

ELECYLINDER EC

ECO

Battery-less Absolute Encoder
No Battery,
No Maintenance, No Homing,
No Going Back to Incremental.



Simple Operation



Newest Additions to the Series



Mini Rod Type

Mini Table Type

High Rigidity Slider Type

Radial Cylinder Type

Waterproof Specification

Simple ELECYLINDER

Working just **5** minutes
after setting speed
and acceleration!!



EC

ELECYLINDER



EC
ELECYLINDER

Simple

ELECYLINDER

- Simple model selection.
- Easy to operate, even with no electrical expertise.
- Easily repaired by operators in the event of a breakdown.
- Few maintenance parts.

→
P.3

High Performance

ELECYLINDER

- Acceleration (A), Velocity (V), and Deceleration (D) can be adjusted individually.
- Start and end points can be set at any value.
- Faster cycle time.
- Slider type has built-in guide.

→
P.5

Profitable

ELECYLINDER

- Faster cycle time means increased productivity and reduced labor costs.
- Greatly reduces momentary stops on the production line.
- Long product life. Usable for up to 20 years with low loads.

→
P.9

Simple

ELECYLINDER

ELECYLINDER operation is **extremely simple**.
Easily repairable in the event of a breakdown.

Simple model selection

■ Select the ideal model easily with model selection software.

➔ <https://www.intelligentactuator.com/ec1>

Simple programming-free operation

Operation is possible with data entry alone. No need to perform complicated programming.

Operation is possible with ON/OFF signals alone, just like solenoid valves.

Start and end points can be set to any position

■ Enter stop position.

Input range 1 ~ 100			
7	8	9	ESC
4	5	6	
1	2	3	
0	BS	CLR	ENT

Load setting (Fwd) 10.000

Position setting

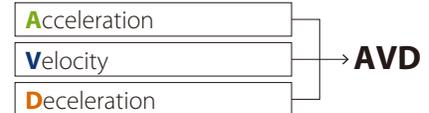
Backward end (home end) mm

Forward end mm

AVD values are easily set

■ Enter the operating conditions.

Operating conditions abbreviation: AVD



Input range 1 ~ 100			
7	8	9	ESC
4	5	6	
1	2	3	
0	BS	CLR	ENT

Load setting (Fwd) 10.000

Operating conditions

(Push forward: Backward end → Forward end)

A: Acceleration (%)

V: Velocity (%)

D: Deceleration (%)

☐ Push



EC
ELECYLINDER

Easily repairable in the event of a breakdown.

Troubleshooting can be performed using the teaching pendant.

Device stoppage causes and countermeasures are displayed.

In nearly all cases, just replace the motor or controller circuit board yourself and the unit will recover.

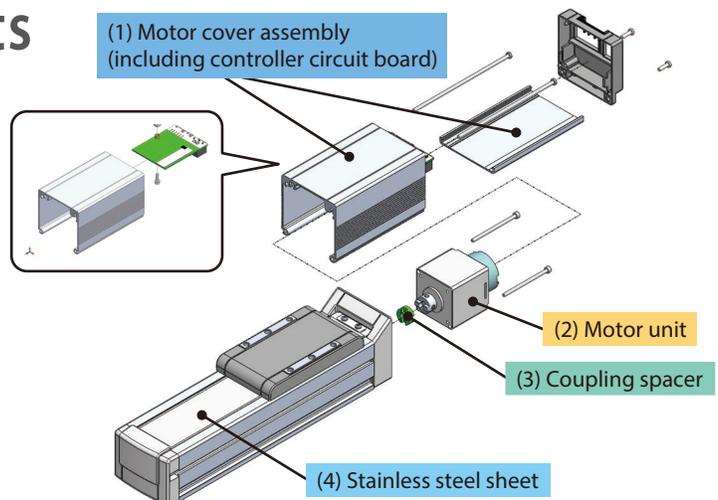
Point 1 The optimal countermeasure is displayed.

Point 2 Causes and countermeasures are displayed with illustrations.

Few maintenance parts

Since the ball screw and guide hardly ever break down, the only maintenance parts are

- (1) Motor cover assembly (including controller circuit board)
- (2) Motor unit



* Rear cover is not included in the motor cover assembly.

* Bolts are not included in the motor cover assembly and motor unit.

High Performance

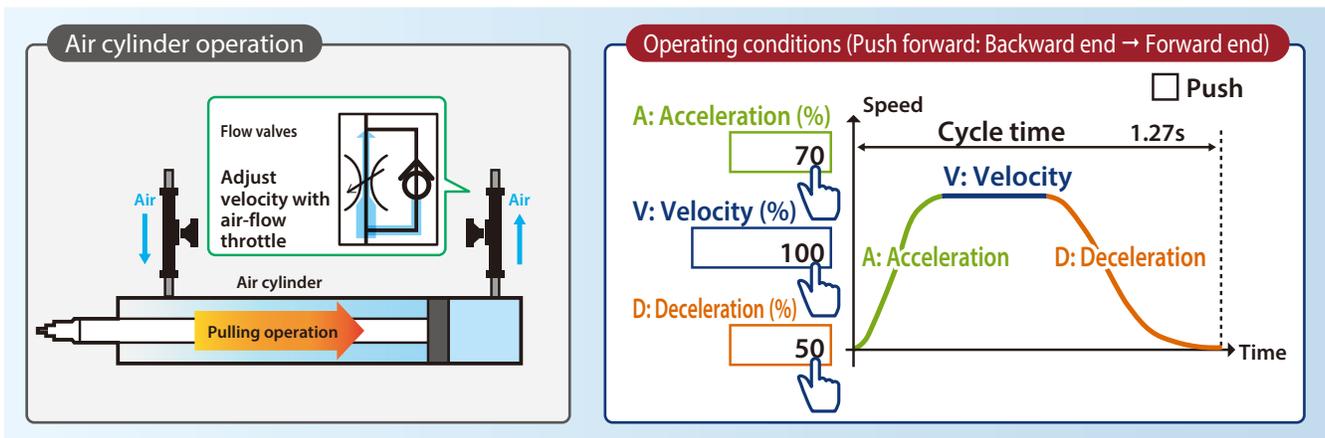
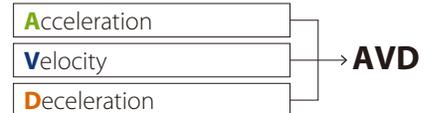
ELECYLINDER

Easy operation and **high performance** too.

High-level control of AVD

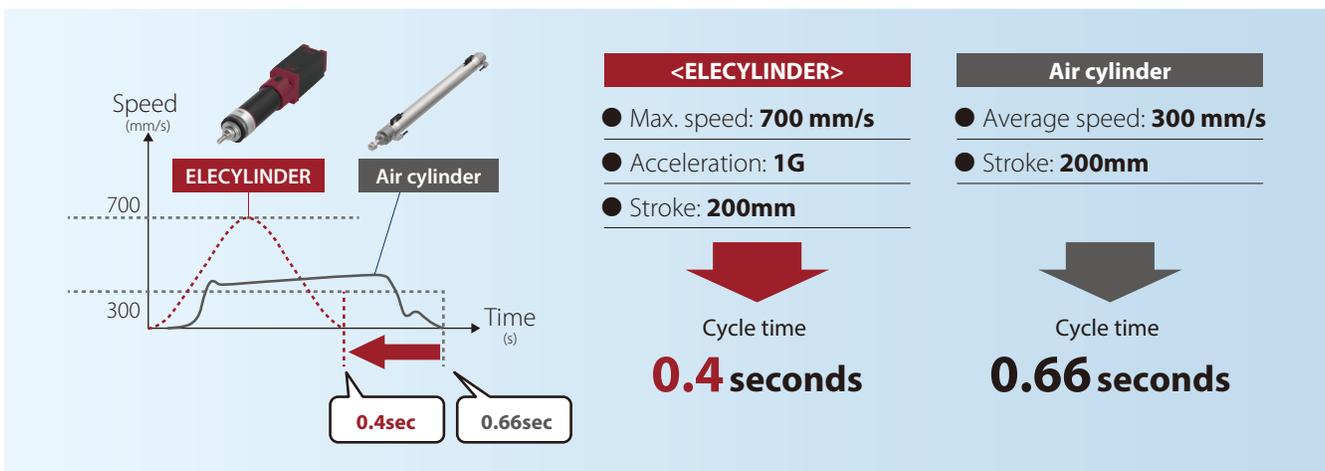
The **ELECYLINDER** allows fine adjustment of Acceleration, Velocity, and Deceleration, which can be adjusted individually in percentages. Air cylinders use flow valves to control movement and does not have the ability to finely-tune AVD individually.

Operating conditions abbreviation: AVD



Cycle time can be reduced

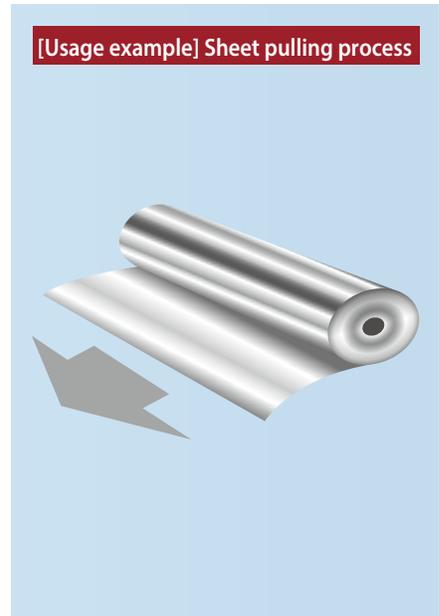
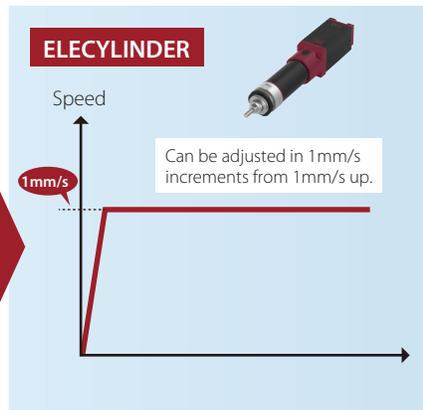
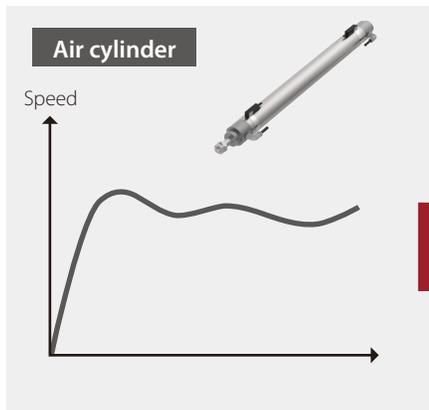
Air cylinders cannot operate at high velocity due to the impact at stroke ends which occurs when excess velocity is applied. The **ELECYLINDER** can start and stop smoothly at high velocity, reducing cycle time.





Stable velocity

Has excellent velocity stability even in the low velocity range.
Maintains consistent quality without film slack, even in low-velocity film or sheet pulling operations.



Fine tuning

To set **ELECYLINDER** start/end points, you may set the desired value by using the forward/backward step buttons set as low as 0.01mm increments on the Jog/Inching screen to visually confirm the workpiece position.
Air cylinders require position adjustment for mechanical end, auto switch, or shock absorber, as well as checking and tuning of each component's positioning.

Input range 1 ~ 100			
7	8	9	ESC
4	5	6	
1	2	3	
0	BS	CLR	ENT

Load setting(Fwd) 10.000

Position setting

Backward end (home end) mm

Forward end mm

High Performance

ELECYLINDER

Battery-less Absolute Encoder and predictive maintenance function eliminate **time-consuming maintenance work.**

Overload warning and maintenance period notifications

The predictive maintenance function issues an overload warning when the applied load exceeds that of normal operation. It also issues maintenance period reminders.



Preventive maintenance	Predictive maintenance
Operation distance (km/m)	Overload warning
Movement count (times)	

If the criteria are set in advance, the LED built into the body will flash green/red to notify that the maintenance period is up

Battery-less Absolute Encoder can be selected

No battery means no maintenance required. Since home return operation is not required at startup or after emergency stop or malfunction, operation time and production costs can be reduced.



Battery-less Absolute Encoder
No Battery,
No Maintenance, No Homing,
No Going Back to Incremental.

Battery-less means **maintenance-free**

No battery purchase costs and reduced maintenance stock

No battery replacement operation

No battery installation space

No battery-caused mechanical failure

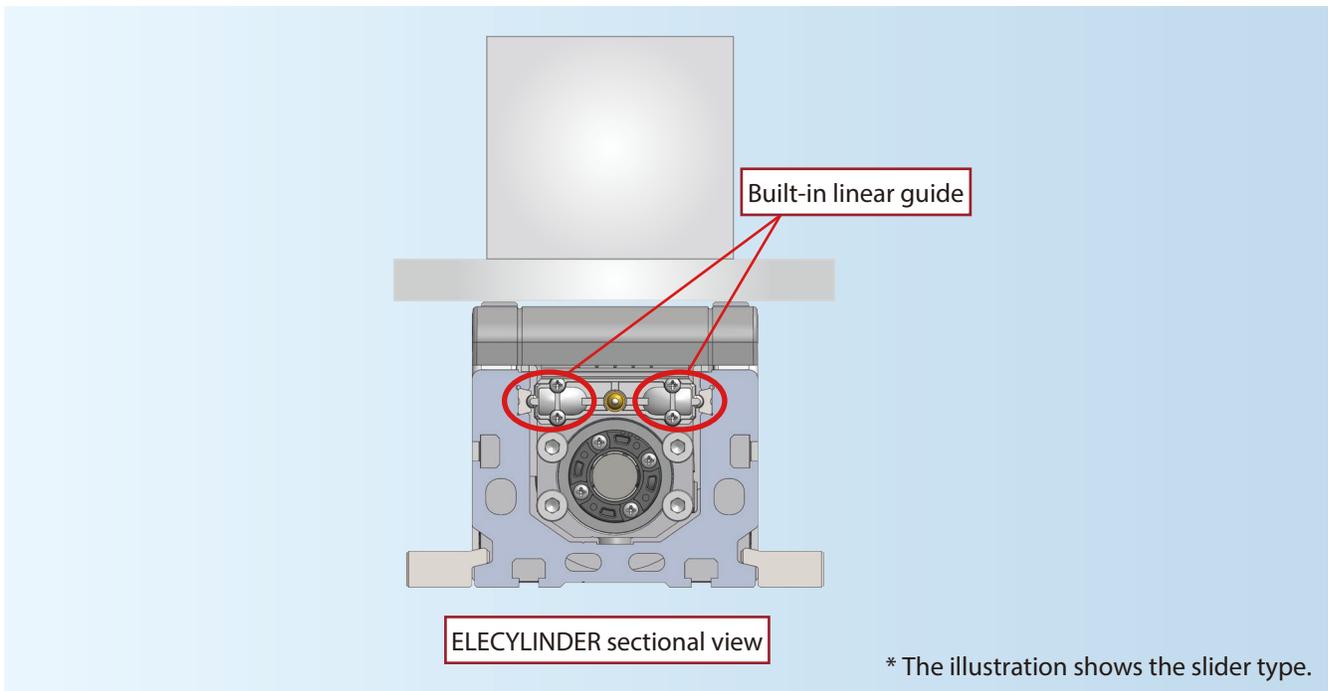


Built-in position memory system



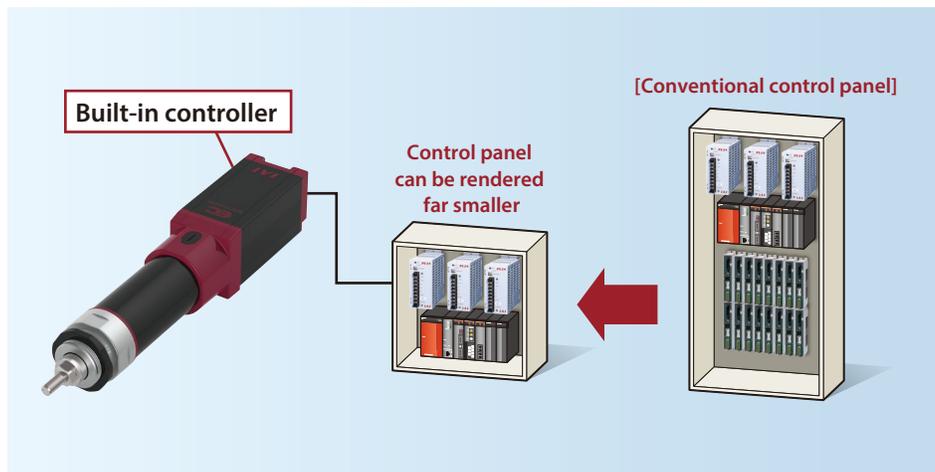
With built-in guide

The slider and radial cylinder types have built-in guides, so no external guide installation is needed. This keeps the equipment profile compact.



