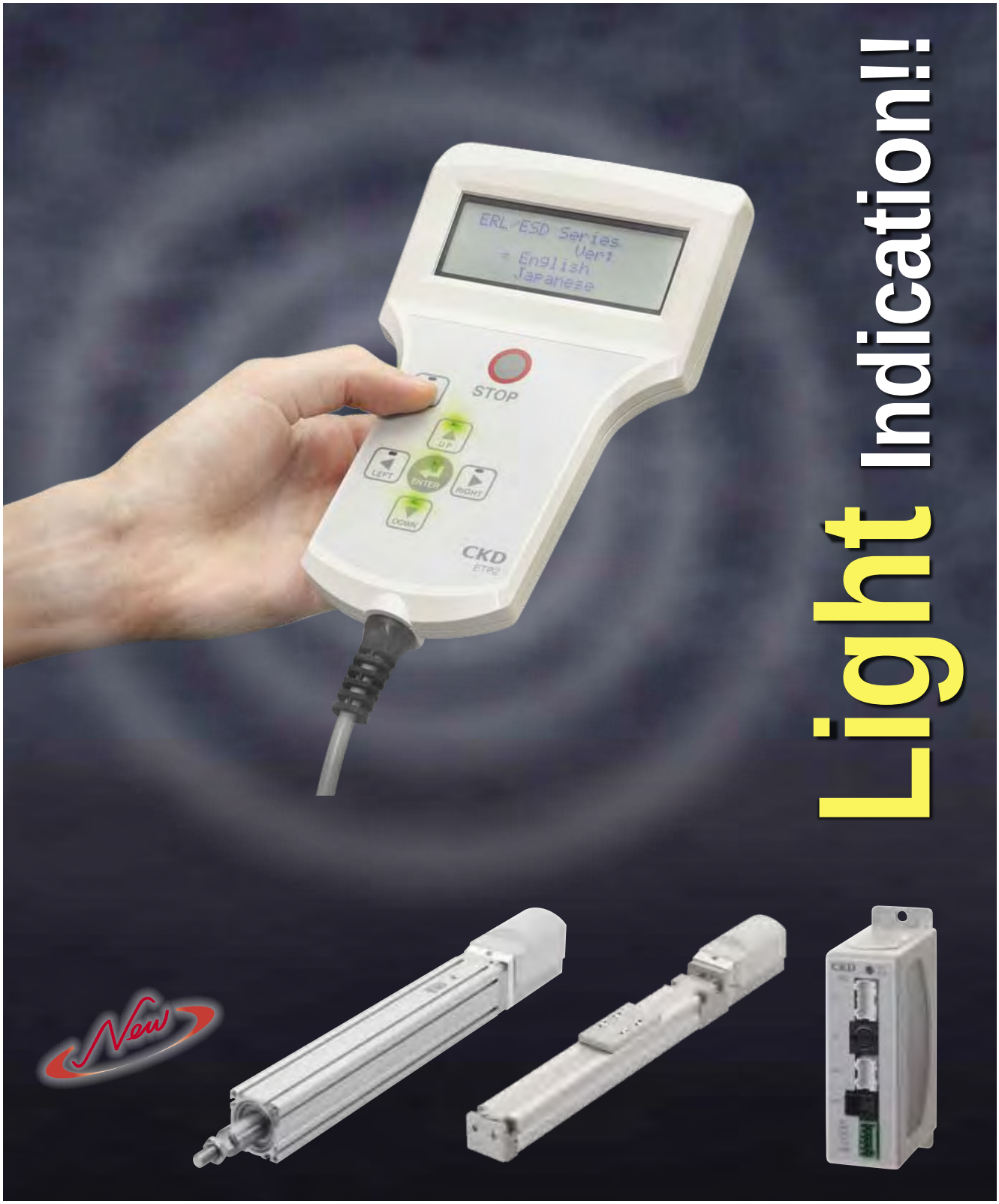
CKD

New Products

New Products

Electric actuator
ERL/ESD Series

ELECTRIC ACTUATOR ERL / ESD SERIES



CKD Corporation

CC-1147A 2

"Quick launching" by easy operation

Teaching directly with one hand, as operating teaching pendant. Quick launching of the machine is possible.

Easy operation with a hand!! Lightening button will indicate nicely!!

"Easy operation with a hand"

"Easy operation" with one hand is achieved by "FIT form", fitting comfortably with a hand.

"Light Indication"

"Light" indicates button to push next. Easy to use, even for users not familiar with.

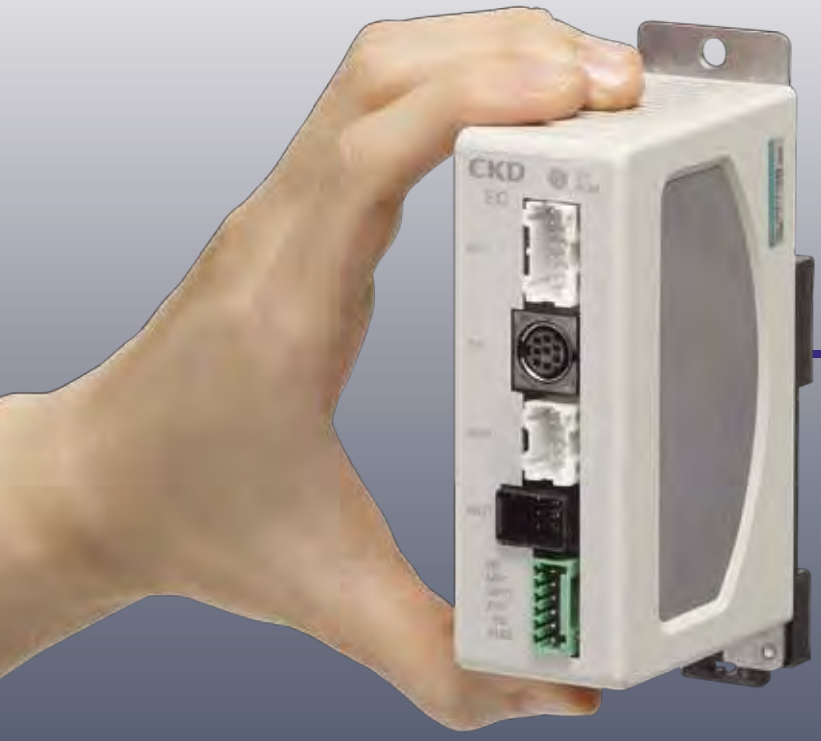
"Easy operation"

Large button is mounted to make operation easy

New electric actuator

ERL/ESD Series

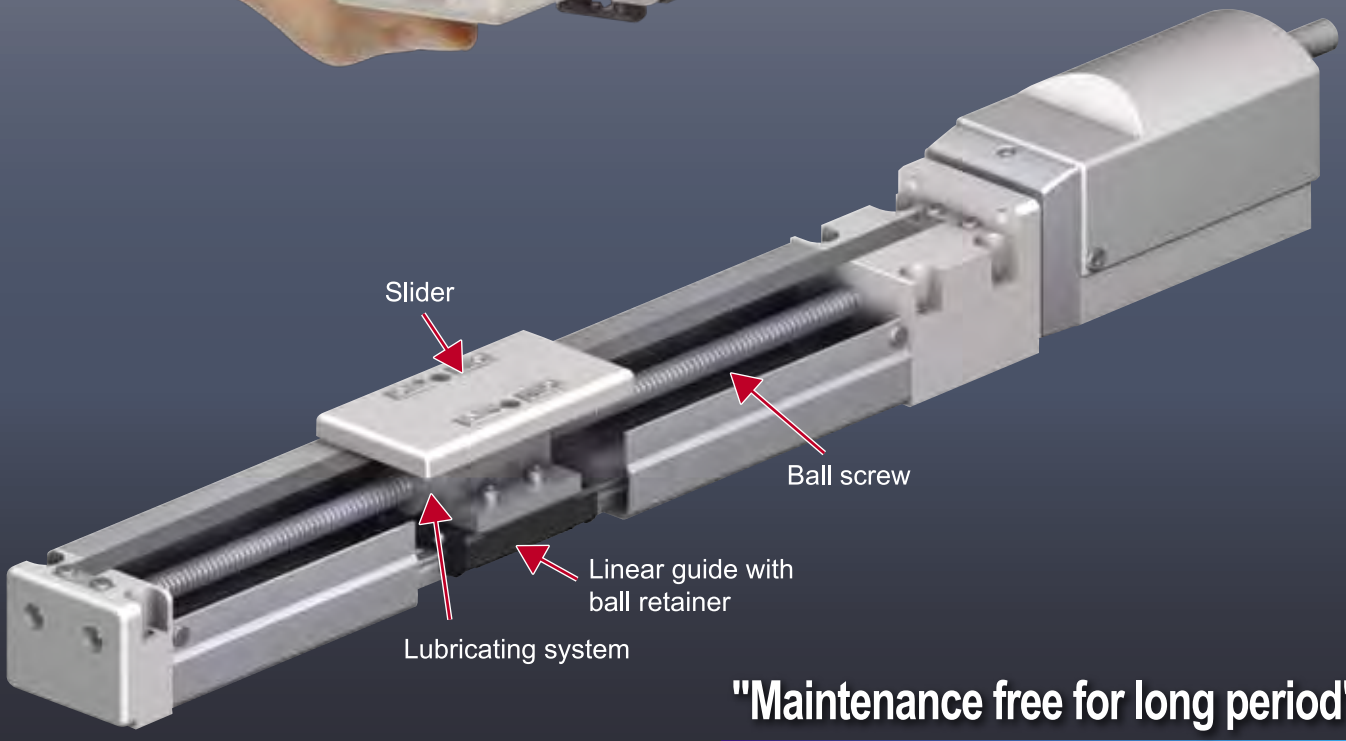
Very easy!



"Compact"

Smallest body in the industry!

Originally designed controller to achieve "Compactness"; 101 (h) × 35 (w) × 68 (d) mm



"Maintenance free for long period"

Adopted "Linear guide with ball retainer" and "Ball screw with Lubricating system"

System Configuration

Prepared by customer

PLC

Power supply
24 VDC
3.2 A (motor□42)
4 A (motor□56)

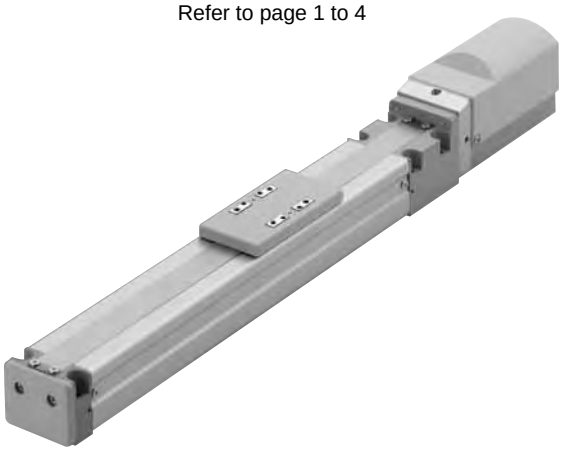
I/O cable
Refer to page 17

Teaching pendant (Note 1)
ETP2-2
Refer to page 15 to 16

Controller
EC
Refer to page 11 to 14

Motor/encoder relay cable (fixed, movable)
Refer to page 17

Actuator
ERL Series
Refer to page 1 to 4



Actuator
ESD series
Refer to page 5 to 9

Note 1: Teaching pendant is not included in actuator. Please purchase the item individually.
Note 2: The number of actuator and controller should be same (1:1). Use in the factory default pair only.

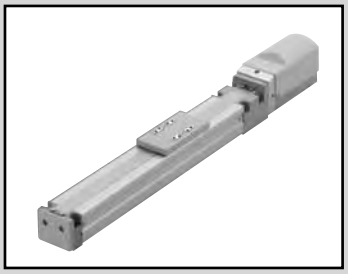
MEMO

Selection guide

Type	Model No.		Stroke length (mm) 50	100	150	200	250	300	350	400	450	500
Slider type	ERL-45S06											
	ERL-45S12											
	ERL-60S06											
	ERL-60S12											
Rod type	ESD-35S06											
	ESD-35S12											
	ESD-45S06											
	ESD-45S12											
	ESD-55S06											
	ESD-55S12											

Max. load capacity (kg)													Lead (mm)	Maximum Pressure force (N)	Maximum Speed (mm/s)	Page
550	600	700	800	10	20	30	40	50	60	70	80					
				5	10								6	220 or more (Note 1)	300	1
				2	5								12	110 or more (Note 1)	600	
				11			30						6	640 or more (Note 1)	200	1
				6.5		16							12	320 or more (Note 1)	400	
				10			33 (Note 2)						6	220 or more	300	5
				4		16 (Note 2)							12	110 or more	600	
				10			33 (Note 2)						6	220 or more	300	5
				4		16 (Note 2)							12	110 or more	600	
				15							67 (Note 2)		6	640 or more	200	5
				6.5			34 (Note 2)						12	320 or more	400	

Note 1: Use within the allowable moment.
Note 2: Value in rod type load capacity (horizontal) always indicates with external guide.



Electric actuator Slider type

ERL Series

● Motor size: □42, □56

RoHS

Specifications

Descriptions			ERL			
Type			ERL-45		ERL-60	
Actuator type			Slider type			
Motor			Stepping motor			
Encoder type			Incremental type			
Drive method			Rolling ball screw Outside diameter 8 mm		Rolling ball screw Outside diameter 12 mm	
Motor size		mm	□42		□56	
Screw lead		mm	6	12	6	12
Stroke length		mm	50, 100, 150, 200 250, 300, 350, 400 450, 500		50, 100, 150, 200 250, 300, 350, 400 450, 500, 550, 600 700	
Operating speed range		mm/s	15 to 300	30 to 600	15 to 200	30 to 400
Repeatability		mm	±0.02			
Lost motion		mm	0.1			
Max. load capacity *1	Horizontal	kg	10	5	30	16
	Vertical	kg	5	2	11	6.5
Max. pressure force *2		N	220	110	640	320
Controller Motor	Setting method		Teaching Pendant			
	Control mode		Solenoid valve mode (single/double 2-position, double 3-position) 3 point mode, 7 point mode			
	Power supply voltage		24 VDC ±10%			
	Instantaneous max. current	A	3.2		4	
Brake	Type		Power-off activated electromagnetic type			
	Power consumption	W	6.1		7.2	
	Holding force	N	140	70	610	305
	Power supply voltage		24 VDC ±10%			
Ambient temperature		°C	0 to 40 (no dew condensation/freezing)			
Ambient humidity		%	35 to 80 (no dew condensation/freezing)			
Operating ambient temperature		°C	−10 to 50 (no dew condensation/freezing)			
Operating ambient humidity		%	35 to 80 (no dew condensation/freezing)			
Atmosphere			No corrosive gas			
Degree of protection			IEC standards IP40 or equivalent			

*1: When the speed up, the max. load capacity will down. For details, refer to technical data ②, table or graph of load capacity (vertical) and load capacity (horizontal).
*2: Use within the allowable moment.

