



Electric actuator Rod

ESD2 Series

Compatibility function allows the controller, actuator and cable to be freely combined

The electric actuator that works like a pneumatic cylinder

● Motor sizes: □42 / □56



Actuator specifications

Descriptions		ESD2-35		ESD2-45		ESD2-55	
Actuator		Rod					
Motor		Stepping motor					
Encoder		Incremental					
Drive system		Rolling ball screw Outer diameter 8 mm				Rolling ball screw Outer diameter 12 mm	
Motor size		□42				□56	
Screw lead mm		6	12	6	12	6	12
Stroke mm		50, 100, 150		50, 100, 150, 200		50, 100, 150, 200 250, 300	
Operation speed range mm/s		15 to 300	30 to 600	15 to 300	30 to 600	15 to 200	30 to 400
Operation acceleration/deceleration speed range m/s ²		1.0 to 3.0					
Repeatability mm		±0.02					
Lost motion mm		0.1 or less					
Max. load capacity *1	Horizontal kg	33	16	33	16	67	34
	Vertical kg	10	4	10	4	15	6.5
Maximum pressing force N		220	110	220	110	640	320
Motor power supply voltage		24 VDC±10%					
Motor section maximum instantaneous current A		2.7		2.7		4	
Brake	Type	Non-excitation operation					
	Power supply voltage	24 VDC±10%					
	Power consumption W	6.1				7.2	
	Holding force N	140	70	140	70	610	305
Insulation resistance		10 MΩ or higher 500 VDC					
Withstand voltage		500 VAC for 1 minute					
Operating ambient temperature		0 to 40°C (no freezing)					
Operating ambient humidity		35 to 80% RH (no condensation)					
Storage ambient temperature		-10 to 50°C (no freezing)					
Storage ambient humidity		35 to 80% RH (no condensation)					
Atmosphere		No corrosive gas, explosive gas, or dust					
Degree of protection		IP4X					

*1: The maximum load capacity decreases when the speed increases. For more details, refer to the vertical and horizontal load capacity charts and graphs in the next page.

In addition, a static or dynamic load moment cannot be applied to the rod. Use a linear guide, etc., to prevent a radial load from being placed on the rod.

Weight

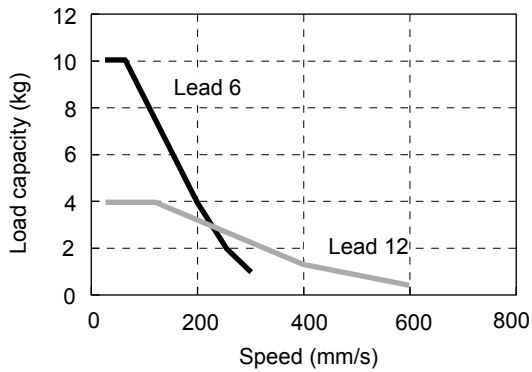
(kg)

Body size	Motor mounting direction	50 st	100 st	150 st	200 st	250 st	300 st
ESD2-35	E	1.3 (1.7)	1.5 (1.9)	1.6 (2.0)	-	-	-
	R/L/D	1.5 (1.8)	1.7 (2.0)	1.8 (2.1)			
ESD2-45	E	1.7 (2.1)	2.0 (2.4)	2.2 (2.6)	2.5 (2.9)	-	-
	R/L/D	1.9 (2.2)	2.2 (2.5)	2.4 (2.7)	2.7 (3.0)		
ESD2-55	E	3.0 (3.7)	3.4 (4.1)	3.8 (4.5)	4.1 (4.8)	4.5 (5.2)	4.9 (5.6)
	R/L/D	3.5 (4.1)	3.9 (4.5)	4.3 (4.9)	4.6 (5.2)	5.0 (5.6)	5.4 (6.0)

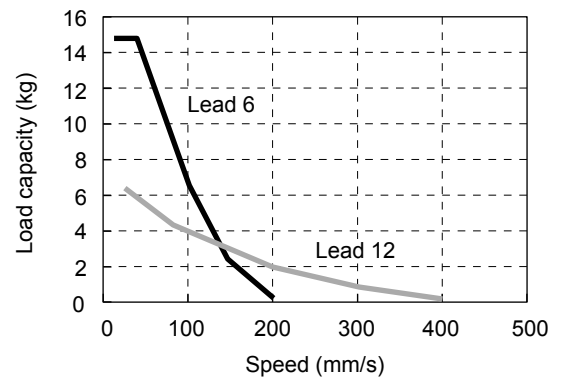
Note: the numbers in () indicate the product weight with the brake

Vertical load capacity

● ESD2-35, 45

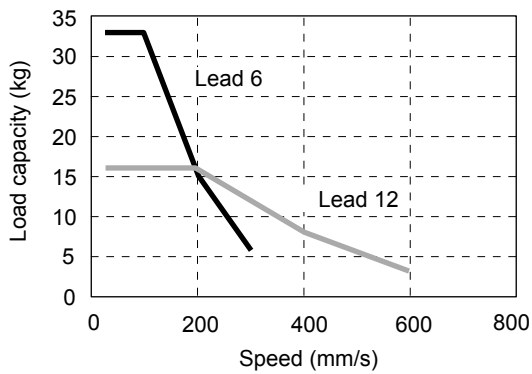


● ESD2-55

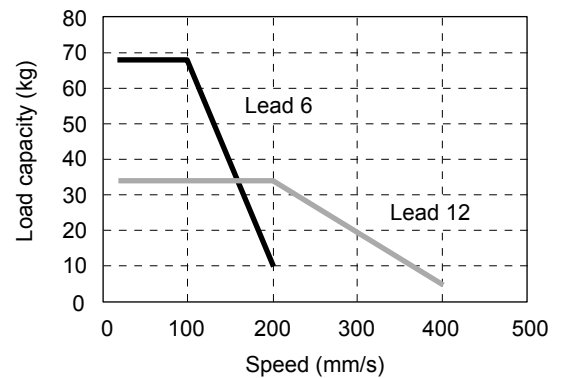


Horizontal load capacity

● ESD2-35, 45

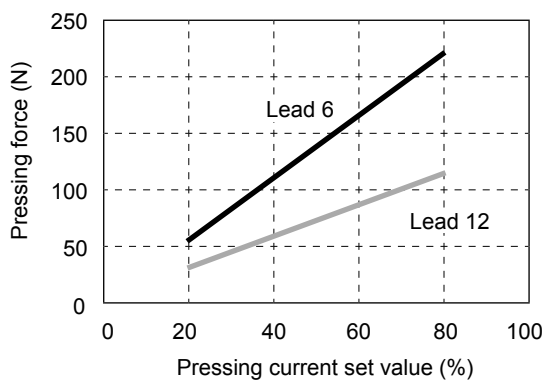


● ESD2-55

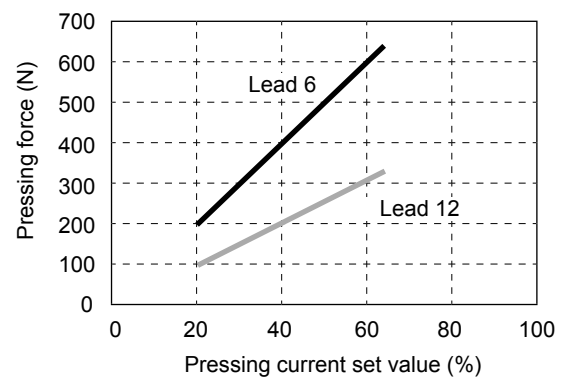


Pressing force

● ESD2-35, 45



● ESD2-55

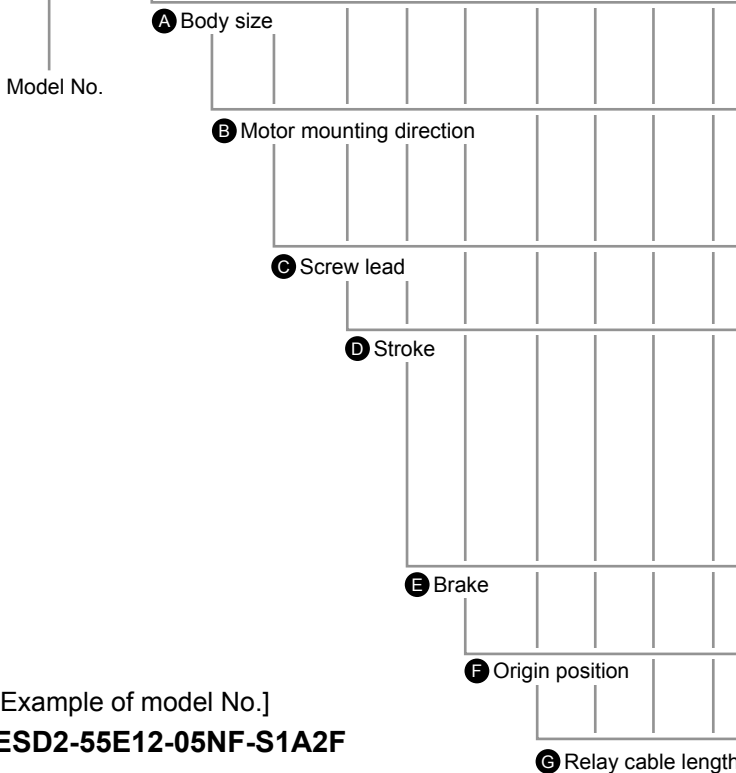


ESD2 Series

How to order

● Set model No. (actuator, controller, cable)

