

Electric Actuator
Stepping Motor Compatible
Motorless Specification

ETS

Slider Type (Ball Screw Drive)

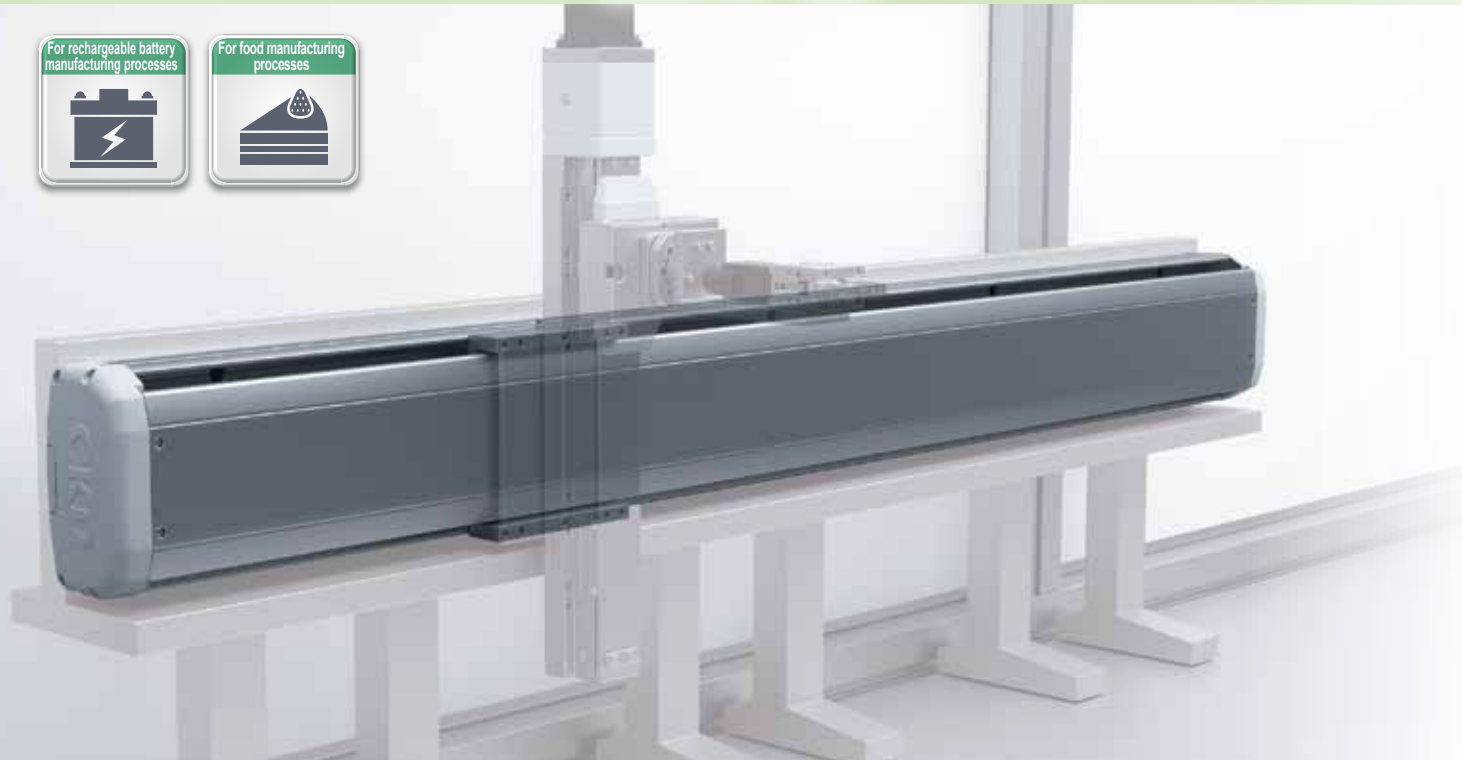
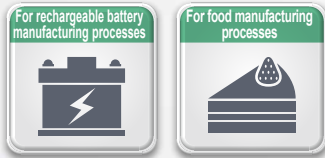


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Slider type (ball screw drive)
Compatible with stepping motor

ETS Series



For high-load transfer

Line-up	Body Size	13		14		Catalog page
		□56	□60	□56	□60	
ETS						536
Metal stopper specifications ETS-X						536
Compatible with rechargeable battery manufacturing processes ETS-P4						CC-1226AA
Supports food manufacturing processes ETS-FP1						CC-1271AA

List of supported motor manufacturers * Refer to each model page compatible model and capacity

Stepping Motor

Oriental Motor Co., Ltd. MinebeaMitsumi Incorporated Dyadic Systems Co., Ltd.

Motorless Specification

ROBODEX Std.



Supports high-load transfer

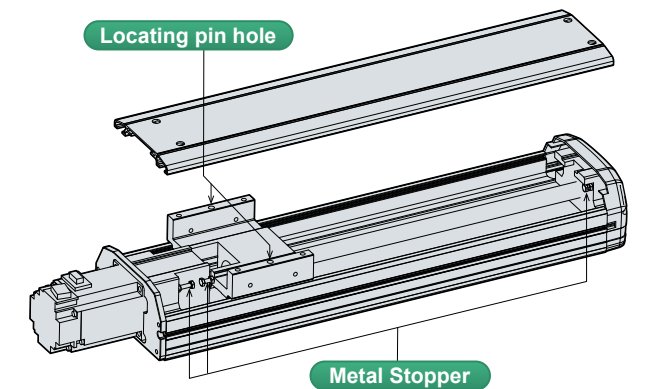
It has a high-rigidity structure with two built-in linear guides to firmly support the load. A grease nipple is equipped on the side of the actuator. It is possible to grease the ball screw and guide all at once from the outside without disassembling the main body. Significantly reduces maintenance man-hours.



* Select by model No.

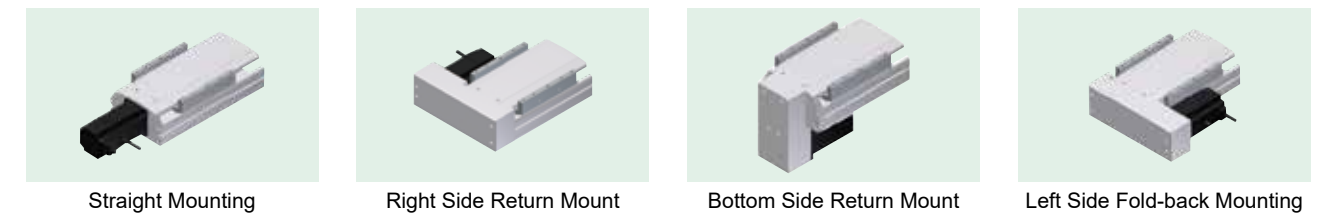
Wide Variations

A metal stopper specification is available. By establishing an accurate zero point based on a mechanical reference, it is possible to perform accurate homing by pushing against the mechanical end.



Motor fold-back variations

We have prepared a total of 4 motor fold-back variations that can be selected according to the equipment.





Straight Mounting

Right Side Return Mount

Bottom Side Return Mount

Left Side Fold-back Mounting

System Table


Type	Model No.	Applicable Motor Size	Body Width (mm)	Screw Lead (mm)	Max. Payload (kg) *2									Stroke (mm) and Max. Speed (mm/s) *3																				Page										
					<div>Horizontal</div> <div>*1</div>	<div>Vertical</div>	50 mm	100	150	200	250				*4	300	350	400	450	500	550	*4	600	650	700	750	800	850	*4	900	950	1000	*4		1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
Slider Type		ETS-13	<div><input type="checkbox"/>56</div> <div><input type="checkbox"/>60</div>	135	5	70	17	250										225	200	175	150	125																						
					1.40 sec										2.60 sec					5.34 sec					8.60 sec																			
					0.80 sec										1.40 sec					2.77 sec					4.40 sec																			
					0.58 sec										0.95 sec					1.75 sec					2.83 sec																			
		ETS-14	<div><input type="checkbox"/>56</div> <div><input type="checkbox"/>60</div>	135	10	47	12	500										450	400	350	300	250																						
					0.80 sec										1.40 sec					2.77 sec					4.40 sec																			
					0.58 sec										0.95 sec					1.75 sec					2.83 sec																			
					0.50 sec										0.80 sec					1.49 sec					2.30 sec																			

*1 The payload when wall mounted is the same as for horizontal installation.

*2 The rated thrust and maximum payload values are the allowable values for the actuator body. The actual thrust and payload may be limited by the motor used by the customer.

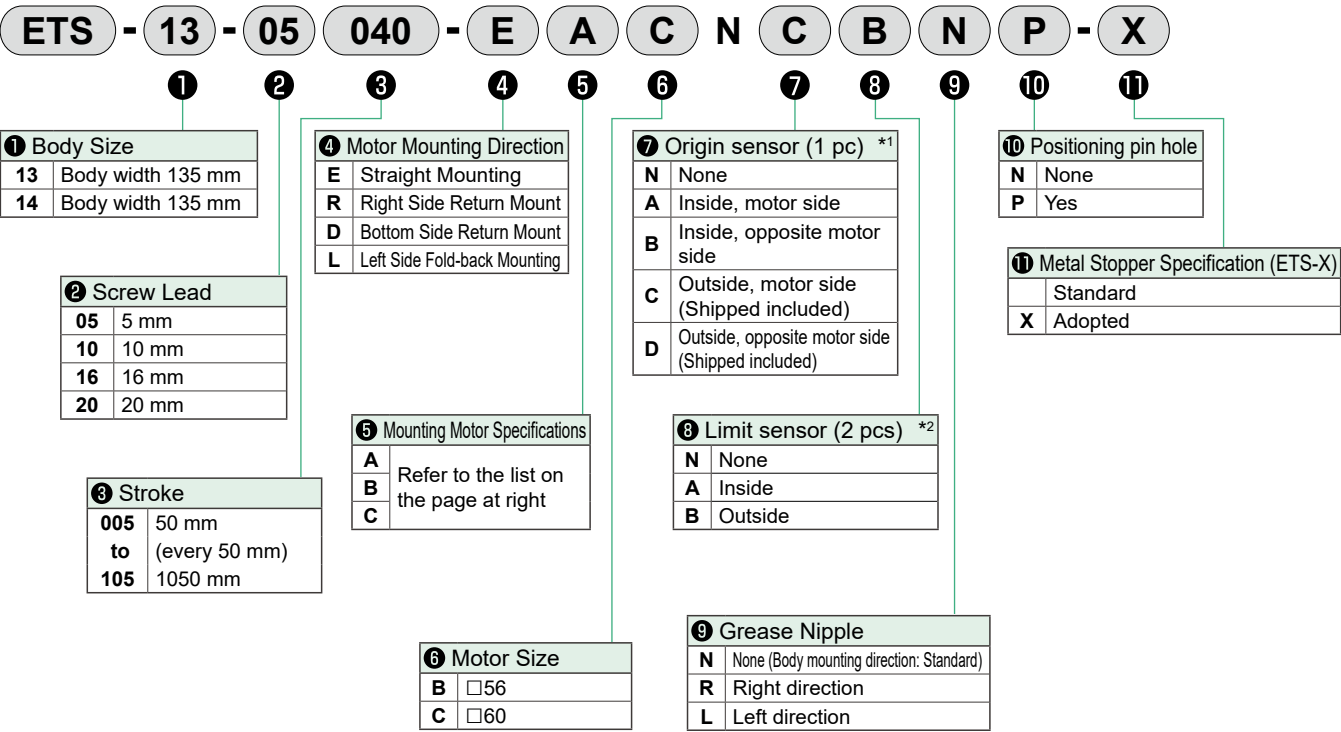
*3 The maximum speed is based on the assumption that the customer-mounted motor can output a rotational speed of 3000 rpm.