Weight

(kg)

Body size	50st	100st	150st	200st	250st	300st	350st	400st	450st	500st	550st	600st	700st
ERL-45	1.5 (1.8)	1.6 (1.9)	1.7 (2.0)	1.8 (2.1)	1.9 (2.2)	2.0 (2.3)	2.1 (2.4)	2.2 (2.5)	2.3 (2.6)	2.5 (2.8)	—	—	—
ERL-60	3.2 (3.8)	3.4 (4.0)	3.6 (4.2)	3.8 (4.4)	4.0 (4.6)	4.2 (4.8)	4.4 (5.0)	4.6 (5.2)	4.8 (5.4)	5.0 (5.6)	5.2 (5.8)	5.4 (6.0)	5.8 (6.4)

Note: Value in ( ) indicates product weight with brake

How to order

ERL - 60 S 06 - 50 B M - RX B 2

- ERL: Model no.
- 60: Ⓐ Body size
- S: Ⓑ Lead
- 06: Ⓑ Lead
- 50: Ⓒ Stroke length
- B: Ⓓ Brake
- M: Ⓔ Origin
- RX: Ⓕ Relay cable
- B: Ⓖ Controller
- 2: Ⓗ I/O cable

Symbol	Descriptions
Ⓐ Body size	
45	Body size 45
60	Body size 60
Ⓑ Lead (mm)	
06	Feed screw lead 6 mm
12	Feed screw lead 12 mm

Ⓒ Stroke length (mm)

Body size		45	60
05	50	●	●
10	100	●	●
15	150	●	●
20	200	●	●
25	250	●	●
30	300	●	●
35	350	●	●
40	400	●	●
45	450	●	●
50	500	●	●
55	550		●
60	600		●
70	700		●

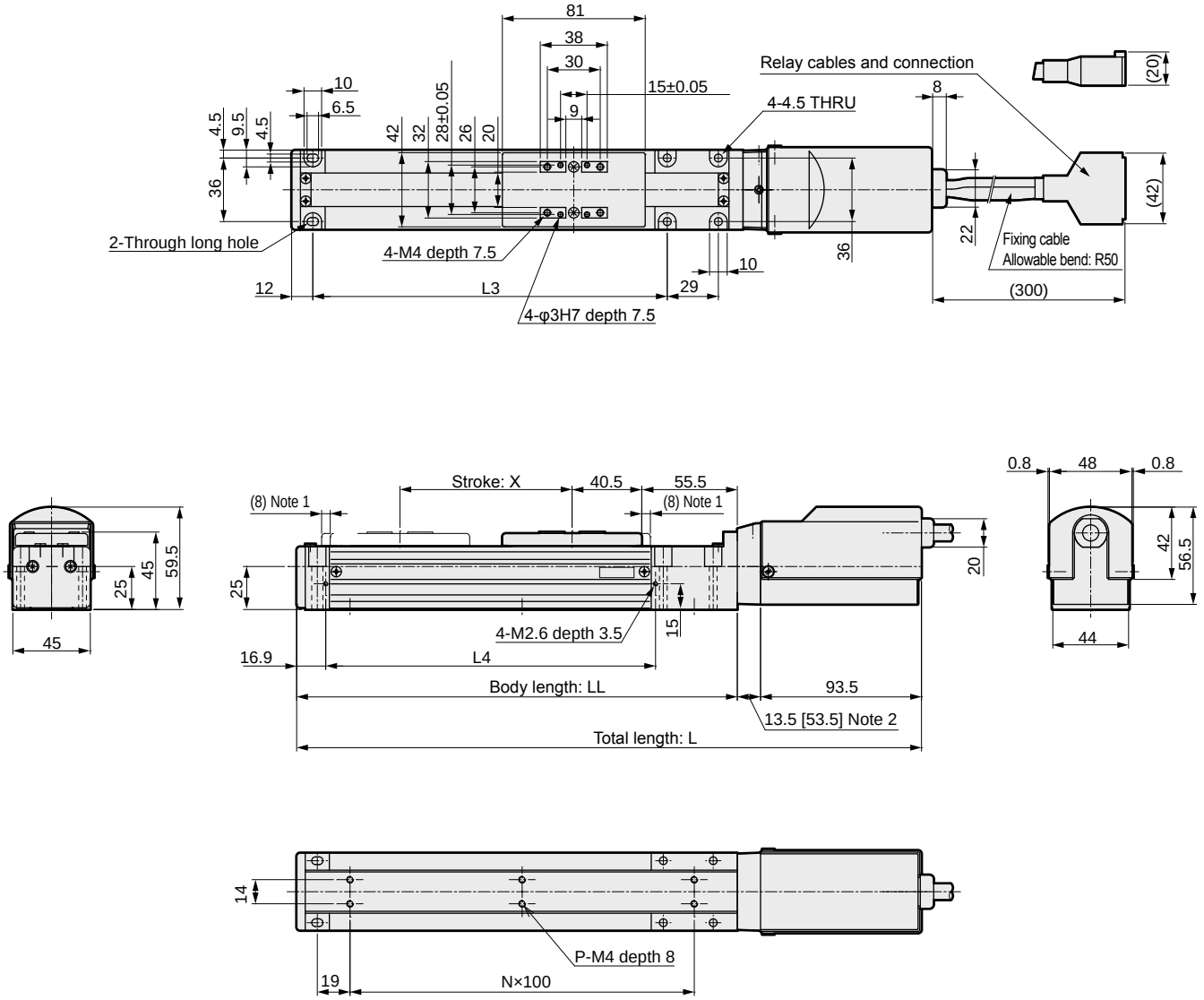
Ⓓ Brake	
N	Without brake
B	With brake
Ⓔ Origin	
M	Motor side origin
F	Opposite motor side origin
Ⓕ Relay cable	
N	Without relay cable
S1	Fixing cable length 1 m
S3	Fixing cable length 3 m
S5	Fixing cable length 5 m
SX	Fixing cable length 10 m
R1	Moving cable length 1 m
R3	Moving cable length 3 m
R5	Moving cable length 5 m
RX	Moving cable length 10 m
Ⓖ Controller	
A	Standard installation
B	DIN rail mount
Ⓗ I/O cable	
N	Without I/O cable
2	Cable length 2 m
3	Cable length 3 m
5	Cable length 5 m

● Teaching pendant

ETP2-2

Dimensions

● ERL-45

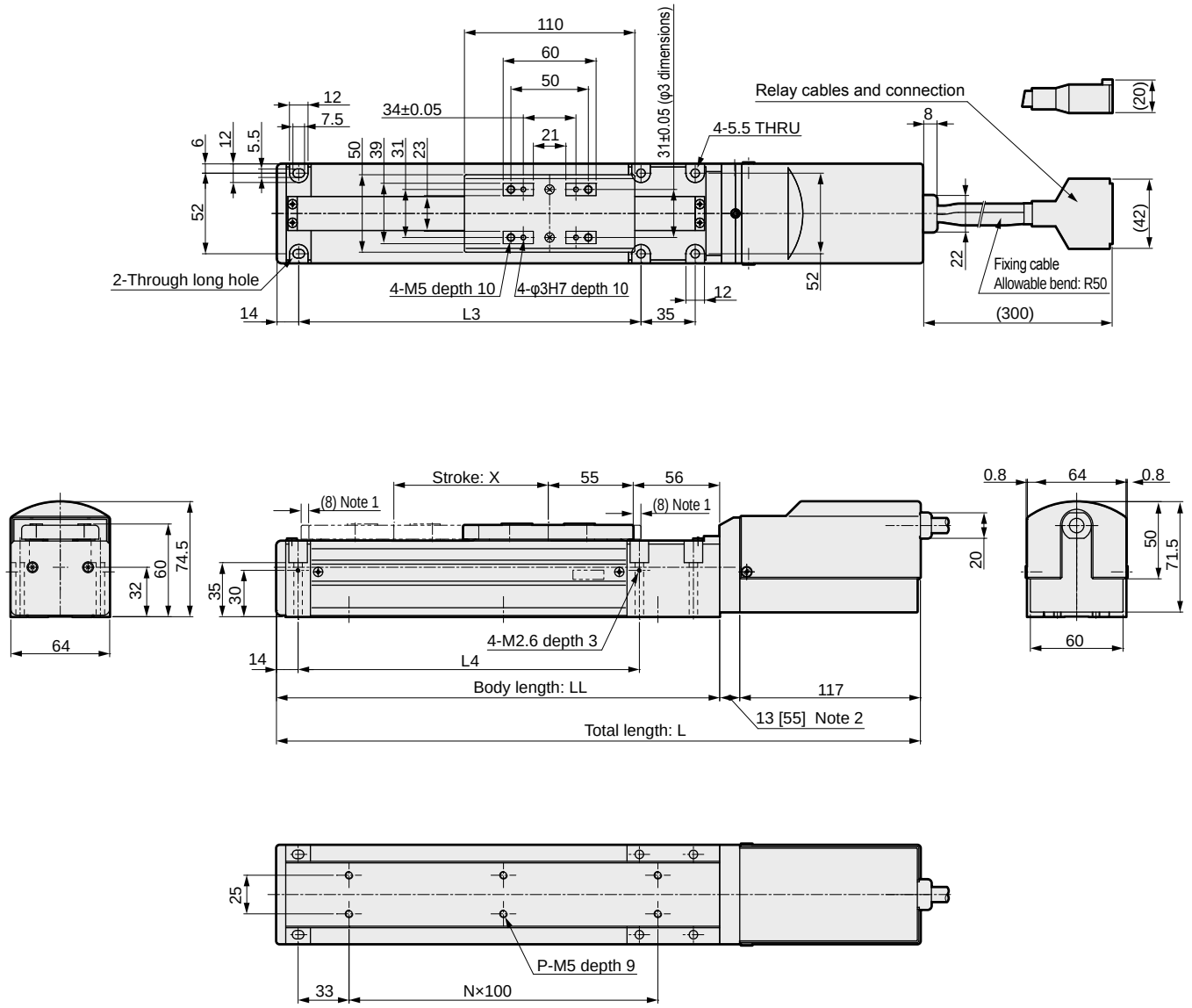


Note 1: Operation range when return to the origin
Note 2: Value in [ ] indicates dimension with brake

Stroke length		05	10	15	20	25	30	35	40	45	50
Stroke length X (mm)		50	100	150	200	250	300	350	400	450	500
Full length L (mm)	Without brake	313	363	413	463	513	563	613	663	713	763
	With brake	353	403	453	503	553	603	653	703	753	803
Body length LL (mm)		206	256	306	356	406	456	506	556	606	656
L3 (mm)		151	201	251	301	351	401	451	501	551	601
L4 (mm)		141.6	191.6	241.6	291.6	341.6	391.6	441.6	491.6	541.6	591.6
No. of holes P		4	6	6	8	8	10	10	12	12	14
Number of set screw intervals N		1	2	2	3	3	4	4	5	5	6
Weight (kg)	Without brake	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.5
	With brake	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.8

Dimensions

● ERL-60



Note 1: Operation range when return to the origin
Note 2: Value in [ ] indicates dimension with brake

Stroke length		05	10	15	20	25	30	35	40	45	50	55	60	70
Stroke length X (mm)		50	100	150	200	250	300	350	400	450	500	550	600	700
Full length L (mm)	Without brake	367	417	467	517	567	617	667	717	767	817	867	917	1017
	With brake	409	459	509	559	609	659	709	759	809	859	909	959	1059
Body length LL (mm)		237	287	337	387	437	487	537	587	637	687	737	787	887
L3 (mm)		171	221	271	321	371	421	471	521	571	621	671	721	821
L4 (mm)		171	221	271	321	371	421	471	521	571	621	671	721	821
No. of holes P		4	6	6	8	8	10	10	12	12	14	14	16	18
Number of set screw intervals N		1	2	2	3	3	4	4	5	5	6	6	7	8
Weight (kg)	Without brake	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.8
	With brake	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.4

Electric actuator Rod type

ESD Series

● Motor size: □42, □56

RoHS

Specifications

Descriptions			ESD					
Type			ESD-35		ESD-45		ESD-55	
Actuator type			Rod type					
Motor			Stepping motor					
Encoder type			Incremental type					
Drive method			Rolling ball screw Outside diameter 8 mm				Rolling ball screw Outside diameter 12 mm	
Motor size			□42				□56	
Screw lead		mm	6	12	6	12	6	12
Stroke length		mm	50, 100, 150		50, 100, 150, 200		50, 100, 150, 200 250, 300	
Operating speed range		mm/s	15 to 300	30 to 600	15 to 300	30 to 600	15 to 200	30 to 400
Repeatability		mm	±0.02					
Lost motion		mm	0.1					
Max. load capacity *1	Horizontal	kg	33	16	33	16	67	34
	Vertical	kg	10	4	10	4	15	6.5
Max. pressure force		N	220	110	220	110	640	320
Controller Motor	Setting method		Teaching Pendant					
	Control mode		Solenoid valve mode (single/double 2-position, double 3-position) 3 point mode, 7 point mode					
	Power supply voltage		24 VDC ±10%					
	Instantaneous max. current	A	3.2		3.2		4	
Brake	Type		Power-off activated electromagnetic type					
	Power consumption	W	6.1				7.2	
	Holding force	N	140	70	140	70	610	305
	Power supply voltage		24 VDC ±10%					
Ambient temperature		°C	0 to 40 (no dew condensation/freezing)					
Ambient humidity		%	35 to 80 (no dew condensation/freezing)					
Operating ambient temperature		°C	−10 to 50 (no dew condensation/freezing)					
Operating ambient humidity		%	35 to 80 (no dew condensation/freezing)					
Atmosphere			No corrosive gas					
Degree of protection			IEC standards IP40 or equivalent					

*1: When the speed up, the max. load capacity will down. For details, refer to technical data ②, table or graph of load capacity (vertical) and load capacity (horizontal). Do not add any external force on the rod other than rod bearing direction.