With built-in controller

Built-in controller means no need to allocate controller space inside the control panel. This keeps the control panel size compact.

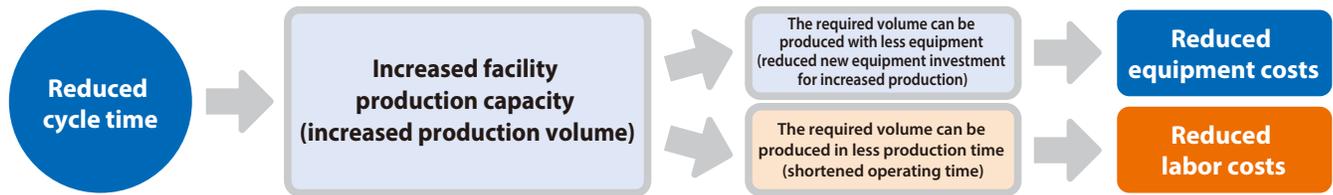


Profitable

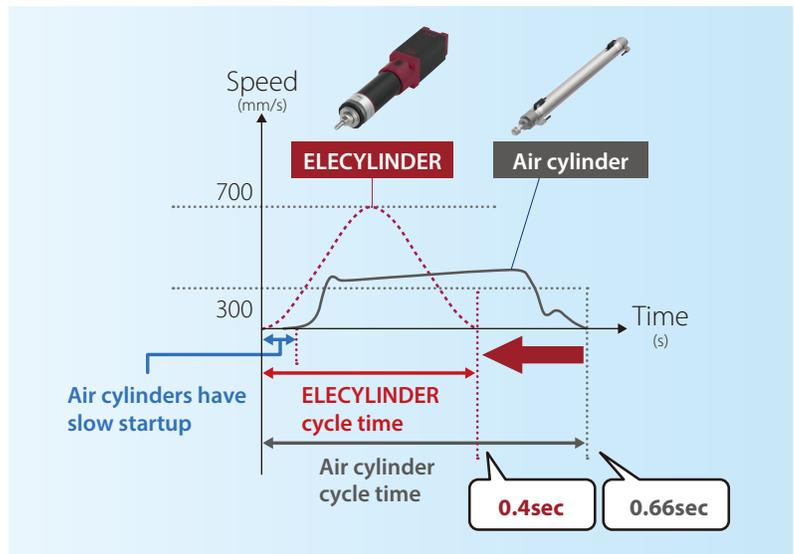
ELECYLINDER

In fact, more **ELECYLINDER** operation means **more profit!**

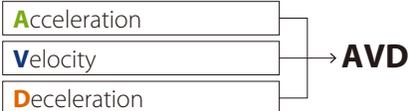
Improves productivity and reduces labor costs



Air cylinders cannot operate at high velocity due to the impact at stroke ends which occurs when excess velocity is applied. The **ELECYLINDER** allows individual adjustment of AVD with percentage input for smooth starting/stopping at high velocity. This enables reduced cycle time.



Operating conditions abbreviation: AVD

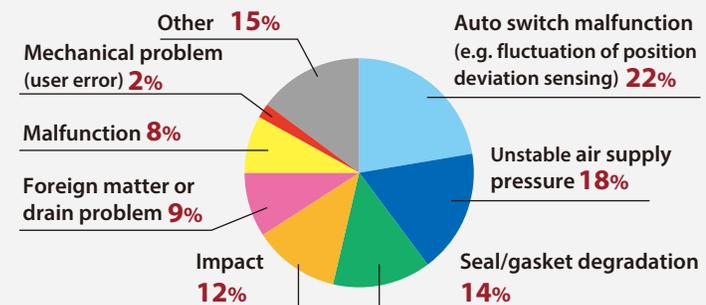


Reduces momentary stops on the production line and improves equipment operating rates

Depending on the state of equipment, various air cylinder issues can trigger momentary stops on the production line.

The **ELECYLINDER** can eliminate air cylinder-related momentary stops.

Cause analysis of momentary stops caused by air cylinders



(Based on IAI analysis)



Long service life

Instead of an impact mechanism, the **ELECYLINDER** incorporates a ball screw and ball circulating type built-in linear guide to achieve a long service life. Based on calculation using the conditions below, the lifespan of the **ELECYLINDER** is five times longer than that of air cylinders.

Operational conditions

Operating days per year	Operating hours	Movement stroke	Payload	Operation cycle
240 days	16 hours per day	300mm	Horizontal: 12kg	8 seconds per reciprocating motion

Lifespan

Product specifications	Life	Service life	Lifespan factors	Remarks
Air cylinder (rod type) ø32 	3 years	5 million times * Lifespan estimated by cylinder manufacturer	Gasket/ seal degradation	—
ELECYLINDER (rod type) EC-R7 	15 years	Approx. 16,000km	End of bearing life	Max. speed: 155 mm/s Acceleration/deceleration: 0.5G

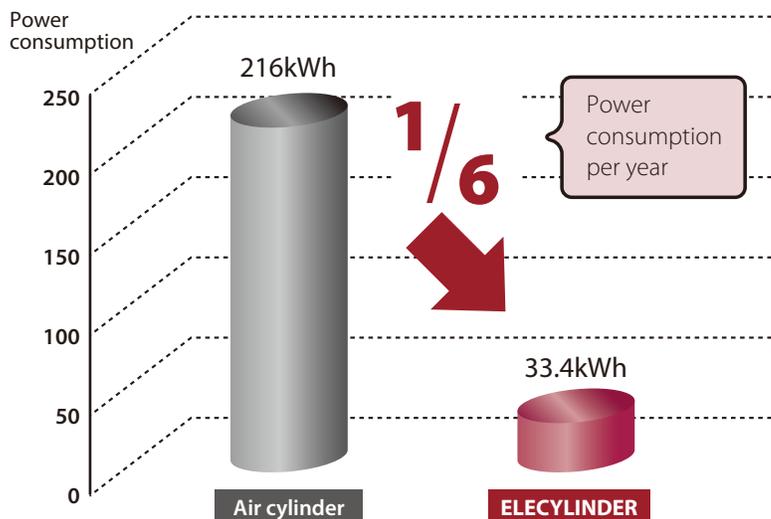
The **ELECYLINDER** lifespan is **5 times** longer than that of air cylinders

Reduces electricity bills

The difference in the rate of power consumption for the **ELECYLINDER** and air cylinders depends on the operational frequency. The higher the operational frequency, the more effective the energy-saving becomes.

Based on tests conducted by IAI, the **ELECYLINDER**'s power consumption, under the following conditions is 1/6 that of air cylinders.

<Operational conditions>	
● ELECYLINDER: EC-R7	● Acceleration: 0.3G
● Air cylinder: ø32	● Load: 30kg
● Stroke: 300mm	● Installation orientation: Horizontal
● Speed: 280 mm/s	● Operational hours: 16 hours per day
● Operation cycle: 30 seconds per reciprocating motion	
● Operating days per year: 240 days	

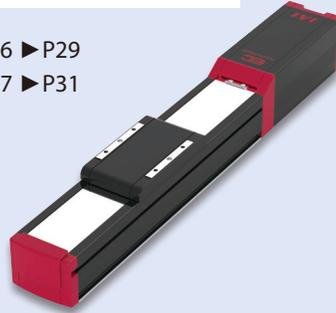


EC Product List

Standard

Slider type

EC-S6 ▶ P29
EC-S7 ▶ P31



Rod type

EC-R6 ▶ P37
EC-R7 ▶ P39



<Features>

- For the slider type, the slider on the top of the body operates.
- For the rod type, the rod operates in the same way as a rod type air cylinder.

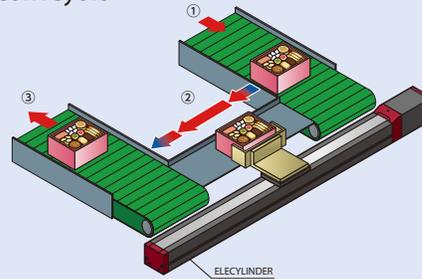
<Applications>

- | | |
|-------------|---------------------------------------|
| Slider type | Suitable for transporting workpieces. |
| Rod type | Suitable for pushing and lifting. |

<Usage Examples>

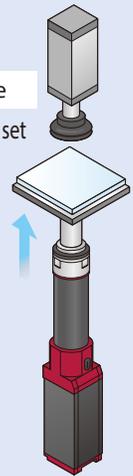
Slider type

Transferring between conveyors



Rod type

Pushes up the set workpiece



Compact

NEW Mini Table type

EC-TC4 ▶ P51
EC-TW4 ▶ P53



Attention! Check P.14!

NEW Mini Guided rod type

EC-GS4 ▶ P47
EC-GD4 ▶ P49



Attention! Check P.14!

<Features>

- For the slider type, the table on the top of the body operates.
- For the mini guided rod type, the rod operates.
- The use of a nut rotation mechanism reduces the size.

<Applications>

Suitable for conveying and pushing workpieces in narrow spaces.

High Rigidity

NEW High rigidity slider type

EC-S6□H ▶ P33
EC-S7□H ▶ P35



Attention! Check P.15!

NEW Radial Cylinder

EC-RR6 ▶ P41
EC-RR7 ▶ P43



Attention! Check P.13!

<Features>

- A ball circulating type linear guide is built in.
- The high rigidity slider type has a built-in 4-row linear guide. The highly rigid structure supports loads distributed over 4 rows of steel balls.

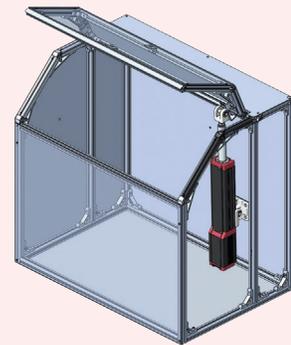
<Applications>

Radial Cylinder Suitable for oscillating motion such as opening and closing clamps and doors.

High rigidity slider type Suitable for applications where a large reaction force is applied, such as tightening screws and drilling holes.

<Usage Example>

Door open/close



Environmental Resistance

NEW Waterproof Specification (Rod Type)

EC-R6□W ▶ P55
EC-R7□W ▶ P57



Attention! Check P.15!

<Features>

- The rod operates in the same way as a rod type air cylinder.
- Waterproof type with ingress protection rating of IP67.

<Applications>

- Suitable for use in environments with flying dust or exposure to water.
- Usable in places where food-related equipment is washed.

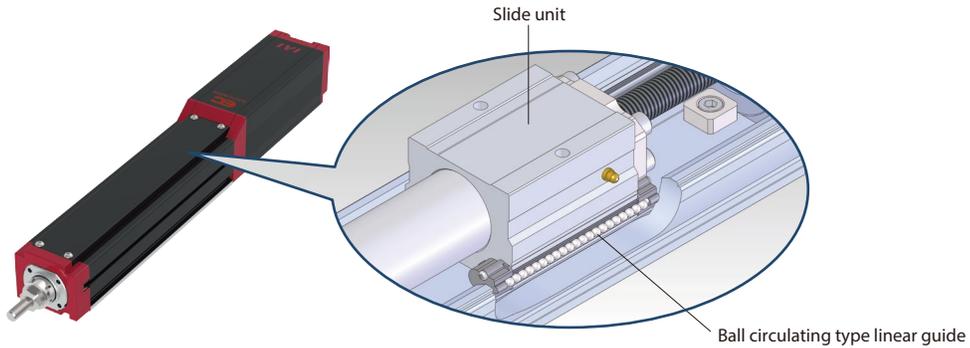
Radial load can be applied without an external guide!

Radial Cylinder



1. Includes a built-in guide.

The radial cylinder is equipped with a built-in ball circulating type linear guide in the rod body. No external guide is required, as both radial loads and eccentric loads can be applied.



(1) There is no tip runout.

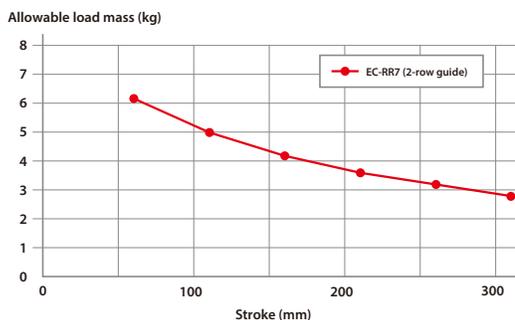
Since it has a built-in linear guide and the rod is supported by the guide, there is no runout to the tip.



(2) It can be used in narrow spaces.

Since there is no need for an external guide, it can be used even in narrow spaces to save overall space.

The theoretical service life of the 315 mm stroke radial cylinder, with a load of 2.9kg applied to the rod tip, is 4,770km. When the load on rod tip is halved, the theoretical service life increases 8-fold.



Theoretical service life: 4,770km
7.57 million cycles (when moving 315mm)

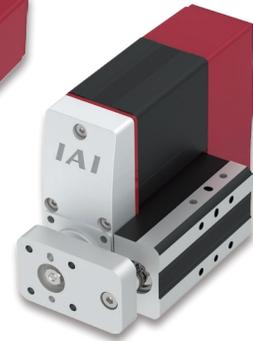
With tip weight of 2kg...
Theoretical service life: 14,547km
23.09 million cycles (when moving 315mm)

Palm size

Mini ELECYLINDER



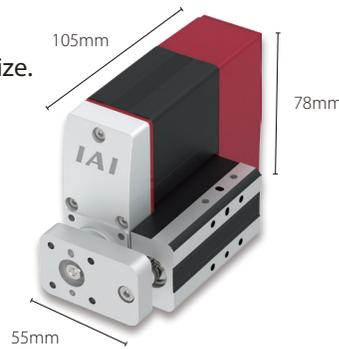
Mini Table type



Mini Guided rod type

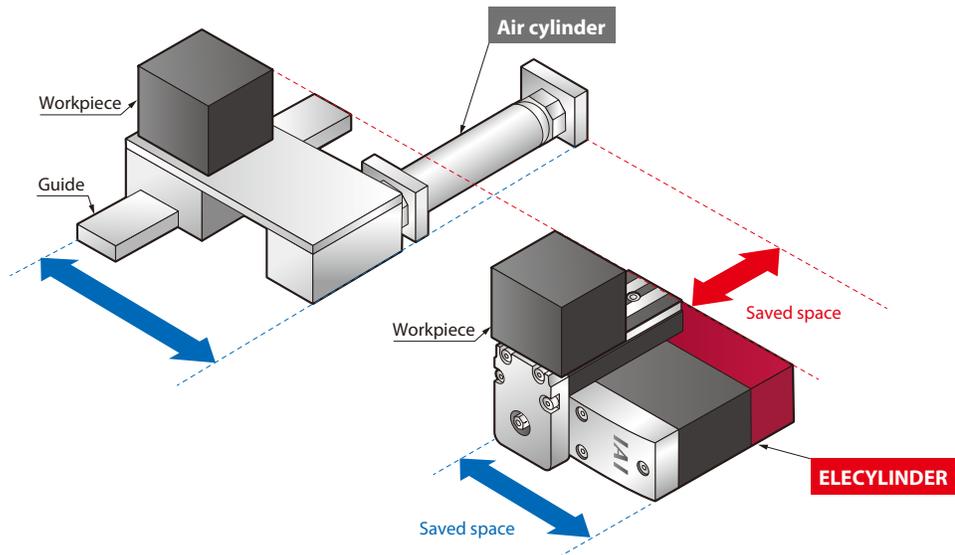
1. It can be used in narrow spaces.

- (1) The use of a nut rotation mechanism reduces the size.
- (2) Even with a built-in controller, the size is a compact 55mm × 105mm × 78mm.



2. As it has a guide, no external guide is required.

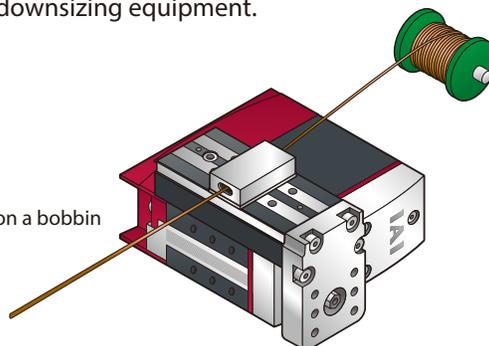
- (1) The guide design process can be eliminated.
- (2) It helps save space.



<Applications>

As it handles small parts, it is suitable for downsizing equipment.

Device for winding copper wire on a bobbin



Immersed in water? No problem!

Water-proof/ Dust-proof Specification



1. The ingress protection rating is IP67.

- (1) This rating represents protection from dust and is able to withstand water immersion between 15 cm and 1 meter for 30 minutes.
- (2) The waterproof structure prevents the ingress of water even when immersed, making it suitable for equipment such as food-related machines and washing machines which are exposed to violent splashes of water. It can also be used in environments where oil mist is present around processing machines.