The max. speed is restricted by the stroke. Do not operate at speeds exceeding the limit

*4  shows the Positioning time. This is the case when a specific stroke is operated under horizontal installation, at max. speed, and max. acceleration/deceleration. Please note that this is not the value at max. payload.

Model Number Configuration

Model No. Notation Method



*1 Sensor dogs are assembled at shipment regardless of the presence of the sensor.

Screw Lead / Stroke Compatibility Table by Body Size

1 Body Size	2 Screw Lead	3 Stroke
13	05	005 to 105
	10	
	16	
	20	
14	05	005 to 105
	10	
	16	
	20	

Model No. Notation Example

ETS-13-05040-EACNCBNP-X

- 1

Body Size

:

13 Series
- 2

Screw lead

:

5 mm
- 3

Stroke

:

400 mm
- 4

Motor Mounting Direction

:

Straight Mounting
- 5

Mounting motor specification

:

A (Refer to the table on the page at right)
- 6

Motor Size

:

□60
- 7

Origin sensor

:

Outside motor side
- 8

Limit sensor

:

Outside
- 9

Grease nipple

:

None (Body mounting direction: Standard)
- 10

Locating pin hole

:

Yes
- 11

Metal Stopper Specification (ETS-X)

:

Adopted

* This product is available only for the actuator (and motor mounting part) and does not include a motor.}Z. The motor and driver should be prepared, mounted, and adjusted by the customer.

Recommended Stepping Motor List

Recommended Stepping Motor List

Code	Manufacturer name	Series	□56	□60
A	Oriental Motor Co., Ltd.	AZ	-	AZM66□0□ AZM69□0□
		AR	-	ARM66□0□ ARM69□0□
B	MinebeaMitsumi Incorporated	A17 PM/A23 KM	A23 KM□□□□CSTBCN	-
C	Dyadic Systems Co., Ltd.	RMJ	RMJ0611, RMJ1211	-



Electric Actuator Ball Screw Drive Slider Type

ETS-13 Series

Motor Fold-back Mounting Type

● Stepping Motor Size : ☐56, ☐60

Model No. Notation Method

ETS - **13** - **05** - **005** - **R** - **A** - **B** - **N** - **N** - **N** - **N** - **X**

1 Body Size
13 Body width 135 mm

2 Screw Lead
05 5 mm
10 10 mm
16 16 mm
20 20 mm

3 Stroke
005 50 mm
to (every 50 mm)
105 1050 mm

4 Motor mounting direction*
R Right Side Return Mount
D Bottom Side Return Mount
L Left Side Fold-back Mounting

5 Mounting Motor Specifications
A Select the mounting motor specification from the table below.
B
C

6 Motor Size
B ☐ 56
C ☐ 60

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

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

9 Grease Nipple *3, *4, *5
N None (Body mounting direction: Standard)
R Right direction
L Left direction

10 Metal Stopper Specification (ETS-X)
X Standard
X Adopted

11 Positioning pin hole
N None
P Yes

Manufacturer	<input type="checkbox"/> 56	<input type="checkbox"/> 60
Oriental Motor Co., Ltd.	-	A
MinebeaMitsumi Incorporated	B	-
Dyadic Systems Co., Ltd.	C	-

* Refer to P. 539 for motor model No.

*1 The home sensor and limit sensor are a set. If either is "None," please select "None" for the other as well.

*2 If the sensor is mounted on the inside, the position cannot be adjusted by the customer. (Shipped attached)

If the sensor is mounted on the outside, the position can be adjusted by the customer. (Shipped included)

*3 If you wish to use the home sensor, limit sensor, and grease nipple in the same direction, please contact us

*4 Here, "Body mounting direction: Standard" means that it can be mounted from either the top or bottom side.

*5 If "R" is selected for the motor mounting direction, "R" cannot be selected for the grease nipple. If "L" is selected, "L" cannot be selected for the grease nipple.

Specifications

Applicable Motor Size *1		□56, □60 Stepping Motor			
Drive Method		Ball screw ø16			
Ball Screw Accuracy Grade		C7			
Stroke mm		50 to 1050			
Screw lead mm		5	10	16	20
Max. payload *1	Horizontal kg	70	47	30	24
	Vertical kg	17	12	6	4
Max. Speed mm/s		250	500	800	1000
Rated thrust *1 N		1388	694	433	347
Repeatability mm		±0.01			
Lost Motion mm		0.1 or less			
Drive part mass kg		1.0			
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		4822			
Static Allowable Moment N·m		MP : 175 MY : 174 MR : 153			
Dynamic allowable moment N·m		MP : 45.1 MY : 45.1 MR : 191.7			
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 maximum payload values are the allowable values for the actuator body. The actual thrust and payload may be limited by the motor used by the customer.

Stroke and Max. Speed

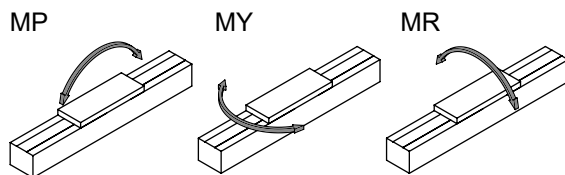
(mm/s)						
Stroke Screw Lead	100 to 750	800	850	900	950	1050
5	250	225	200	175	150	125
10	500	450	400	350	300	250
16	800	720	640	560	480	400
20	1000	900	800	700	600	500

* The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000 rpm.

Allowable Overhang Length

* Refer to P. 554 for details.

Moment Direction

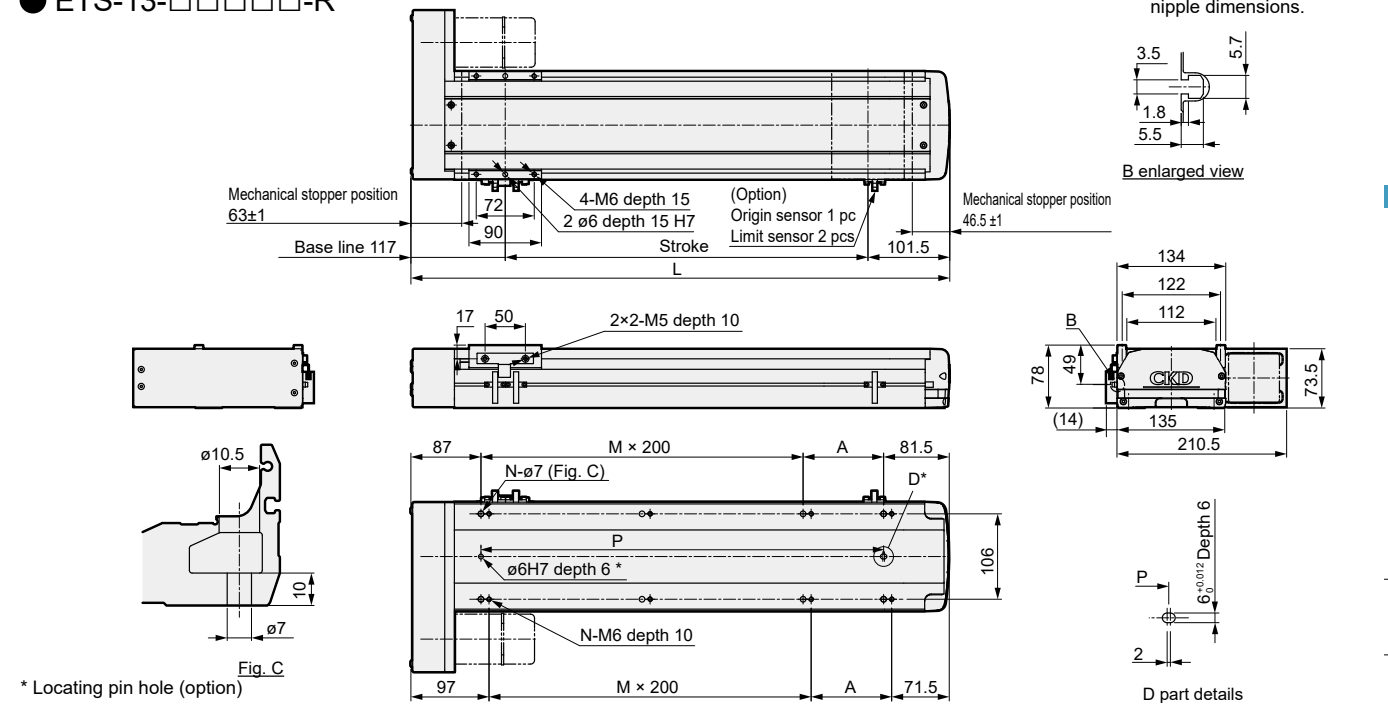


ETS-13 Series

Dimensions/List of attachments

External Dimension Drawing Motor Right Side Fold-back Mounting

● ETS-13-□□□□□-R

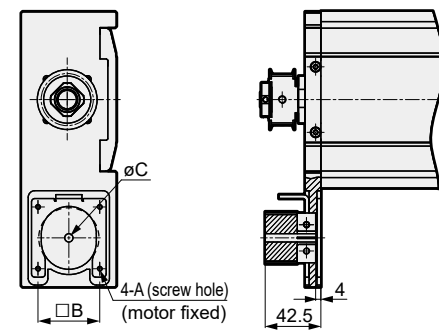


* Locating pin hole (option)

