to (In 50 mm increments) 105 1050 mm	R Right mounting D Bottom mounting L Left mounting	A Select the mounted motor specification from the table below. B C	B ☐ 56 C ☐ 60	N None A Inside B Outside	N None A Inside motor side B Inside motor opposite side C Outside motor side D Outside motor opposite side	N None A Inside B Outside	N None (Body mounting direction: Standard) R Right L Counterclockwise	N None P Yes

- *1: Origin sensor and limit sensor are available as a set. As it is both-or-nothing, select "None" for both.
 *2: For sensor inside mounting, the user cannot adjust the position. (Assembled at shipment)
 For sensor outside mounting, the user can adjust the position. (Included at shipment)
 *3: Contact CKD to use the origin sensor, limit sensor and grease nipple in the same direction.
 *4: "Body mounting direction: Standard" here refers to mounting from the bottom side.
 *5: When selecting motor mounting direction R, grease nipple R cannot be selected.
 When selecting L, grease nipple L cannot be selected.

Manufacturer	☐ 56	☐ 60
Oriental Motor Co., Ltd.	-	A
MinebeaMitsumi Inc.	B	-
Dyadic Systems Co., Ltd.	C	-

*Refer to page 641 for the motor model No.

Specifications

Applicable motor sizes	☐ 56, ☐ 60 stepper motor			
Drive method	Ball screw ø16			
Ball screw accuracy grade	C7			
Stroke length mm	50 to 1050			
Screw lead mm	5	10	16	20
Max. load capacity *1	Horizontal kg	110	88	48
	Vertical kg	33	22	10
Max. speed mm/s		250	500	800
Rated thrust *1 N		1388	694	433
Repeatability mm	±0.01			
Lost motion mm	0.1 or less			
Drive system weight kg	1.6			
Other inertia kg·cm ²	0.870			
Coefficient of friction	0.05			
Mechanical efficiency	0.8			
Ball screw length	Stroke + 200			
Dynamic allowable load N	6567			
Static allowable moment N·m	MP: 552, MY: 551, MR: 485			
Dynamic allowable moment N·m	MP: 262.7, MY: 262.7, MR: 261.0			
Operating ambient temperature, humidity	0 to 40°C (no freezing) 35 to 80% RH (no condensation)			
Storage ambient temperature, humidity	-10 to 50°C (no freezing) 35 to 80% RH (no condensation)			
Atmosphere	No corrosive gas, explosive gas, or dust			

*1 The rated thrust and max. load capacity values are the allowable values for the actuator body; the actual thrust and load capacity are limited by the motor used.

Stroke and max. speed

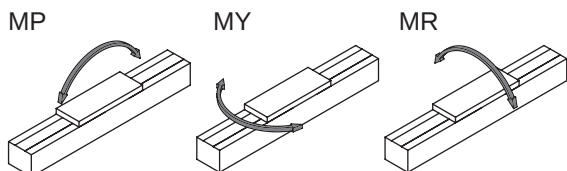
		(mm/s)					
Screw lead	Stroke length	100 to 750	800	850	900	950	1050
5		250	225	200	175	150	125
10		500	450	400	350	300	250
16		800	720	640	560	480	400
20		1000	900	800	700	600	500

*The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000 rpm.
 The max. speed is restricted by the stroke. Do not move at speeds beyond the limit.

Allowable overhang length

*Refer to page 674 for details.