Weight

(kg)

Body size	50st	100st	150st	200st	250st	300st
ESD-35	1.3 (1.7)	1.5 (1.9)	1.6 (2.0)	—	—	—
ESD-45	1.7 (2.1)	2.0 (2.4)	2.2 (2.6)	2.5 (2.9)	—	—
ESD-55	3.0 (3.7)	3.4 (4.1)	3.8 (4.5)	4.1 (4.8)	4.5 (5.2)	4.9 (5.6)

Note: Value in ( ) indicates product weight with brake

How to order

ESD - 55 S 12 - 05 N M - S1 A 2 - FA

Model no. ESD

Ⓐ Body size

Symbol	Descriptions
Ⓐ Body size	
35	Body size 35
45	Body size 45
55	Body size 55

Ⓑ Lead

Ⓑ Lead (mm)	
06	Feed screw lead 6 mm
12	Feed screw lead 12 mm

Ⓒ Stroke length

Ⓒ Stroke length (mm)				
Body size		**35**	**45**	**55**
05	50	●	●	●
10	100	●	●	●
15	150	●	●	●
20	200		●	●
25	250			●
30	300			●

Ⓓ Brake

Ⓓ Brake	
N	Without brake
B	With brake

Ⓔ Origin

Ⓔ Origin	
M	Motor side origin
F	Opposite motor side origin

Ⓕ Relay cable

Ⓕ Relay cable	
N	Without relay cable
S1	Fixing cable length 1 m
S3	Fixing cable length 3 m
S5	Fixing cable length 5 m
SX	Fixing cable length 10 m
R1	Moving cable length 1 m
R3	Moving cable length 3 m
R5	Moving cable length 5 m
RX	Moving cable length 10 m

Ⓖ Controller

Ⓖ Controller	
A	Standard installation
B	DIN rail mount

Ⓗ I/O cable

Ⓗ I/O cable	
N	Without I/O cable
2	Cable length 2 m
3	Cable length 3 m
5	Cable length 5 m

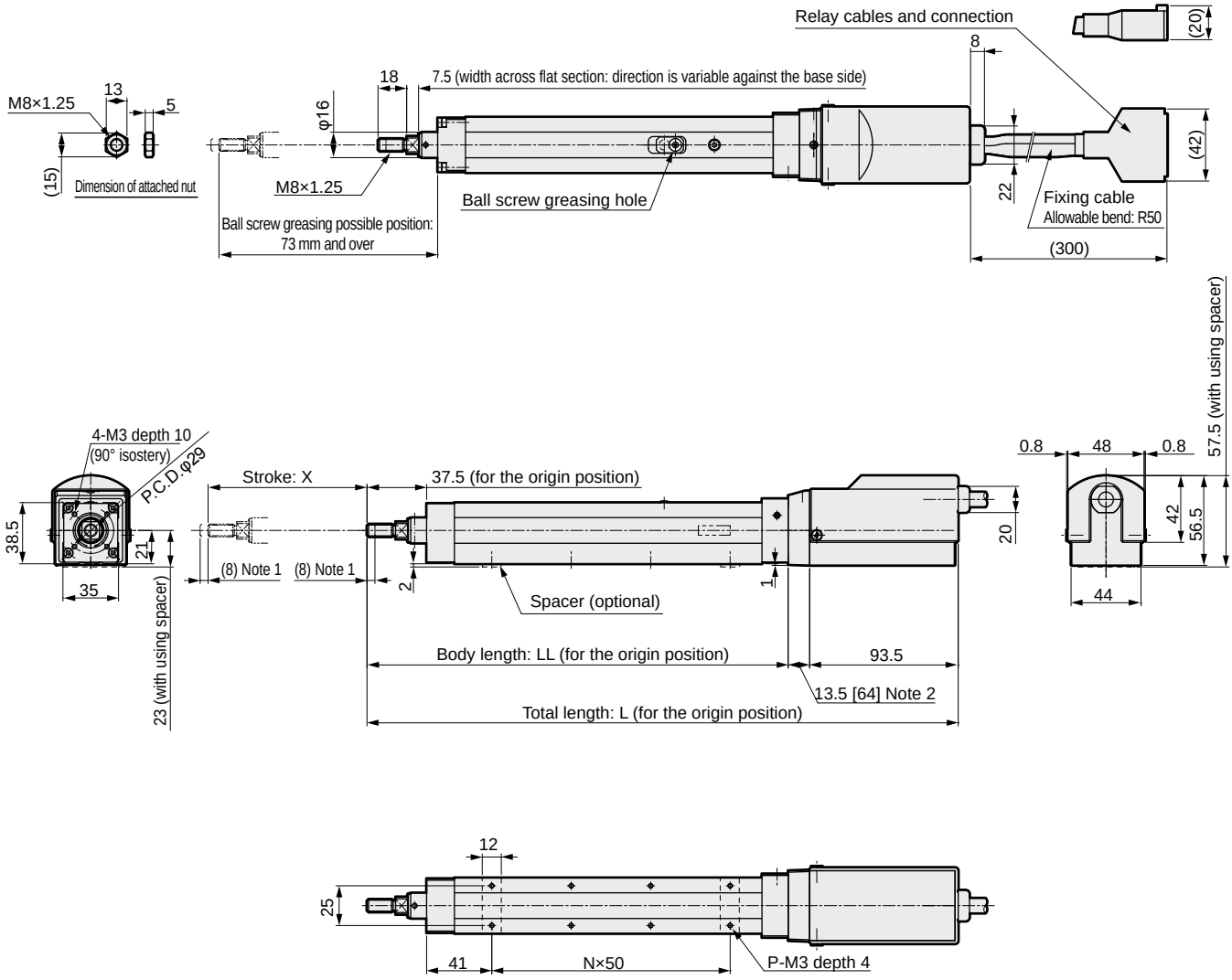
Ⓘ Mounting bracket

Ⓘ Mounting bracket	
Blank	Without mounting bracket
LB	Foot bracket enclosed
FA	Flange bracket enclosed
SP	Spacer enclosed (applicable for ESD-35, 55 only)

● Teaching pendant
ETP2-2

Dimensions

● ESD-35

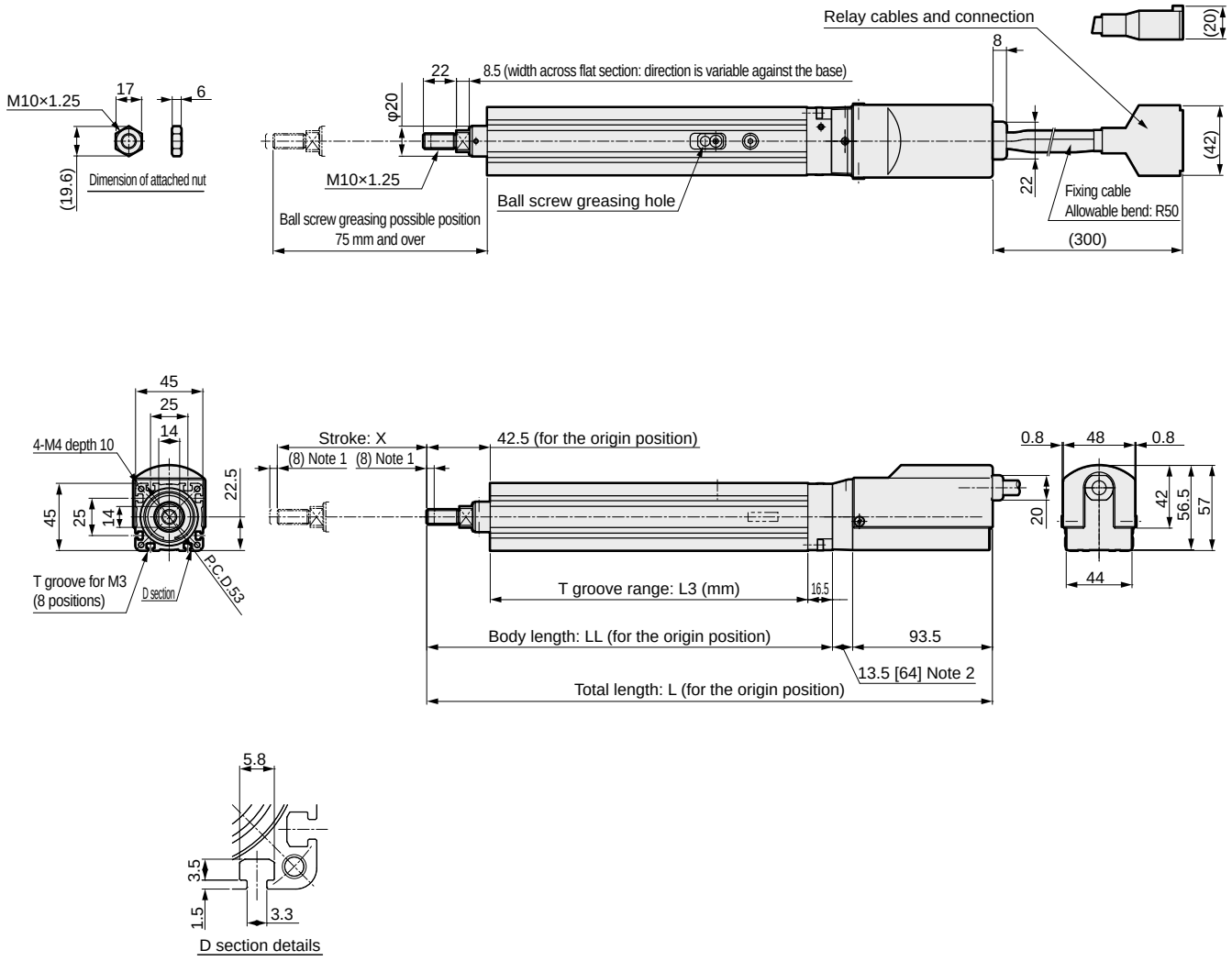


Note 1: Operation range when return to the origin
Note 2: Value in [ ] indicates dimension with brake

Stroke length		05	10	15
Stroke length X (mm)		50	100	150
Full length L (mm)	Without brake	322	372	422
	With brake	372.5	422.5	472.5
Body length LL (mm)		215	265	315
No. of holes P		6	8	10
Number of set screw intervals N		2	3	4
Weight (kg)	Without brake	1.3	1.5	1.6
	With brake	1.7	1.9	2.0

Dimensions

● ESD-45

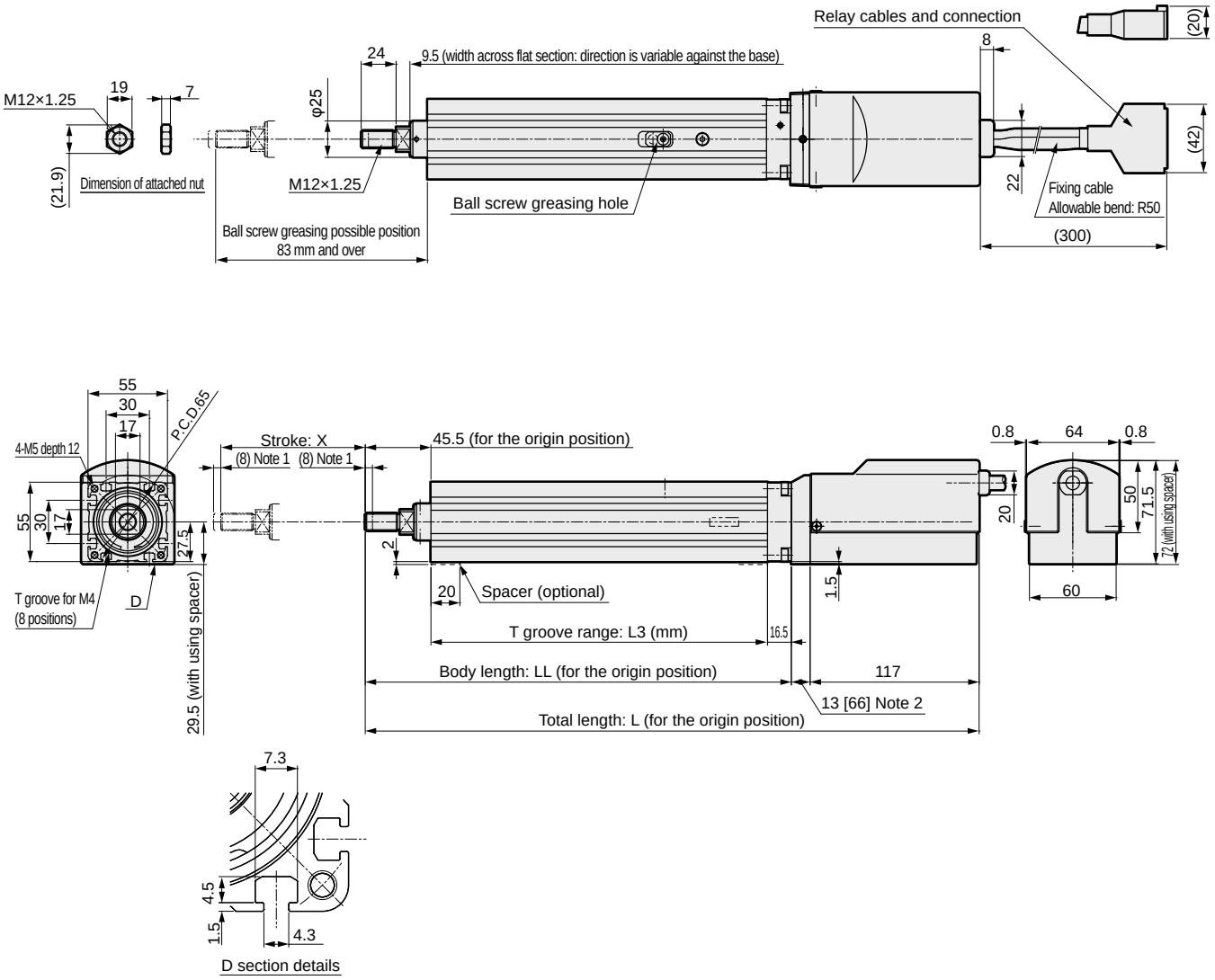


Note 1: Operation range when return to the origin
Note 2: Value in [ ] indicates dimension with brake

Stroke length		05	10	15	20
Stroke length X (mm)		50	100	150	200
Full 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

● ESD-55



Note 1: Operation range when return to the origin
Note 2: Value in [ ] indicates dimension with brake

Stroke length		05	10	15	20	25	30
Stroke length X (mm)		50	100	150	200	250	300
Full 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