ESD2-55E12-05NF-S1A2F



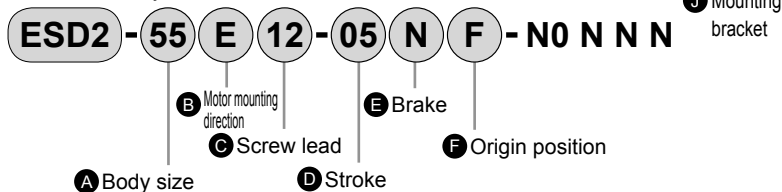
[Example of model No.]

ESD2-55E12-05NF-S1A2F

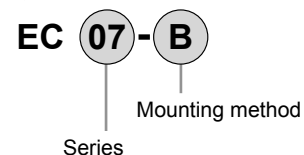
- A** Body size : 55
- B** Motor mounting direction : standard mounting (straight)
- C** Screw lead : 12 mm
- D** Stroke : 50 mm
- E** Brake : without brake
- F** Origin position : opposite side of the motor
- G** Relay cable length : fixed cable 1 m
- H** Controller : EC07 standard mounting
- I** I/O Cable length : 2 m
- J** Mounting bracket : flange bracket included

*1: When **G** controller is set to "N", also select "N" for **H** I/O cable.

● Actuator body discrete model No.

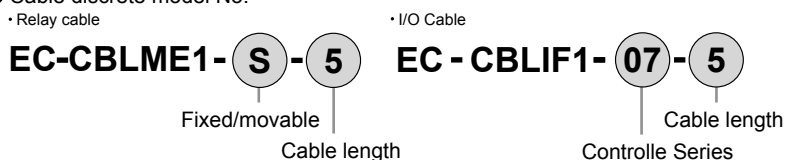


● Controller individual model No.



*For details, refer to "How to order" on page 29.

● Cable discrete model No.



*Refer to page 42 for details.

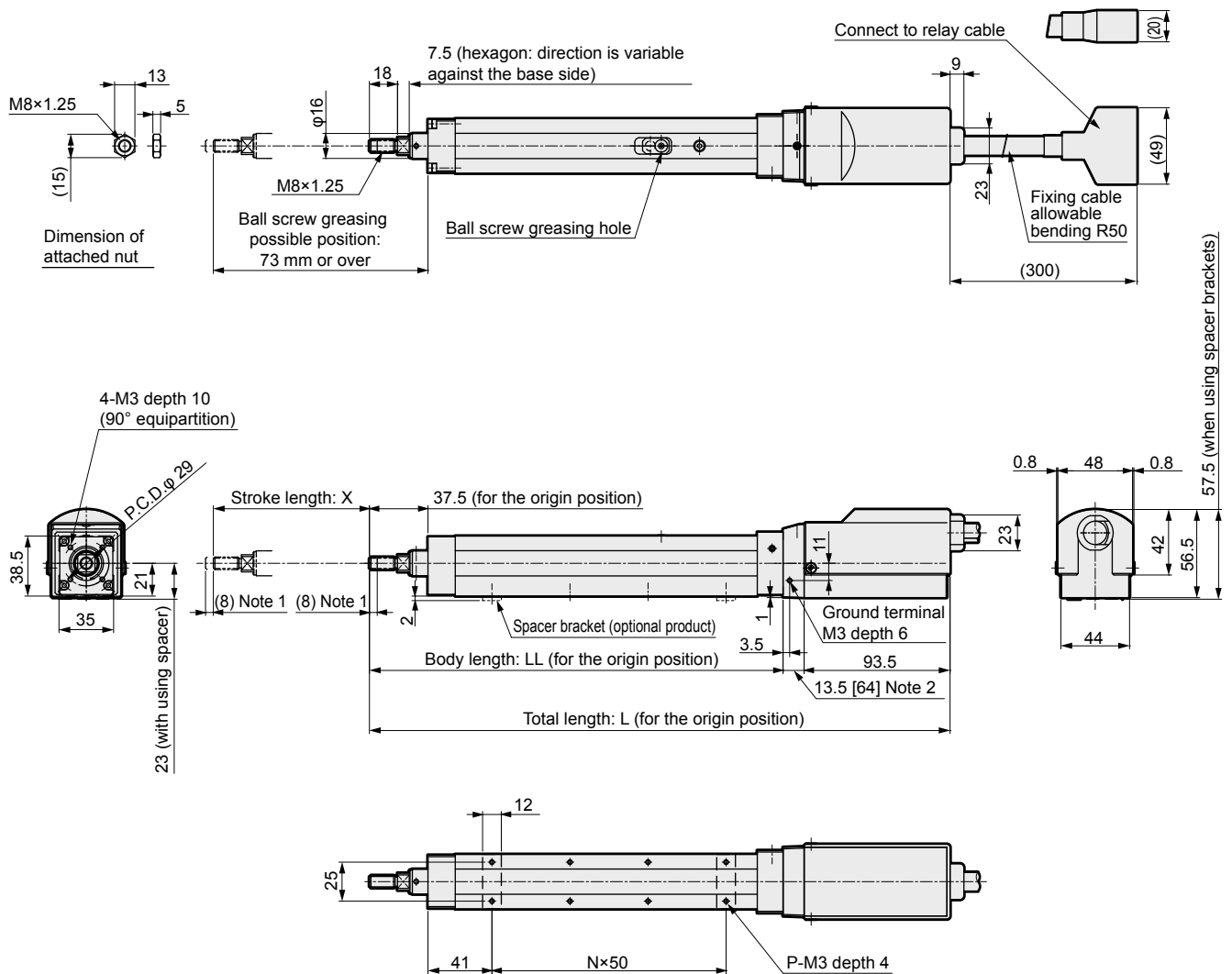
Code	Content			
A Body size				
35	Body size 35			
45	Body size 45			
55	Body size 55			
B Motor mounting direction				
E	Standard mounting (straight)			
R	Right-hand mounting			
L	Left-hand mounting			
D	Bottom mounting			
C Screw lead				
06	6 mm			
12	12 mm			
D Stroke				
Code	Length	Body size		
		35	45	55
05	50 mm	●	●	●
10	100 mm	●	●	●
15	150 mm	●	●	●
20	200 mm		●	●
25	250 mm			●
30	300 mm			●
E Brake				
N	Without brake			
B	With brake			
F Origin position				
M	Motor side			
F	Opposite side of the motor			
G Relay cable length				
N0	None			
S1	Fixed cable	1 m		
S3	Fixed cable	3 m		
S5	Fixed cable	5 m		
SX	Fixed cable	10 m		
R1	Movable cable	1 m		
R3	Movable cable	3 m		
R5	Movable cable	5 m		
RX	Movable cable	10 m		
H Controller				
N	None	*1		
A	EC07	standard mount		
B	EC07	DIN rail mount		
C	EC63	standard mount		
D	EC63	DIN rail mount		
E	ECPT	standard mount *2		
F	ECPT	DIN rail mount *2		
I I/O Cable length				
N	None			
2	2 m			
3	3 m *3			
5	5 m *3			
J Mounting bracket				
N	None			
L	Foot bracket included			
F	Flange bracket included			
S	Spacer (body size 35, 55 only)			

*2: Use a PLC unit which meets the ECPT pulse train signal input specifications (refer to page 34).

*3: If the code for the controller is E or F, these cables can be used only when the differential system is used as the pulse train signal system. Only a cable length of 2 m can be used with the open collector system.