<Usage Example>
Processing machine door open/close

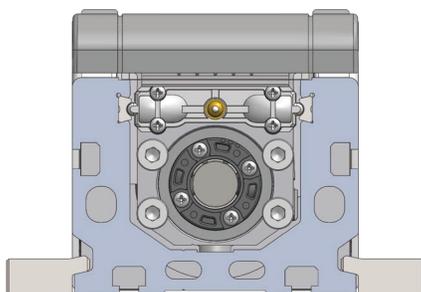
Increases the allowable dynamic moment through a 4-row guide

High rigidity slider type

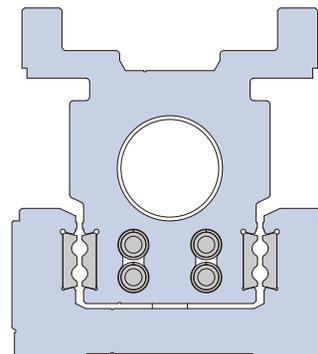
1. The allowable dynamic moment is at least 3.5 times that of the conventional product.

The structure supports loads distributed over 4 rows of steel balls, providing an allowable dynamic moment of at least 3.5 times that of the conventional product. Moreover, the overhang load length, a guideline for the overhang amount, is 1.3 times longer than that of the conventional product.

Conventional 2-row linear guide

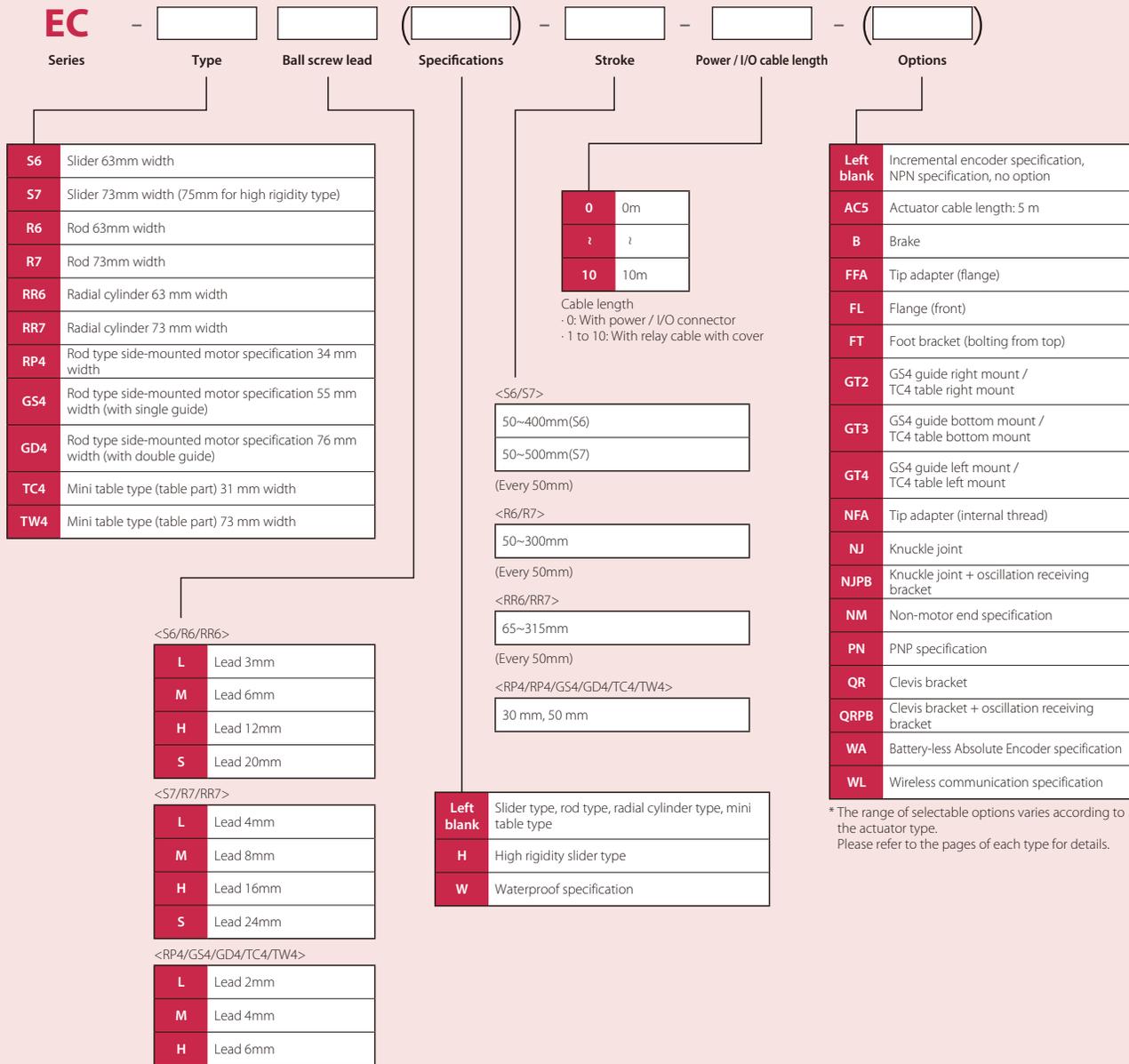


NEW 4-row linear guide



Model Specification Items

ELECYLINDER



Product List

Slider Type

*Speed limitation applies to push motion. See the manual or contact IAI.

Spec	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Specifications/ drawings
									Horizontal	Vertical	
Coupled Motor	S6			20	±0.05	50 to 400 (per 50st)	800	56	15	1	p.29
				12			700	93	26	2.5	
				6			450	185	32	6	
				3			225	370	40	12.5	
	S7			24	±0.05	50 to 500 (per 50st)	860	112	37	3	p.31
				16			700	168	46	8	
				8			420	336	51	16	
				4			210 <175>	673	51	19	

<> represents vertical operation.

High Rigidity Slider Type

*Speed limitation applies to push motion. See the manual or contact IAI.

Spec	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Specifications/ drawings
									Horizontal	Vertical	
Coupled Motor	S6□H			20	±0.05	50 to 400 (per 50st)	800	56	15	1	p.33
				12			700	93	26	2.5	
				6			450	185	32	6	
				3			225	370	40	12.5	
	S7□H			24	±0.05	50 to 500 (per 50st)	860	112	37	3	p.35
				16			700	168	46	8	
				8			420	336	51	16	
				4			210 <175>	673	51	19	

<> represents vertical operation.

Rod Type / Mini Rod Type

*Speed limitation applies to push motion. See the manual or contact IAI.

Spec	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Specifications/ drawings
									Horizontal	Vertical	
Coupled Motor	R6			20	±0.05	50 to 300 (per 50st)	800	56	6	1.5	p.37
				12			700	93	25	4	
				6			450	185	40	10	
				3			225	370	60	12.5	
	R7			24	±0.05	50 to 300 (per 50st)	860 <640>	182	20	3	p.39
				16			700 <560>	273	50	8	
				8			350	547	60	18	
				4			175	1094	80	19	
Side-mounted Motor	RP4			6	±0.05	30, 50	300	30	2.5	1	p.45
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	GS4			6	±0.05	30, 50	300	30	2.5	1	p.47
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	GD4			6	±0.05	30, 50	300	30	2.5	1	p.49
				4			200	45	4	1.5	
				2			100	90	8	2.5	

<> represents vertical operation.

Radial Cylinder

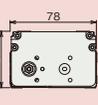
*Speed limitation applies to push motion. See the manual or contact IAL.

Spec	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Specifications/ drawings
									Horizontal	Vertical	
Coupled Motor	RR6			20	±0.05	65 to 315 (per 50st)	800	56	6	1.5	p41
				12			700	93	25	4	
				6			450	185	40	10	
				3			225	370	60	12.5	
	RR7			24	±0.05	65 to 315 (per 50st)	860 <640>	182	20	3	p43
				16			700 <560>	273	50	8	
				8			350	547	60	18	
				4			175	1094	80	19	

<> represents vertical operation.

Mini Table Type

*Speed limitation applies to push motion. See the manual or contact IAL.

Spec	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Specifications/ drawings
									Horizontal	Vertical	
Side-mounted Motor	TC4			6	±0.05	30, 50	300	30	2.5	1	p51
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	TW4			6	±0.05	30, 50	300	30	2.5	1	p53
				4			200	45	4	1.5	
				2			100	90	8	2.5	

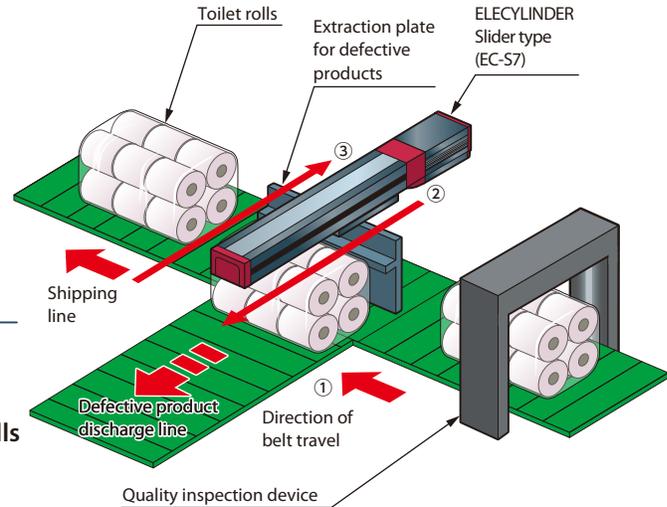
Waterproof Specification

*Speed limitation applies to push motion. See the manual or contact IAL.

Spec	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Specifications/ drawings
									Horizontal	Vertical	
Coupled Motor	R6□W			20	±0.05	50 to 300 (per 50st)	800	56	6	1.5	p55
				12			700	93	25	4	
				6			450	185	40	10	
				3			225	370	60	12.5	
	R7□W			24	±0.05	50 to 300 (per 50st)	860 <640>	182	20	3	p57
				16			700 <560>	273	50	8	
				8			350	547	60	18	
				4			175	1094	80	19	

<> represents vertical operation.

Application Examples



1 Equipment overview

[Application]

A device that performs visual inspection of toilet rolls and extracts dirty or cracked defective products to the discharging conveyor. The device returns to the standby position after pushing defects onto the discharging conveyor.

2 Disadvantages of air cylinders

Disadvantage 1 Velocity could not be set high enough due to the risk of workpieces being flung off the conveyor at high velocity.

Disadvantage 2 Shipping line conveyor was operated at low speed to match the discharging speed.

3 Improvement with ELECYLINDER implementation

- Smooth acceleration and deceleration even at high velocity means no more workpiece overshoot.

Speed of discharge: Air cylinders 4.2 s ⇒ ELECYLINDER 3.0 s

- Speed of shipping line conveyor was increased.

Shipping line conveyor speed: Air cylinders 4.2m/min ⇒ ELECYLINDER 6m/min

4 Cost reductions achieved with improvement

Production volume per hour **increased by 40%**

(Conventional) 1,500 units → (Improved) 2,100 units = Productivity improved by 600 units/day.

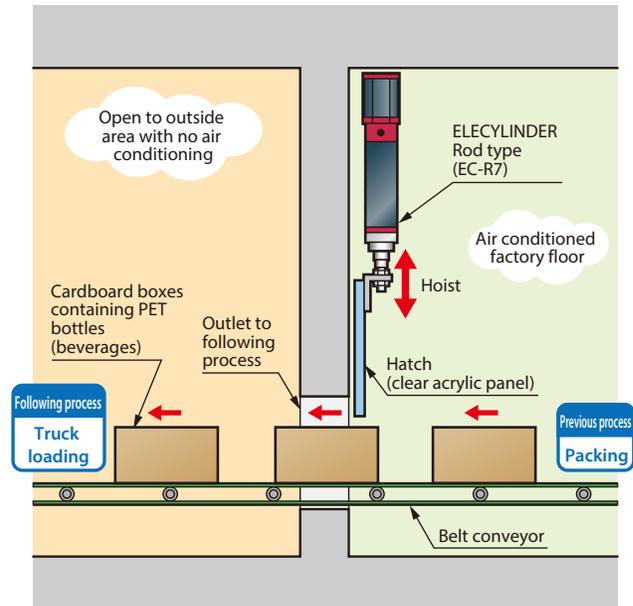
Production volume per day: **15,000**

(Originally) 10 hours → (Improvement) 7.1 hours = Reduction of 2.9 hours per day.

Labor costs: \$18 per hour per operator with 230 working days per year

2.9 hours x \$18 x 230 days = \$12,000

Cost reduction of \$12,000 per year has been achieved.



1 Equipment overview

[Application]

A device for opening and closing the hatch located at the process where cardboard boxes are conveyed to the shipping platform.

There are five conveyor lines in this factory, using five hatches in total.

2 Disadvantages of air cylinders

Disadvantage ① Impact at the upper and lower ends damaged the acrylic panels of the hatches, which required annual replacement.

Disadvantage ② Due to production line HVAC and cycle time issues, the open/close time could not be reduced.

3 Improvement with ELECYLINDER implementation

- Adjustment of velocity achieved fast and smooth open/close motion and eliminated impact damage to the hatches.

4 Cost reductions achieved with improvement

Hatch panel replacement was no longer required, reducing costs as follows.

Hatch panel cost: \$300 per piece

Replacement operation cost: \$36 per replacement

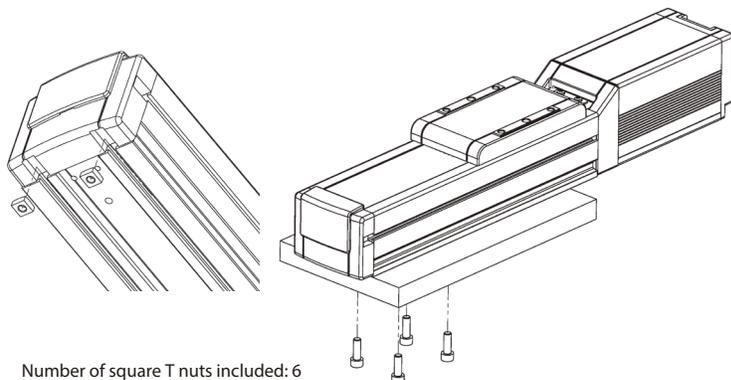
Total for five production lines: $(\$300 + \$36) \times 5 = \$1,680$

Cost reduction of \$1,680 per year has been achieved.

Mounting method

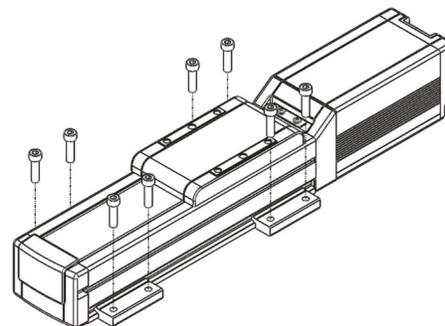
Slider type(S6/S7)

■ Using square T nuts



Number of square T nuts included: 6

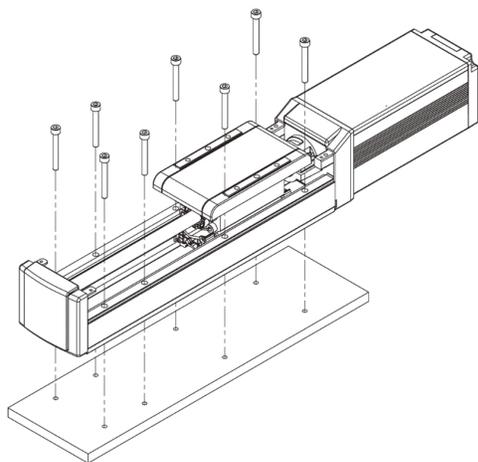
■ Using foot brackets



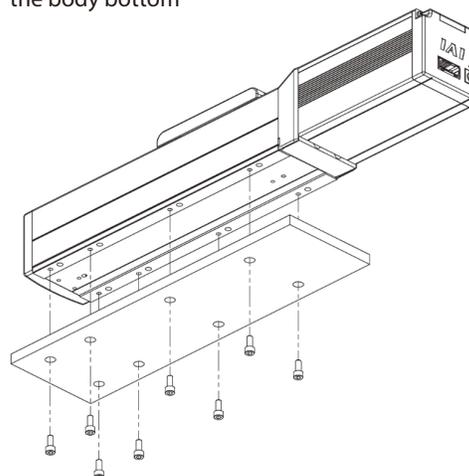
* Foot bracket is optional.