MEMO

Controller

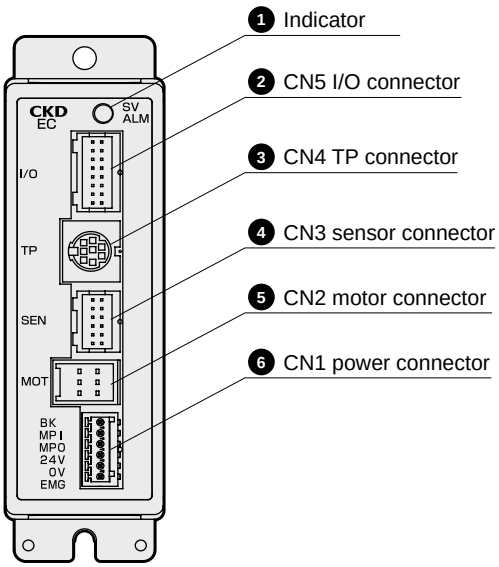
EC

● Compatible actuators: ERL, ESD

RoHS

Specifications

Descriptions			EC
Applied motor size			□42, □56
Setting method			Teaching Pendant
Control mode			Solenoid valve mode (single/double 2-position, double 3-position) 3 point mode, 7 point mode
Body light			Green: motor energization/Red: alarm
No. of input points			7 point (photo coupler insulation)
No. of output points			7 point (photo coupler insulation)
Power supply voltage			24 VDC ±10%
Instantaneous max. current		A	□42: 3.2, □56: 4
Brake	Power supply voltage		24 VDC ±10%
	Power consumption	W	Refer to the specifications for each actuator.
Insulation resistance			100 MΩ or more at 500 VDC
Withstand voltage			No failure when 1000 VAC is applied for one minute
Ambient temperature		°C	0 to 40 (no dew condensation/freezing)
Ambient humidity		%	35 to 80 (no dew condensation/freezing)
Operating ambient temperature		°C	−10 to 50 (no dew condensation/freezing)
Operating ambient humidity		%	35 to 80 (no dew condensation/freezing)
Atmosphere			No corrosive gas
Degree of protection			IEC standards IP30 or equivalent
Weight		kg	0.2



1 Indicator
Green: motor energization
Red: alarm

2 I/O connector
Input/output the control signal by connecting external control devices (like PLC).

3 TP connector
Parameter settings and manual operation by connecting teaching pendant.

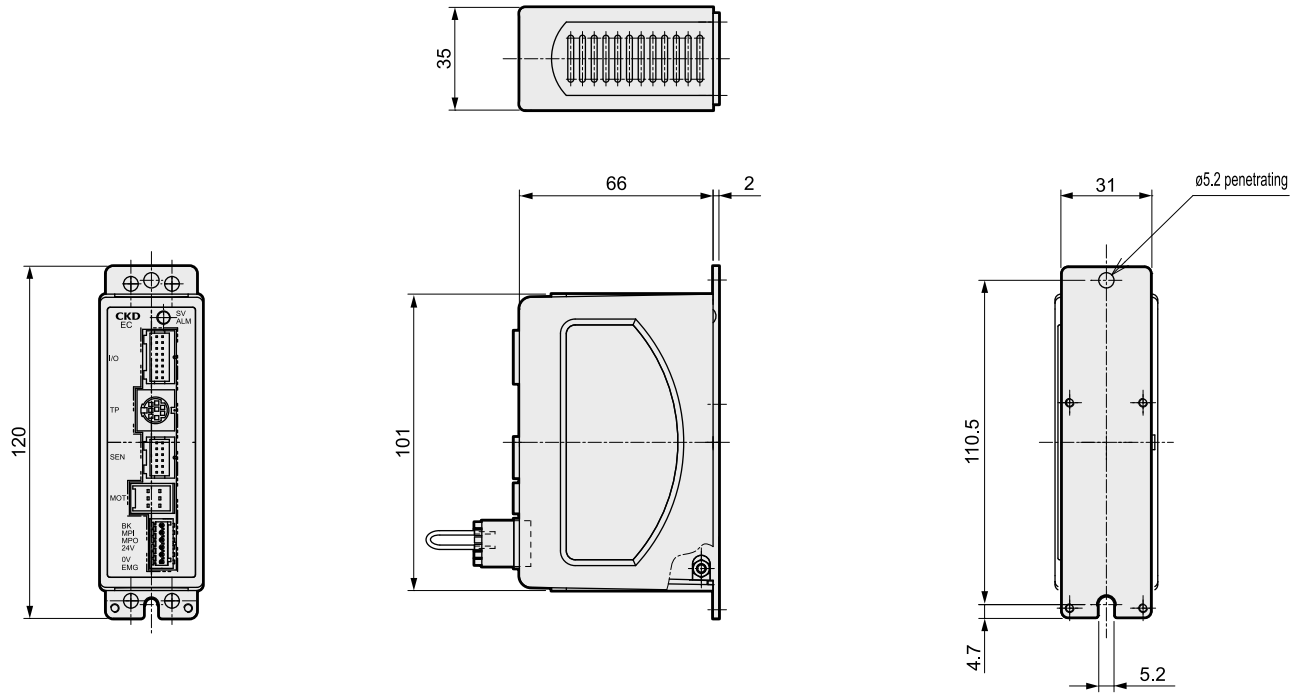
4 Sensor connector
Input the encoder signal by connecting relay cable.

5 Motor connector
Input the engine signal to motor and brake by connecting relay cable.

6 Power connector
Input 24 VDC control power and drive power to the controller.

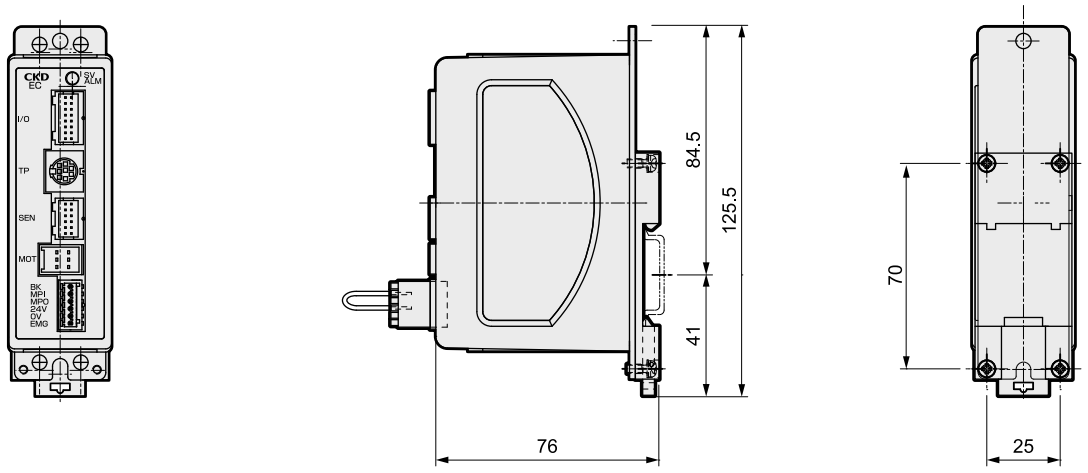
Dimension and parts name/function

[A: Standard]



[B: Options]

* It is possible to mount on DIN rail

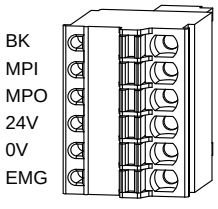


Power connector: CN1 *Power plug is enclosed.

List of CN1 power connector terminals (PHOENIX CONTACT FK-MC0.5/6-ST-2.5)

Terminal name	Function name	Functional explanation
BK	Brake Release	Apply 24 VDC to release brake.
MPI	Motor power shutoff	MPI and MPO is connected with jumper wire in standard. By shutting it off, motor power is shut off.
MPO	Motor power shutoff	
24V	Common power (+)	Input 24 VDC common for motor power and control power.
0V	Common power (–)	Connect 0 VDC common for motor power, control power, releasing brake, emergency stop input.
EMG	Emergency Stop Input	Connect the b-contact emergency stop switch, then input 24 VDC.

CN1 power plug

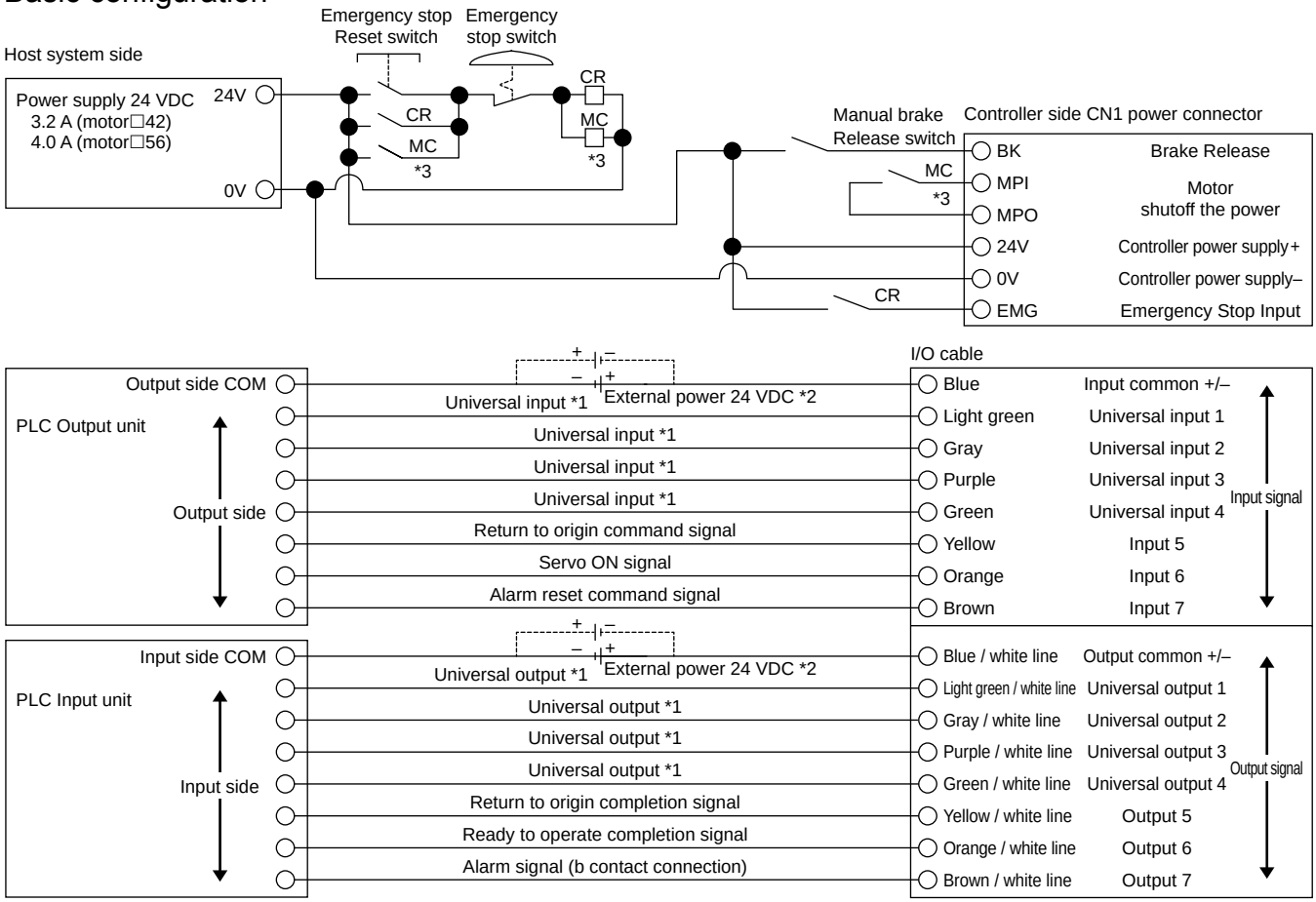


Wiring

Cable specifications

Description	Specifications
Type	20-core cabtyre cord (UL94V-0)
Sheath material	Polyvinyl chloride
Sheath diameter	ø8.4
Sheath color	Gray
Conductor	0.2 mm^2 (AWG24) annealed copper wire
Length of stripped lead wire (reference)	Approximate 7 mm from lead wire end

Basic configuration



⚠ Note:
Do check once more before turning the product on to prevent incorrect wiring.
*1: Refer to table below for details on the Universal I/O.
*2: External power supply (24 VDC) is required for both input/output. Input/output COM is available for both + and –.
*3: To shut off the motor drive power supply externally due to the safety category issue, connect the contact like electromagnetic switch between MPI and MPO terminals.

Universal input/output

Control mode	3 point mode	7 point mode	Solenoid valve signal	Solenoid valve double 2-position	Solenoid valve double 3-position
Universal input 1	Point 1 Moving command	Moving points command		Solenoid valve moving command 1	Solenoid valve moving command 1
Universal input 2	Point 2 Moving command	Point selection bit 2	Solenoid valve moving command	Solenoid valve moving command 2	Solenoid valve moving command 2
Universal input 3	Point 3 Moving command	Point selection bit 1			
Universal input 4		Point selection bit 0			
Universal input 5	Return to the origin command				
Universal input 6	Servo ON/OFF				
Universal input 7	Alarm reset command				
Universal output 1	Point 1 Moving done	Point moving done	Point 1 Moving done	Point 1 Moving done	Point 1 Moving done
Universal output 2	Point 2 Moving done	Point confirmation bit 2	Point 2 Moving done	Point 2 Moving done	Point 2 Moving done
Universal output 3	Point 3 Moving done	Point confirmation bit 1	Switch 1 output	Switch 1 output	Switch 1 output
Universal output 4		Point confirmation bit 0	Switch 2 output	Switch 2 output	Switch 2 output
Universal output 5	Return to the origin done				
Universal output 6	Operation preparation done				
Universal output 7	Alarms				

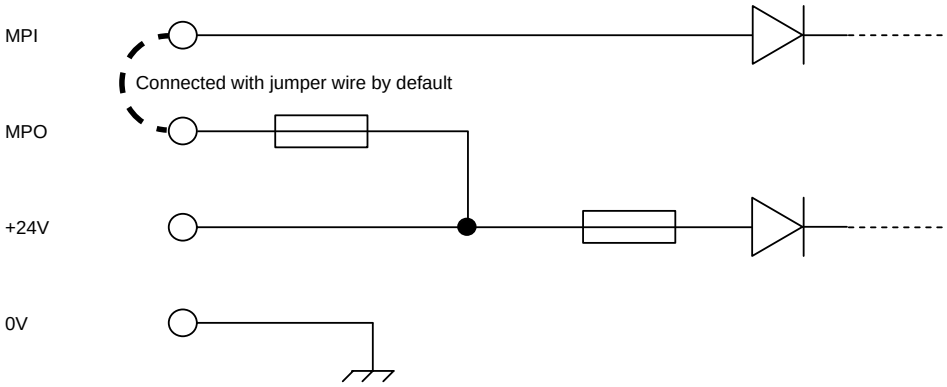
Power supply circuit

Power supply specifications

Descriptions	Specifications
Power supply voltage	24 VDC ±10%
Instantaneous max. current*	ERL-45/ESD-35, 45: 3.2 A ERL-60/ESD-55: 4 A

*: Includes when teaching pendant is connected.