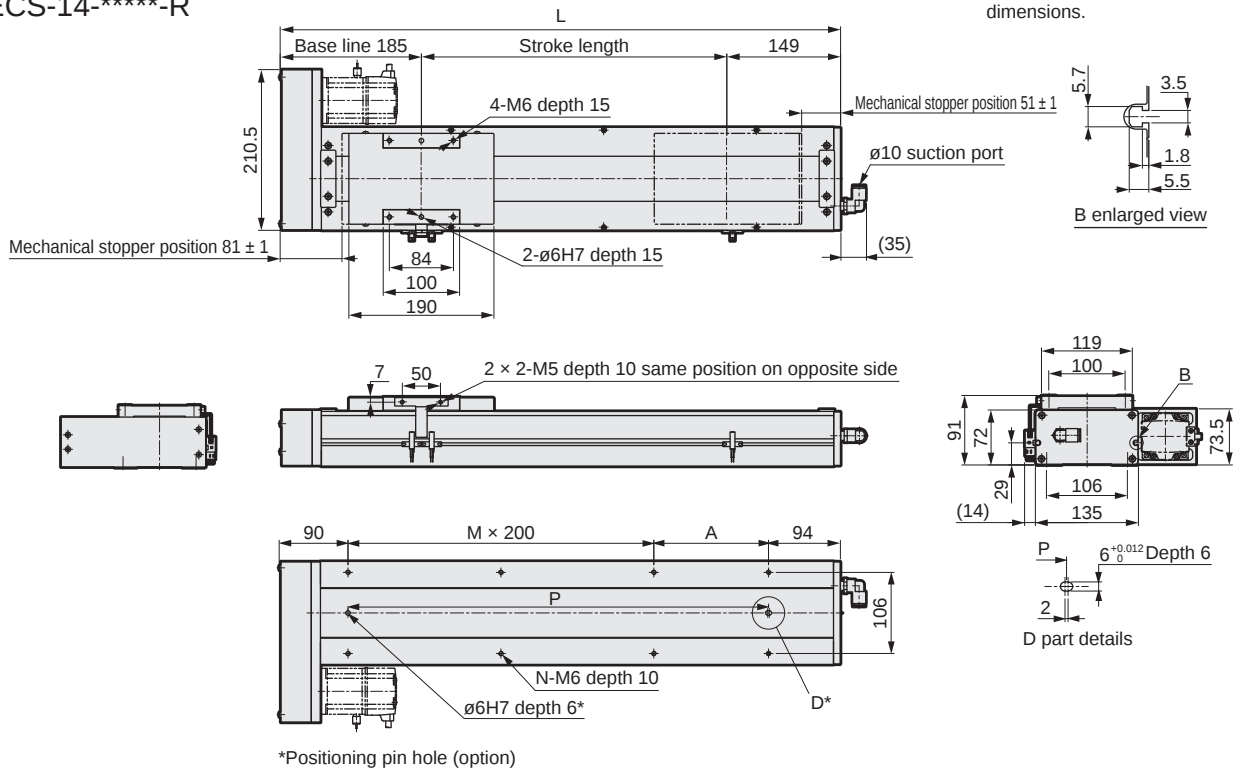
Moment direction



Dimensions Motor right-side mounting

● ECS-14-*****-R

Refer to page 680 for grease nipple dimensions.

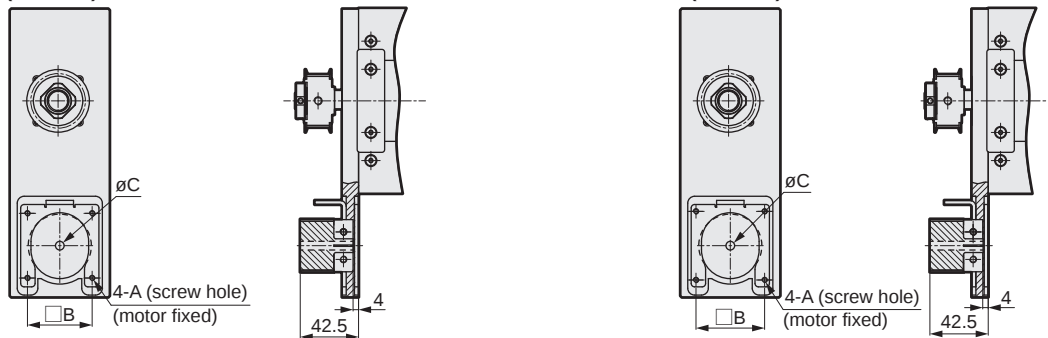


Stroke length (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
P	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
Weight (kg)	11.0	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

Motor mounting part

● ECS-14-R (□ 56)

● ECS-14-R (□ 60)



Mounted motor specification		A	B	C	Motor mounting bolt
A	□60	M4	50	10	4-M4 × L20
B	□56	M4	47.14	6.35	4-M4 × L20
C	□56	M4	47.14	8	4-M4 × L20

List of attachments

[Motor mounting parts]

Mounted motor specification	Timing belt, pulley	Fitting	Motor size	Motor mounting bolt	
				Size	Quantity
A	Included at shipment	Included at shipment	☐ 56 ☐ 60	M4	4
B				M4	4
C				M4	4

*Refer to page 682 for fitting details.