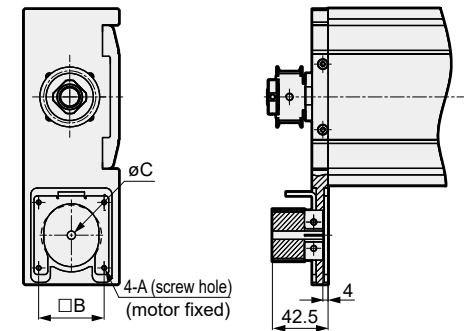
Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
P	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Weight (kg)	6.7	7.3	7.7	8.2	8.7	9.2	9.7	10.1	10.7	11.1	11.7	12.1	12.6	13.1	13.6	14.1	14.6	15.1	15.6	16.0	16.6

Motor Mounting Part

● ETS-13 (□56)



● ETS-13(60)



Mounting Motor Specification		A	B	C	Motor mounting bolts
A	□60	M4	50	10	4-M4 x L20
B	□56	M4	47.14	6.35	4-M4 x L20
C	□56	M4	47.14	8	4-M4 x L20

List of Accessories

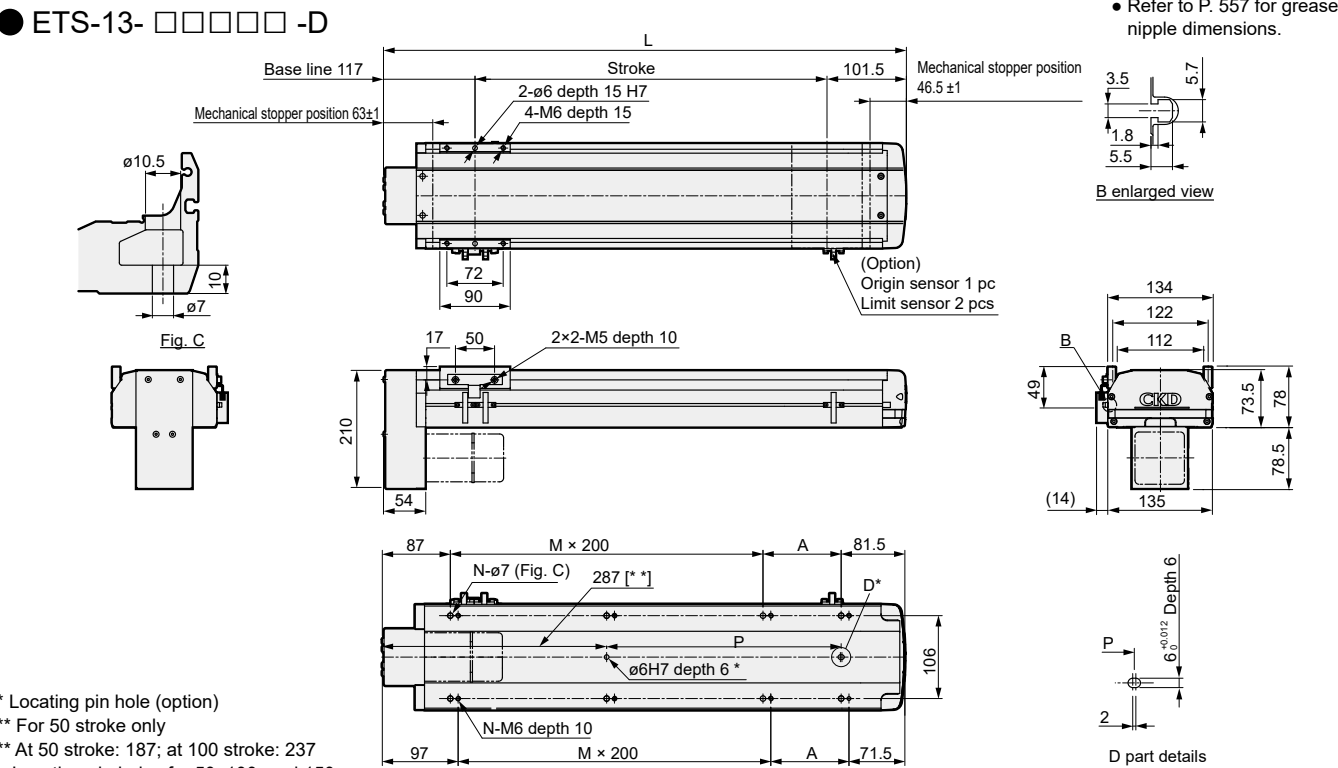
[Motor Mounting Parts]				
Mounting Motor Specification	Timing belt, pulley	Motor Size	Motor mounting bolts	
			Size	Quantity
A	Shipped included	<input type="checkbox"/> 56 <input type="checkbox"/> 60	M4	4
B			M4	4
C			M4	4

[Home Sensor / Limit Sensor]

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

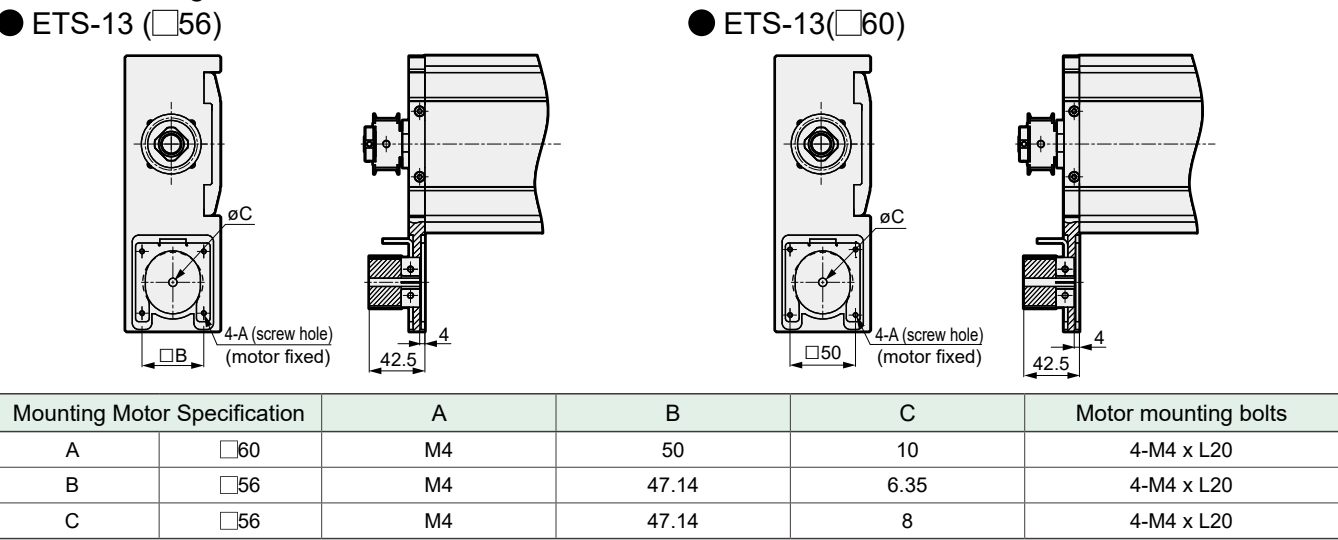
* For sensor specifications, please refer to P. 556.

External Dimension Drawing Motor Bottom Side Fold-back Mounting



Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
P	0	0	0	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900
Weight (kg)	6.7	7.3	7.7	8.2	8.7	9.2	9.7	10.1	10.7	11.1	11.7	12.1	12.6	13.1	13.6	14.1	14.6	15.1	15.6	16.0	16.6

Motor Mounting Part



List of Accessories

[Motor Mounting Parts]

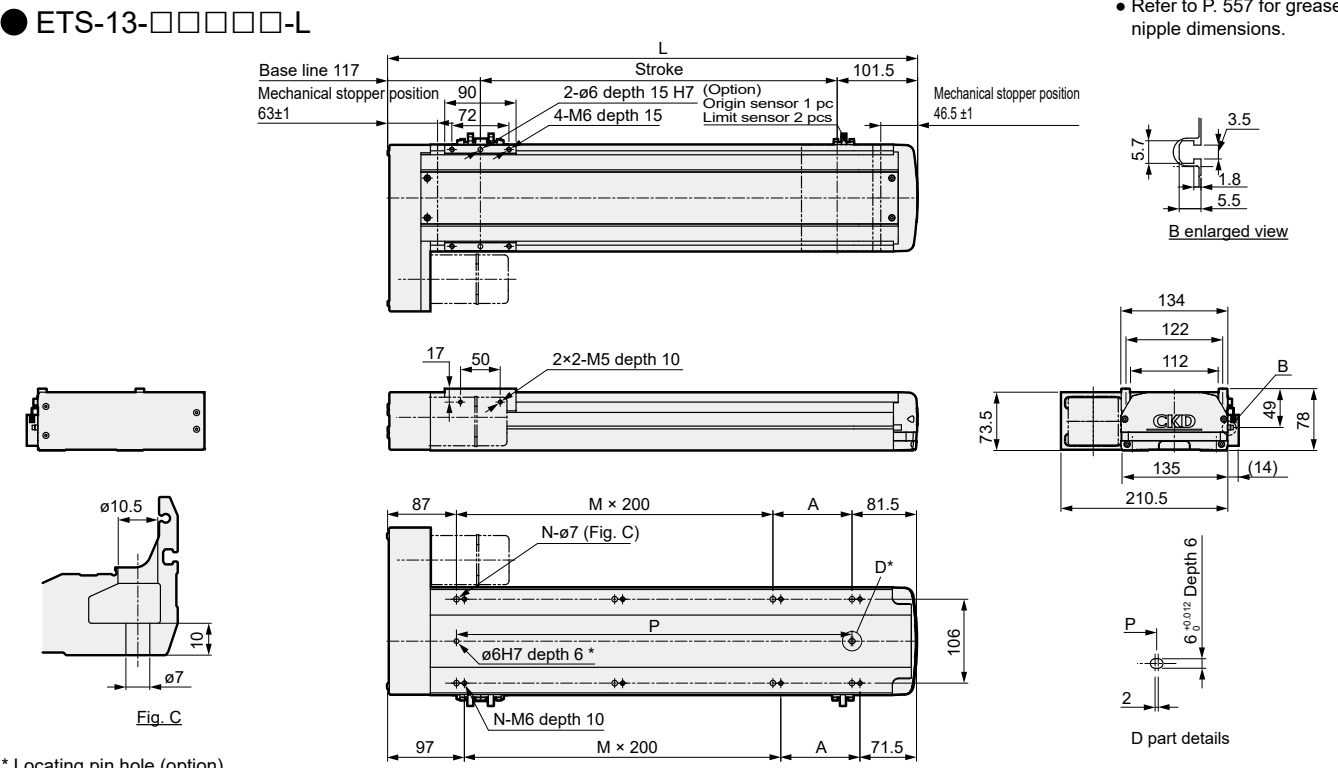
Mounting Motor Specification	Timing belt, pulley	Motor Size	Motor mounting bolts	
			Size	Quantity
A	Shipped included	□56 □60	M4	4
B			M4	4
C			M4	4