Dimensions

● ESD2-35E (standard mounting straight)



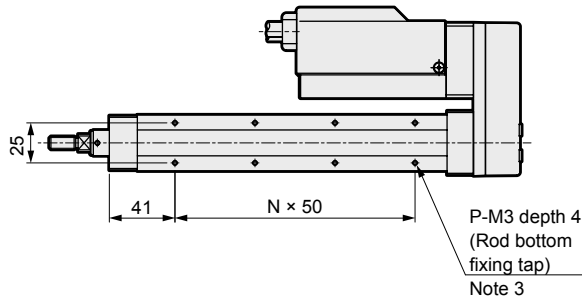
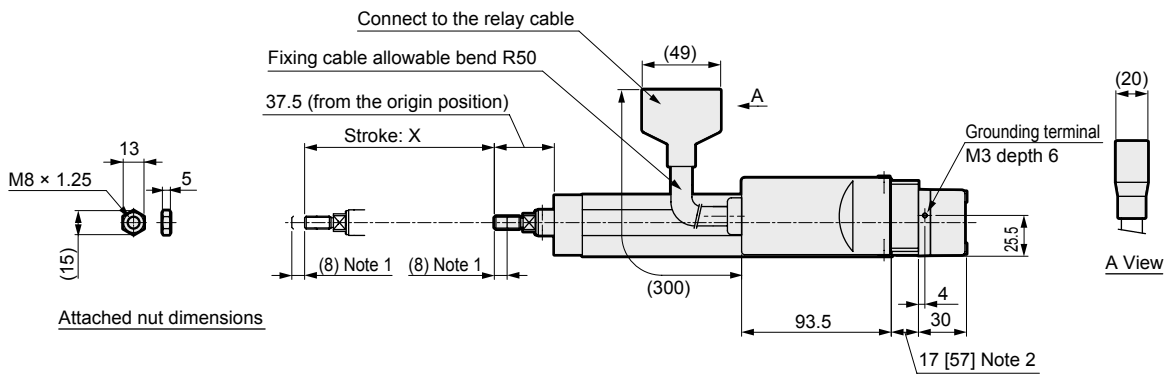
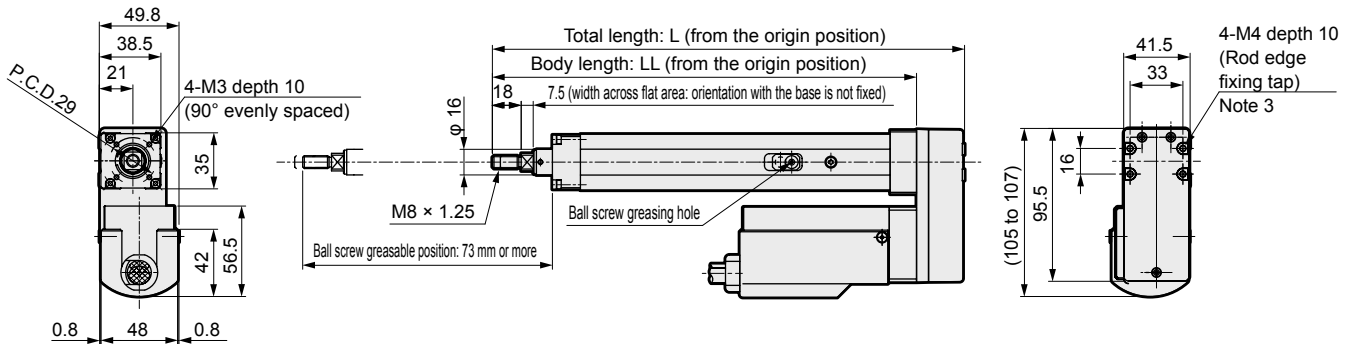
Note 1: Operating range during origin return

Note 2: The numbers within the [] are the dimensions with the brake

Stroke	Code	05	10	15
	X (mm)	50	100	150
Total length L (mm)	Without brake	322	372	422
	With brake	372.5	422.5	472.5
Body length LL (mm)		215	265	315
Number of mounting holes P		6	8	10
Number of mounting hole intervals N		2	3	4
Weight (kg)	Without brake	1.3	1.5	1.6
	With brake	1.7	1.9	2.0

Dimensions

● ESD2-35R (right-hand mounting)



Note 1: Operating range during origin return

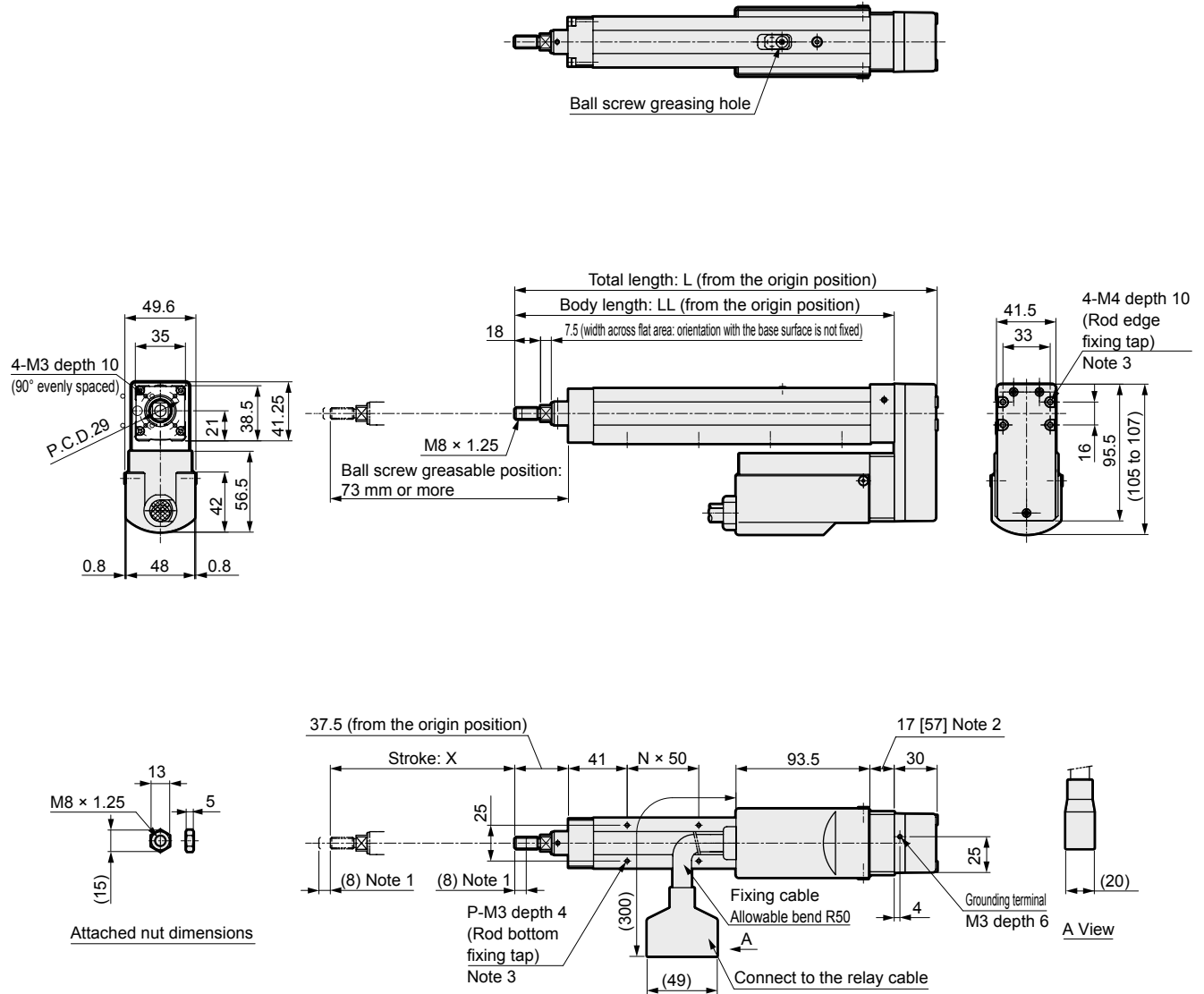
Note 2: The numbers within the [] are the dimensions with the brake

Note 3: Be sure to also mount and use the fixing tap for the rod bottom when using the fixing tap for the rod edge.