Power supply circuit



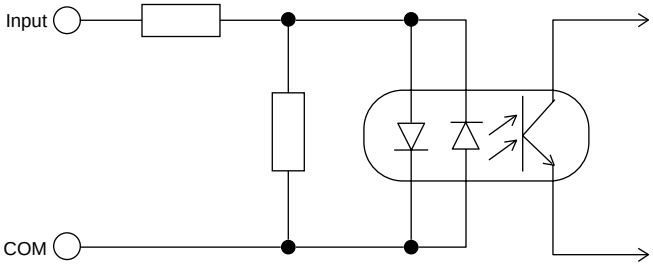
I/O circuit

Input specifications

Descriptions	Specifications
No. of input points	7 point
Input voltage	24 VDC ±10%
Input current	3 mA/1 point
Input max. current	21 mA
Max. current consumption*	91 mA
Input current when turned ON	2 mA (min.)
Input current when turned OFF	0.5 mA (max.)

* The value for max. current consumption includes the consumption of the output circuit.

Input circuit



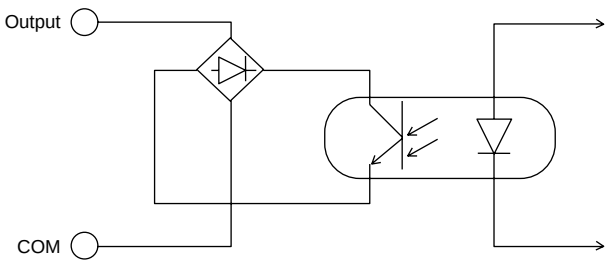
The input is non-polar.
(For input COM, either of + or – can be used.)

Output specifications

Descriptions	Specifications
No. of output points	7 point
Load voltage	24 VDC ±10%
Load current	10 mA or less/1 point
Max. current	70 mA
Max. current consumption *1	91 mA
Internal voltage drop	6 V or less (under 25 °C) *2
Leakage current	10 μA
Output short-circuit protection circuit	With
Connecting load	PLC

*1: The value for max. current consumption includes the consumption of the input circuit.
*2: At 40 °C, it is 6 V or less with 9 mA load current consumption.

Output circuit



The output is non-polar.
(For output COM, either of + or – can be used.)

Teaching Pendant

ETP2

● Connecting controller: EC

RoHS

Specifications

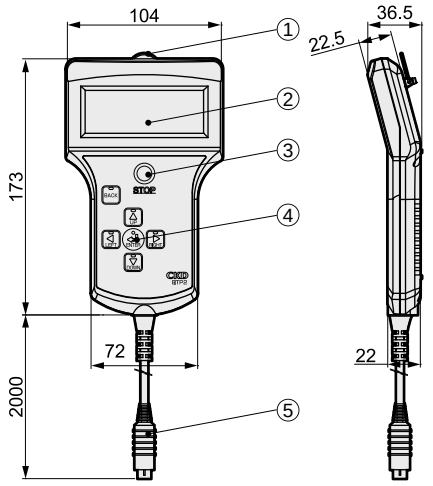
Descriptions	ETP2
Operation mode	Operation and setting, monitor
Indicator	20 character × 4 line (LCD display)
Input key	7 key (stop key: 1, operation key: 6)
Power supply	24 VDC and 100 mA or less (supply from actuator)
Cable length m	2
Ambient temperature °C	0 to 40 (no dew condensation/freezing)
Ambient humidity %	35 to 80 (no dew condensation/freezing)
Operating ambient temperature °C	−10 to 50
Operating ambient humidity %	35 to 80 (no dew condensation/freezing)
Weight g	Approx. 140 (body only)

How to order

ETP2 - 2

Model no. Cable length

Dimensions and name/functions of each section



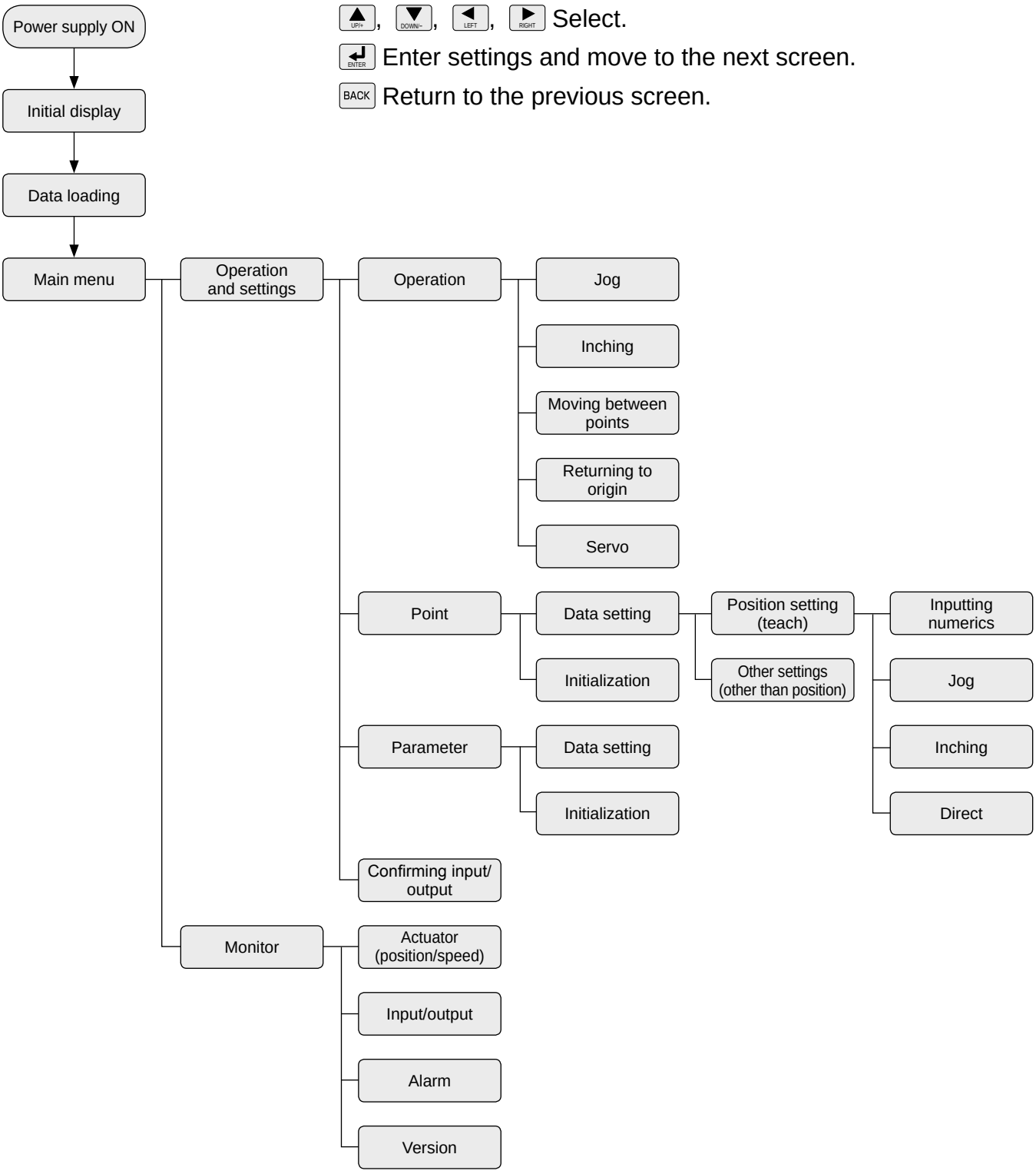
No	Name		Function
①	Hook		Hook for suspending product
②	LCD display screen		20 character × 4 line display
③	Operation key	Stop key	Used for stopping an actuator. Press and hold during stopped state to release stop (standby).
④	Operation key	UP key	Use to select menu, parameter etc, and change values during inputting numerics, jog, inching operation.
	Operation key	DOWN key	
	Operation key	LEFT key	
	Operation key	RIGHT key	
		BACK key	Cancel the operation and go back to the previous screen.
		ENTER key	Confirm the menu etc. and data.
⑤	Connector		Connector for controller

Function list

Menus					Descriptions
Main	Sub-1	Sub-2	Sub-3	Sub-4	
Operation / Setting	Operation	Jog			Sets speed, and performs jog operation (PUSH/PULL).
		Inching			Sets speed and pitch and performs inching operation (PUSH/PULL).
		Moving between points			Moves to a selected point (max. 7) from the data set previously.
		Returning to origin			Detects the origin and returns to it.
		Servo			Turns the servo ON and OFF.
	Point	Data setting	Position setting (teach)	Inputting numerics	Key input the position data.
				Jog	Jog input the position data.
				Inching	Inching input the position data.
				Direct	Input the position data with actual machine position.
			Other settings		Input setting value other than position data.
		Initialization			Set values are returned to defaults.
	Parameter	Data setting			Changes parameter.
		Initialization			Resets parameters to default.
	Confirming input/output				Displays the input signals, and ON/OFF the output signals mandatorily.
Monitor	Actuator (position, speed)				Displays the current position and speed of the actuator.
	Input/output				Displays the status of input/output signal for the controller.
	Alarms				Displays the content of current alarm and history.
	Version				Displays version for teaching pendant and software of controller.

Operation diagram

The following is the structure of the operation done using the teaching pendant.
(Basic operation)



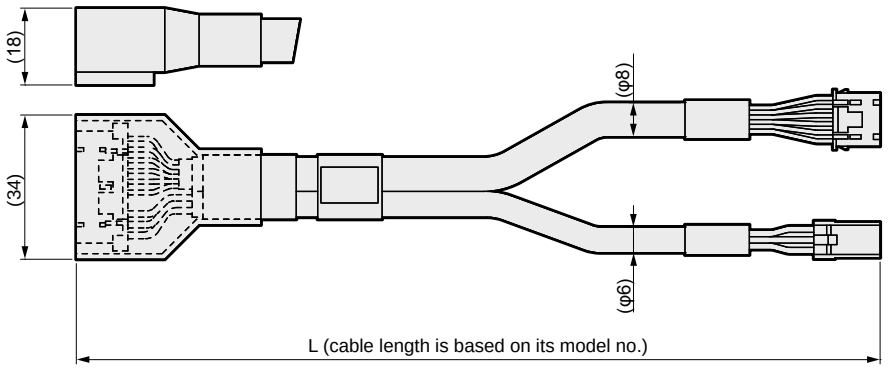
Refer to the instruction manual for details.

Cable

● Motor/encoder relay cable (fixed)

1 m, 3 m, 5 m, 10 m

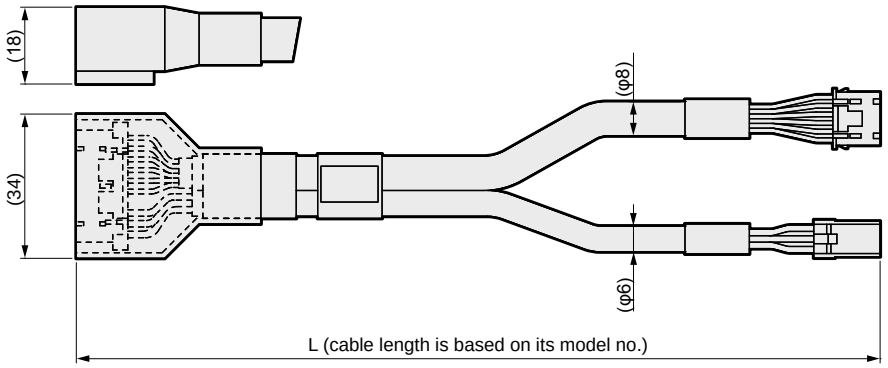
Model no.	Cable length (L)
EC-MEA-1	1 m
EC-MEA-3	3 m
EC-MEA-5	5 m
EC-MEA-X	10 m



● Motor/encoder relay cable (movable)

1 m, 3 m, 5 m, 10 m

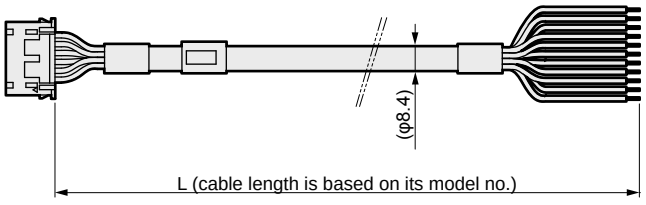
Model no.	Cable length (L)
EC-MEB-1	1 m
EC-MEB-3	3 m
EC-MEB-5	5 m
EC-MEB-X	10 m



● I/O cable

2 m, 3 m, 5 m

Model no.	Cable length (L)
EC-I-2	2 m
EC-I-3	3 m
EC-I-5	5 m



Option (support fitting)

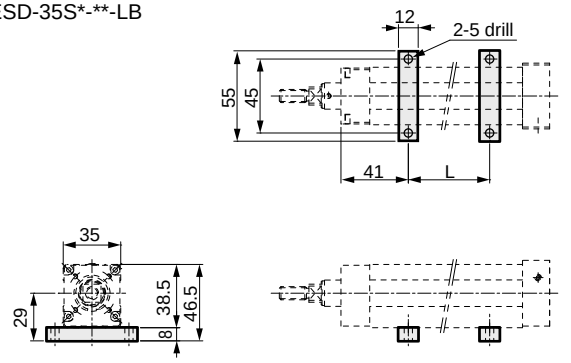
Kits in below will be enclosed to the product, for with support fittings.