[Home Sensor / Limit Sensor]

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

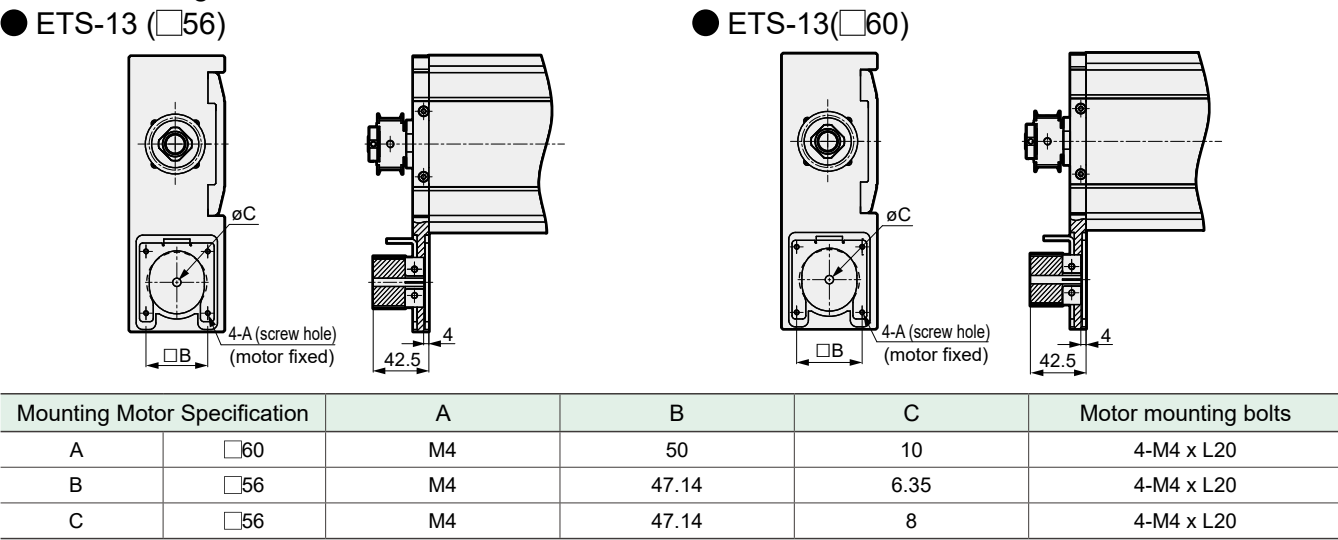
* For sensor specifications, please refer to P. 556.

External Dimension Drawing Motor Left Side Fold-back Mounting



Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	268.5	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
M	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
N	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
P	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Weight (kg)	6.7	7.3	7.7	8.2	8.7	9.2	9.7	10.1	10.7	11.1	11.7	12.1	12.6	13.1	13.6	14.1	14.6	15.1	15.6	16.0	16.6

Motor Mounting Part



List of Accessories

[Motor Mounting Parts]

Mounting Motor Specification	Timing belt, pulley	Motor Size	Motor mounting bolts	
			Size	Quantity
A	Shipped included	□56 □60	M4	4
B			M4	4
C			M4	4

[Home Sensor / Limit Sensor]

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

* For sensor specifications, please refer to P. 556.



Electric Actuator Ball Screw Drive Slider Type

ETS-14 Series

Motor Straight Mounting Type

●Stepping Motor Size: □+56□60

Model No. Notation Method

ETS

14

05

005

E

A

B

N

N

N

N

N

X

① Body Size

14 Body width 135 mm

② Screw Lead

05 5 mm

10 10 mm

16 16 mm

20 20 mm

③ Stroke

005 50 mm

to (every 50 mm)

105 1050 mm

④ Motor Mounting Direction

E Straight Mounting

⑤ Mounting Motor Specifications

A Select the mounting motor specification from the table below.

B

C

⑥ Motor Size

B □56

C □60

⑦ Origin sensor (1 pc)

*1, *2, *3

N None

A Inside, motor side

B Inside, opposite motor side

C Outside, motor side

D Outside, opposite motor side

⑧ Limit sensor (2 pcs)

*1, *2, *3

N None

A Inside

B Outside

⑨ Grease nipple

*3, *4

N None (Body mounting direction: Standard)

R Right direction

L Left direction

⑩ Positioning pin hole

N None

P Yes

⑪ Metal Stopper Specification (ETS-X)

Standard

X Adopted

*1 The home sensor and limit sensor are a set. If either is "None," please select "None" for the other as well.
*2 If the sensor is mounted on the inside, the position cannot be adjusted by the customer. (Shipped attached)
If the sensor is mounted on the outside, the position can be adjusted by the customer. (Shipped included)
*3 If you wish to use the home sensor, limit sensor, and grease nipple in the same direction, please contact us.
*4 Here, "Body mounting direction: Standard" means that it can be mounted from either the top or bottom side.

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

* Refer to P. 539 for motor model No.

Specifications

Applicable Motor Size	□56, □60 Stepping Motor				
Drive Method	Ball screw ø16				
Ball Screw Accuracy Grade	C7				
Stroke	mm	50 to 1050			
Screw lead	mm	5	10	16	20
Max. Payload	Horizontal kg	110	88	48	40
	Vertical kg	33	22	10	8
Max. Speed	mm/s	250	500	800	1000
Rated thrust	N	1388	694	433	347
Repeatability	mm	±0.01			
Lost Motion	mm	0.1 or less			
Drive part mass	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: 552.0 MY: 551.0 MR: 485.0			
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 maximum payload values are the allowable values for the actuator body. The actual thrust and payload may be limited by the motor used by the customer.

Stroke and Max. Speed

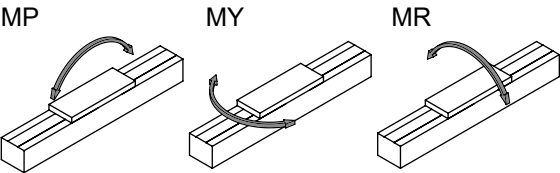
Stroke Screw Lead	(mm/s)					
	100 to 750	800	850	900	950	1050
5	250	225	200	175	150	125
10	500	450	400	350	300	250
16	800	720	640	560	480	400
20	1000	900	800	700	600	500

* The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000 rpm.

Allowable Overhang Length

* Refer to P. 554 for details.