Stroke	Code	05	10	15
	X (mm)	50	100	150
Total length L (mm)		245	295	345
Body length LL (mm)		215	265	315
Number of mounting holes P		6	8	10
Number of mounting hole intervals N		2	3	4
Weight (kg)	Without brake	1.5	1.7	1.8
	With brake	1.8	2.0	2.1

Dimensions

● ESD2-35D (bottom mounting)



Note 1: Operating range during origin return

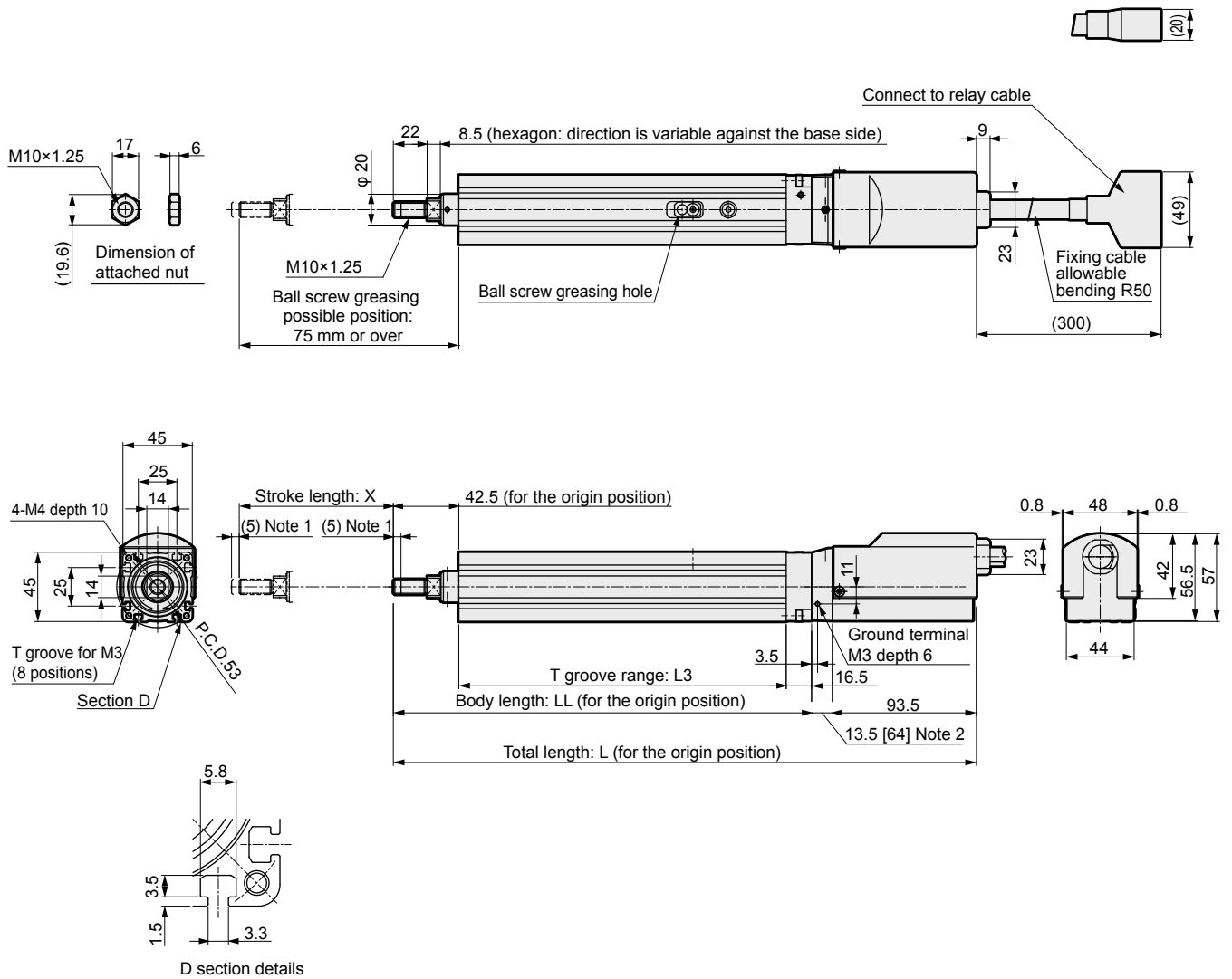
Note 2: The numbers within the [] are the dimensions with the brake

Note 3: Be sure to also mount and use the fixing tap for the rod bottom when using the fixing tap for the rod edge.

Stroke	Code	05	10	15
	X (mm)	50	100	150
Total length L (mm)		245	295	345
Body length LL (mm)		215	265	315
Number of mounting holes P	Without brake	2	4	6
	With brake	0	2	4
Number of mounting hole intervals N	Without brake	0	1	2
	With brake	0	0	1
Weight (kg)	Without brake	1.5	1.7	1.8
	With brake	1.8	2.0	2.1

Dimensions

- ESD2-45E (standard mounting straight)



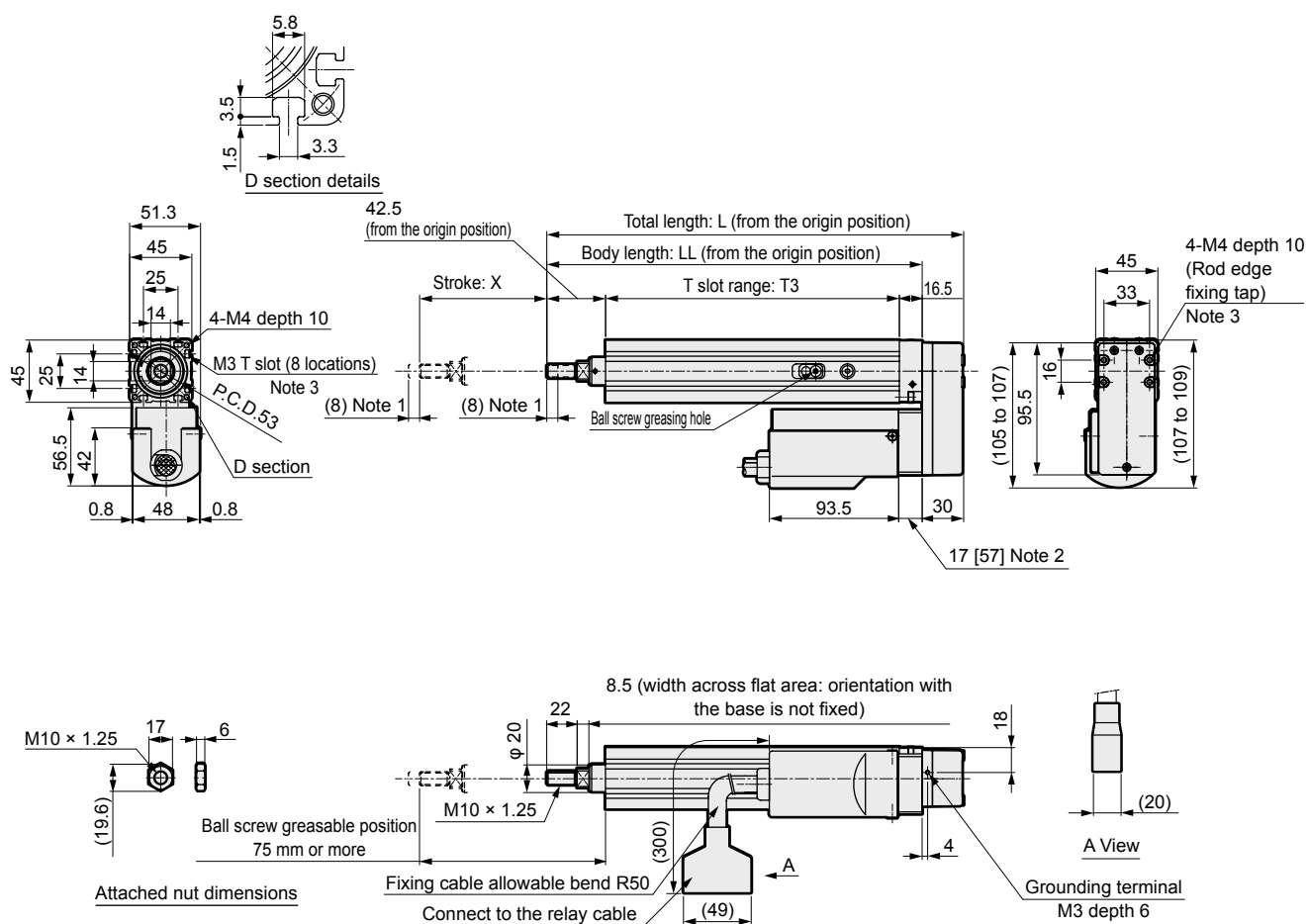
Note 1: Operating range during origin return