● Option: LB

Foot kit model no.: ESD-[body size]-LB

Dimension of with foot fitting

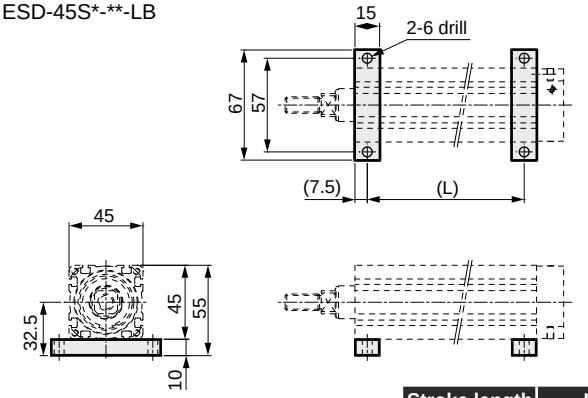
• ESD-35S*-**-LB



(mm)

Stroke length	L
50	100
100	150
150	200

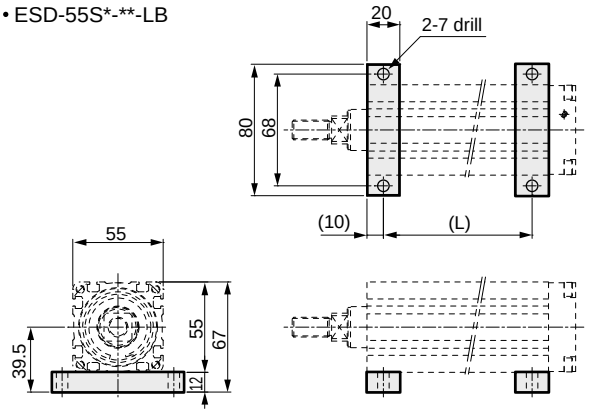
• ESD-45S*-**-LB



(mm)

Stroke length	L
50	147.5
100	197.5
150	247.5
200	297.5

• ESD-55S*-**-LB



(mm)

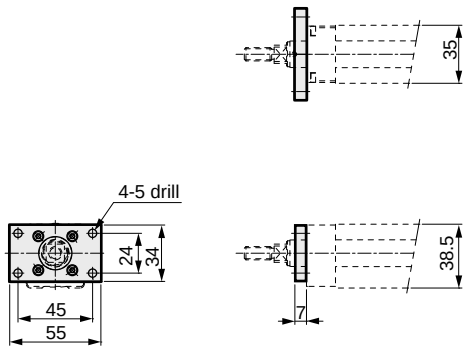
Stroke length	L
50	163
100	213
150	263
200	313
250	363
300	413

● Option: FA

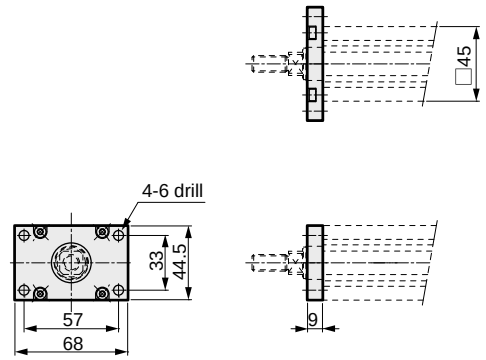
Flange kit model no.: ESD-[body size]-FA

Dimension of with flange fitting

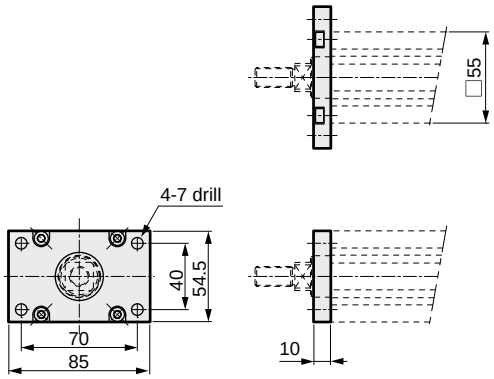
• ESD-35S*-**-FA



• ESD-45S*-**-FA



• ESD-55S*-**-FA



● Option: SP

Spacer kit model number: ESD-[$\frac{35}{55}$]-SP

* Refer to pages 7, 9 for dimensions of with spacer fitting.

STEP-1 Load capacity confirmation

Load capacity differs depending on the mounting orientation and the transfer speed.
Select size and lead referring to technical data ① and ②.

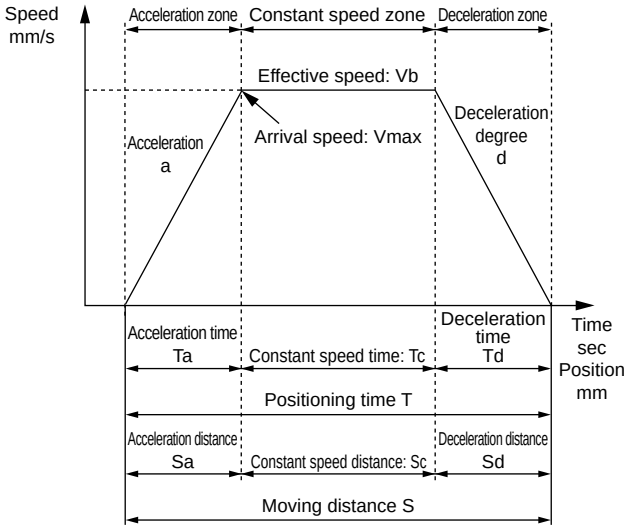
STEP-2 Tact time confirmation

Check if the selected product tact time is suitable for necessary tact, according to the below examples.

Speed/acceleration setting range

Motor size	Lead (mm)	Speed (mm/s)	Acceleration (m/s^2)
□42	6	15 to 300	1.0 to 3.0
	12	30 to 600	1.0 to 3.0
□56	6	15 to 200	1.0 to 3.0
	12	30 to 400	1.0 to 3.0

Setting tact time of general transfer operation

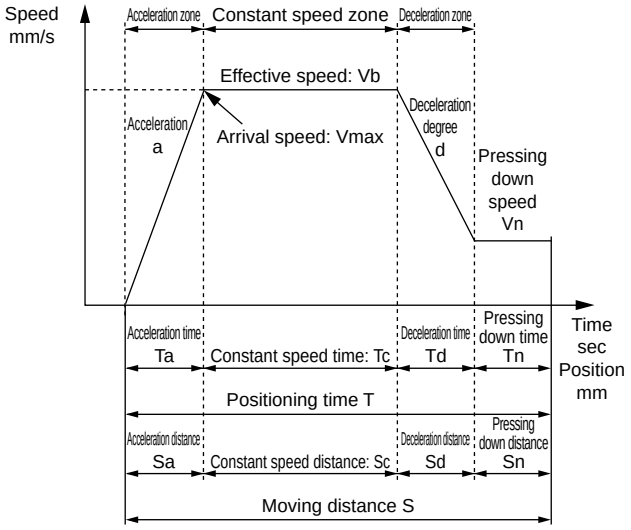


	Descriptions	Symbol	Unit	Remarks
Set point	Set speed	V	mm/s	*1
	Set acceleration	a	mm/s^2	*2
	Set deceleration	d	mm/s^2	*2
	Moving distance	S	mm	
Calculated value	Arrival speed	Vmax	mm/s	$= (2 \times a \times d \times S/(a + d))^{1/2}$
	Effective speed	Vb	mm/s	V and Vmax. smaller one
	Acceleration time	Ta	s	= Vb/a
	Deceleration time	Td	s	= Vb/d
	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

*1· It may not reach the configured speed depending on the stroke and acceleration. Compare between the Vmax and the configured speed.

*2· The unit for acceleration/deceleration setting using the teaching pendant is m/s^2. Care must be taken when configuring.

Setting tact time of pressing down operation



	Descriptions	Symbol	Unit	Remarks
Set point	Set speed	V	mm/s	*1
	Set acceleration	a	mm/s^2	*2
	Set deceleration	d	mm/s^2	*2
	Moving distance	S	mm	
	Pressing down speed	Vn	mm/s	
	Pressing down distance	Sn	mm	
Calculated value	Arrival speed	Vmax	mm/s	$= (2 \times a \times d \times (S - Sn + Vn^2/2/d)/(a + d))^{1/2}$
	Effective speed	Vb	mm/s	V and Vmax. smaller one
	Acceleration time	Ta	s	= Vb/a
	Deceleration time	Td	s	= (Vb - Vn)/d
	Constant speed time	Tc	s	= Sc/Vb
	Pressing down time	Tn	s	= Sn/Vn
	Acceleration distance	Sa	mm	$= (a \times Ta^2)/2$
	Deceleration distance	Sd	mm	= ((Vb + Vn) × Td)/2
	Constant speed distance	Sc	mm	= S - (Sa + Sd + Sn)
	Positioning time	T	s	= Ta + Tc + Td + Tn

*1· It may not reach the configured speed depending on the stroke and acceleration. Compare between the Vmax and the configured speed.

*2· The unit for acceleration/deceleration setting using the teaching pendant is m/s^2. Care must be taken when configuring.

STEP-3 Confirmation of allowable moment

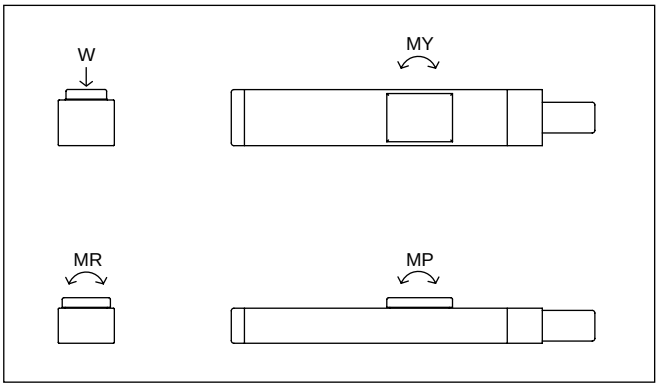
3-1 Confirming static allowable moment

Confirm that set acceleration doesn't exceed the allowable moment in a, d (m/s^2) (comply with the formula below).

$$M'_T = \frac{W'}{W'max} + \frac{MR'}{MR'max} + \frac{MP'}{MP'max} + \frac{MY'}{MY'max} < 1$$

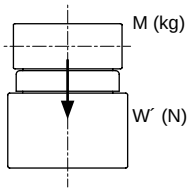
M'_T: Composition of moment (must be less than 1)
W′: Vertical load (N)
MR′: Rolling moment (N/m)
MP′: Pitching moment (N/m)
MY′: Yawing moment (N/m)

● Slider type: core of slider part



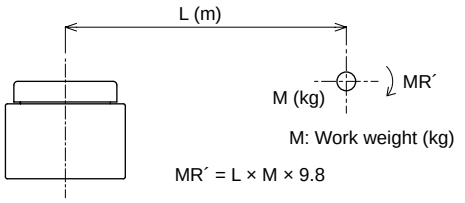
		W′max (N)	MR′max (N•m)	MP′max (N•m)	MY′max (N•m)
Allowable static load	ERL-45	1450	31	12	12
	ERL-60	2000	58	25.7	25.7

● Vertical load W´ (N)

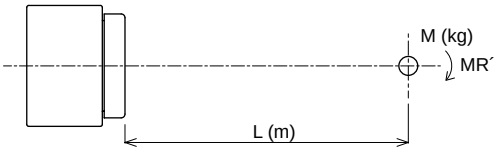


M: Work weight (kg)
W´ = M × 9.8

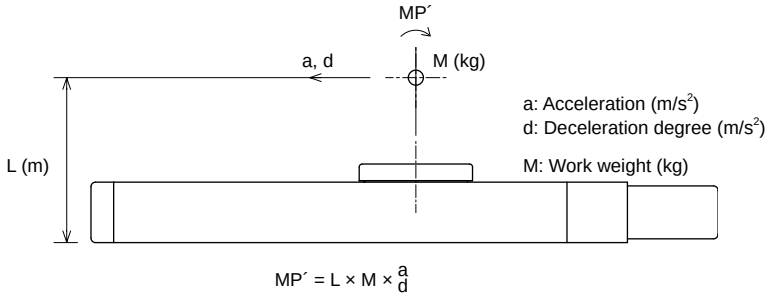
● Rolling moment MR´ (N•m)



M: Work weight (kg)
MR´ = L × M × 9.8

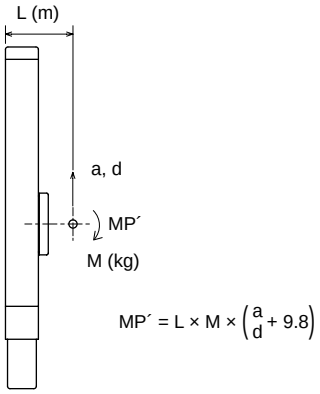


● Pitching moment MP´ (N•m)



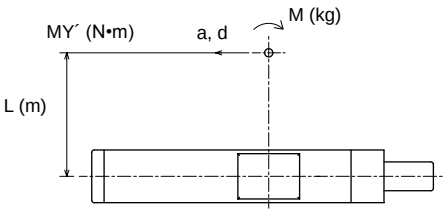
a: Acceleration (m/s^2)
d: Deceleration degree (m/s^2)
M: Work weight (kg)

$MP' = L \times M \times \frac{a}{d}$

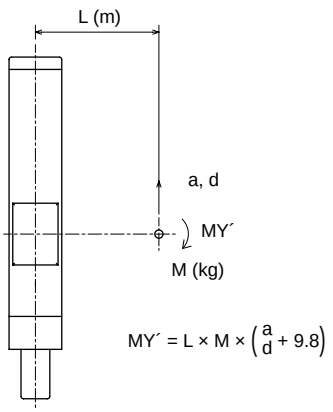


$MP' = L \times M \times \left(\frac{a}{d} + 9.8\right)$

● Yawing moment MY´ (N•m)



$MY' = L \times M \times \frac{a}{d}$



$MY' = L \times M \times \left(\frac{a}{d} + 9.8\right)$

3-2 Confirming allowable moment during operation

Confirm that the acceleration doesn't exceed the allowable moment (comply with the formula below) during operation.

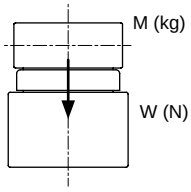
$$M_T = \frac{W}{Wmax} + \frac{MR}{MRmax} + \frac{MP}{MPmax} + \frac{MY}{MYmax} < 1$$

M_T: Composition of moment (must be less than 1)
W: Vertical load (N)
MR: Rolling moment (N/m)
MP: Pitching moment (N/m)
MY: Yawing moment (N/m)

Allowable load during operation

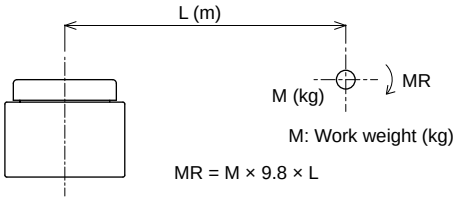
	Mounting orientation	Wmax (N)	MRmax (N•m)	MPmax (N•m)	MYmax (N•m)
ERL-45	Horizontal	98	11.1	4.4	4.4
	Vertical	–	12.3	4.9	4.9
ERL-60	Horizontal	294	27.5	8	8
	Vertical	–	33.7	9.8	9.8

● Vertical load W (N)

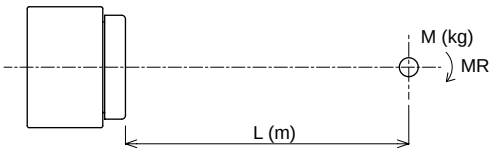


M: Work weight (kg)
W = M × 9.8

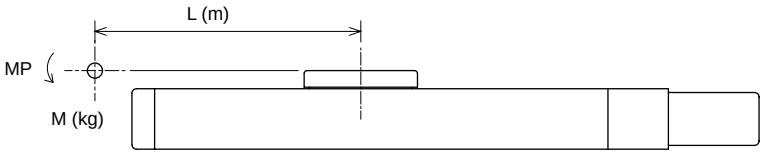
● Rolling moment MR (N•m)



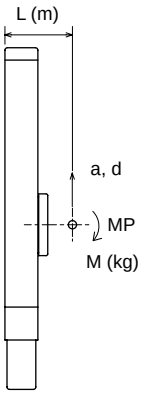
M: Work weight (kg)
MR = M × 9.8 × L



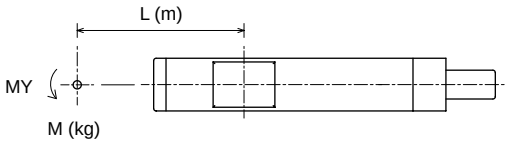
● Pitching moment MP (N•m)