Moment Direction

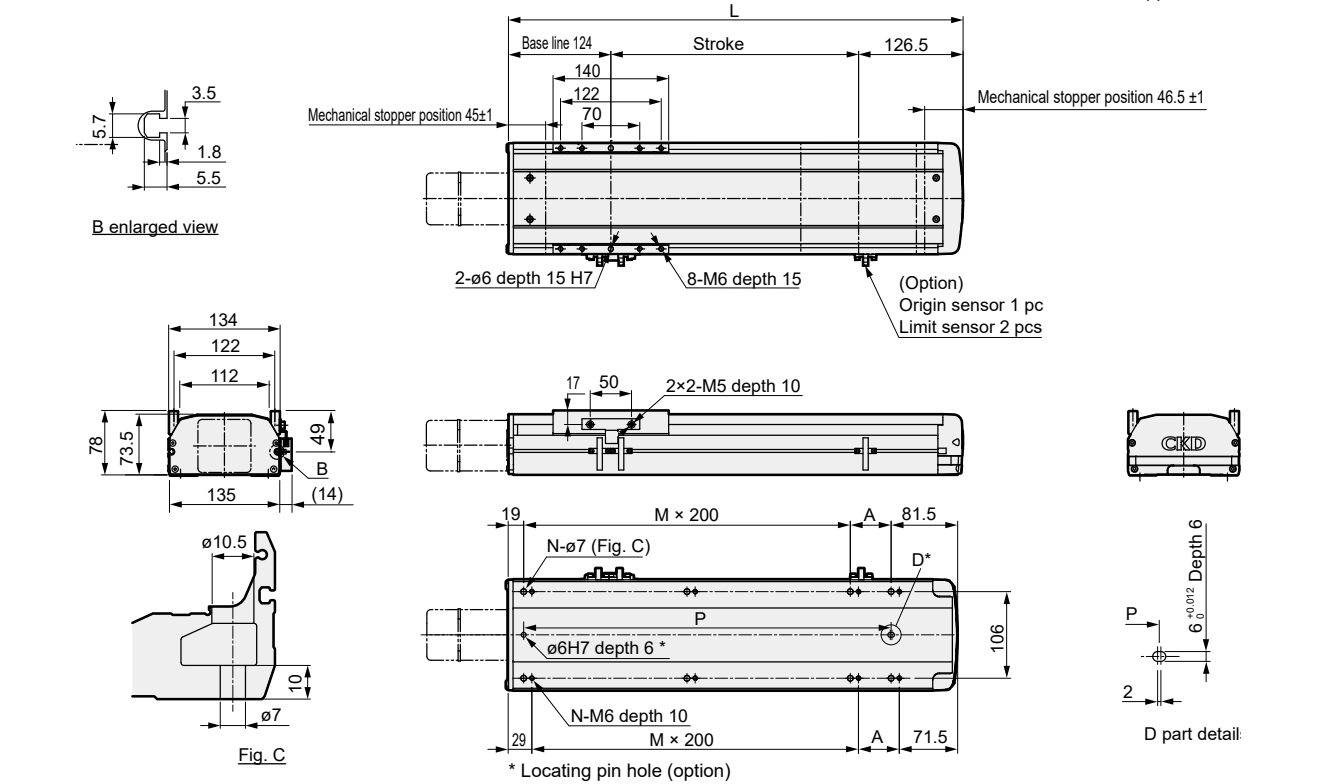


ETS-14 Series

Dimensions / List of attachments

External Dimension Drawing Motor Straight Mounting

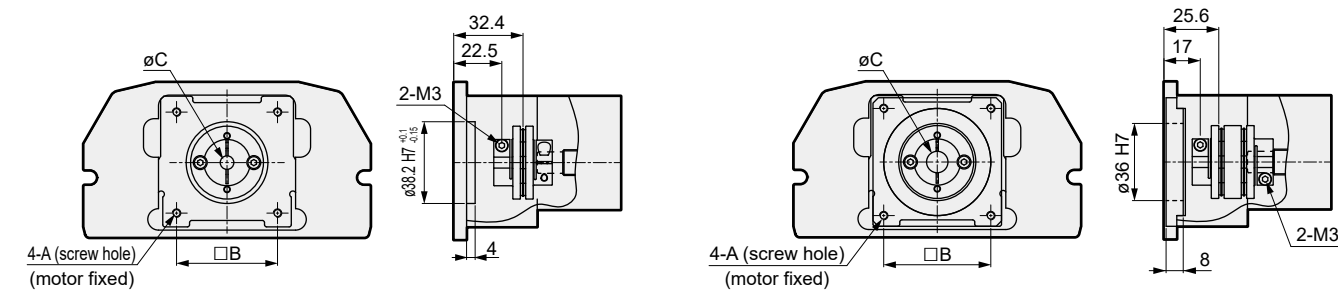
● ETS-14-□□□□□-E



Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5	1050.5	1100.5	1150.5	1200.5	1250.5	1300.5
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)	6.1	6.7	7.1	7.6	8.1	8.6	9.1	9.5	10.1	10.5	11.1	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.4	16.0

Motor Mounting Part

● ETS-14 (□56) ● ET4-14 (□60)



Mounting Motor Specification		A	B	C	Motor mounting bolts
A	□60	M4	50	10	4-M4 x L20
B	□56	M4	47.14	6.35	4-M4 x L16
C	□56	M4	47.14	8	4-M4 x L16

List of Accessories

[Motor Mounting Parts]

Mounting Motor Specification	Coupling	Motor Size	Motor mounting bolts	
			Size	Quantity
A	Shipped attached	□56 □60	M4	4
B			M4	4
C			M4	4

[Home Sensor / Limit Sensor]

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

* For sensor specifications, please refer to P. 556.



Electric Actuator Ball Screw Drive Slider Type

ETS-14 Series

Motor Fold-back Mounting Type

● Stepping Motor Size : □56, □60

Model No. Notation Method

ETS-14-05005-RABNNNN-X

1 Body Size

14 Body width 135 mm

2 Screw Lead

05 5 mm

10 10 mm

16 16 mm

20 20 mm

3 Stroke

005 50 mm

to (every 50 mm)

105 1050 mm

4 Motor mounting direction*5

R Right Side Return Mount

D Bottom Side Return Mount

L Left Side Fold-back Mounting

5 Mounting Motor Specifications

A Select the mounting motor specification from the table below.

B

C

6 Motor Size

B □56

C □60

7 Origin sensor (1 pc)

*1, *2, *3

N None

A Inside, motor side

B Inside, opposite motor side

C Outside, motor side

D Outside, opposite motor side

8 Limit sensor (2 pcs)

*1, *2, *3

N None

A Inside

B Outside

9 Grease nipple

*3, *4, *5

N None (Body mounting direction: Standard)

R Right direction

L Left direction

10 Positioning pin hole

N None

P Yes

11 Metal Stopper Specification (ETS-X)

Standard

X Adopted

*1 The home sensor and limit sensor are a set. If either is "None," please select "None" for the other as well.

*2 If the sensor is mounted on the inside, the position cannot be adjusted by the customer. (Shipped attached)

If the sensor is mounted on the outside, the position can be adjusted by the customer. (Shipped included)

*3 If you wish to use the home sensor, limit sensor, and grease nipple in the same direction, please contact us.

*4 Here, "Body mounting direction: Standard" means that it can be mounted from either the top or bottom side.

*5 If "R" is selected for the motor mounting direction, "R" cannot be selected for the grease nipple. If "L" is selected, "L" cannot be selected for the grease nipple.

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

* Refer to P. 539 for motor model No.

Specifications					
Applicable Motor Size	□56, □60 Stepping Motor				
Drive Method	Ball screw ø16				
Ball Screw Accuracy Grade	C7				
Stroke *1	mm	50 to 1050			
Screw lead	mm	5	10	16	20
Max. Payload *1	Horizontal kg	110	88	48	40
	Vertical kg	33	22	10	8
Max. Speed	mm/s	250	500	800	1000
Rated thrust *1	N	1388	694	433	347
Repeatability	mm	±0.01			
Lost Motion	mm	0.1 or less			
Drive part mass	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: 552.0 MY: 551.0 MR: 485.0			
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 maximum payload values are the allowable values for the actuator body. The actual thrust and payload may be limited by the motor used by the customer.

Stroke and Max. Speed						
Screw Lead	Stroke	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.

Allowable Overhang Length						
* Refer to P. 554 for details.						

Moment Direction

MP

MY

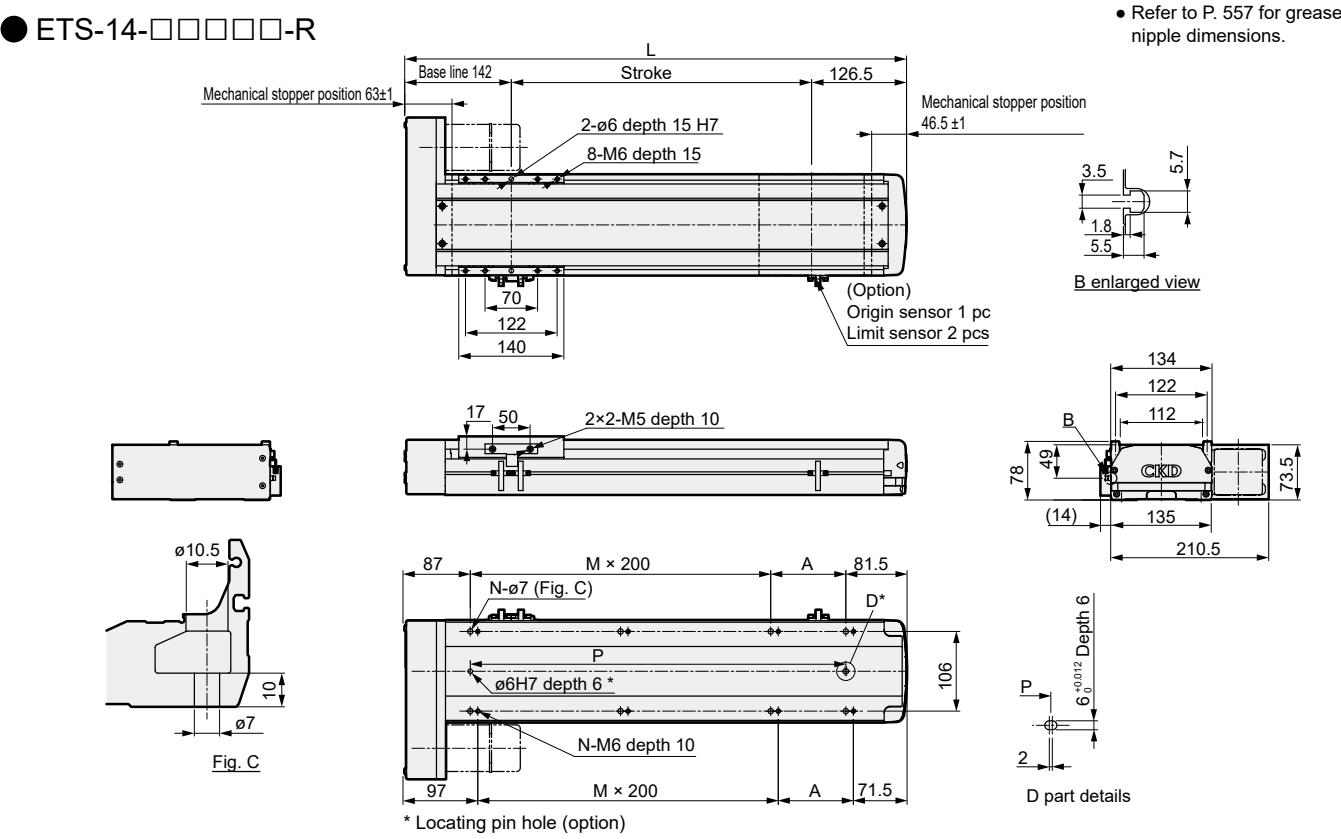
MR

ETS-14 Series

Dimensions / List of attachments

External Dimension Drawing Motor Right Side Fold-back Mounting

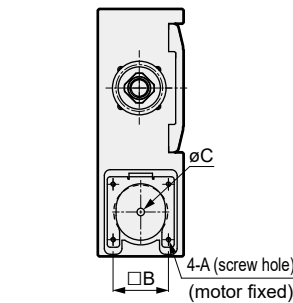
● ETS-14-□□□□□-R



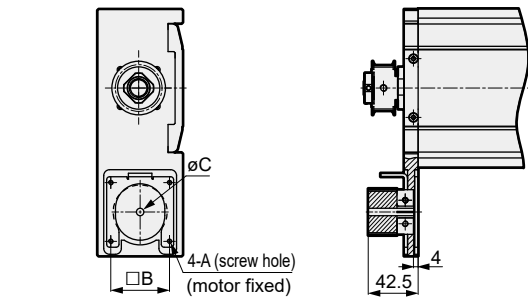
Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
P	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150
Weight (kg)	6.9	7.5	7.9	8.4	8.9	9.4	9.9	10.3	10.9	11.3	11.9	12.3	12.8	13.3	13.8	14.3	14.8	15.3	15.8	16.2	16.8

Motor Mounting Part

● ETS-14 (□56)



● ETS-14 (□60)



Mounting Motor Specification		A	B	C	Motor mounting bolts
A	□60	M4	50	10	4-M4 x L20
B	□56	M4	47.14	6.35	4-M4 x L20
C	□56	M4	47.14	8	4-M4 x L20

List of Accessories

[Motor Mounting Parts]