High rigidity slider type (S6□H/S7□H)

■ When using the through hole on the body top



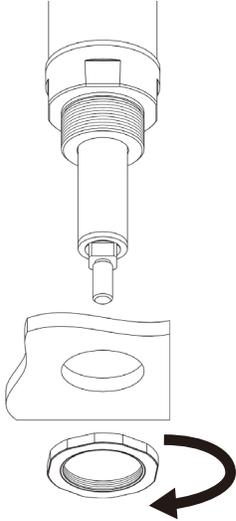
■ When using the tapped mounting hole on the body bottom



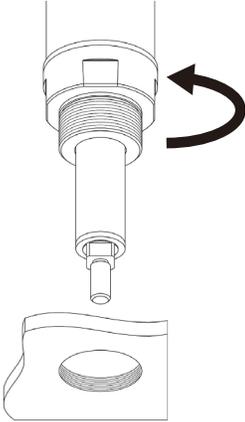
Mounting method

Rod type(S6/S7)

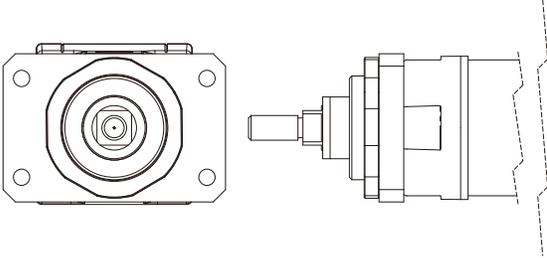
■ Using supplied fixing nuts



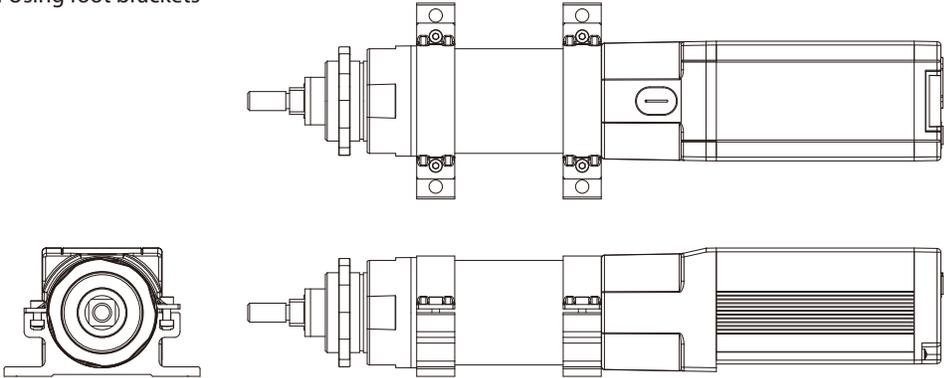
■ Using bracket screws



■ Using flange (front)



■ Using foot brackets

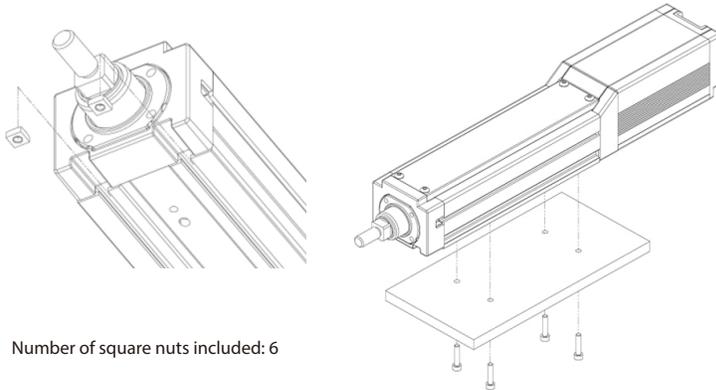


* Flange (front) and foot bracket are optional.

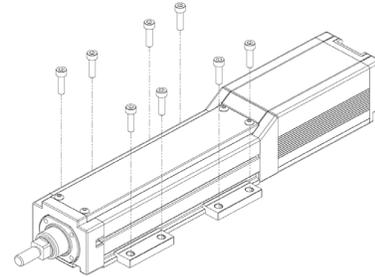
Mounting method

Radial Cylinder (RR6/RR7)

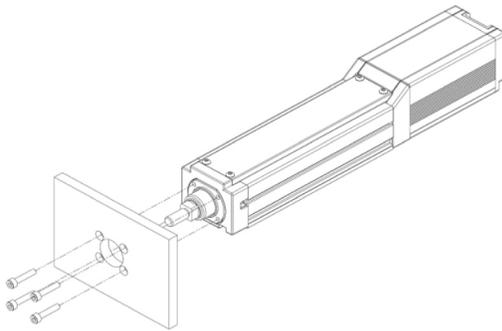
■ When using square nuts



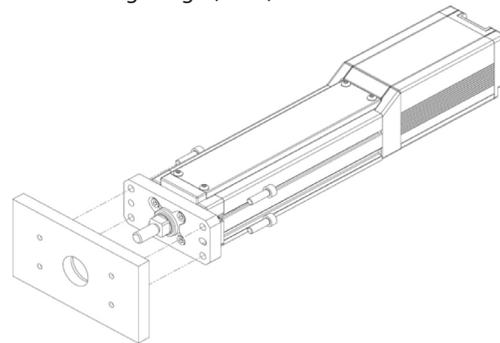
■ When using foot brackets



■ When using front brackets



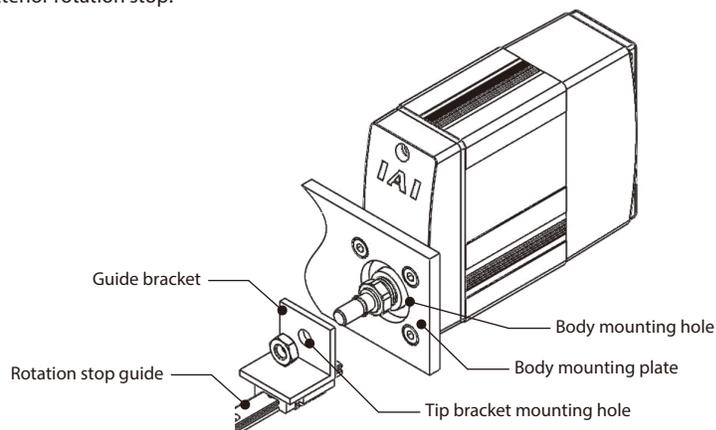
■ When using flange (front)



* Foot bracket and flange (front) are optional.

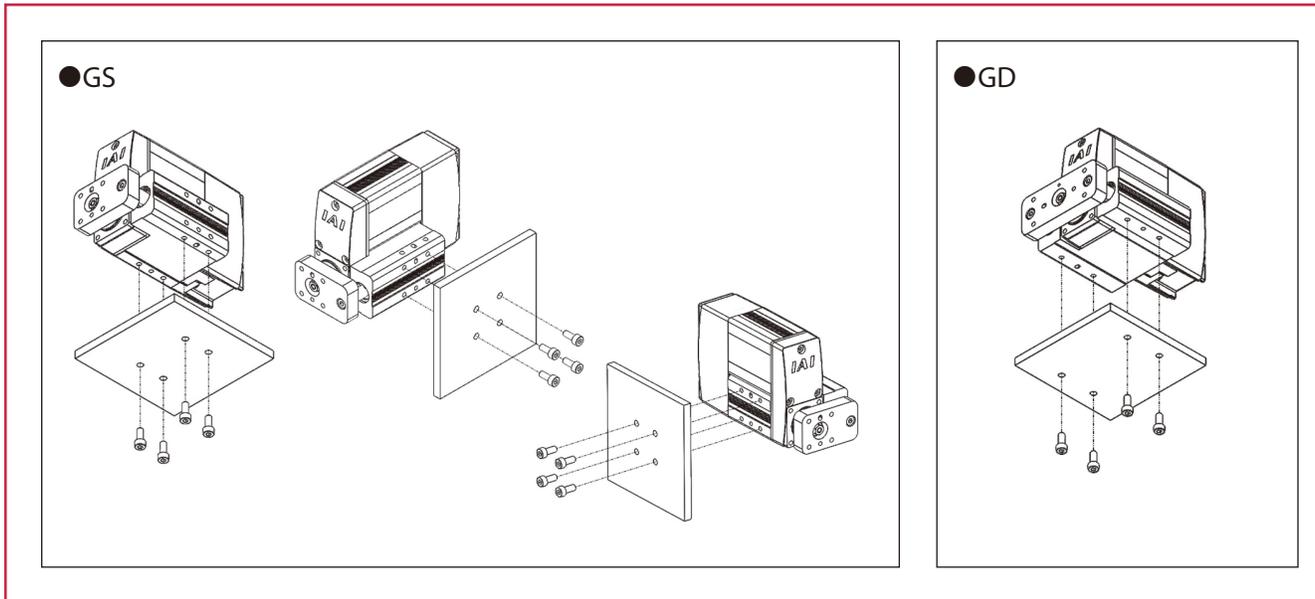
Mini Rod type (RP)

* Be sure to provide an exterior rotation stop.

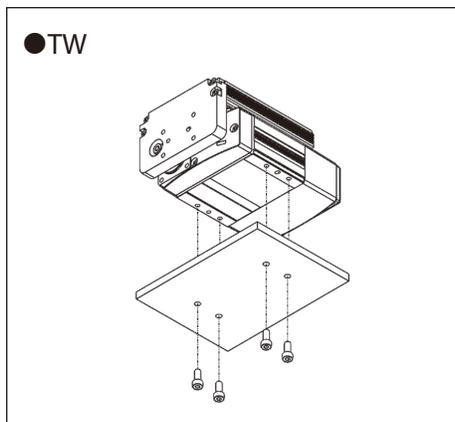
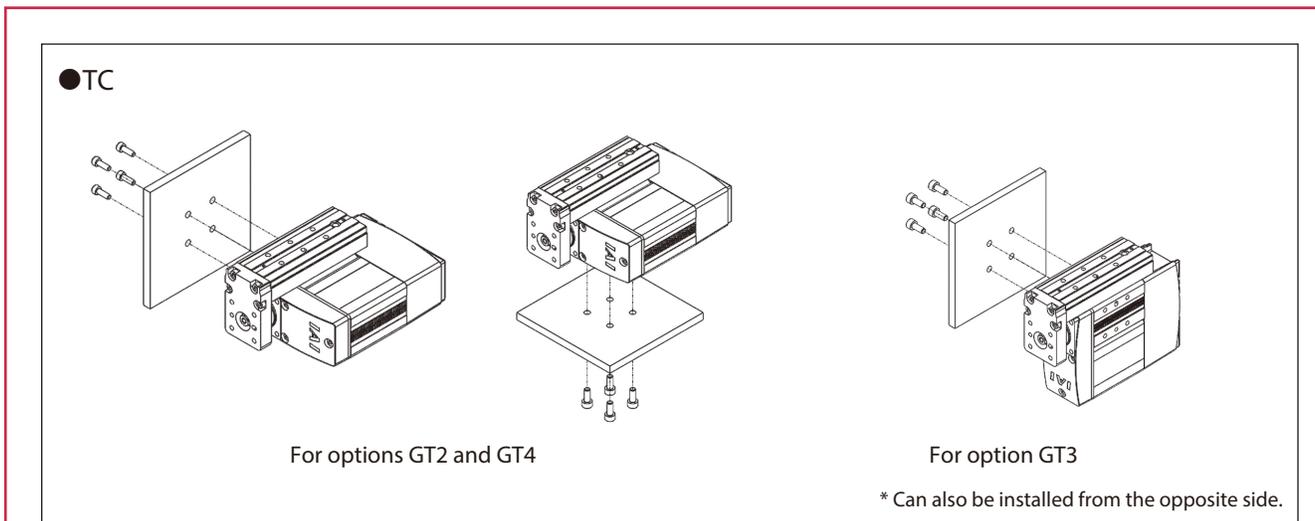


Mounting method

Mini Rod type (GS/GD)



Mini Table type (TC/TW)



Precautions for Installation

Overall

- For vertical mounting, it is recommended to have the motor installed on top.
While installing the motor on the bottom will not cause problems during normal operation, after a long period of time the grease can separate, flow into the motor unit, and cause problems on rare occasions.

Slider, High Rigidity Slider, Radial Cylinder, Rod (GS4/GD4), Table

- Keep the body installation surface and workpiece mounting surface flatness at 0.05mm/m or lower.
Uneven flatness will increase the slider's sliding resistance and may cause malfunction.

Slider, High Rigidity Slider

- While installation in side and ceiling mount orientations are possible, this may cause slack or misalignment in the stainless steel sheet. Continued use in these orientations can cause the stainless steel sheet to break. Please inspect it daily and adjust the sheet if any slack or misalignment is found.

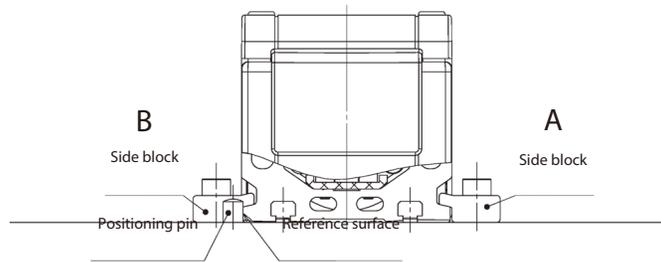
Slider, Radial Cylinder

- Since the actuator cannot be accurately positioned in the width direction when fixing with side blocks (foot bracket: FT), use positioning pins, etc.

To mount:

- (1) Press the reference surface of the actuator against the positioning pin, etc.
- (2) Maintaining the pressure, fix side block A on the opposite side.
- (3) Finally, fix side block B on the pin side.

* Note that there may be cases where sufficient fastening force cannot be obtained when mounting with methods other than the procedure above.

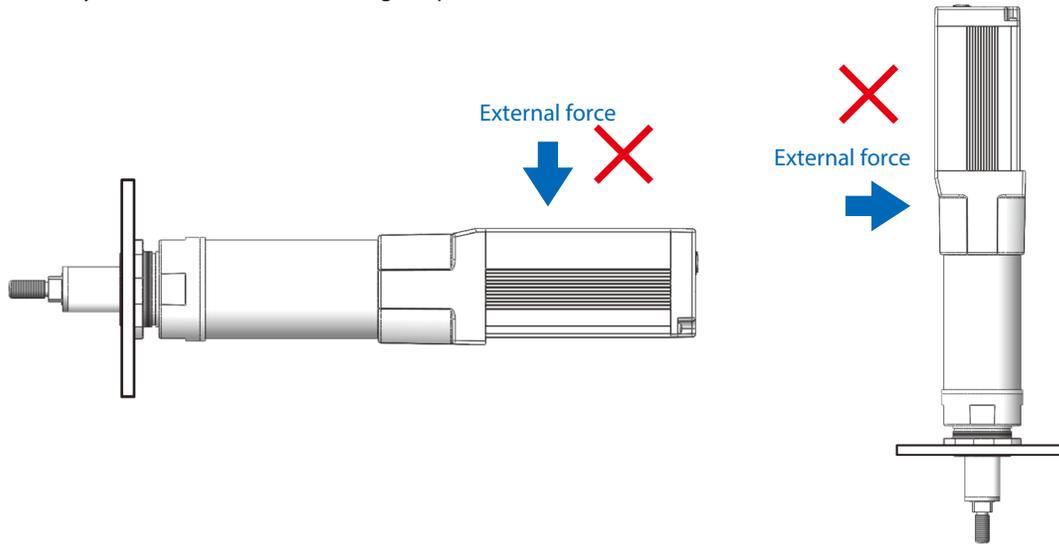


Radial Cylinder

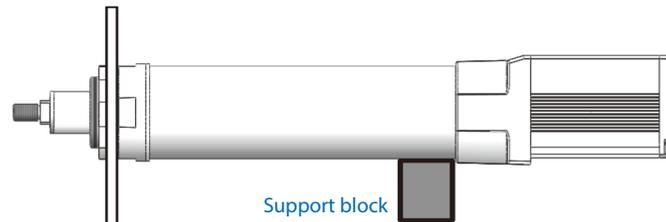
- When applying radial load/moment load, we recommend fixing the entire surface of the base bottom.
Front bracket fixing may cause deflection or reflexion throughout the product due to radial load/moment load, leading to vibration, shortened product life, or breakdown.

Rod, Radial Cylinder

- Do not attempt to apply any external force to the body during front bracket mounting or flange (front) mounting. External force may cause malfunctions or damage to parts.

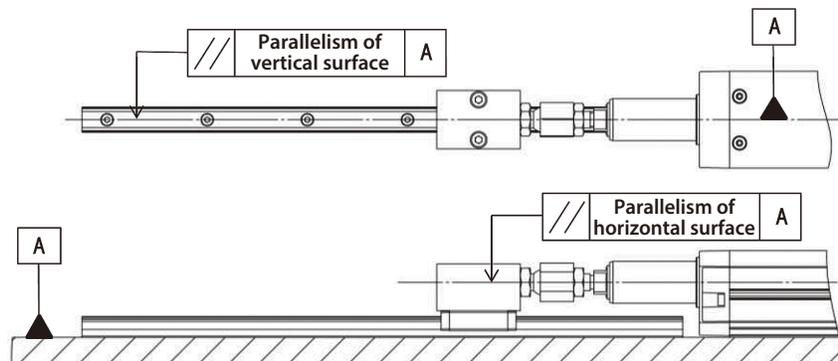


- When using front bracket mounting, flange (front) mounting, etc., if the device is mounted horizontally, fixed at a single point and has a stroke of 150mm or more, prepare a support block as shown in the figure below even if there is no external force applied on the body. Even when the stroke is less than 150mm, a support block is strongly recommended in order to avoid vibration generated due to the operation conditions or installation environment, which may lead to abnormal operation or damage to parts. For the support block, we recommend either using the optional foot bracket or keeping the support block (aluminum alloy, etc.) close against the block. The installation position should be on the frame motor side.