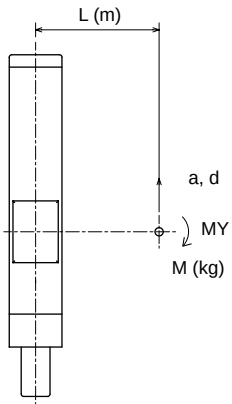
M: Work weight (kg)
MP = M × 9.8 × L



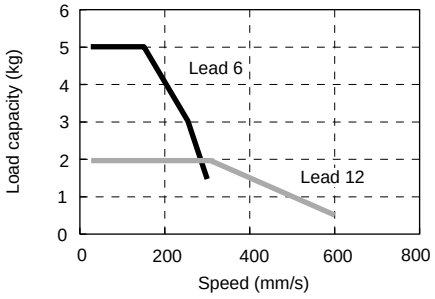
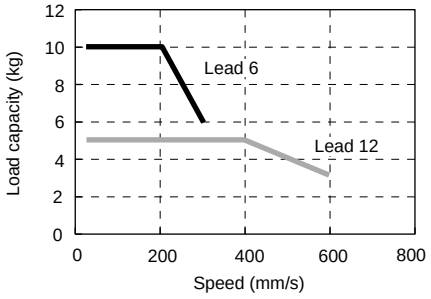
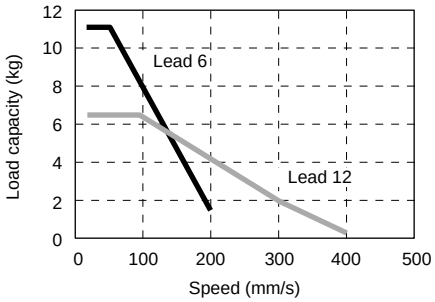
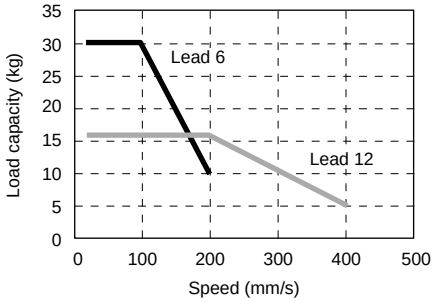
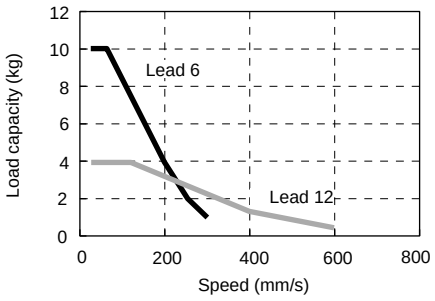
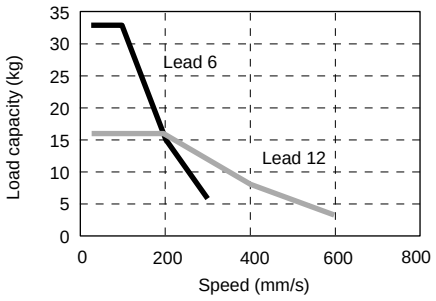
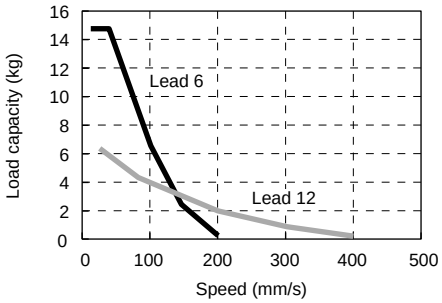
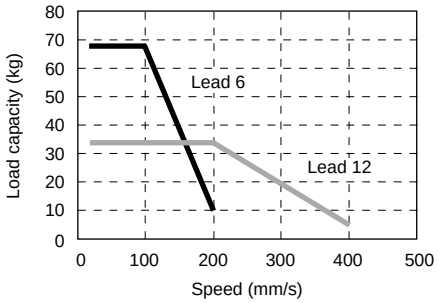
● Yawing moment MY (N•m)



M: Work weight (kg)
MY = M × 9.8 × L

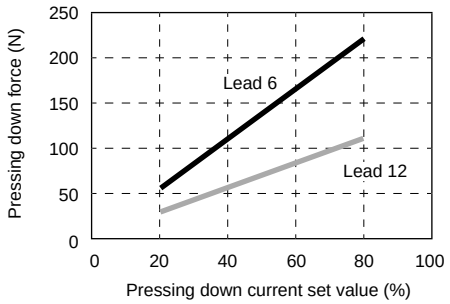
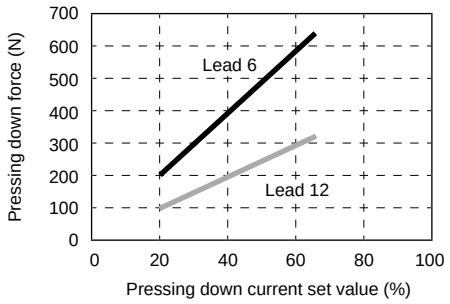
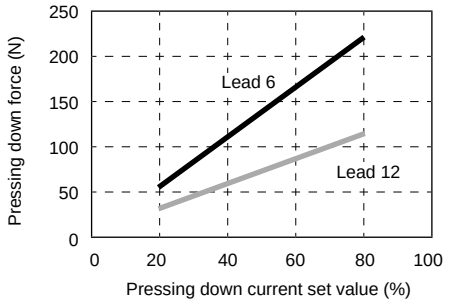
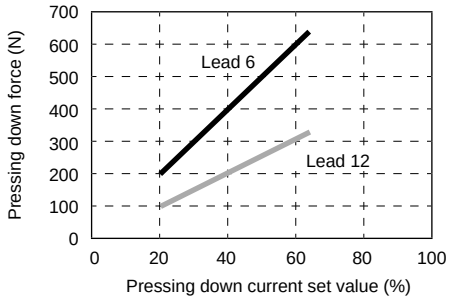


Technical data ① vertical load capacity and horizontal load capacity

	Vertical load capacity	Horizontal load capacity
ERL-45		
ERL-60		
ESD-35, 45	 *	 *
ESD-55	 *	 *

* For rod type (ESD), use with guidance not lateral load to apply.

Pressing down force

	Pressing down force
ERL-45	 Note: Use within the allowable moment.
ERL-60	 Note: Use within the allowable moment.
ESD-35, 45	
ESD-55	

Safety precautions

Always read this section before starting 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.
It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.
Observe warnings and precautions to ensure device safety.
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.
(Note that this product can be used when CKD is consulted prior to use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks in the event of problems.)

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.
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.

❶ Inspect and service the machine and devices after securing the safety of all the systems related to this product.
❷ Exercise caution as high temperature and charged parts can be present even when operation is stopped.
❸ Before starting device inspection or maintenance, turn off the device power and other powers to related devices, release compressed air in the system, and check leakage current.

5 Observe warnings and cautions in the instruction manual of each product.

❶ Provide a safeguard to prevent entry to the movable scope of electric actuator.
In case of emergency, connect the controller's emergency stop push button switch and install it in a place facilitating operation.
Be sure that the emergency stop push button has a structure which will not allow automatic restoration or unsafe restoration by operator.
❷ Use the shaft with a built-in brake when the shaft is not installed horizontally.
If the servomotor is turned off (including emergency stop or alarm) or brakes are turned off, the actuator may fall and cause injury.
❸ Direct teaching function allows teaching operation with servo switched off. Unexpected movement in the movable parts of equipment may occur when switching off the servo. Care must be taken when switching off the servo.
❹ 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.
❺ The shaft with a built-in brake cannot completely clamp the actuator in all cases. When the slider is moved with unbalanced load during maintenance or the machine is stopped for a long time, it may not be sufficient to stop the shaft with the brakes alone for ensuring safety. Be sure that the equipment is in a balanced state or provide a mechanical locking mechanism.
❻ It may take several seconds to stop in an emergency, depending on moving speed and load.

6 To prevent electric shock, observe warnings and cautions.

❶ 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.
❷ Turn off the controller power source before conducting maintenance or inspection.
Electric shocks from high voltage may occur.
❸ Do not connect or disconnect connectors while power is on. Misoperation, faults, or electrical shock may occur.

7 Before restarting a machine or system, check that measures are taken so that parts do not come off.

8 Install a surge protector.

Wire according to JIS B 9960-1: 2008 Safety of Machinery • Electrical Equipment of Machines • Part 1: In order to fulfill the general requirement, install over-current protective devices (ex. circuit breaker for wiring, circuit protector) on primary side of the power supply for engine (power connector, power supply terminal block) and controller (I/O connector).

(Excerpt from JIS B 9960-1 7.2.1 general information)
A surge protector must be installed when the circuit current of the machine (electric equipment) is greater than the rated value of the components or the allowable ampacity of the conductor. The rated value or the set value that must be selected is provided on 7.2.10.

9 Observe the precautions below to prevent accidents.

■ The precautions 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.

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.

Limited Warranty and Disclaimer

1 Term of warranty

“Warranty Period” is one (1) year from the first delivery to the customer.

2 Scope of warranty

In case any defect attributable to CKD is found during Warranty Period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, according to its own judgment. In no event CKD shall never be liable for the costs in relation to and the damages resulting from the (un) installation of the product.
This Limited Warranty will not apply to:

(1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications.
(2) Faults caused by careless or incorrect handling, or improper control.
(3) Faults caused by factors other than delivered parts.
(4) Faults caused by improper product use.
(5) Faults due to modifications to the product structure, performance, or specifications by a party other than CKD after the product is delivered, or faults caused by repairs not designated by CKD.
(6) Damage that could have been avoided if the user’s machine or equipment had functions and structure, etc., considered normal within the industry.
(7) Failure due to causes not foreseeable with technology at the time of delivery.
(8) Faults due to fires, earthquakes, water damage, lightning, other acts of nature, acts of God, pollution, salt damage, gas damage, abnormal voltage, or other external forces.

The warranty here refers to the warranty of the actually delivered product, and does not include any damage resulting from a fault in 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 customer have the responsibility to check for the compatibility of our products to the machineries, systems and equipments it will be used in.

5 Service range

The price of delivered product does not include technical support fee. For the following cases, we will charge separately.
(1) Always read this section before starting use.
(2) Do not operate the product where there are hazardous materials such as combustibles, flammables, explosives.
(3) Do not disassemble this product.

Safety precautions

Always read this section before starting use.

Individual precautions: Electric actuator ERL, ESD series/teaching pendant ETP2

Design & Selection

1. Common

DANGER

- Do not use where there are dangerous items such as ignitable items, inflammable items, and explosive items. It can cause ignition, flames, and explosion.
- Make sure there is no water or oil contact on the product. It can cause fire and failure.
- When installing the product, make sure to perform reliable holding and securing (including work). Injuries can be caused by overturning, falling, abnormal operation, etc. of the product.
- Make sure to use DC stabilized power supply (24 VDC±10%) for motor or motor control, and input/output circuit power supplies.
  Connecting directly to AC power supply can result in fire, rupture, damage, etc.

WARNING

- Design the safety circuit or device so that there is no damage to the device or injuries to people when the machine stops due to abnormal conditions (such as emergency stoppage and power outage).
- Install indoors in an area with low humidity.
  Installing in areas where the rainwater can contact the product or with high humidity (85% humidity or more, areas with dew condensation) can lead to electricity leakage, fires, and similar accidents. Oil droplets and oil mist are also strictly prohibited.
- Use and store in condition without dew condensation while obeying usage and storage temperatures.
  It can cause emergency stoppage, service life decline, etc. Ventilate if heat builds up.
- Install in areas without direct sunlight, dust particles, heating elements, corrosive gas, explosive gas, flammable gas, or combustibles. Consideration has not been taken regarding chemical resistance.
  It can cause failure, explosion, or ignition.
- Use and store in areas without strong electromagnetic waves, ultraviolet rays, or radiation.
  It can cause malfunction or failure.

CAUTION

- When wiring, in order to avoid induction noise being applied; do not pipe or wire with areas where large electric currents or strong magnetic fields can occur, or with large type motor power lines of those other than this unit. Use caution regarding inverter power supply and wiring sections used in robots, etc. Install a frame ground for same power source and make sure to insert a filter into output sections.
- If this product's output section and inductive loads that can generate surges (such as solenoid valves and relays) use a common power source, surge current can lead into output sections; causing damage. Therefore, separate inductive load outputs and this product's output power. If you cannot separate the power source, connect a surge absorbing element to all inductive loads directly and using a parallel configuration.
- Select a power supply for motor with enough capacity, with considering number to install. Malfunction can occur if there is not enough capacity. (Reference: □42…3.2 A/installation, □56…4 A/installation)
- Do not disassemble the product.
- Fix cables cannot be used in applications with repeated bending. For repeated bending, use moving cables.
- Secure moving cables so that they cannot be moved easily. When securing, do not bend cables in sharp angles (minimum curve radius: under 68 mm).
- As recognition of the origin position is performed when the power is on, it may recognize mistakenly an unintended position as the origin position, if there is an external stopper or retention mechanism such as the brake. In order to recognize the correct position of the origin, please pay attention on layout of external stopper etc.
- In no event shall CKD be liable for merchantability or fitness for a particular purpose, notwithstanding any disclosure to CKD of the use to which the product is to be put.

2. Teaching Pendant

WARNING

- Make sure that the safety is assured to operate the actuator in case the unit is operated from the place unable to confirm the motion.

1. Common

⚠ DANGER

- Under the circumstances of the product workable, keep away from the working range. It may result injury, as the product worked unexpectedly.
- ERL (slider type) may catch fingers with motor part and slider when returning to the origin. Please be careful.