Mounting Motor Specification	Timing belt, Pulley	Motor Size	Motor mounting bolts	
			Size	Quantity
A	Shipped included	□56 □60	M4	4
B			M4	4
C			M4	4

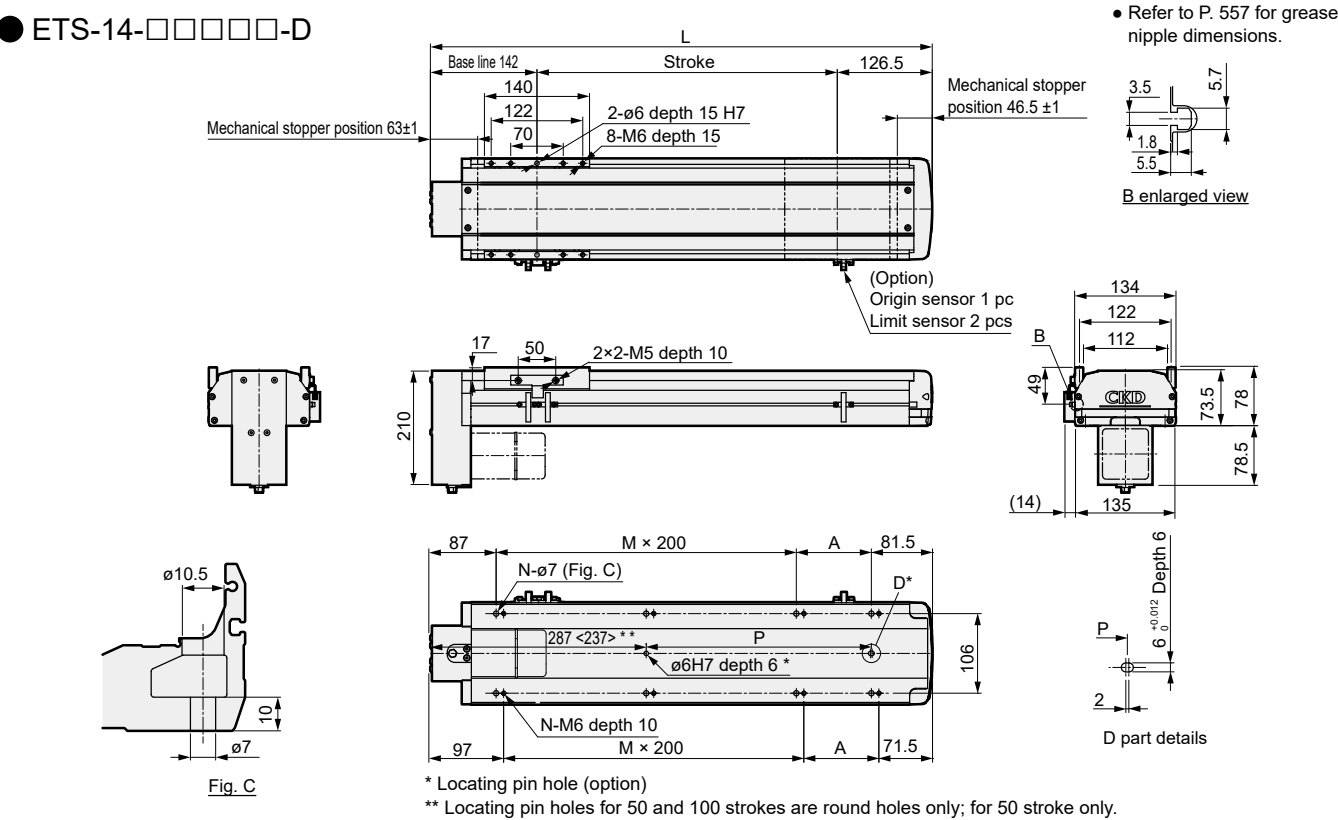
[Home Sensor / Limit Sensor]

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

* For sensor specifications, please refer to P. 556.

External Dimension Drawing Motor Bottom Side Fold-back Mounting

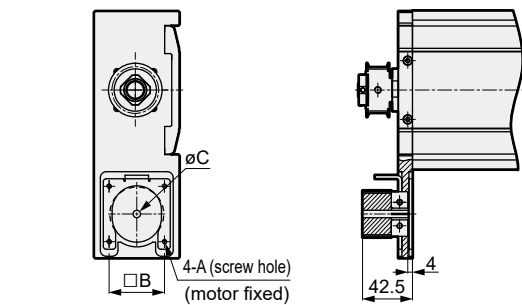
● ETS-14-□□□□□-D



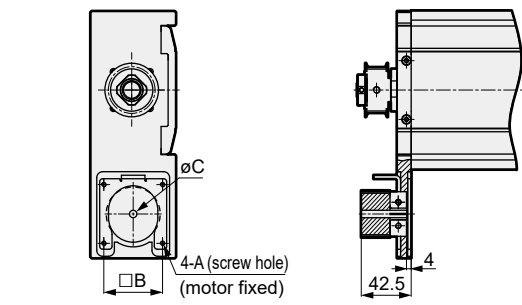
Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
P	0	0	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
Weight (kg)	6.9	7.5	7.9	8.4	8.9	9.4	9.9	10.3	10.9	11.3	11.9	12.3	12.8	13.3	13.8	14.3	14.8	15.3	15.8	16.2	16.8

Motor Mounting Part

● ETS-14 (□56)



● ETS-14 (□60)



Mounting Motor Specification		A	B	C	Motor mounting bolts
A	□60	M4	50	10	4-M4 x L20
B	□56	M4	47.14	6.35	4-M4 x L20
C	□56	M4	47.14	8	4-M4 x L20

List of Accessories

[Motor Mounting Parts]

Mounting Motor Specification	Timing belt, Pulley	Motor Size	Motor mounting bolts	
			Size	Quantity
A	Shipped included	□56 □60	M4	4
B			M4	4
C			M4	4

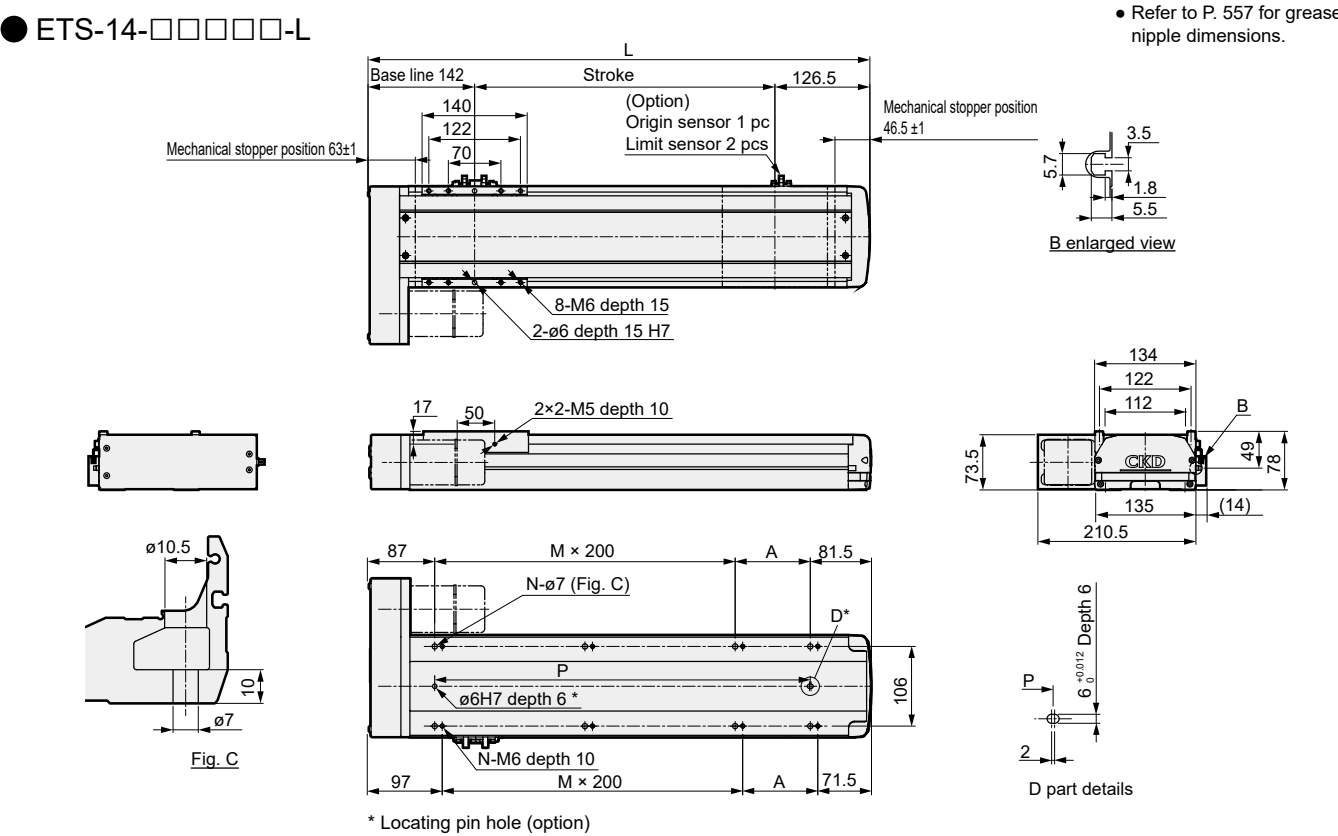
[Home Sensor / Limit Sensor]

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

* For sensor specifications, please refer to P. 556.