[Notes for using external guide with rod type]

- Parallelism of actuator and external guide**
When using an external guide, parallel misalignment (in the horizontal and vertical planes) between the actuator and the external guide could result in malfunction, premature wear, or damage to the actuator. When mounting a guide, align the center of the actuator parallel to the guide. Following the installation, make sure that the sliding resistance is constant over the entire stroke.



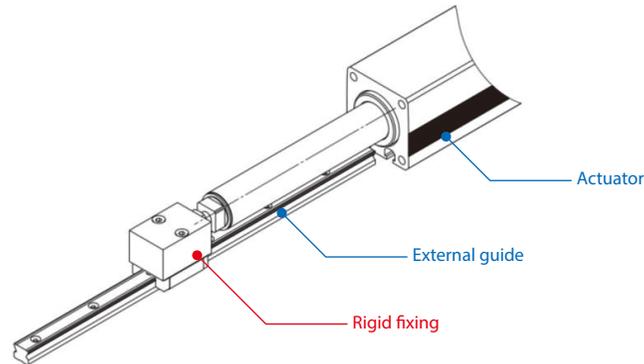
Precautions for Installation

● External guide fixing method

Even when parallelism of the guide and the actuator has been adjusted, incorrect fixing risks premature damage to the actuator. See below:

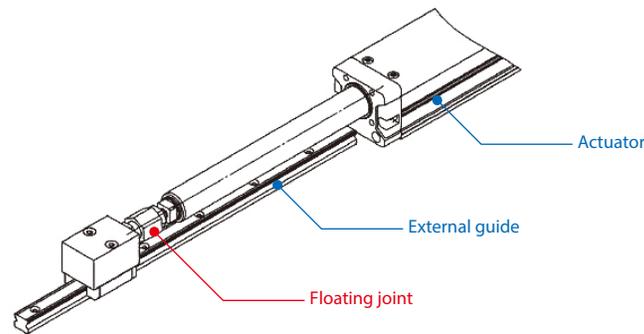
Rod type

The rod type actuator cannot accept a rotational force on the rod. "Rigid fixing" of an external guide is recommended, to restrict rotation of the rod. A "floating joint" which does not restrict rotation of the rod will create force on the rotation stop during operation. This could result in premature wear on the rotation stop. (Floating joints with rotation direction restrictions are acceptable.)



Radial Cylinder

"Floating joint" is recommended for the external guide fixing method. The floating joint absorbs the misalignment between the built-in guide and external guide, making adjustment easier. With "rigid fixing," it is difficult to adjust the parallelism between the built-in guide and external guide: even a minute deviation in parallelism applies load to the guide, which may cause premature damage.



MEMO

A series of horizontal dotted lines for writing.

EC-S6

Slider Type

Motor Unit Type

Coupled Motor

Body Width
63 mm

24v Stepper Motor

Model Specification Items

EC — S6
Series — Type

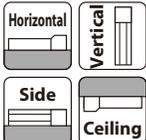
Lead
S : 20mm
H : 12mm
M : 6mm
L : 3mm

Stroke
50: 50mm
400: 400mm
(Every 50mm)

Cable Length
0: With terminal block type connector
1: 1m
10: 10m

Options
Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 20

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1

Lead 12

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	15	9	5	4	2	1

Lead 6

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	11	8	3.5	3.5
450	15	8	6	4	2	2

Lead 3

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	12.5	12.5
50	40	35	35	35	12.5	12.5
80	40	35	35	30	12.5	12.5
110	40	35	35	30	12.5	12.5
140	40	35	35	28	12.5	12.5
170	40	32	32	24	12.5	12
200	35	28	23	20	10	9
225	28	20	16	12	6	



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) When performing push operation, refer to P.65.
- (4) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (5) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Actuator Specifications

Lead and Payload

Model	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-S6S-①-②-③	20	15	1	56
EC-S6H-①-②-③	12	26	2.5	93
EC-S6M-①-②-③	6	32	6	185
EC-S6L-①-②-③	3	40	12.5	370

Legend: ① Stroke ② Cable Length ③ Option

Stroke and Max. Speed

(Unit: mm/s)

Lead (mm)	Max. Speed					
	50~200 (Every 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)	
20	800				727	566
12	700			521	392	305
6	450	371	265	199	155	
3	225	188	134	100	78	

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-S6	① Stroke (mm)	EC-S6
50	○	250	○
100	○	300	○
150	○	350	○
200	○	400	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1 to 3	1 to 3m
4 to 5	4 to 5m
6 to 10	6 to 10m

③ Options

Type	Option code	Reference page
Brake	B	See P.59
Foot bracket	FT	See P.60
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw φ10mm, rolled C10
Positioning repeatability	±0.05mm
Base	Material: Aluminum, black alumite treatment
Static allowable moment	Ma direction: 48.5N-m, Mb direction: 69.3N-m, Mc direction: 97.1N-m
Dynamic allowable moment (*)	Ma direction: 11.6N-m, Mb direction: 16.6N-m, Mc direction: 23.3N-m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

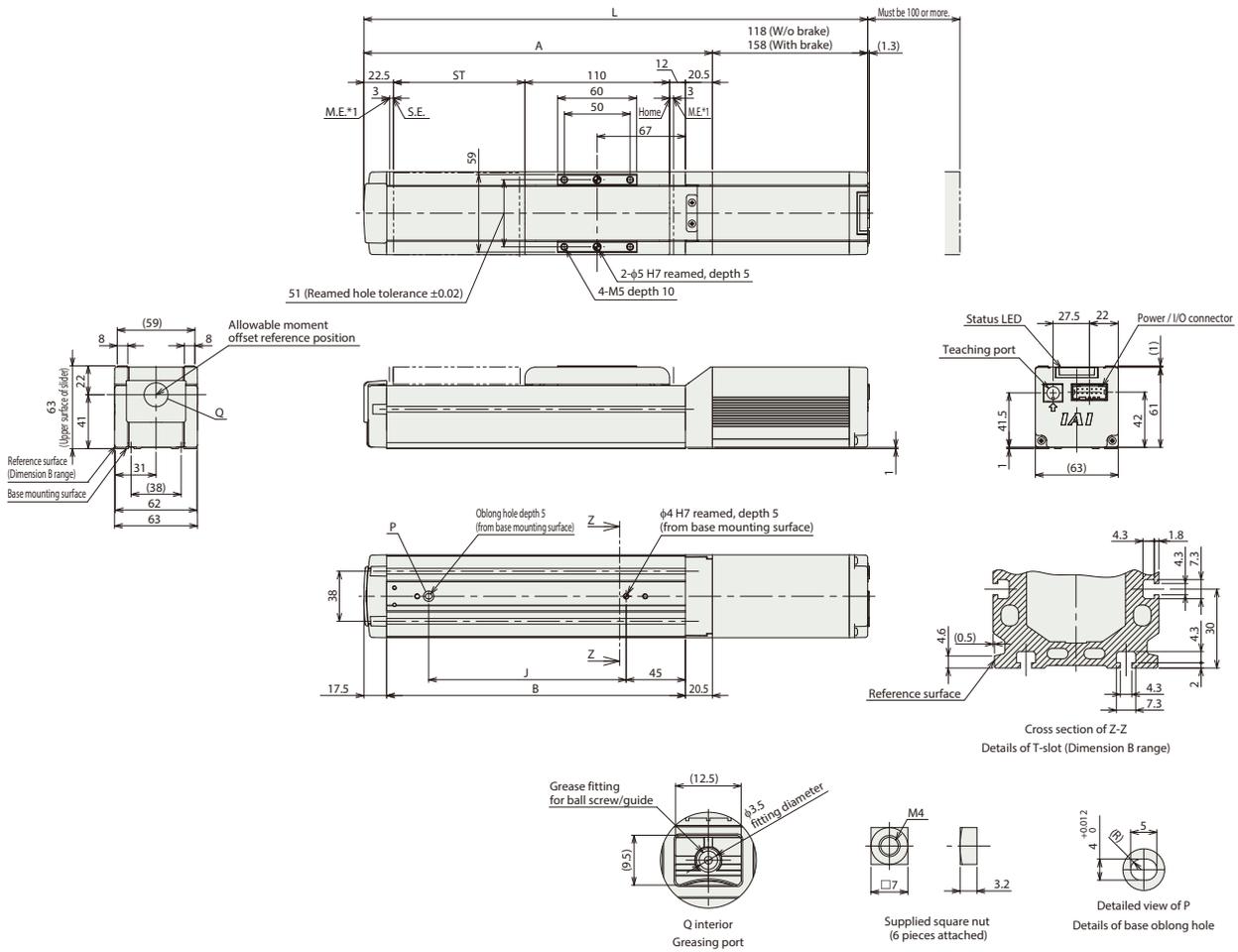
- Overhang load length guideline: 220mm or less
(*) For reference rated life of 5000km. The service life will vary depending on operation and installation conditions. Please contact IAI for more details.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end



Dimensions and Mass by Stroke

L	Stroke	50	100	150	200	250	300	350	400
	W/o Brake	333	383	433	483	533	583	633	683
	With Brake	373	423	473	523	573	623	673	723
	A	215	265	315	365	415	465	515	565
	B	177	227	277	327	377	427	477	527
	J	100	150	200	250	300	350	400	450
Weight (kg)	W/o Brake	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	With Brake	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

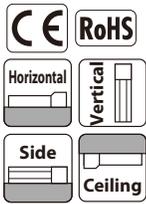
EC-S7

Slider Type Motor Unit Type Coupled Motor Body Width 73 mm 24v Stepper Motor

Model Specification Items

Series	EC	Type	S7	Lead	Stroke	Cable Length	Options
				S : 24mm H : 16mm M : 8mm L : 4mm	50: 50mm ? 500: 500mm (Every 50mm)	0: With terminal block type connector 1: 1m ? 10: 10m	Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) When performing push operation, refer to P.65.
- (4) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (5) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Table of Payload by Speed/Acceleration

Lead 24							Lead 16						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3	0	46	35	28	27	8	8
200	37	22	16	14	3	3	140	46	35	28	27	8	8
420	34	20	16	14	3	3	280	46	35	25	24	8	8
640	20	15	10	9	3	3	420	34	25	15	10	5	4.5
860	12	10	7	4	3	2.5	560	20	15	10	6	4	3
							700	15	10	5	3	3	2

Lead 8							Lead 4						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16	0	51	45	40	40	19	19
70	51	45	40	40	16	16	35	51	45	40	40	19	19
140	51	40	38	35	16	16	70	51	45	40	40	19	19
210	51	35	30	24	10	9.5	105	51	45	40	35	19	19
280	40	28	20	15	8	7	140	45	35	30	25	14	12
350	30	9	4		5	4	175	30	18			9	7.5
420	7				2		210	6					

Actuator Specifications

Lead and Payload

Model	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-S7S-①-②(-③)	24	37	3	112
EC-S7H-①-②(-③)	16	46	8	168
EC-S7M-①-②(-③)	8	51	16	336
EC-S7L-①-②(-③)	4	51	19	673

Legend: ① Stroke ② Cable Length ③ Option

Stroke and Max. Speed

(Unit: mm/s)

Lead (mm)	50~300 (Every 50mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
24	860		774	619	506
16	700	631	492	395	323
8	420	322	251	200	164
4	210 <175>	163	126	101	83

<> represents vertical operation.

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-S7	① Stroke (mm)	EC-S7
50	○	300	○
100	○	350	○
150	○	400	○
200	○	450	○
250	○	500	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1 to 3	1 to 3m
4 to 5	4 to 5m
6 to 10	6 to 10m

③ Options

Type	Option code	Reference page
Brake	B	See P.59
Foot bracket	FT	See P.60
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw ø12mm, rolled C10
Positioning repeatability	±0.05mm
Base	Material: Aluminum, black alumite treatment
Static allowable moment	Ma direction: 79.7N·m, Mb direction: 114N·m, Mc direction: 157N·m
Dynamic allowable moment (*)	Ma direction: 17.7N·m, Mb direction: 25.3N·m, Mc direction: 34.9N·m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

* Overhang load length guideline: 280mm or less

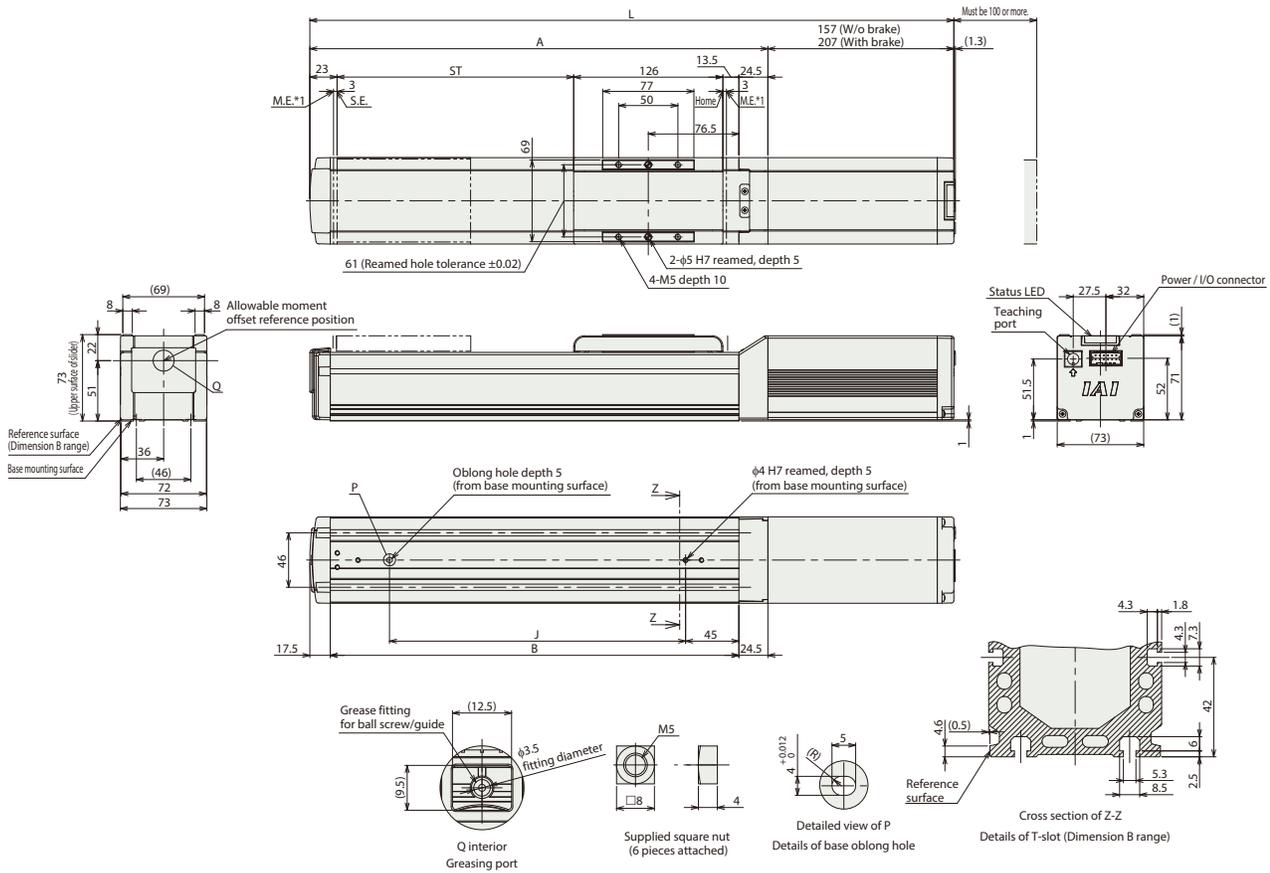
(*) For reference rated life of 5000km. The service life will vary depending on operation and installation conditions. Please contact IAI for more details.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end



Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	
L	W/o Brake	394	444	494	544	594	644	694	744	794	844
	With Brake	444	494	544	594	644	694	744	794	844	894
A	237	287	337	387	437	487	537	587	637	687	
B	195	245	295	345	395	445	495	545	595	645	
J	100	150	200	250	300	350	400	450	500	550	
Weight (kg)	W/o Brake	3.4	3.6	3.9	4.2	4.4	4.7	5.0	5.2	5.5	5.8
	With Brake	3.8	4.1	4.4	4.6	4.9	5.2	5.4	5.7	6.0	6.2