⚠ WARNING

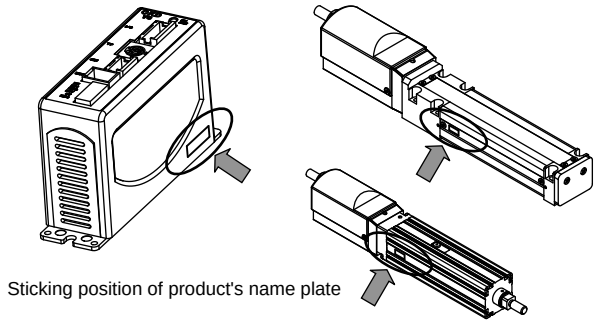
- Overturning, vibration, and impact during transportation are dangerous because precision parts are integrated in the product.
  It may cause a malfunction.
- If placing at a temporary location, make sure it is horizontal.
- Do not get on top of packaging and do not place items on top of the product.
- Ambient temperature and ambient humidity during transport shall be –10 to 50 °C and 35 to 80%, respectively. Make sure there is no dew condensation or freezing.
  It can cause product failure.
- Install the product on non flammables. Installation directly or near flammable items can cause fire.
- Make sure to perform D class grounding construction (ground resistance 100 Ω or less) for the product.
  Electricity leakage can cause electric shock, malfunctions, etc.
- Securely perform wiring of this product without incorrect wiring or loose connectors while following this catalog. Check wiring insulation.
  Contact with other circuits, ground fault, and defective terminal insulation can lead to overcurrent flowing into the product; causing damage. It can cause abnormal operation and fire.
- Make sure to perform safety checks of the working range of the instrument before turning on the product's power. Off the power immediately, if the LED doesn't light even the power is on.
  Supplying the power carelessly can cause electric shock, injury, etc.
- Make sure hands and body parts do not contact the product body during operation or immediately after stoppage.
  There is risk of burn injuries.
- Do not get on, place objects, or step on this product.
  It can cause falling accidents, overturning of the product, injury due to dropping, product damage, malfunction due to damage, etc.
- Provide measures so that physical injury and damage to the machine do not occur even if failure of the power source occurs.
- Do not damage, apply unreasonable stress, put heavy thing on, or catch cables.
  This could lead to electric shock.
- Manually moving movable parts of the product to set (direct teaching) should be done after confirming that the servo is OFF with teaching pendant.

⚠ CAUTION

- During transfer or installation, do not hold the movable parts or cable section.
  It may cause injury or disconnection.
- Do not install on areas with major vibration or impact.
  It may cause malfunction.
- Do not operate product's movable sections by external force or let the product perform with rapid deceleration.
  Regenerative current may lead to malfunction or damage.
- Other than returning to the origin or pressing down operation, do not dump against stopper etc.
  It may damage feed screws, and cause malfunction.
- When returning to the origin, do not put external force on the actuator. It may misrecognize the origin.
- Do not dent or scratch movable parts.
  Otherwise, malfunctioning may occur.
- Durability may differ depends on transporting load or circumstances. When setting the transporting load etc., provide adequate allowance. Also, do not use in ways with impacts against the movable part.

⚠ Before use...

- Confirm that the serial no. matches name plates on actuator and controller.
  Pairs other than factory default are not acceptable to use.



2. ERL Series

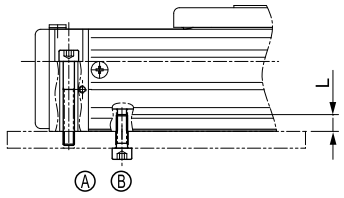
⚠CAUTION

■ Do not apply an excessive moment on the slider for slider types.
Otherwise, damage or malfunction could result.

■ For slider type, maintain parallelism of the installation mate at 0.05 mm/200 mm or less, and do not bend or apply bending force on the product.

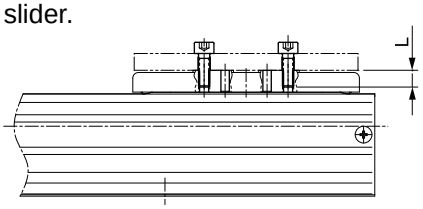
■ For slider type, maintain parallelism of the slider work mate at 0.02 mm or less, and do not bend or apply bending force on the product.
Otherwise, damage or malfunction could result.

■ For tightening screws to mount the body, use screws with length in below table, with applying appropriate torque.



	Ⓐ		Ⓑ		Max. screw depth L (mm)
	Applicable bolts	Tightening torque (N•m)	Applicable bolts	Tightening torque (N•m)	
ERL-45	M4 × 0.7	1.5	M4 × 0.7	1.5	8
ERL-60	M5 × 0.8	3	M5 × 0.8	3	9

■ Observe the following values for the bolt insertion lengths and tightening torque when installing the jig on the slider.



Mounting on slider side

	Applicable bolts	Tightening torque (N•m)	Max. screw depth L (mm)
ERL-45	M4 × 0.7	1.5	7.5
ERL-60	M5 × 0.8	3	10

■ When mounting on the slider side, take moment load into consideration.
Check model selection guide (pages 21 to 24).

3. ESD Series

⚠CAUTION

■ When connecting, check that the rod's shaft center and the load movement direction are the same.
Otherwise, feed screws could be worn or damaged.

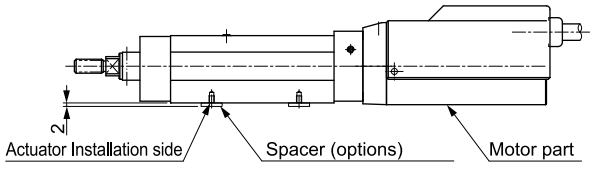
■ If the external guide is used, check that it can be operated on all positions in product stroke before installation.

■ Never apply the load in rotation direction at the edge of rods.
It may result in damage of the product.

■ Do not add any other external force other than rod bearing direction to the rod.

■ Install guide which doesn't apply lateral load.

■ On installation, fix the body firmly with hexagon socket head cap bolt etc.
In case of installation with actuator mounting side, insert more than 4 square nuts (comply with JIS B 1163 (2001), attached to the product) in two grooves on the actuator mounting side of the product to fix firmly.



For ESD-35 and 55, motor part protrudes the actuator mounting side in a downward direction. If the motor interferes with the mounting side, use spacer (optional).

4. Teaching Pendant

⚠CAUTION

■ Connect the teaching pendant to the controller only when it is used. Other than that, leave it disconnected.

■ Do not apply high pressure or impact against the product.
Doing so could cause a failure.

■ Do not apply an excessive force against cables or connector parts.

■ Do not press LCD display and keys strongly.

During Use & Maintenance

1. Common

⚠ DANGER

- Wiring and inspection shall be conducted by specialized engineers.

- Perform wiring of the product after piping.
  Otherwise, an electric shock may occur.

- Do not work with wet hands.
  Otherwise, an electric shock may occur.

- Conduct wiring and inspection after more than 5 minutes has exceeded since turning the power off and after checking the voltage with a tester, etc.
  Otherwise, an electric shock may occur.

- Do not install/remove wiring or connector-type items while the power is on.
  There is danger of malfunction, failure, and electric shock.

- In case of the cable extension, the lead wire to use should allow by 4 A.
  Otherwise, the voltage drop may cause a malfunction, lack of thrust force, generation of heat, and shorter machine life.

- Do not connect the communication connector for this product to other devices.
  Malfunction, damage may be caused.

⚠ WARNING

- Storage environment conforms to the installation environment, however, long-term storage for more than 1 month is not recommended. Please especially take measures to prevent dew condensation.

⚠ CAUTION

- Conduct regular checks 2 to 3 times a year and check if the machine is operating correctly.

- The setting for the greasing interval is typically around 100 km. However, we recommend determining the greasing interval on initial inspection because it may differ depending on the condition of use.

- Shutdown the power immediately in case of product failure (abnormal heat, smoke, smell, sound, vibrations, etc.) It can cause product damage and fire due to continuous electrical current flow.

- When the servo is shut off (including emergency stop and alarm) in circumstances where gravity or inertia is applied, it does not stop immediately. Conduct these operations in a balanced state not subject to gravity or inertia, or confirm safety before starting.

- When conducting maintenance, inspection, and repairs; always do so after turning off the power supply to this product. Use caution for surroundings to prevent a third person from accidentally turning on the power or operating.

- Comply with laws regarding waste disposal and cleaning when disposing of this product. Dispose of the product by subcontracting to waste treatment professionals, etc.

- For this product's integrated control board, a condenser is connected between the same circuit and metal body to prevent static electricity damage. Therefore, do not conduct withstand voltage tests or insulation resistance tests on devices that have this product connected. Conducting such tests can damage this product. If necessary to conduct such tests for the device, please first remove/detach this product.

- When performing electrical welding, remove all frame ground connections from the product beforehand. Otherwise, the product could be damaged by extreme high voltage or serge voltage by welding currency during welding.

Related products

Electric actuator　KBZ Series

Catalog No.CC-1102A

■ High tact
Operation at max.1000 mm/s is available

■ Servo motor is adopted
Servo motor is adopted to small shaft. Servo motor achieved high speed, high rate accelerating/decelerating, high load capacity of transporting

■ Absolute specification
Absolute specification which doesn't requre returning to the origin

■ Speed controller
Cut down weight successfully

Electric actuator　ESSD, ELCR Series

Catalog No.CC-1002A

■ Space saving
Built-in controller eliminates the need for controller installation space and wiring

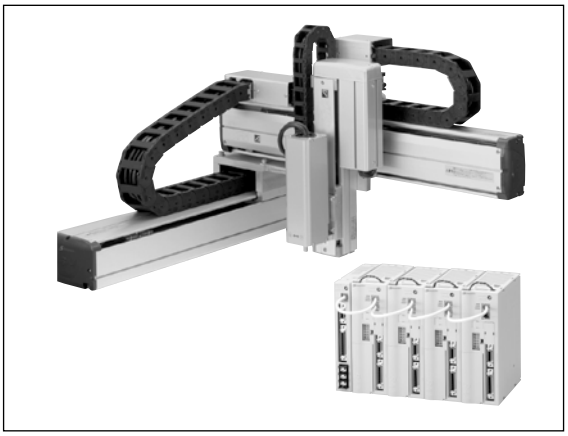
■ Installable like a pneumatic cylinder
Design which can imagine a pneumatic cylinder as it is, including appearance configuration, various controls and usage

■ Motion control at will
Three control modes, speed & acceleration control and positioning completion width (imposition) can be set

■ Easy teaching
Easy setting with five buttons, enabling direct teaching

Electric actuator　KBB Series

Catalog No.CC-783A



■ High tact
Max. 2000 mm/s (timing belt driven)

■ High precision
Repeatability: ±0.01 mm (ball screw driven)

■ Absolute specification for all models
All models are unified to specification without home positioning, by adopting long service life lithium battery (50,000 hours service life)

■ High level process with high speed CPU
High level processing speed is achieved by adopting high speed CPU

■ Wide variation
7 types of ball screws, 6 types of timing belts

4 directions of position to mount motor can be selected for each shaft

ABSODEX compact type AX6000M Series

Catalog No.CC-1148A

Space saving

In addition to the outer dimension which is the smallest in the industry, the circle form with single shaft (rotary shaft and fixed shaft are same) enabled compact device design without unnecessary space

Flexible

Desired actuation comes true with rich program creation functions

Moreover, easy actuation settings including auto-creation of point specific program are supported

High reliability & maintenance free

Direct drive method (gear-less) delivers stable actuation without any anxious about gear damage on over load or precision change because of worn gear part

ABSODEX Quick response type AX1000T, AX2000T, AX4000T Series

Catalog No.CC-995A

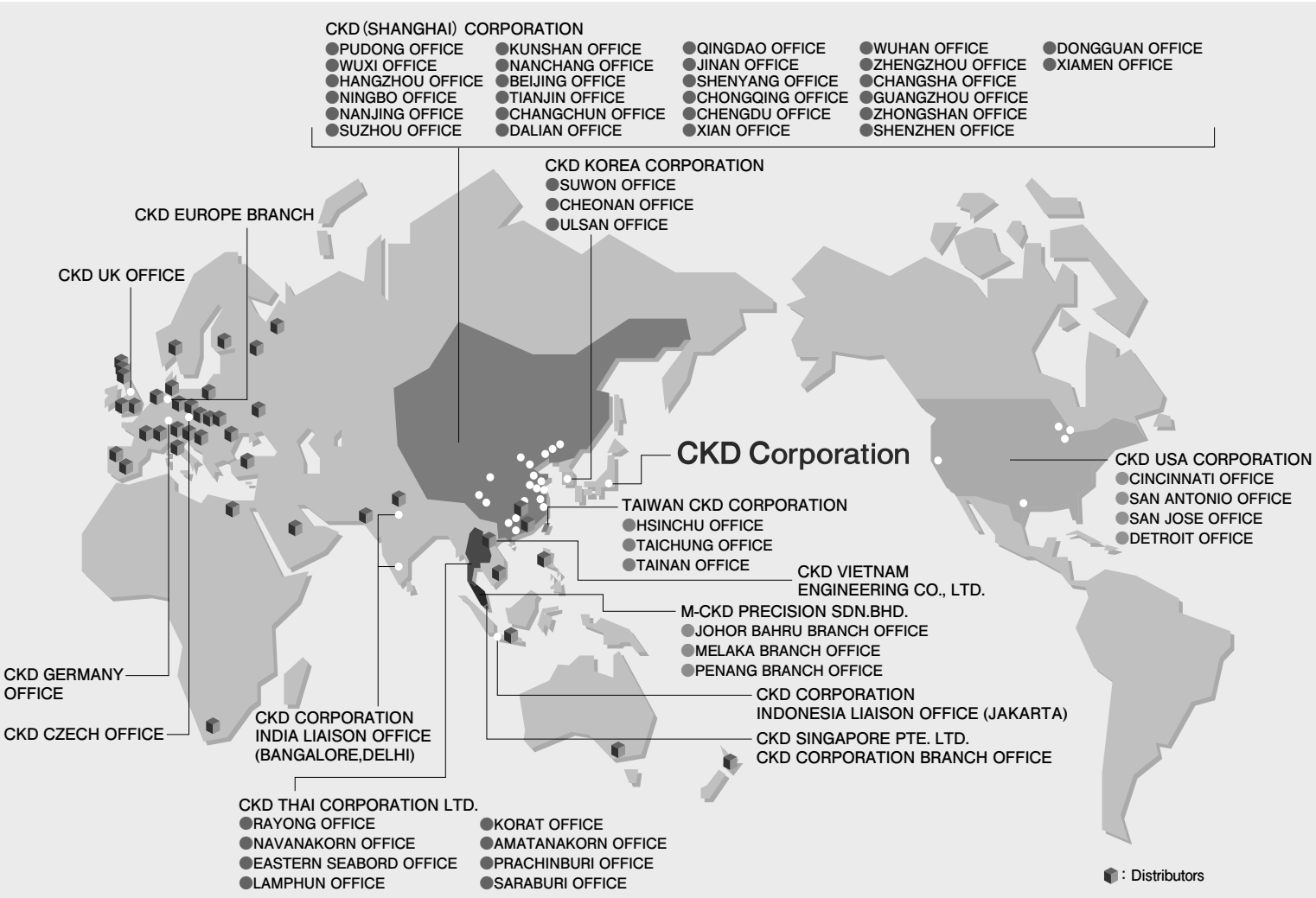
Rich actuators

12 types of actuators from 6 to 1000 N·m are available.

5 types of interface options

5 types interface for driver including parallel 2/0, (NPN, PNP), CC-Link, DeviceNet, PROFIBUS-DP are available.

WORLD-NETWORK



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