External Dimension Drawing Motor Left Side Fold-back Mounting

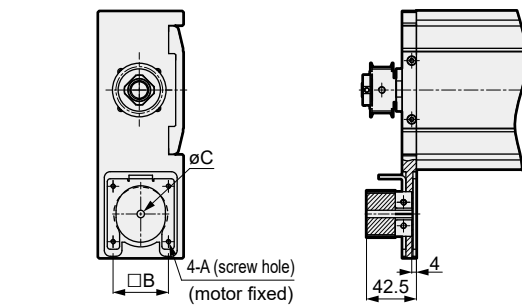
● ETS-14-□□□□□-L



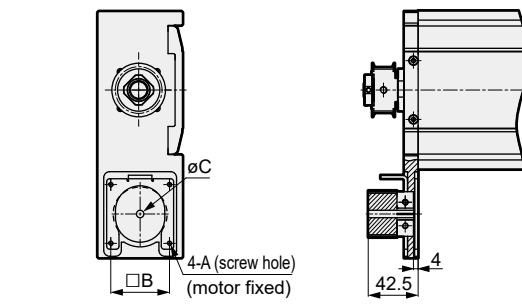
Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
L	318.5	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5	918.5	968.5	1018.5	1068.5	1118.5	1168.5	1218.5	1268.5	1318.5
A	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150
M	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
N	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
P	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150
Weight (kg)	6.9	7.5	7.9	8.4	8.9	9.4	9.9	10.3	10.9	11.3	11.9	12.3	12.8	13.3	13.8	14.3	14.8	15.3	15.8	16.2	16.8

Motor Mounting Part

● ETS-14 (□56)



● ETS-14 (□60)



Mounting Motor Specification		A	B	C	Motor mounting bolts
A	□60	M4	50	10	4-M4 x L20
B	□56	M4	47.14	6.35	4-M4 x L20
C	□56	M4	47.14	8	4-M4 x L20

List of Accessories

[Motor Mounting Parts]

Mounting Motor Specification	Timing belt, Pulley	Motor Size	Motor mounting bolts	
			Size	Quantity
A	Shipped included	□56 □60	M5	4
B			M5	4
C			M4	4

[Home Sensor / Limit Sensor]

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

* For sensor specifications, please refer to P. 556.

Model Selection

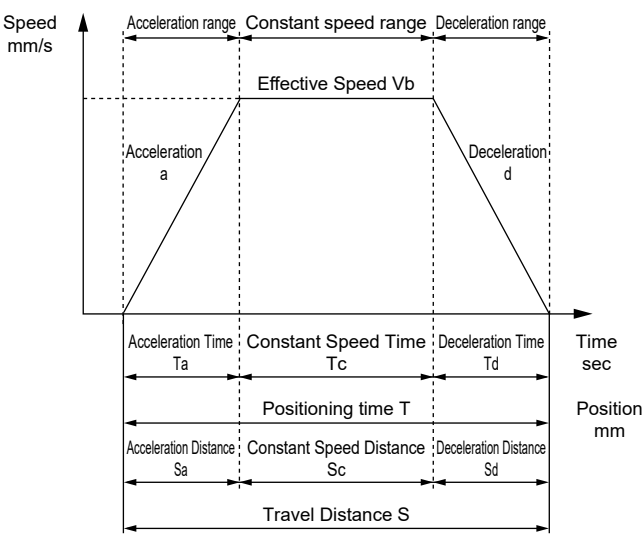
MEMO

STEP-1 Confirmation of Payload

Payload varies depending on mounting orientation, screw lead, and motor performance. Select the size and screw lead by referring to the selection table (P. 536) and the specification table for each model. For motor performance, please contact each motor manufacturer. For motor selection, please use the actuator information (mechanical efficiency, etc.) provided in the specifications column.

STEP-2 Confirmation of Positioning Time

Calculate the positioning time for the selected product according to the example below and check if it meets the required tact time. Select the speed and acceleration/deceleration from the specification table for each model and the motor selected by the customer.



	Content	Code	Unit	Remarks
Setting Value	Set Speed	V	mm/s	
	Set Acceleration	a	mm/s ²	
	Set Deceleration	d	mm/s ²	
	Travel Distance	S	mm	
Calculated Value	Reached Speed	Vmax	mm/s	$= \{2 \times a \times d \times S / (a + d)\}^{1/2}$
	Effective Speed	Vb	mm/s	The smaller of V and Vmax
	Acceleration Time	Ta	s	$= Vb / a$ [0.2 sec or more]
	Deceleration Time	Td	s	$= Vb / d$ [0.2 sec or more]
	Constant Speed Time	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 Time	T	s	$= Ta + Tc + Td$

* Do not use at speeds exceeding the specifications.
* Acceleration/deceleration setting by acceleration/deceleration time varies with set speed and stroke.
* Depending on the acceleration/deceleration and stroke, a trapezoidal velocity waveform may not be formed (the set speed may not be reached). In that case, select the smaller of the set speed (V) and the reached speed (Vmax) as the effective speed (Vb).
* Please use an acceleration/deceleration time of 0.2 sec or more.
* 1 G ≈ 9.8 m/s².
* The customer sets the speed and acceleration/deceleration from the selected motor. For selecting a motor and calculating speed and acceleration/deceleration, please use the actuator information (mechanical efficiency, etc.) provided in the specifications section.

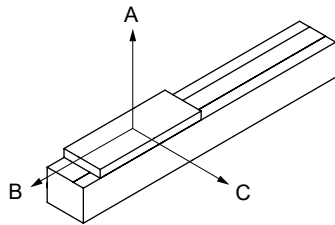
STEP-3 Confirmation of Allowable Overhang Length

Confirm that the overhang length of the load during operation is within the allowable overhang length (P. 554, 555).

For details on selection, please contact our sales representative.

Allowable Overhang Length (ETS Series)

[Horizontal Installation]

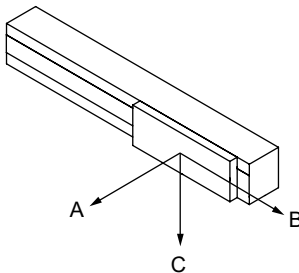


[Allowable Overhang Length]

●ETS-13							●ETS-14						
Motor Mounting	Acceleration/Deceleration Time Sec	Screw Lead	Payload kg	Overhang mm			Motor Mounting	Acceleration/Deceleration Time Sec	Screw Lead	Payload kg	Overhang mm		
				A	B	C					A	B	C
Straight · Fold-back	0.2	5	40	800	65	230	Straight · Fold-back	0.2	5	60	2300	250	240
			55	560	45	160				80	1600	180	170
			70	430	34	120				110	1150	120	115
		10	25	600	100	280			10	30	2000	500	450
			35	420	70	195				50	1400	280	250
			47	300	50	145				88	700	140	125
		16	10	900	230	520			16	10	2200	1200	1000
			20	440	115	250				20	1600	600	500
			30	280	75	170				48	900	260	220
		20	5	1200	430	850			20	10	2300	1200	1000
			15	400	140	270				20	1400	600	500
			24	250	85	160				40	850	280	230

* The above values are the allowable values for the actuator body, and the actual payload may be limited by the motor used by the customer.
* When using in a ceiling-mounted configuration, select the maximum payload, dynamic allowable load, dynamic allowable moment, and overhang length as 1/3 of the specified values. Please use the overhang length to the load's center of gravity within each A, B, and C direction.

[When Wall-Mounted]



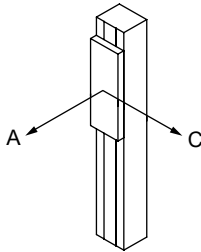
[Allowable Overhang Length]

●ETS-13							●ETS-14						
Motor Mounting	Acceleration/Deceleration Time Sec	Screw Lead	Payload kg	Overhang mm			Motor Mounting	Acceleration/Deceleration Time Sec	Screw Lead	Payload kg	Overhang mm		
				A	B	C					A	B	C
Straight · Fold-back	0.2	5	40	240	70	850	Straight · Fold-back	0.2	5	60	240	250	1600
			55	170	50	600				80	170	180	1200
			70	125	35	450				110	115	120	1050
		10	25	300	100	620			10	30	420	460	1500
			35	210	70	420				50	240	250	1000
			47	150	50	300				88	120	130	700
		16	10	530	230	900			16	10	1050	1200	2650
			20	250	110	430				20	500	620	1450
			30	170	70	280				48	200	230	800
		20	5	900	450	1300			20	10	1000	1200	1900
			15	290	150	420				20	500	600	1000
			24	170	90	260				40	230	290	600

* The above values are the allowable values for the actuator body, and the actual payload may be limited by the motor used by the customer.
* When using in a ceiling-mounted configuration, select the maximum payload, dynamic allowable load, dynamic allowable moment, and overhang length as 1/3 of the specified values. Please use the overhang length to the load's center of gravity within each A, B, and C direction.

Allowable Overhang Length (ETS Series)

[Vertical Installation]



[Allowable Overhang Length]

●ETS-13							●ETS-14						
Motor Mounting	Acceleration/Deceleration Time Sec	Screw Lead	Payload kg	Overhang mm			Motor Mounting	Acceleration/Deceleration Time Sec	Screw Lead	Payload kg	Overhang mm		
				A	B	C					A	B	C
Straight · Fold-back	0.2	5	5	600	-	600	Straight · Fold-back	0.2	5	20	755	-	755
			10	300	-	300				25	605	-	605
			12	250	-	250				33	455	-	455
		10	4	650	-	650			10	10	1350	-	1350
			6	430	-	430				15	900	-	900
			8	320	-	320				22	650	-	650
		16	1	1350	-	1350			16	2	2400	-	2400
			2	900	-	900				4	1700	-	1700
			6	350	-	350				10	1000	-	1000
		20	1	1050	-	1050			20	4	1800	-	1800
			2	900	-	900				6	1200	-	1200
			4	550	-	550				8	900	-	900

* The above values are the allowable values for the actuator body, and the actual payload may be limited by the motor used by the customer.
* When using in a ceiling-mounted configuration, select the maximum payload, dynamic allowable load, dynamic allowable moment, and overhang length as 1/3 of the specified values. Please use the overhang length to the load's center of gravity within each A, B, and C direction.