Note 2: The numbers within the [] are the dimensions with the brake

Stroke	Code	05	10	15	20
	X (mm)	50	100	150	200
Total length L (mm)	Without brake	328.5	378.5	428.5	478.5
	With brake	379	429	479	529
Body length LL (mm)		221.5	271.5	321.5	371.5
T slot range L3 (mm)		162.5	212.5	262.5	312.5
Weight (kg)	Without brake	1.7	2.0	2.2	2.5
	With brake	2.1	2.4	2.6	2.9

Dimensions

● ESD2-45R (right-hand mounting)



Note 1: Operating range during origin return

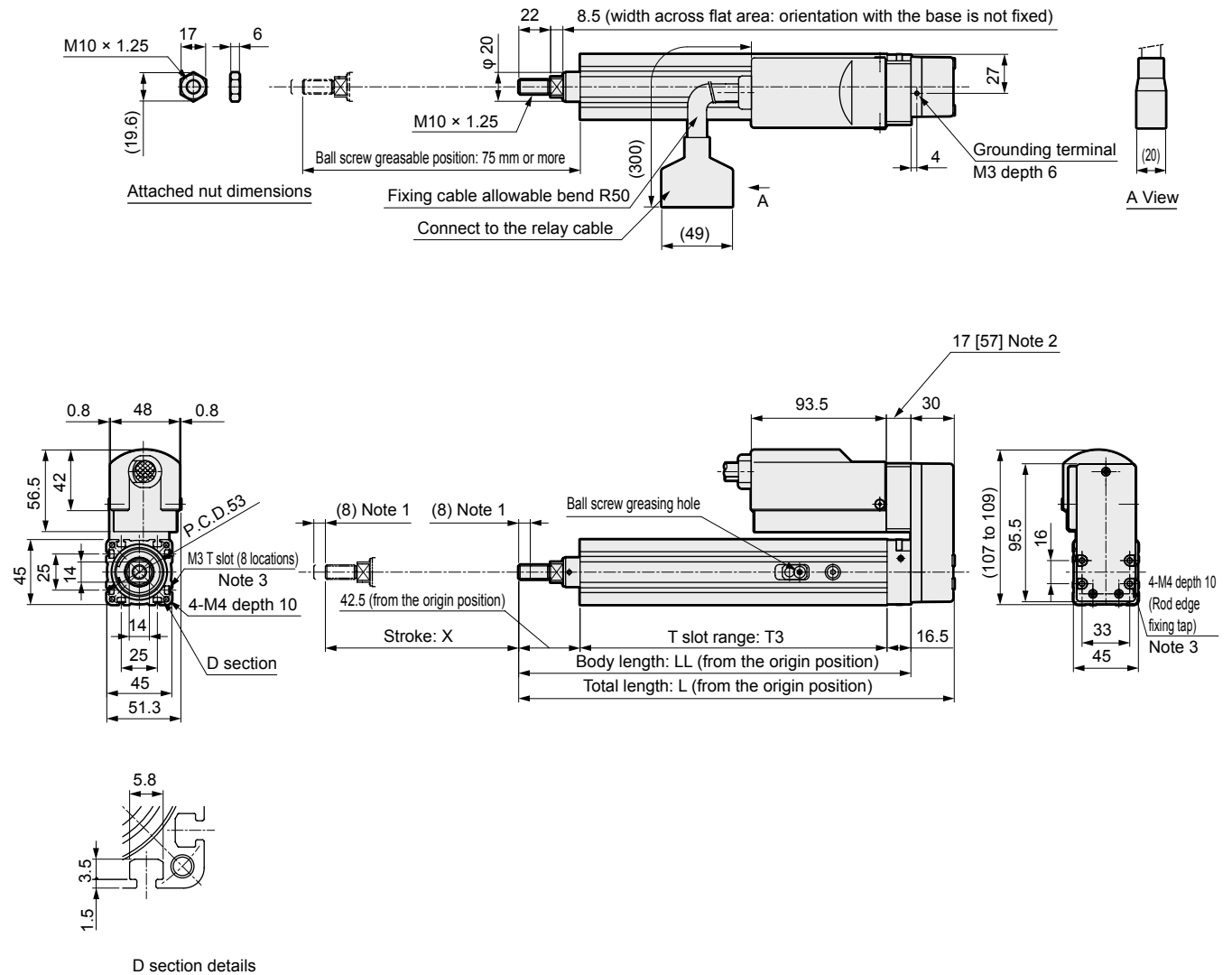
Note 2: The numbers within the [] are the dimensions with the brake

Note 3: Be sure to also mount and use the M3 T slot when using the fixing tap for the rod edge.

Stroke	Code	05	10	15	20
	X (mm)	50	100	150	200
Total length L (mm)		251.5	301.5	351.5	401.5
Body length LL (mm)		221.5	271.5	321.5	371.5
T slot range L3 (mm)		162.5	212.5	262.5	312.5
Weight (kg)	Without brake	1.9	2.2	2.4	2.7
	With brake	2.2	2.5	2.7	3.0

Dimensions

● ESD2-45L (left-hand mounting)



Note 1: Operating range during origin return

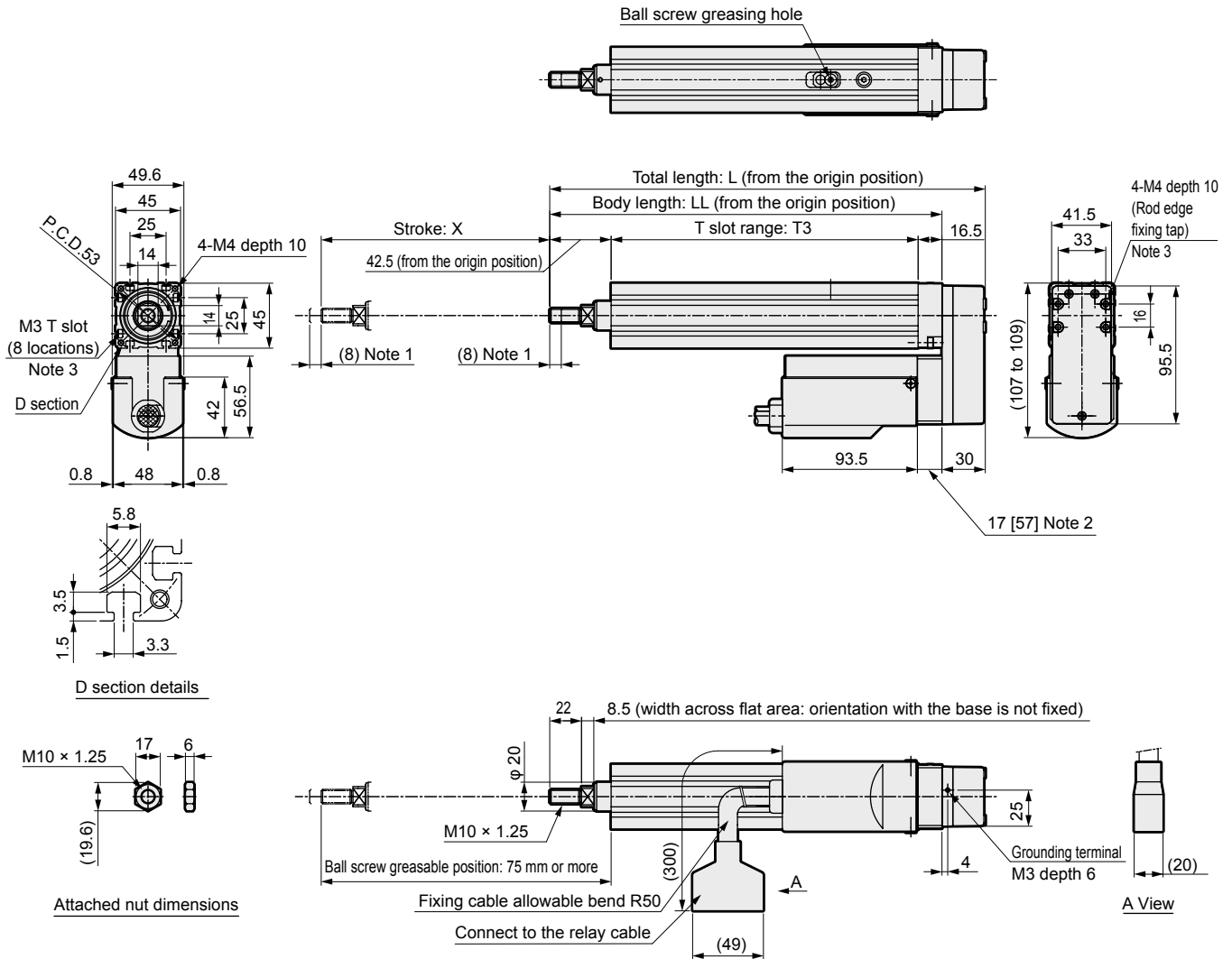
Note 2: The numbers within the [] are the dimensions with the brake

Note 3: Be sure to also mount and use the M3 T slot when using the fixing tap for the rod edge.