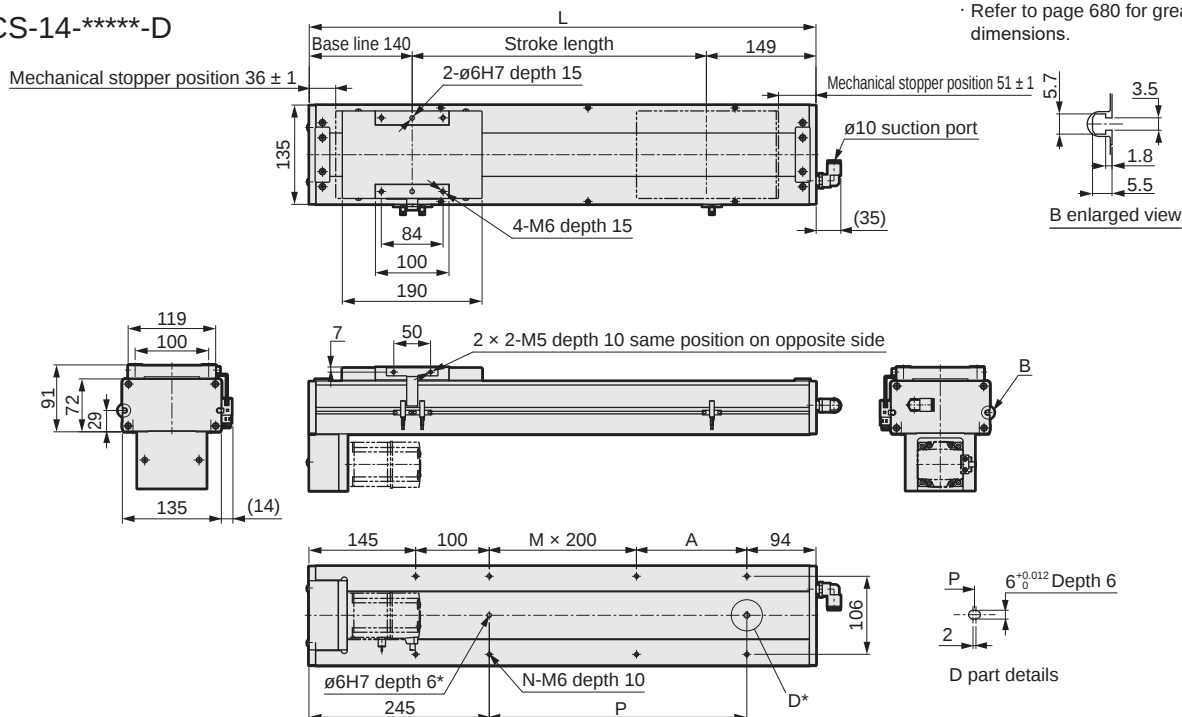
[Origin sensor/Limit sensor]

Manufacturer	Model	Quantity
OMRON Corporation	EE-SX672	3

*Refer to page 678 for sensor specifications.

Dimensions Motor bottom mounting

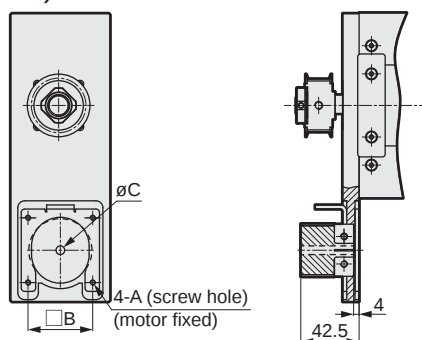
● ECS-14-*****-D



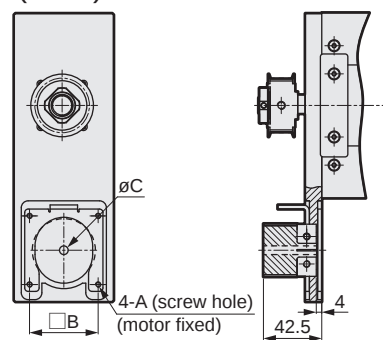
Stroke length (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	339	389	439	489	539	589	639	689	739	789	839	889	939	989	1039	1089	1139	1189	1239	1289	1339
A	0	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
P	0	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Weight (kg)	11.0	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

Motor mounting part

● ECS-14-D (□ 56)



● ECS-14-D (□ 60)



Mounted motor specification		A	B	C	Motor mounting bolt
A	□ 60	M4	50	10	4-M4 × L20
B	□ 56	M4	47.14	6.35	4-M4 × L20
C	□ 56	M4	47.14	8	4-M4 × L20

List of attachments

[Motor mounting parts]

Mounted motor specification	Timing belt, pulley	Fitting	Motor size	Motor mounting bolt	
				Size	Quantity
A	Included at shipment	Included at shipment	□ 56 □ 60	M4	4
B				M4	4
C				M4	4

*Refer to page 682 for fitting details.