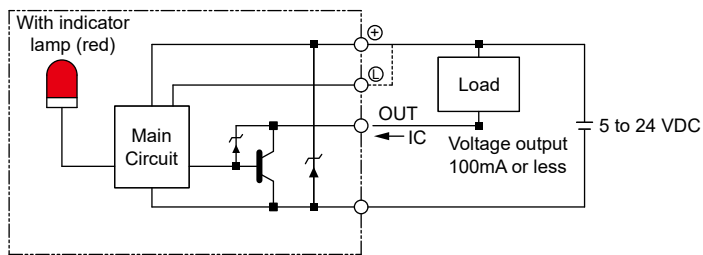
Home Sensor, Limit Sensor

Manufacturer	Model	Quantity
OMRON	EE-SX672	3

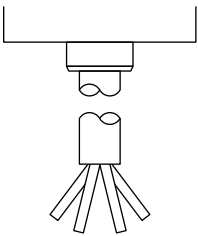
Performance

Item	Specifications
Hysteresis	0.025 mm or less
Light source (peak emission wavelength)	GaAs infrared emitting diode (940 nm)
Indicator Light	Lights up when light is received (red)
Power Supply Voltage	5 to 24 VDC ±10% Ripple (p-p) 10% or less
Current Consumption	35 mA or less (NPN type)
Control output	NPN type: NPN open collector Output 5 to 24 VDC 100 mA or less Off-state current 0.5 mA or less Residual voltage 0.8 V or less (at 100 mA load current) Residual voltage 0.4 V or less (at 40 mA load current)
Ambient illuminance	Illuminance at Light-Receiving Surface: Fluorescent Lamp: 1,000 lx or less
Ambient Temperature Range	Operating: -25 to +55°C Storage: -30 to +80°C (however, no freezing or condensation)
Ambient humidity range	Operating: 5 to 85%RH Storage: 5 to 95%RH (however, no freezing or condensation)
Enclosure	IP50 IEC60529 standard
Cord length	2 m (Connector with cord (EE-1006 2 M))

Output circuit



Wiring Diagram

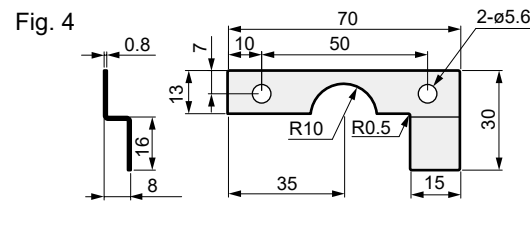
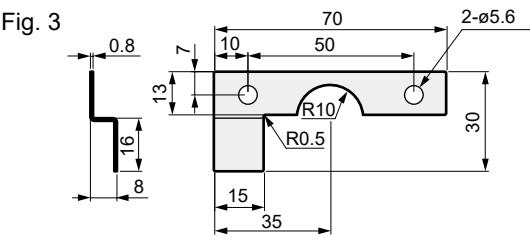
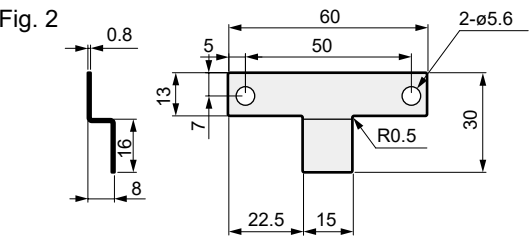
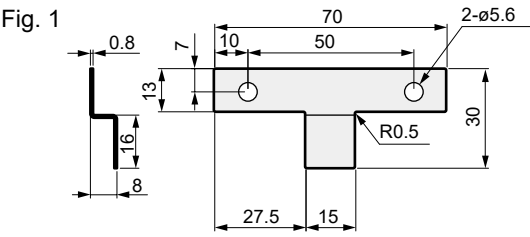


Terminal arrangement

Brown	5 to 24 VDC
Pink	L
Blue	0 V
Black	OUTPUT

Sensor Dog External Dimension Drawing

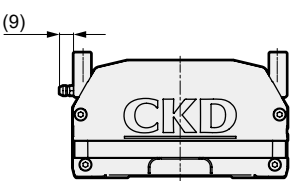
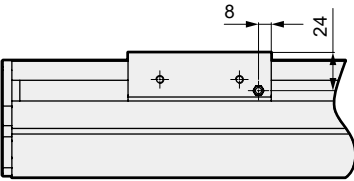
Body Size	E/D	Motor Mounting Direction			
		R		L	
		Without grease nipple	With grease nipple	Without grease nipple	With grease nipple
ETS-13	Fig. 1	Fig. 1	Fig. 2	Fig. 1	Fig. 2
ETS-14	Fig. 1	Fig. 1	Fig. 3	Fig. 1	Fig. 4



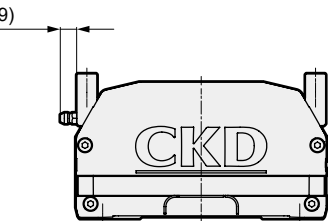
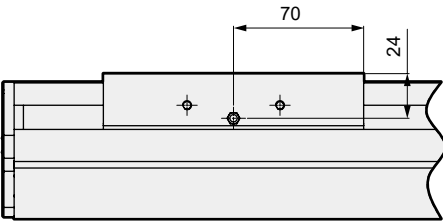
Grease Nipple Dimension Drawing

* Symmetrical with respect to the actuator.

● ETS-13



● ETS-14



List of Accessories

Basic Type

Motor Mounting Bolts (Common for all motor mounting directions)

Model No.	Mounting Motor Specification	Motor Size	Size	Quantity
ETS-13 ETS-14	A	□56 □60	M4	4
	B		M4	4
	C		M4	4

By Motor Mounting Direction

Model No.	Attached Part Name	Quantity
E (External direct mounting)	Coupling (Shipped attached)	1 pc
R (Right fold-back mounting) L (Left fold-back mounting)	Timing Belt	1 pc.
D (Bottom fold-back mounting)	Pulley	1 pc


When home/limit sensor is selected *1

Sensor mounting direction	Shipment Form	Quantity
Inner sensor	Shipped assembled in fixed position	3 pcs. *2
Outer sensor	Shipped included *3	

*1 The shipping form for the home and limit sensors varies depending on whether they are mounted inside or outside.
*2 If "None" is selected for either the home sensor or the limit sensor, the other will also be "None".
*3 Sensor mounting screws are also attached.

Maintenance Parts

● Maintenance parts (external mounted sensor)

Basic Price Model Number	Applicable Models	Part
		
ETS-22008-000001	All models	Body
ETS-22008-000006		Cable



To Use This Product Safely

Be sure to read this before use.
For general information on Electric Actuators, please refer to Intro 15.

Individual Precautions: Electric Actuator ETS Series

During Design and Selection

⚠ Danger

- Do not use in locations where hazardous materials such as ignitable, flammable, or explosive substances are present. There is a possibility of ignition, fire, or explosion.
- Ensure that the product is free of water droplets and oil droplets. This can cause fire or failure.
- When mounting the product, be sure to securely hold and fix it (including the workpiece). There is a risk of injury due to the product tipping over, falling, or malfunctioning.

⚠ Warning

- Use within the product's specified operating range.
- If there is a risk of danger to the human body, install a protective cover.
 - If the moving parts of the electric actuator pose a particular danger to the human body, design the structure so that people cannot enter the drive range of the electric actuator or directly touch that area.
- Design a safety circuit or equipment so that damage to equipment, injury to persons, etc., does not occur when the machine stops in the event of a system failure such as emergency stop or power outage.
- Install indoors with low humidity.

In places exposed to rain or high humidity (over 85% RH, with condensation), there is a risk of electric leakage and fire. Oil drops and oil mist are also strictly prohibited.

 - Use in such environments can cause damage and malfunction.
- Use and store in accordance with the working/storage temperatures and where there is no condensation.

(Storage temperature : -10 °C to 50 °C, Storage humidity : 35 % to 80 %, Operating Temperature : 0 °C to 40 °C, Operating humidity : 35 % to 80 %)
This can cause abnormal product stoppage or reduced service life. If heat accumulates, ventilate.
- Install in a location free from direct sunlight, dust, and corrosive gas/explosive gas/inflammable gas/combustibles, and away from heat sources. In addition, this product has not been considered for chemical resistance. This can cause failure, explosion, or fire.

- Use and store in a location free from strong electromagnetic waves, ultraviolet rays, and radiation. This can cause malfunction or failure.
- Consider the possibility of power source failure.
 - In case of breakdown in the power source, take countermeasures without causing trouble or damage to the operator or equipment.
- Consider the operating state when restarting after an emergency stop or abnormal stop.
 - Design so that restarting does not cause harm to people or damage to the equipment. Also, if it is necessary to reset the electric actuator to the starting position, design a safe control device. Consider the possibility of failure of the installed motor. Take measures to prevent injury to personnel or damage to equipment in the event of a power source failure.
- Avoid using this product where vibration and impact are present.
- Do not apply a load to the product that is greater than or equal to the allowable load listed in the materials for selection.

⚠ Caution

- Do not use in a range where the moving table could collide with the stroke end and break.
- Clearly state the maintenance conditions in the equipment's instruction manual.
 - The functionality of this product may be significantly reduced and safety may not be ensured depending on the usage conditions, environment, and maintenance. If maintenance is performed correctly, the product's functions can be fully utilized.
- Regarding installing, setting up, and/or adjusting the actuator, read through the instruction manual and operate correctly.
- The product is manufactured in conformity with the related standards. Never disassemble or modify.
- Refer to the instruction manual of the motor mounted to the product and control for your safety before wiring and designing.
- The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

For precautions regarding mounting, installation, adjustment, operation, and maintenance, please refer to the CKD Equipment Product Site(<https://www.ckd.co.jp/kiki/en/>) → 'model No.' → [Instruction Manual](#).

Servo motor compatible

EBS

EBR

ETS

ECS

Servo motor compatible

EBS

EBR

ETS

ECS

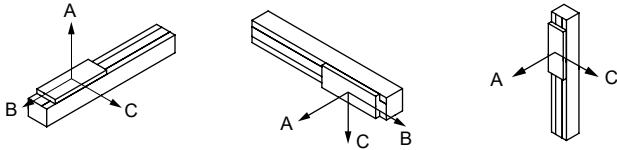
ETModel Selection Check Sheet → CKD(Contact

Please fill out this form and send it to your nearest sales office. We will respond with the model selection results.

Customer :

Company		Department	
Name		E-mail	
TEL		FAX	

Selection Conditions :

Desired Model	(ETS)-		
Basic Specifications	Max. Stroke : mm, Ball screw lead : mm		
Operating Conditions	Moving stroke : mm, travel time : s		
	Set Speed : mm/s		
	Set acceleration/deceleration : mm/s ² (set acceleration/deceleration time : s)		
	Repeatability : ± mm		
Load Conditions	Slider Type		
	Load weight : kg		
	Mounting Orientation : Horizontal / Wall-mounted / Vertical / Ceiling-mounted / Other		
			
	Distance from slider center to load's center of gravity		
	Direction A :	mm	
	Direction B :	mm	
	Direction C :	mm	
Operating Environment	Pressing load :		
	None / Yes (N)		
	During operation / When stopped		
Motor Used	Ambient Temperature : °C, Ambient Humidity : %		
	Atmosphere :		
Special Notes	Manufacturer : , Model No. :		
	Motor capacity, size :		

MEMO

Servo motor compatible

EBS

EBR

ETS

ECS

Servo motor compatible

BS

BR

TS

CS

Ending

nding