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-S6□H

High Rigidity | Slider Type | Motor Unit Type | Coupled Motor | Body Width 63 mm | 24v Stepper Motor

Model Specification Items

EC — S6 — □ — H — □ — □ — (□)

Series — Type — Lead — High Rigidity — Stroke — Cable Length — Options

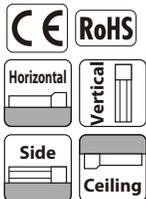
S : 20mm
H : 12mm
M : 6mm
L : 3mm

50: 50mm
? 400:400mm (Every 50mm)

0: With terminal block type connector
1: 1m
? 10:10m

Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 20

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1

Lead 12

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	15	9	5	4	2	1

Lead 6

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	11	8	3.5	3.5
450	15	8	6	4	2	2

Lead 3

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	12.5	12.5
50	40	35	35	35	12.5	12.5
80	40	35	35	30	12.5	12.5
110	40	35	35	30	12.5	12.5
140	40	35	35	28	12.5	12.5
170	40	32	32	24	12.5	12
200	35	28	23	20	10	9
225	28	20	16	12	6	



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) When performing push-motion operation, refer to P.65.
- (4) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (5) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Actuator Specifications

Lead and Payload

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-S6SH-①-②(-③)	20	15	1	56
EC-S6HH-①-②(-③)	12	26	2.5	93
EC-S6MH-①-②(-③)	6	32	6	185
EC-S6LH-①-②(-③)	3	40	12.5	370

Legend: ① Stroke ② Cable Length ③ Option

Stroke and Max Speed

(Unit: mm/s)

Lead (mm)	50~200 (Every 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)
	20	800			717
12	700		513	386	301
6	450	364	261	196	152
3	225	184	131	98	76

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-S6□H	① Stroke (mm)	EC-S6□H
50	○	250	○
100	○	300	○
150	○	350	○
200	○	400	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

Name	Option code	Reference page
Brake	B	See P.59
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw φ10mm, rolled C10
Positioning repeatability	±0.05mm
Base	Material: Aluminum, black alumite treatment
Allowable static moment	Ma direction: 48.5N·m, Mb direction: 69.3N·m, Mc direction: 103N·m
Allowable dynamic moment (*)	Ma direction: 33.7N·m, Mb direction: 40.2N·m, Mc direction: 55.3N·m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

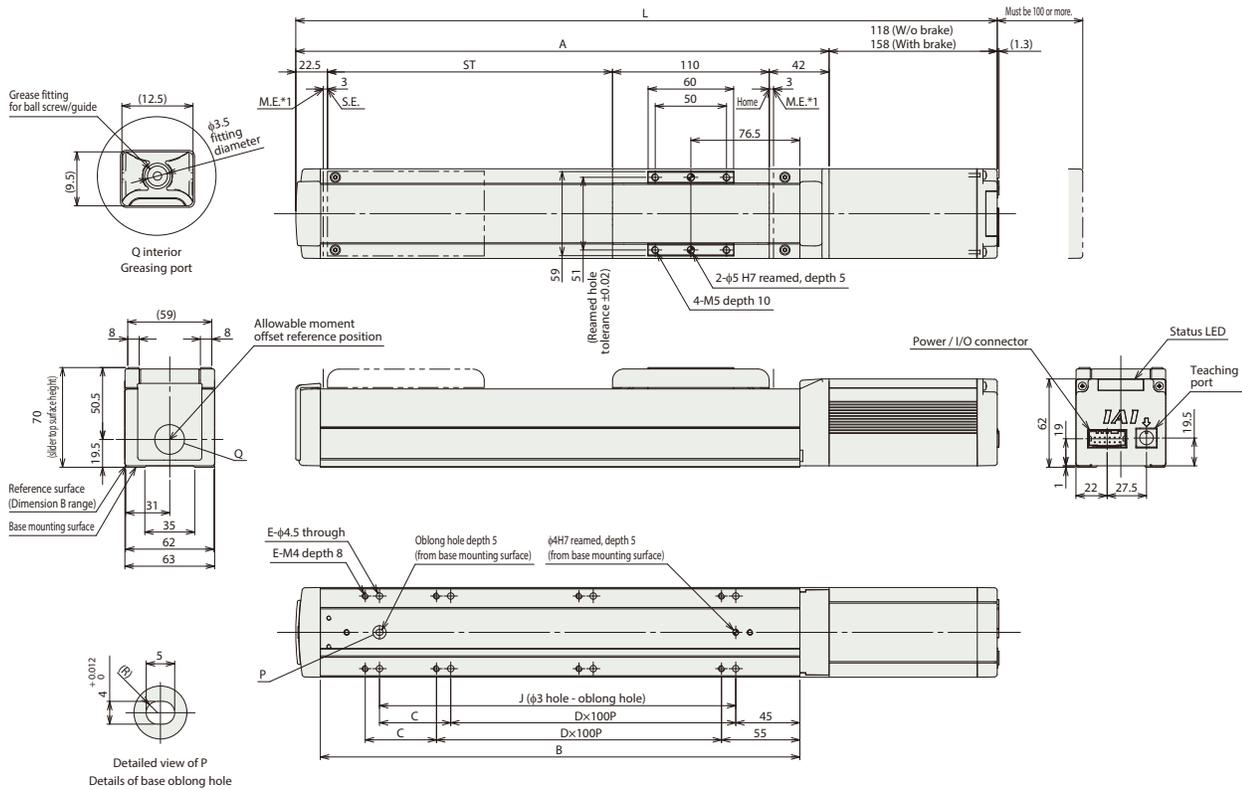
- Overhang load length guideline: 300mm or less
 (*) For reference rated life of 5,000km. The service life differs according to operation conditions and mounting status.
 Contact IAI to check the service life.
 Contact IAI to check the allowable moment direction and overhang load length.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end



Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	
L	W/o Brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5
	With Brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5
A	224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	
C	0	50	0	50	0	50	0	50	
D	1	1	2	2	3	3	4	4	
E	4	6	6	8	8	10	10	12	
J	100	150	200	250	300	350	400	450	
Weight (kg)	W/o Brake	2.0	2.2	2.4	2.6	2.9	3.1	3.3	3.5
	With Brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-S7□H

High Rigidity | Slider Type | Motor Unit Type | Coupled Motor | Body Width **75 mm** | **24v Stepper Motor**

Model Specification Items

EC — **S7** — **□** — **H** — **□** — **□** — **(□)**

Series — Type — Lead — High Rigidity — Stroke — Cable Length — Options

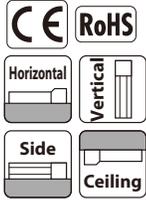
S : 24mm
H : 16mm
M : 8mm
L : 4mm

50: 50mm
? : 500:500mm (Every 50mm)

0: With terminal block type connector
1: 1m
?: 10:10m

Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.

Table of Payload by Speed/Acceleration

Lead 24							Lead 16						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3	0	46	35	28	27	8	8
200	37	22	16	14	3	3	140	46	35	28	27	8	8
420	34	20	16	14	3	3	280	46	35	25	24	8	8
640	20	15	10	9	3	3	420	34	25	15	10	5	4.5
860	12	10	7	4	3	2.5	560	20	15	10	6	4	3
							700	15	10	5	3	3	2

Lead 8							Lead 4						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16	0	51	45	40	40	19	19
70	51	45	40	40	16	16	35	51	45	40	40	19	19
140	51	40	38	35	16	16	70	51	45	40	40	19	19
210	51	35	30	24	10	9.5	105	51	45	40	35	19	19
280	40	28	20	15	8	7	140	45	35	30	25	14	12
350	30	9	4		5	4	175	30	18			9	7.5
420	7				2		210	6					



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) When performing push-motion operation, refer to P.65.
- (4) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (5) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Actuator Specifications

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-S7SH-①-②-③	24	37	3	112
EC-S7HH-①-②-③	16	46	8	168
EC-S7MH-①-②-③	8	51	16	336
EC-S7LH-①-②-③	4	51	19	673

Lead (mm)	Stroke and Max Speed (Unit: mm/s)				
	50~300 (Every 50mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
24	860		768	615	503
16	700	626	488	392	321
8	420	319	248	199	163
4	210<175>	161	125	100	82

Legend: ① Stroke ② Cable Length ③ Option

<> represents vertical operation. *Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-S7□H	① Stroke (mm)	EC-S7□H
50	○	300	○
100	○	350	○
150	○	400	○
200	○	450	○
250	○	500	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

Name	Option code	Reference page
Brake	B	See P.59
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw φ12mm, rolled C10
Positioning repeatability	±0.05mm
Base	Material: Aluminum, black alumite treatment
Allowable static moment	Ma direction: 115N-m, Mb direction: 115N-m, Mc direction: 229N-m
Allowable dynamic moment (*)	Ma direction 75.5N-m, Mb direction 90N-m, Mc direction 134N-m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

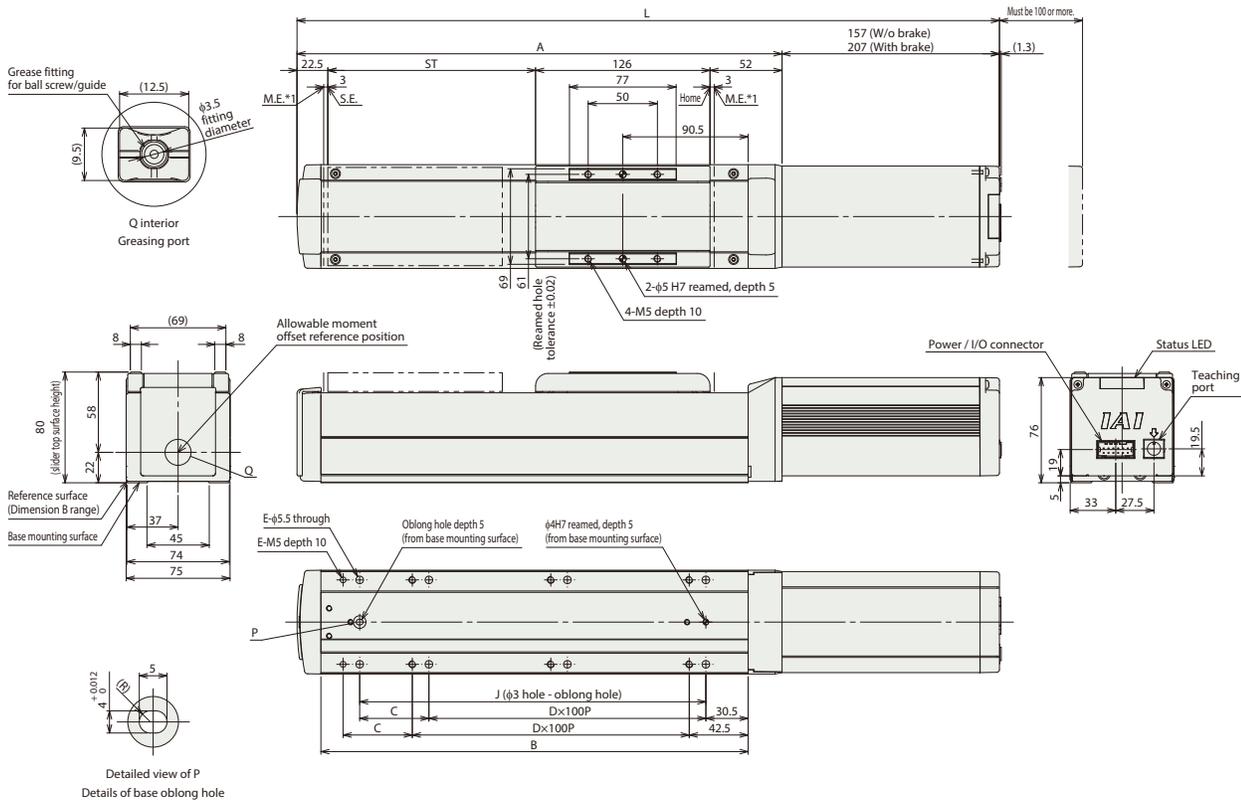
- Overhang load length guideline: 300mm or less
 (*) For reference rated life of 5,000km. The service life differs according to operation conditions and mounting status.
 Contact IAI to check the service life.
 Contact IAI to check the allowable moment direction and overhang load length.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end



Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	
L	W/o Brake	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5
	With Brake	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5
A	250.5	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	
B	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	
C	50	0	50	0	50	0	50	0	50	0	
D	1	2	2	3	3	4	4	5	5	6	
E	6	6	8	8	10	10	12	12	14	14	
J	150	200	250	300	350	400	450	500	550	600	
Weight (kg)	W/o Brake	3.9	4.1	4.4	4.7	4.9	5.2	5.5	5.7	6	6.3
	With Brake	4.4	4.6	4.9	5.2	5.4	5.7	6.0	6.2	6.5	6.8

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-R6

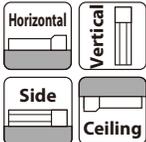
Rod Type Motor Unit Type Coupled Motor Body Width **63 mm** **24v Stepper Motor**

Model Specification Items

EC — **R6**
Series — Type

Lead	Stroke	Cable Length	Options
S : 20mm H : 12mm M : 6mm L : 3mm	50: 50mm 300: 300mm (Every 50mm)	0: With terminal block type connector 1: 1m 10: 10m	Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 20

Orientation	Horizontal					Vertical	
	Acceleration (G)						
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	6	6	5	5	1.5	1.5	
160	6	6	5	5	1.5	1.5	
320	6	6	5	3	1.5	1.5	
480	6	6	5	3	1.5	1.5	
640	6	4	3	2	1.5	1.5	
800	4	3			1	1	

Lead 12

Orientation	Horizontal					Vertical	
	Acceleration (G)						
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	25	18	16	12	4	4	
100	25	18	16	12	4	4	
200	25	18	16	10	4	4	
400	20	14	10	6	4	4	
500	15	8	6	4	3.5	3	
700	6	2			2	1	

Lead 6

Orientation	Horizontal					Vertical	
	Acceleration (G)						
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	40	35	30	25	10	10	
50	40	35	30	25	10	10	
100	40	35	30	25	10	10	
200	40	30	25	20	10	10	
250	40	27.5	22.5	18	9	8	
350	30	14	12	10	5	5	
400	18	10	6	5	3	3	
450	8	3			2	1	

Lead 3

Orientation	Horizontal					Vertical	
	Acceleration (G)						
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	60	50	45	40	12.5	12.5	
50	60	50	45	40	12.5	12.5	
100	60	50	45	40	12.5	12.5	
125	60	50	40	30	10	10	
175	40	35	25	20	6	5	
200	35	30	20	14	5	4.5	
225	16	16	10	6	5	4	



- The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.
- When performing push operation, refer to P.65.
- Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Actuator Specifications

Lead and Payload

Model	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-R6S-①-②(-③)	20	6	1.5	56
EC-R6H-①-②(-③)	12	25	4	93
EC-R6M-①-②(-③)	6	40	10	185
EC-R6L-①-②(-③)	3	60	12.5	370

Legend: ① Stroke ② Cable Length ③ Option

Stroke and Max. Speed

(Unit: mm/s)

Lead (mm)	50~200 (Every 50mm)			250 (mm)	300 (mm)
	Max. Speed				
20	800				
12	700				547
6	450		376		268
3	225		186		133

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-R6	① Stroke (mm)	EC-R6
50	○	200	○
100	○	250	○
150	○	300	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1 to 3	1 to 3m
4 to 5	4 to 5m
6 to 10	6 to 10m

③ Options

Type	Option code	Reference page
Brake	B	See P.59
Flange (front)	FL	See P.59
Foot bracket	FT	See P.60
Tip adapter (Internal thread)	NFA	See P.61
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw ø10mm, rolled C10
Positioning repeatability	±0.05mm
Rod	ø25mm Material: Aluminum, hard alumite treatment
Static allowable torque on rod tip	0.5N·m
Rod tip maximum angular displacement (*)	±1.5 degrees
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

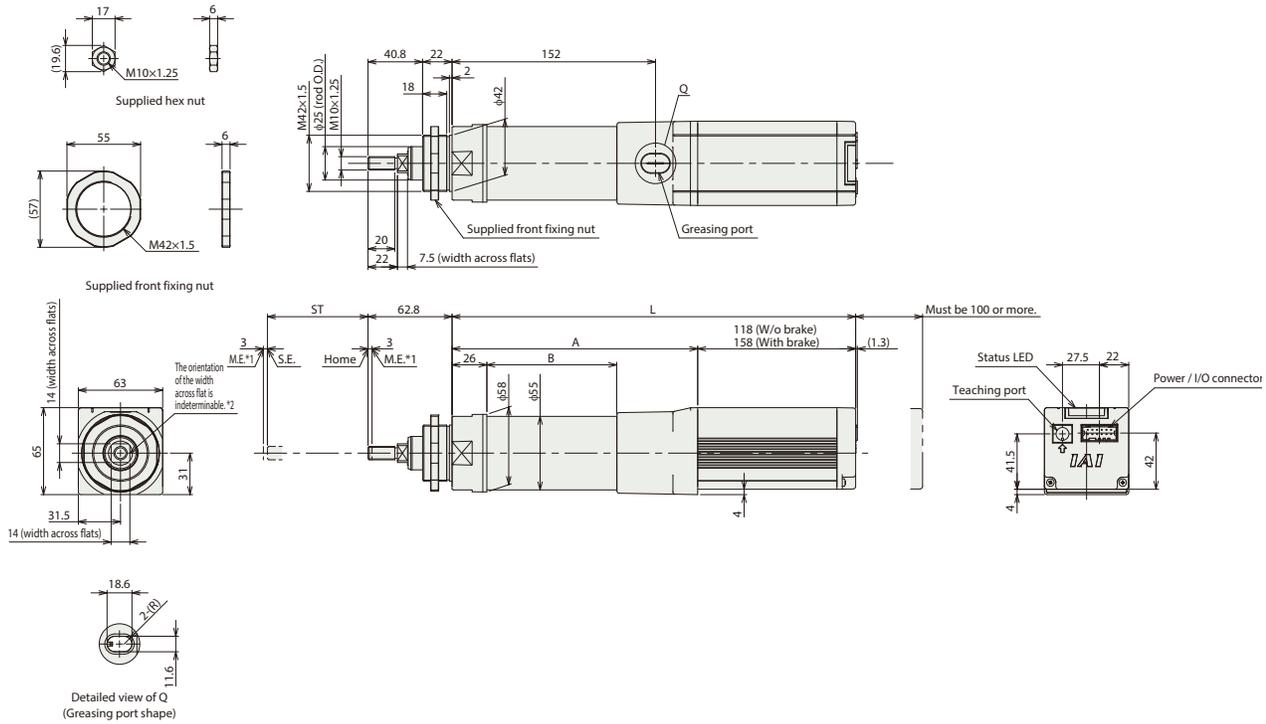
(*) The rod tip angular displacement (initial value for reference) when the rod tip static allowable torque is applied with the rod fully retracted.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.



■ Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	
L	W/o Brake	301.5	351.5	401.5	451.5	501.5	551.5
	With Brake	341.5	391.5	441.5	491.5	541.5	591.5
	A	183.5	233.5	283.5	333.5	383.5	433.5
	B	97	147	197	247	297	347
Weight (kg)	W/o Brake	1.6	1.8	2.0	2.2	2.4	2.6
	With Brake	1.8	2.0	2.2	2.4	2.6	2.8

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-R7

Rod Type Motor Unit Type Coupled Motor Body Width **73 mm** **24v Stepper Motor**

Model Specification Items

EC Series — **R7** Type

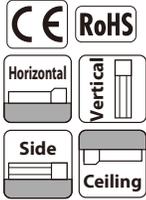
Lead: S : 24mm, H : 16mm, M : 8mm, L : 4mm

Stroke: 50: 50mm, 300: 300mm (Every 50mm)

Cable Length: 0: With terminal block type connector, 1: 1m, 10: 10m

Options: Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 24							Lead 16						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3	0	50	40	35	30	8	8
200	20	18	15	12	3	3	140	50	40	35	30	8	8
400	20	14	12	8	3	3	280	50	35	25	20	7	7
420	17	12	10	6	3	3	420	25	18	14	10	4.5	4
600	14	6	5	4	3	2	560	10	5	3	2	2	1
640	5	3	2	1.5	2	1	700	2					
800	5	1	1										
860	2	0.5											

Lead 8							Lead 4						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18	0	80	70	65	60	19	19
70	60	50	45	40	18	18	35	80	70	65	60	19	19
140	60	50	45	40	16	12	70	80	70	65	60	19	19
210	60	40	31	26	10	9	105	80	60	50	40	18	18
280	34	20	15	11	5	4	140	50	30	20	15	12	10
350	12	4	1		2	1	175	15					2



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.
- (4) When performing push operation, refer to P.65.
- (5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (6) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Actuator Specifications

Lead and Payload					Stroke and Max. Speed	
Model	Lead (mm)	Max. payload		Max. push force (N)*	Lead (mm)	50~300 (Every 50mm)
		Horizontal (kg)	Vertical (kg)			
EC-R7S-①-②-③	24	20	3	182	24	860 <640>
EC-R7H-①-②-③	16	50	8	273	16	700 <560>
EC-R7M-①-②-③	8	60	18	547	8	350
EC-R7L-①-②-③	4	80	19	1094	4	175

Legend: ① Stroke ② Cable Length ③ Option <> represents vertical operation. *Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-R7	① Stroke (mm)	EC-R7
50	○	200	○
100	○	250	○
150	○	300	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1 to 3	1 to 3m
4 to 5	4 to 5m
6 to 10	6 to 10m

② Options

Type	Option code	Reference page
Brake	B	See P.59
Flange (front)	FL	See P.59
Foot bracket	FT	See P.60
Tip adapter (Internal thread)	NFA	See P.61
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw ø12mm, rolled C10
Positioning repeatability	±0.05mm
Rod	ø30mm Material: Aluminum, hard alumite treatment
Static allowable torque on rod tip	0.5N·m
Rod tip maximum angular displacement (*)	±1.5 degrees
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

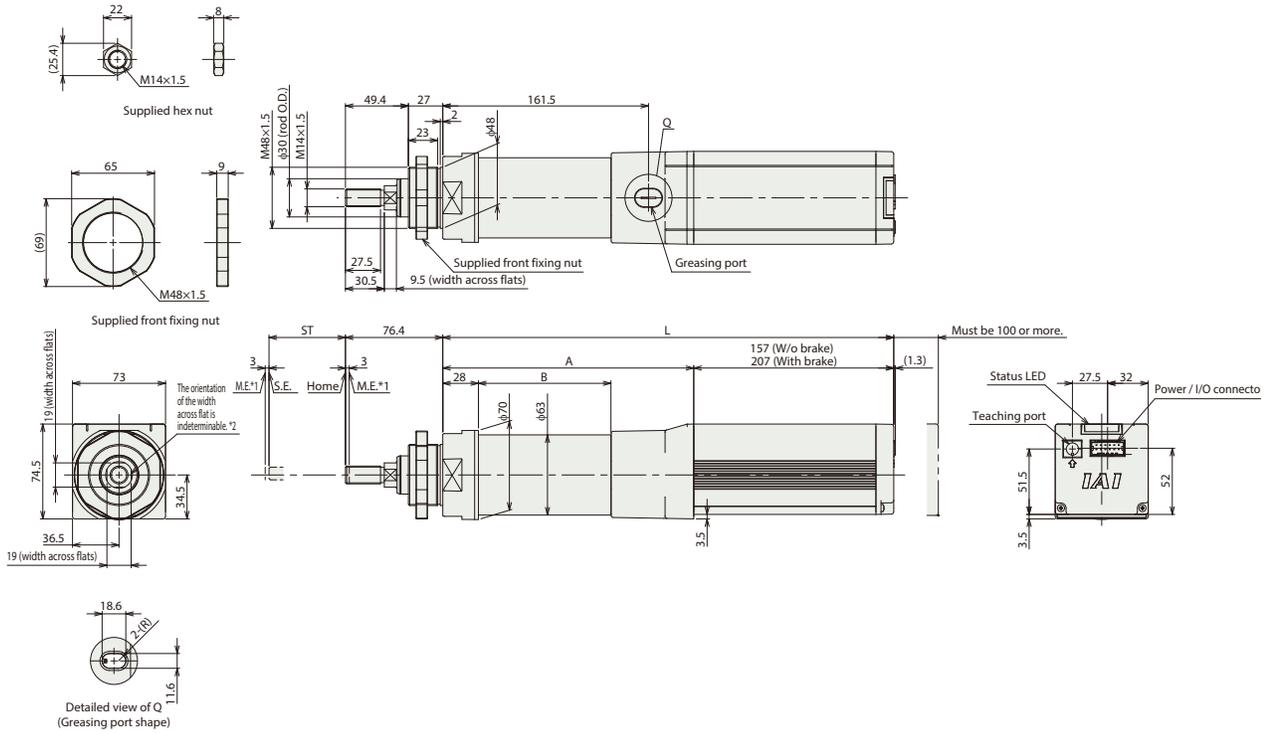
(*) The rod tip angular displacement (initial value for reference) when the rod tip static allowable torque is applied with the rod fully retracted.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.



Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	
L	W/o Brake	354	404	454	504	554	604
	With Brake	404	454	504	554	604	654
	A	197	247	297	347	397	447
B	104	154	204	254	304	354	
Weight (kg)	W/o Brake	3.3	3.5	3.7	3.9	4.1	4.3
	With Brake	3.5	3.7	3.9	4.1	4.3	4.5

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-RR6

Radial Cylinder Motor Unit Type Coupled Motor Body Width 63 mm 24v Stepper Motor

Model Specification Items

EC Series — **RR6** Type

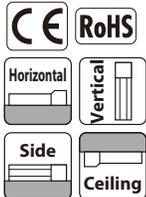
Lead: S: 20mm, H: 12mm, M: 6mm, L: 3mm

Stroke: 65: 65mm, 315: 315mm (Every 50mm)

Cable Length: 0: With terminal block type connector, 1: 1m, 10: 10m

Options: Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.

Table of Payload by Speed/Acceleration

Lead 20							Lead 12						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5	0	25	18	16	12	4	4
160	6	6	5	5	1.5	1.5	100	25	18	16	12	4	4
320	6	6	5	3	1.5	1.5	200	25	18	16	10	4	4
480	6	6	5	3	1.5	1.5	400	20	14	10	6	4	4
640	6	4	3	2	1.5	1.5	500	12	8	6	4	3.5	3
800	4	3			1	1	700	6	2			2	1

- POINT Selection Notes**
- The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
 - The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
 - The value of the horizontal payload assumes that there is an external guide.
 - When performing push-motion operation, refer to P.65.
 - Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
 - The radial cylinder is equipped with a built-in guide. For the radial load acting on the rod, refer to P.64.
 - The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."
 - For the relationship between rod deflection and load on rod tip, refer to P.66.

Lead 6							Lead 3						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10	0	60	50	45	40	12.5	12.5
50	40	35	30	25	10	10	50	60	50	45	40	12.5	12.5
100	40	35	30	25	10	10	100	60	50	45	40	12.5	12.5
200	40	30	25	20	10	10	125	60	50	40	30	10	10
250	40	27.5	22.5	18	9	8	175	40	35	25	20	6	5
350	30	14	12	10	5	5	200	35	30	20	14	5	4.5
400	18	10	6	5	3	3	225	16	16	10	6	5	4
450	8	3			2	1							

Actuator Specifications

Lead and Payload

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-RR6S-①-②-③	20	6	1.5	56
EC-RR6H-①-②-③	12	25	4	93
EC-RR6M-①-②-③	6	40	10	185
EC-RR6L-①-②-③	3	60	12.5	370

Legend: ① Stroke ② Cable Length ③ Option

Stroke and Max Speed

(Unit: mm/s)

Lead (mm)	65~215 (Every 50mm)			265 (mm)	315 (mm)
	800				
20	800				
12	700		660	480	
6	450		325	235	
3	225		160	115	

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-RR6	① Stroke (mm)	EC-RR6
65	○	215	○
115	○	265	○
165	○	315	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

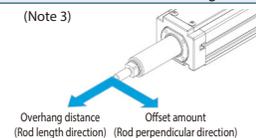
Name	Option code	Reference page	Name	Option code	Reference page
Brake	B	See P.59	Non-motor end specification	NM	See P.62
Tip adapter (flange)	FFA	See P.59	PNP specification	PN	See P.62
Flange (front)	FL	See P.59	Clevis bracket (Note 1)	QR	See P.62
Foot bracket	FT	See P.60	Clevis bracket + oscillation receiving bracket	QRPB	See P.62
Tip adapter (internal thread)	NFA	See P.61	Battery-less Absolute Encoder specification	WA	See P.62
Knuckle joint (Note 1)	NJ	See P.61	Wireless communication specification	WL	See P.62
Knuckle joint + oscillation receiving bracket	NJPB	See P.61			

(Note 1) The clevis (QR) and knuckle joint (NJ) are sold as a set. The assembly is to be performed by the customer.

Actuator Specifications

Item	Description
Drive system	Ball screw φ10mm, rolled C10
Positioning repeatability	±0.05mm
Rod	φ25mm Material: Aluminum, hard alumite treatment
Rod non-rotation precision (Note 2)	0 degrees
Rod tip static allowable torque	5.5N·m
Rod tip allowable overhang distance (Note 3)	100mm
Rod tip allowable offset amount (Note 3)	100mm
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

(Note 2) Rod rotating direction displacement angle with no load. (Note 3)

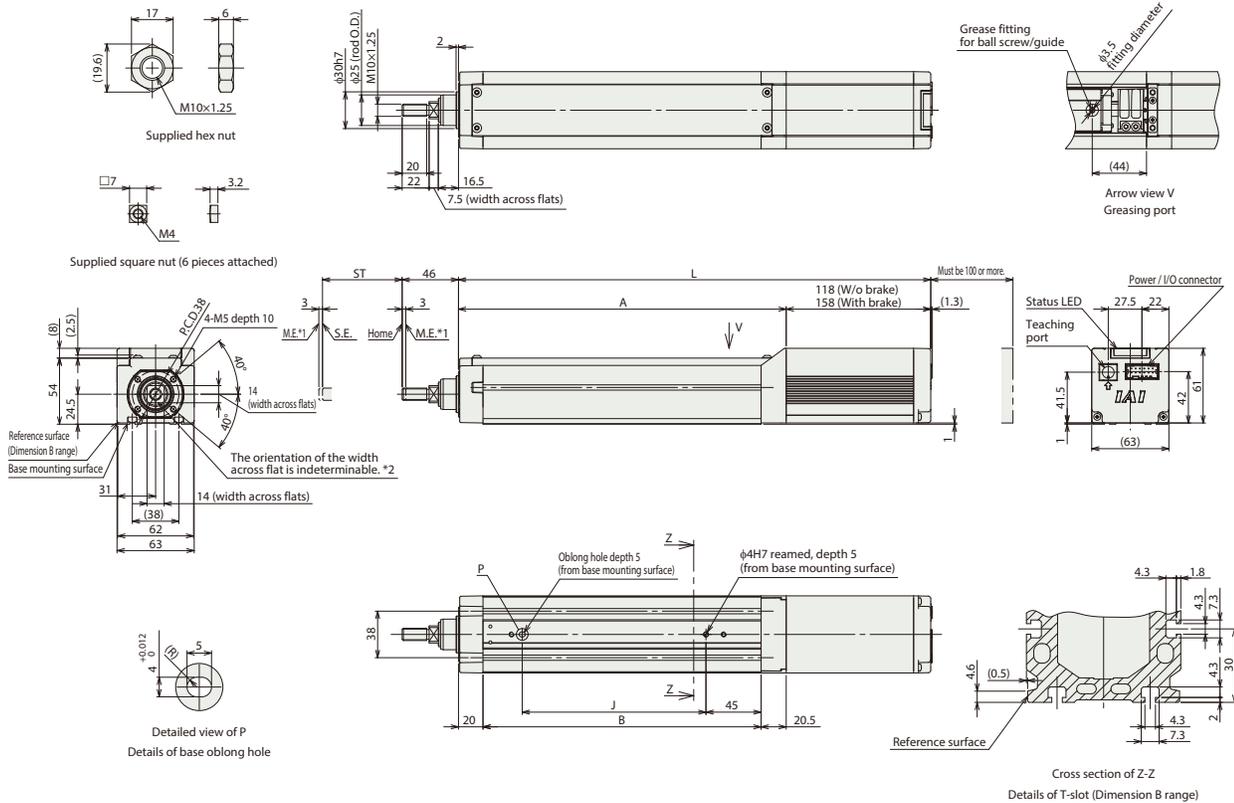


Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.