Stroke	Code	05	10	15	20
	X (mm)	50	100	150	200
Total length L (mm)		251.5	301.5	351.5	401.5
Body length LL (mm)		221.5	271.5	321.5	371.5
T slot range L3 (mm)		162.5	212.5	262.5	312.5
Weight (kg)	Without brake	1.9	2.2	2.4	2.7
	With brake	2.2	2.5	2.7	3.0

Dimensions

● ESD2-45D (bottom mounting)



Note 1: Operating range during origin return

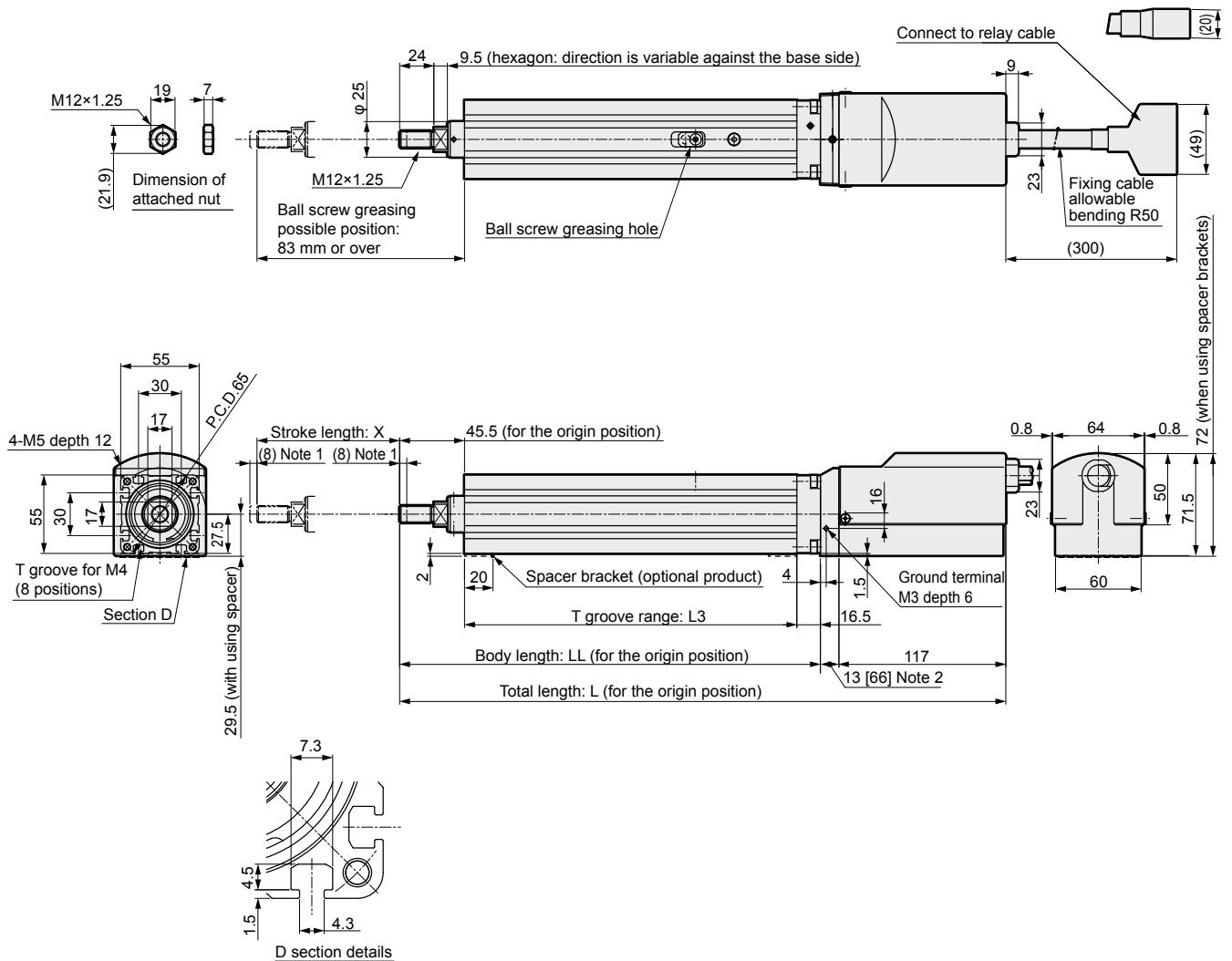
Note 2: The numbers within the [] are the dimensions with the brake

Note 3: Be sure to also mount and use the M3 T slot when using the fixing tap for the rod edge.

Stroke	Code	05	10	15	20
	X (mm)	50	100	150	200
Total length L (mm)		251.5	301.5	351.5	401.5
Body length LL (mm)		221.5	271.5	321.5	371.5
T slot range L3 (mm)		162.5	212.5	262.5	312.5
Weight (kg)	Without brake	1.9	2.2	2.4	2.7
	With brake	2.2	2.5	2.7	3.0

Dimensions

● ESD2-55E (standard mounting straight)



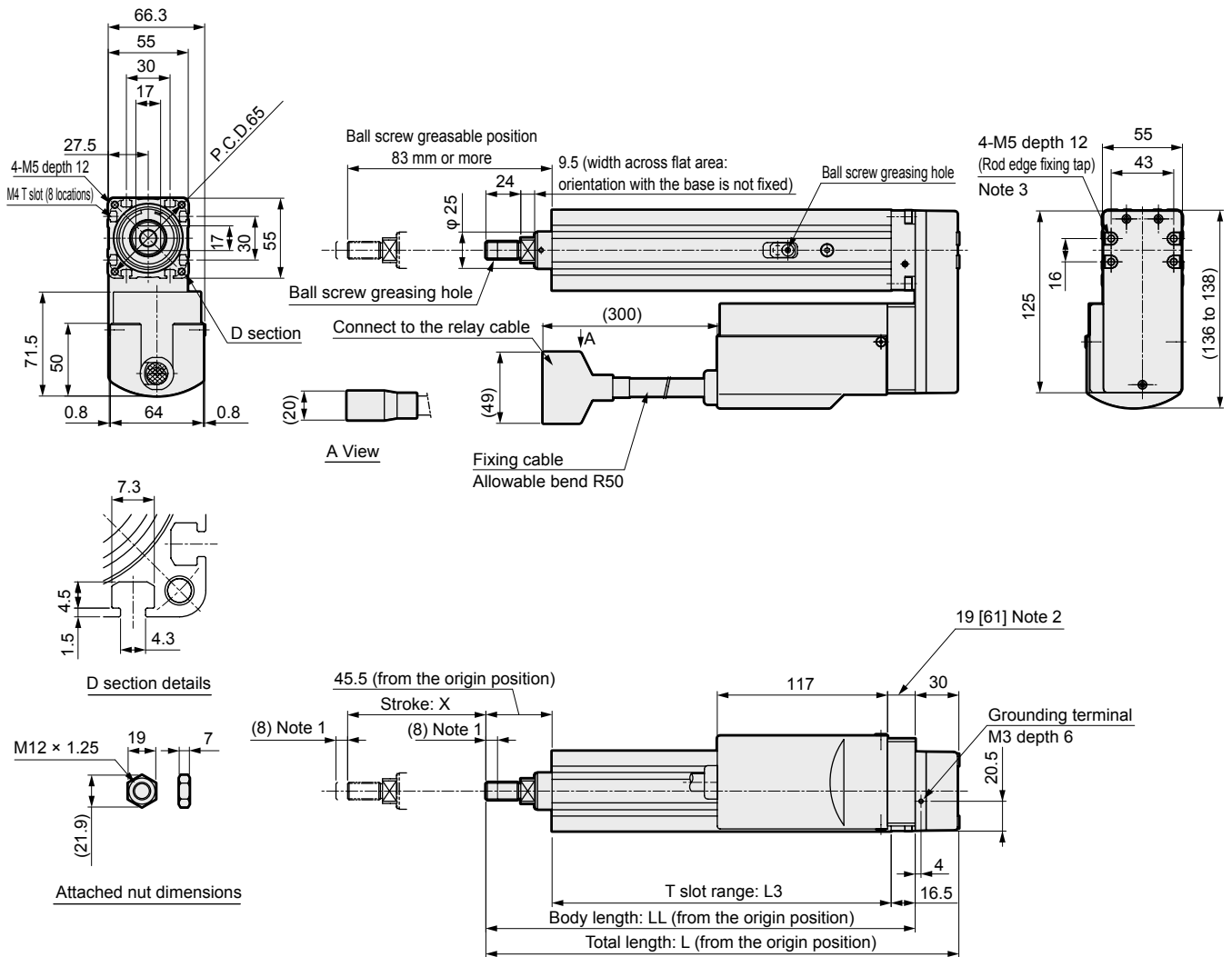
Note 1: Operating range during origin return