[Origin sensor/Limit sensor]

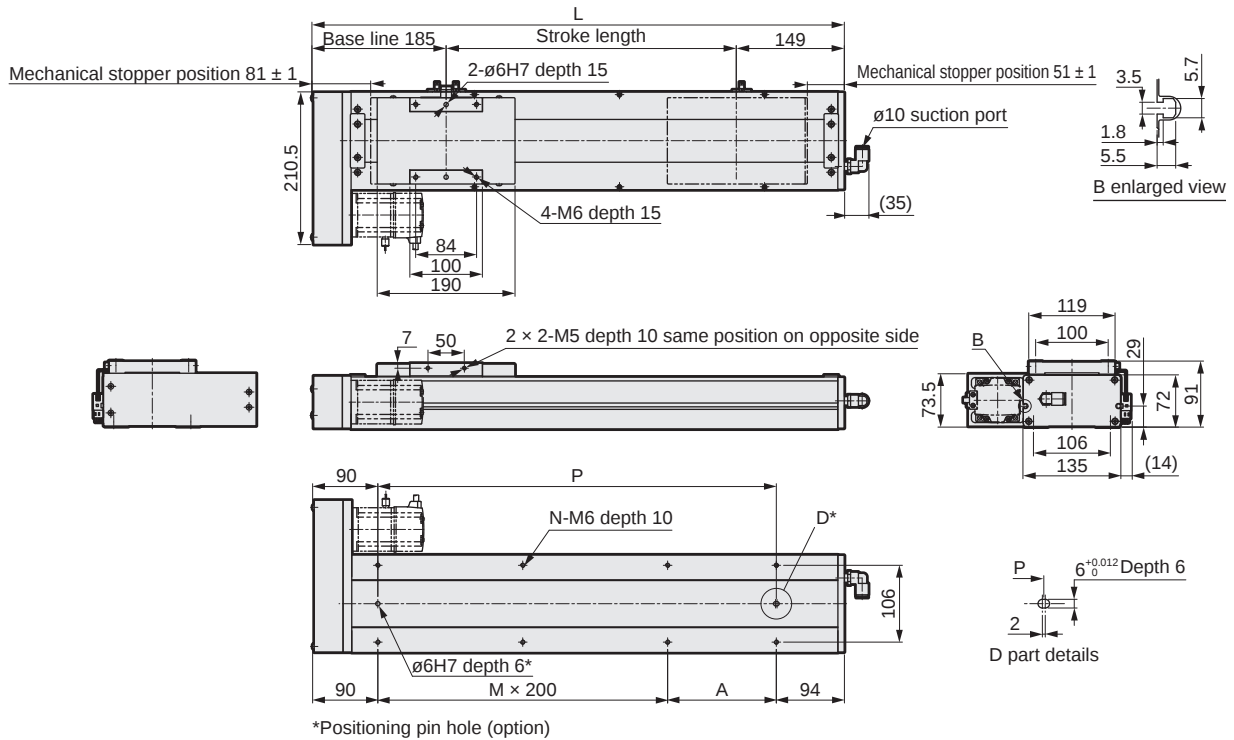
Manufacturer	Model	Quantity
OMRON Corporation	EE-SX672	3

*Refer to page 678 for sensor specifications.

Dimensions Motor left-side mounting

● ECS-14-*****-L

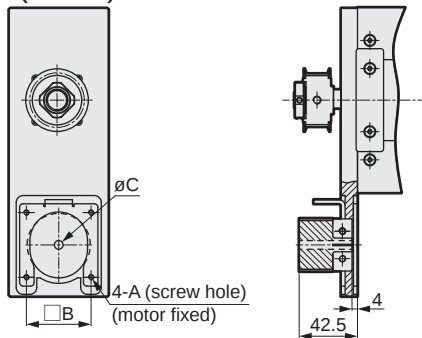
Refer to page 680 for grease nipple dimensions.



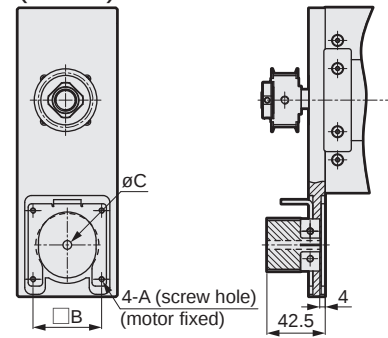
Stroke length (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
P	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
Weight (kg)	11.0	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

Motor mounting part

● ECS-14-L (□ 56)



● ECS-14-L (□ 60)



Mounted motor specification		A	B	C	Motor mounting bolt
A	□60	M4	50	10	4-M4 × L20
B	□56	M4	47.14	6.35	4-M4 × L20
C	□56	M4	47.14	8	4-M4 × L20

List of attachments

[Motor mounting parts]

Mounted motor specification	Timing belt, pulley	Fitting	Motor size	Motor mounting bolt	
				Size	Quantity
A	Included at shipment	Included at shipment	☐ 56 ☐ 60	M4	4
B				M4	4
C				M4	4

*Refer to page 682 for fitting details.

[Origin sensor/Limit sensor]

Manufacturer	Model	Quantity
OMRON Corporation	EE-SX672	3

*Refer to page 678 for sensor specifications.