Note 2: The numbers within the [] are the dimensions with the brake

Stroke	Code	05	10	15	20	25	30
	X (mm)	50	100	150	200	250	300
Total length L (mm)	Without brake	375	425	475	525	575	625
	With brake	428	478	528	578	628	678
Body length LL (mm)		245	295	345	395	445	495
T slot range L3 (mm)		183	233	283	333	383	433
Weight (kg)	Without brake	3.0	3.4	3.8	4.1	4.5	4.9
	With brake	3.7	4.1	4.5	4.8	5.2	5.6

Dimensions

● ESD2-55R (right-hand mounting)



Note 1: Operating range during origin return

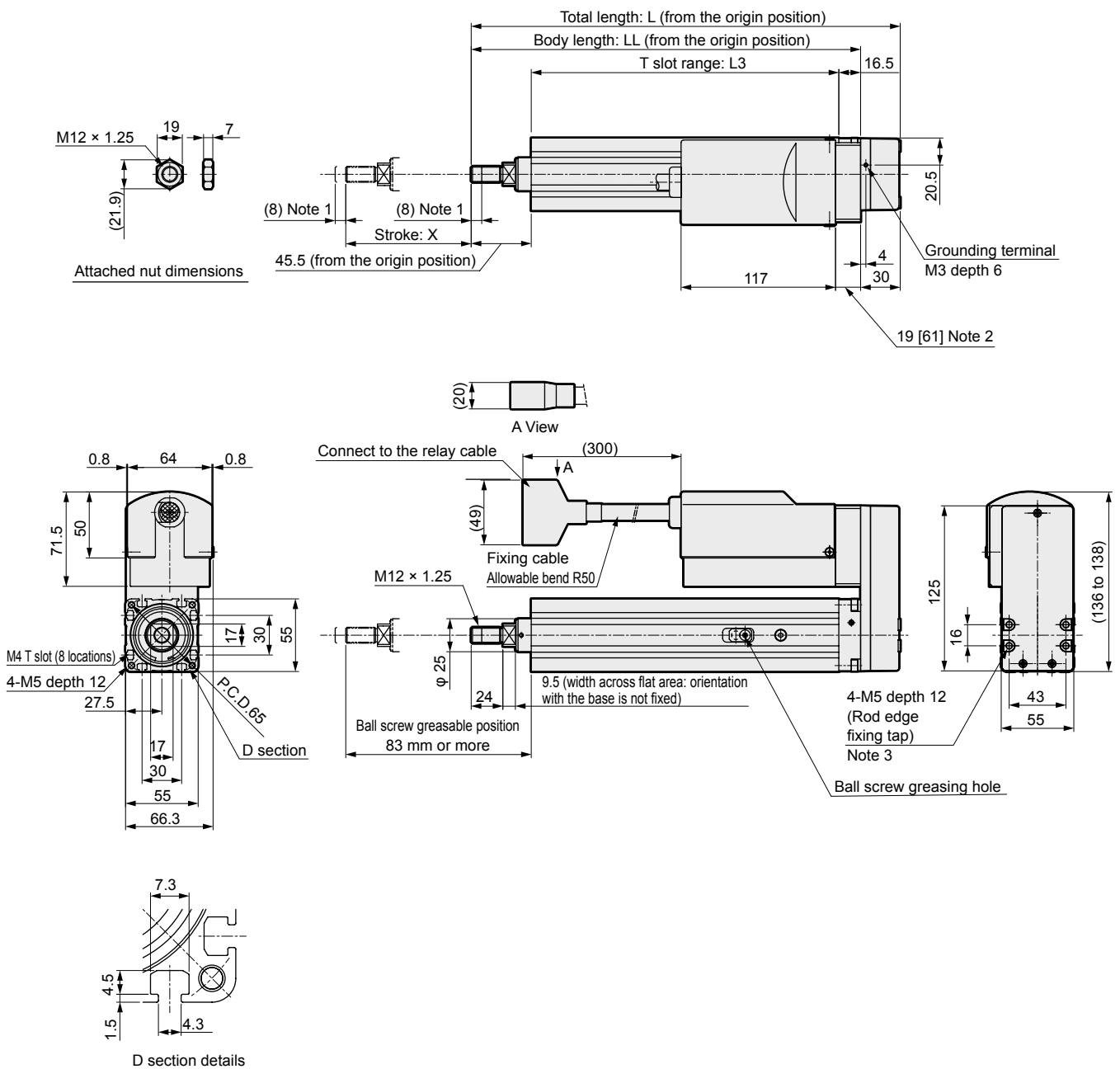
Note 2: The numbers within the [] are the dimensions with the brake

Note 3: Be sure to also mount and use the M4 T slot when using the fixing tap for the rod edge.

Stroke	Code	05	10	15	20	25	30
	X (mm)	50	100	150	200	250	300
Total length L (mm)		275	325	375	425	475	525
Body length LL (mm)		245	295	345	395	445	495
T slot range L3 (mm)		183	233	283	333	383	433
Weight (kg)	Without brake	3.5	3.9	4.3	4.6	5.0	5.4
	With brake	4.1	4.5	4.9	5.2	5.6	6.0

Dimensions

● ESD2-55L (left-hand mounting)



Note 1: Operating range during origin return

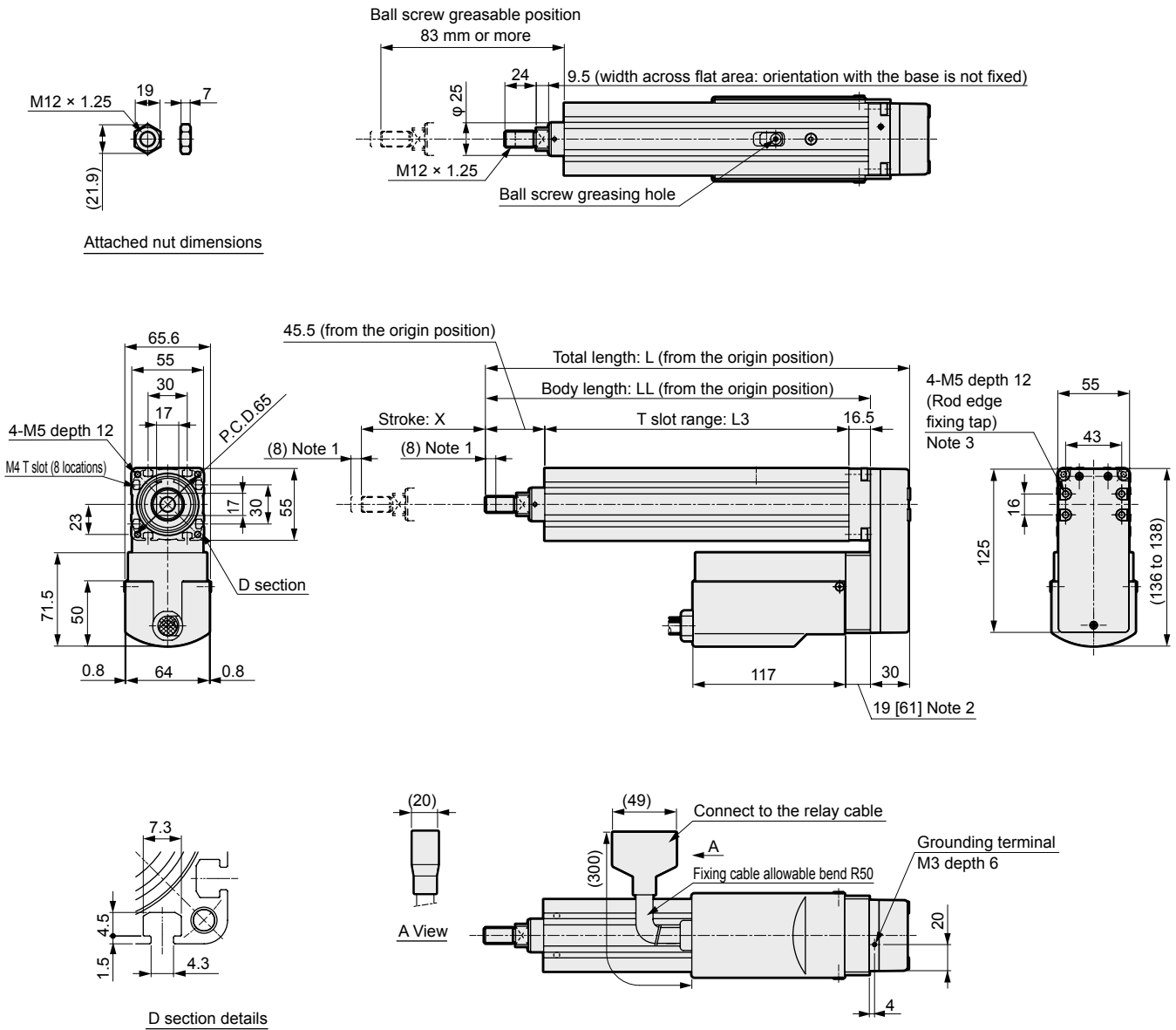
Note 2: The numbers within the [] are the dimensions with the brake

Note 3: Be sure to also mount and use the M4 T slot when using the fixing tap for the rod edge.

Stroke	Code	05	10	15	20	25	30
	X (mm)	50	100	150	200	250	300
Total length L (mm)		275	325	375	425	475	525
Body length LL (mm)		245	295	345	395	445	495
T slot range L3 (mm)		183	233	283	333	383	433
Weight (kg)	Without brake	3.5	3.9	4.3	4.6	5.0	5.4
	With brake	4.1	4.5	4.9	5.2	5.6	6.0

Dimensions

● ESD2-55D (bottom mounting)



Note 1: Operating range during origin return
 Note 2: The numbers within the [] are the dimensions with the brake
 Note 3: Be sure to also mount and use the M4 T slot when using the fixing tap for the rod edge.

Stroke	Code	05	10	15	20	25	30
	X (mm)	50	100	150	200	250	300
Total length L (mm)		275	325	375	425	475	525
Body length LL (mm)		245	295	345	395	445	495
T slot range L3 (mm)		183	233	283	333	383	433
Weight (kg)	Without brake	3.5	3.9	4.3	4.6	5.0	5.4
	With brake	4.1	4.5	4.9	5.2	5.6	6.0

Option (mounting bracket)

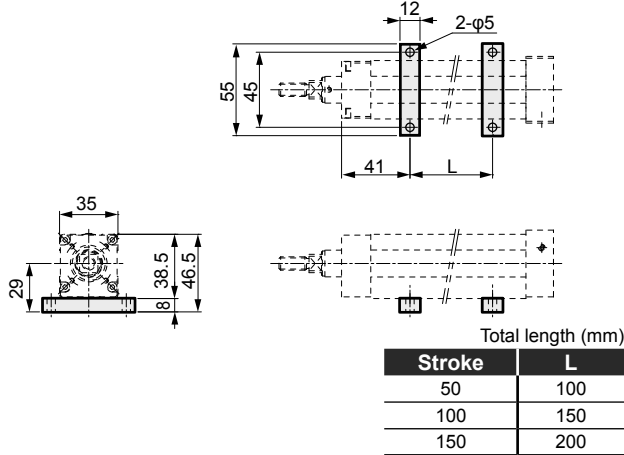
The following kits are included with the product with the mounting bracket option.

● Option : LB

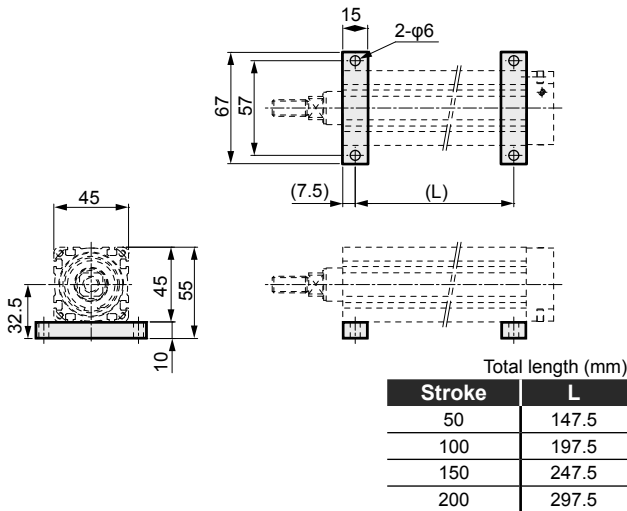
Foot kit model No.: ESD-[Body size]-LB

Foot bracket fitting dimensions

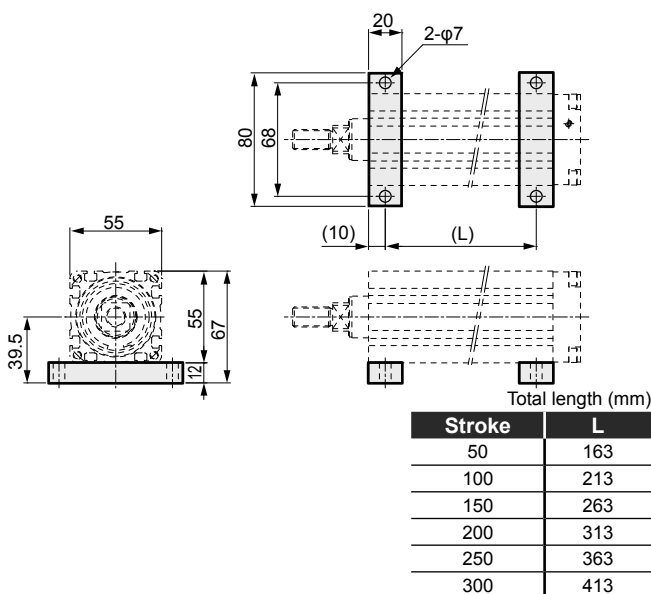
Set model No.: ESD2-35E □ - □□□ - □□□ L



Set model No.: ESD2-45E □ - □□□ - □□□ L



Set model No.: ESD2-55E □ - □□□ - □□□ L

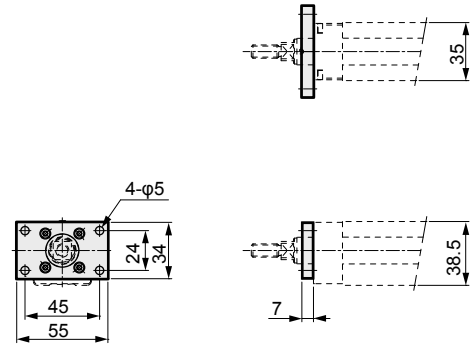


● Option : FA

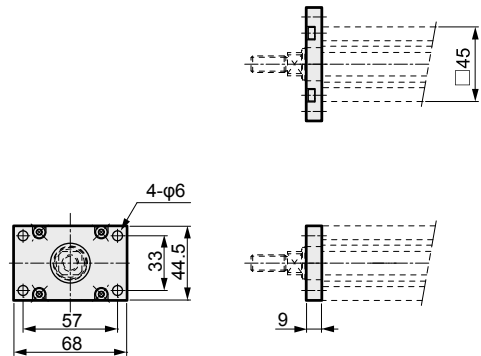
Flange kit model No.: ESD-[Body size]-FA

Flange bracket fitting dimensions

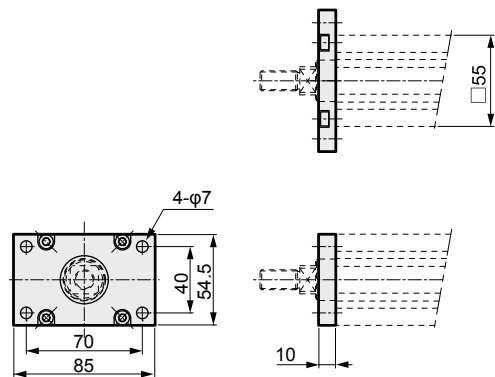
Set model No.: ESD2-35E □ - □□□ - □□□ F



Set model No.: ESD2-45E □ - □□□ - □□□ F



Set model No.: ESD2-55E □ - □□□ - □□□ F



● Option : SP

Spacer kit model No.: ESD-[³⁵/₅₅]-SP

Set model No.: ESD2-[³⁵/₅₅]E □ - □□□ - □□□ S

*Refer to the spacer bracket fitting dimensions on pages 16 and 24.