Dimensions and Mass by Stroke

Stroke	65	115	165	215	265	315	
L	W/o Brake	335.5	385.5	435.5	485.5	535.5	585.5
	With Brake	375.5	425.5	475.5	525.5	575.5	625.5
A	217.5	267.5	317.5	367.5	417.5	467.5	
B	177	227	277	327	377	427	
J	100	150	200	250	300	350	
Weight (kg)	W/o Brake	1.7	2.0	2.2	2.5	2.7	3.0
	With Brake	1.9	2.2	2.4	2.7	3.0	3.2

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

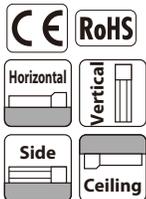
EC-RR7

Radial Cylinder Motor Unit Type Coupled Motor Body Width 73 mm 24v Stepper Motor

Model Specification Items

Series	EC	Type	RR7	Lead	Stroke	Cable Length	Options
				S : 24mm H : 16mm M : 8mm L : 4mm	65: 65mm 315:315mm (Every 50mm)	0: With terminal block type connector 1: 1m 10:10m	Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 24							Lead 16						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3	0	50	40	35	30	8	8
200	20	18	15	12	3	3	140	50	40	35	30	8	8
400	20	14	12	8	3	3	280	50	35	25	20	7	7
420	17	12	10	6	3	3	420	25	18	14	10	4.5	4
600	14	6	5	4	3	2	560	10	5	3	2	2	1
640	5	3	2	1.5	2	1	700	2					
800	5	1	1										
860	2	0.5											

Lead 8							Lead 4						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18	0	80	70	65	60	19	19
70	60	50	45	40	18	18	35	80	70	65	60	19	19
140	60	50	45	40	16	12	70	80	70	65	60	19	19
210	60	40	31	26	10	9	105	80	60	50	40	18	18
280	34	20	15	11	5	4	140	50	30	20	15	12	10
350	12	4	1		2	1	175	15				2	



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) The value of the horizontal payload assumes that there is an external guide.
- (4) When performing push-motion operation, refer to P.65.
- (5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (6) The radial cylinder is equipped with a built-in guide. For the radial load acting on the rod, refer to P.64.
- (7) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."
- (8) For the relationship between rod deflection and load on rod tip, refer to P.66.

Actuator Specifications

Lead and Payload					Stroke and Max Speed	
Model number	Lead (mm)	Max. payload		Max. push force (N)*	Lead (mm)	65~315 (Every 50mm)
		Horizontal (kg)	Vertical (kg)			
EC-RR7S-①-②-③	24	20	3	182	24	860<640>
EC-RR7H-①-②-③	16	50	8	273	16	700<560>
EC-RR7M-①-②-③	8	60	18	547	8	350
EC-RR7L-①-②-③	4	80	19	1094	4	175

Legend: ① Stroke ② Cable Length ③ Option <> represents vertical operation. *Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-RR7	① Stroke (mm)	EC-RR7
65	○	215	○
115	○	265	○
165	○	315	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

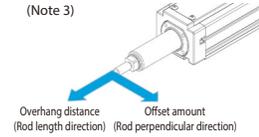
Name	Option code	Reference page	Name	Option code	Reference page
Brake	B	See P.59	Non-motor end specification	NM	See P.62
Tip adapter (flange)	FFA	See P.59	PNP specification	PN	See P.62
Flange (front)	FL	See P.59	Clevis bracket (Note 1)	QR	See P.62
Foot bracket	FT	See P.60	Clevis bracket + oscillation receiving bracket	QRPB	See P.62
Tip adapter (internal thread)	NFA	See P.61	Battery-less Absolute Encoder specification	WA	See P.62
Knuckle joint (Note 1)	NJ	See P.61	Wireless communication specification	WL	See P.62
Knuckle joint + oscillation receiving bracket	NJPB	See P.61			

(Note 1) The clevis (QR) and knuckle joint (NJ) are sold as a set. The assembly is to be performed by the customer.

Actuator Specifications

Item	Description
Drive system	Ball screw φ12mm, rolled C10
Positioning repeatability	±0.05mm
Rod	φ30mm Material: Aluminum, hard alumite treatment
Rod non-rotation precision (Note 2)	0 degrees
Rod tip static allowable torque	10.5N·m
Rod tip allowable overhang distance (Note 3)	100mm
Rod tip allowable offset amount (Note 3)	100mm
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

(Note 2) Rod rotating direction displacement angle with no load. (Note 3) Rod rotating direction displacement angle with no load.



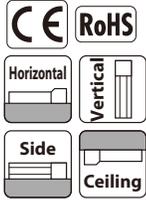
EC-RP4

Mini Rod Type Motor Unit Type Side-mounted Motor Body Width 34 mm 24v Stepper Motor

Model Specification Items

EC	RP4				()
Series	Type	Lead	Stroke	Cable Length	Options
		H : 6mm M : 4mm L : 2mm	30:30mm 50:50mm	0: With terminal block type connector 1: 1m ?: 10:10m	Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 6					Lead 4				
Orientation	Horizontal		Vertical		Orientation	Horizontal		Vertical	
	Acceleration (G)					Acceleration (G)			
Speed (mm/s)	0.3	0.5	0.3	0.5	Speed (mm/s)	0.3	0.5	0.3	0.5
	0	2.5	2.5	1		1	0	4	4
300	2.5	2.5	1	1	200	4	4	1.5	1.5

Lead 2		
Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.3	0.3
	0	8
100	8	2.5

POINT Selection Notes

(1) Since the feed screw has no rotation stopper, add a rotation stop mechanism such as a guide to the tip of the feed screw when in use. (If there is no rotation stopper, the feed screw will rotate instead of traveling back and forth.) Also, do not use floating joints when connecting the rotation stop mechanism to the rod. Please refer to P.21 to P.27 for mounting methods, conditions, etc.

(2) The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4 and 6.

(3) The value of the payload assumes that there is an external guide.

(4) When performing push-motion operation, refer to P.65.

Actuator Specifications

Lead and Payload					Stroke and Max Speed (Unit: mm/s)		
Model number	Lead (mm)	Max. payload		Max. push force (N)*	Lead (mm)	30 (mm)	50 (mm)
		Horizontal (kg)	Vertical (kg)				
EC-RP4H-①-②-(③)	6	2.5	1	30	6	300	
EC-RP4M-①-②-(③)	4	4	1.5	45	4	200	
EC-RP4L-①-②-(③)	2	8	2.5	90	2	100	

Legend: ① Stroke ② Cable Length ③ Option *Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-RP4
30	○
50	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

Name	Option code	Reference page
Brake	B	See P.59
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

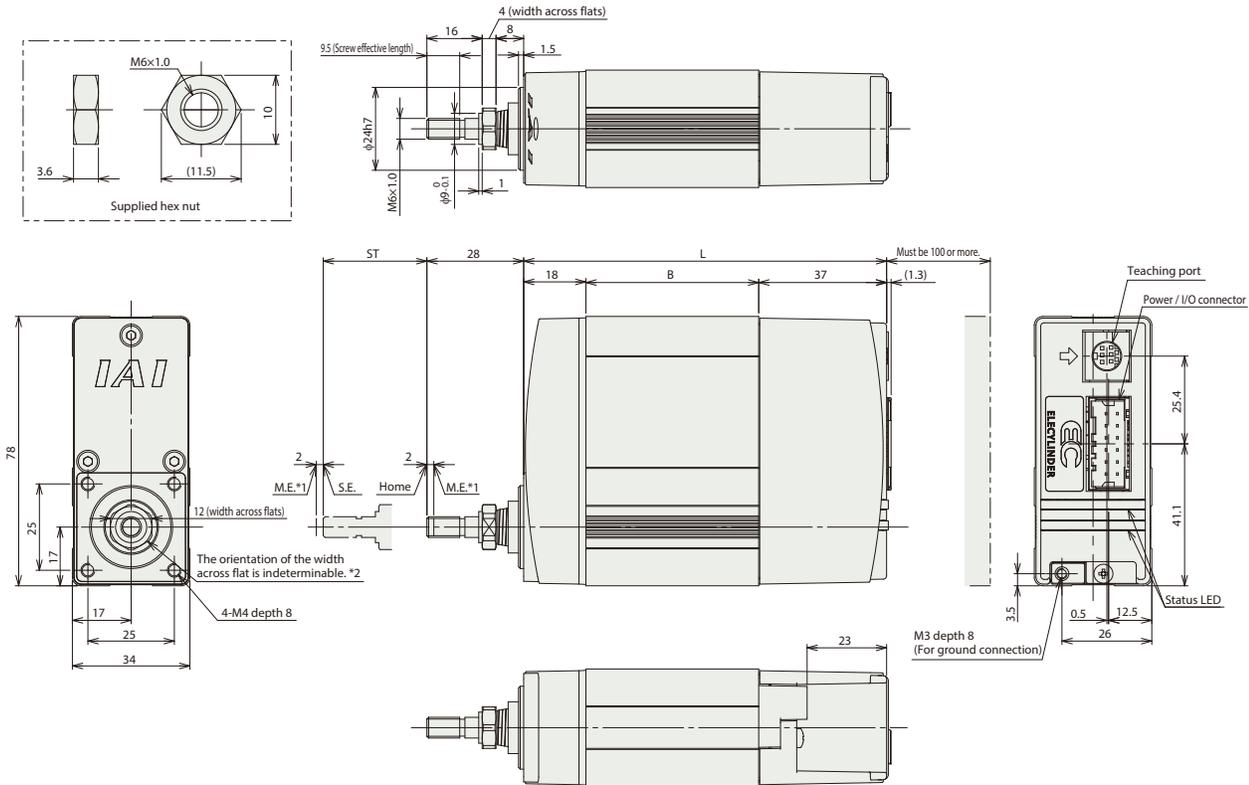
Item	Description
Drive system	Ball screw φ6mm, rolled C10
Positioning repeatability	±0.05mm
Frame	Material: Aluminum, black alumite treatment
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5,000km or 50 million cycles

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.



Dimensions and Mass by Stroke

Encoder Type	Incremental		Battery-less Absolute		
	Stroke	30	50	30	50
L	W/o Brake	105	125	125	125
	With Brake	135	135	155	155
B	W/o Brake	50	70	70	70
	With Brake	80	80	100	100
Weight (kg)	W/o Brake	0.5	0.6	0.6	0.6
	With Brake	0.7	0.7	0.7	0.7

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-GS4

Mini Rod Type Single Guide Motor Unit Type Side-mounted Motor Body Width 55 mm 24v Stepper Motor

Model Specification Items

EC Series — **GS4** Type

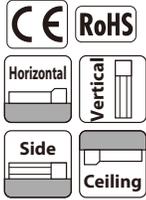
Lead: H : 6mm, M : 4mm, L : 2mm

Stroke: 30:30mm, 50:50mm

Cable Length: 0: With terminal block type connector, 1: 1m, 2: 2m, 10:10m

Options: Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.

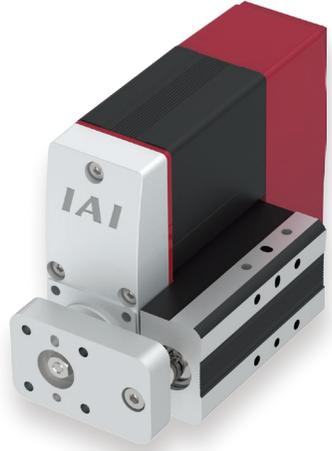


Table of Payload by Speed/Acceleration

Lead 6					Lead 4				
Orientation	Horizontal		Vertical		Orientation	Horizontal		Vertical	
	Acceleration (G)					Acceleration (G)			
Speed (mm/s)	0.3	0.5	0.3	0.5	Speed (mm/s)	0.3	0.5	0.3	0.5
0	2.5	2.5	1	1	0	4	4	1.5	1.5
300	2.5	2.5	1	1	200	4	4	1.5	1.5

Lead 2		
Orientation	Acceleration (G)	
	0.3	0.3
0	8	2.5
100	8	2.5

POINT Selection Notes

(1) Horizontal payload is the value when also using a guide so that radial and moment loads are not applied to the rod. If not installing a guide, refer to the correlation diagram of radial load and service life (P.67). Use the double guide type if force will be applied in the direction of rotation.

(2) The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4 and 6.

(3) When performing push-motion operation, refer to P.65.

(4) Be sure to select an option code for the guide mounting direction from the options table below.

Actuator Specifications

Lead and Payload					Stroke and Max Speed (Unit: mm/s)			
Model number	Lead (mm)	Max. payload		Max. push force (N)*	Lead (mm)	30 (mm)		50 (mm)
		Horizontal (kg)	Vertical (kg)					
EC-GS4H-①-②(-③)	6	2.5	1	30	6	300		
EC-GS4M-①-②(-③)	4	4	1.5	45	4	200		
EC-GS4L-①-②(-③)	2	8	2.5	90	2	100		

Legend: ① Stroke ② Cable Length ③ Option *Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-GS4
30	○
50	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

Name	Option code	Reference page
Brake	B	See P.59
Guide right mount	GT2	See P.60
Guide bottom mount	GT3	See P.60
Guide left mount	GT4	See P.60
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

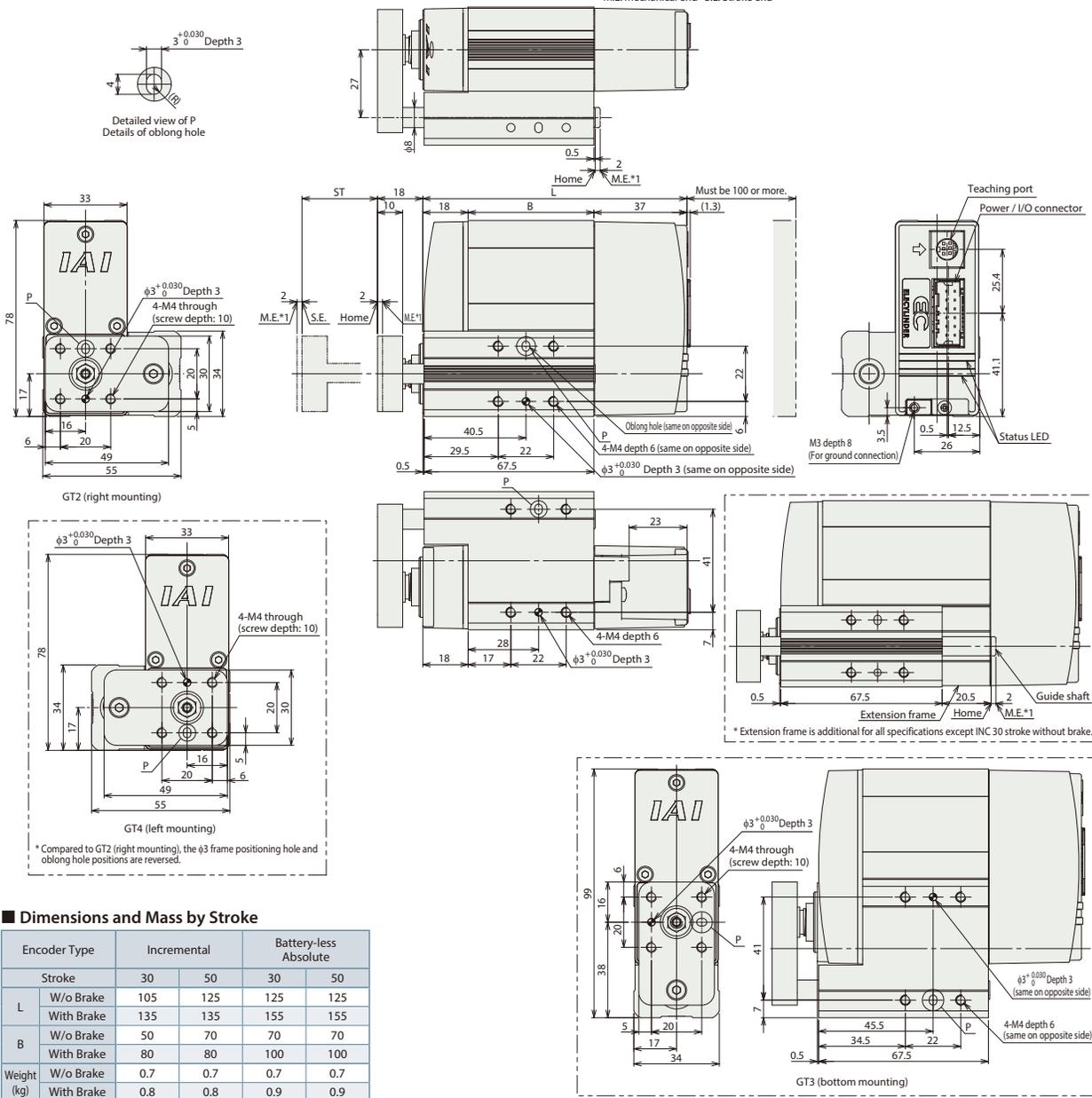
Item	Description
Drive system	Ball screw φ6mm, rolled C10
Positioning repeatability	±0.05mm
Frame	Material: Aluminum, black alumite treatment
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5,000km or 50 million cycles

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end



■ Dimensions and Mass by Stroke

Encoder Type	Incremental		Battery-less Absolute		
	Stroke 30	Stroke 50	Stroke 30	Stroke 50	
L	W/o Brake	105	125	125	125
	With Brake	135	135	155	155
B	W/o Brake	50	70	70	70
	With Brake	80	80	100	100
Weight (kg)	W/o Brake	0.7	0.7	0.7	0.7
	With Brake	0.8	0.8	0.9	0.9

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

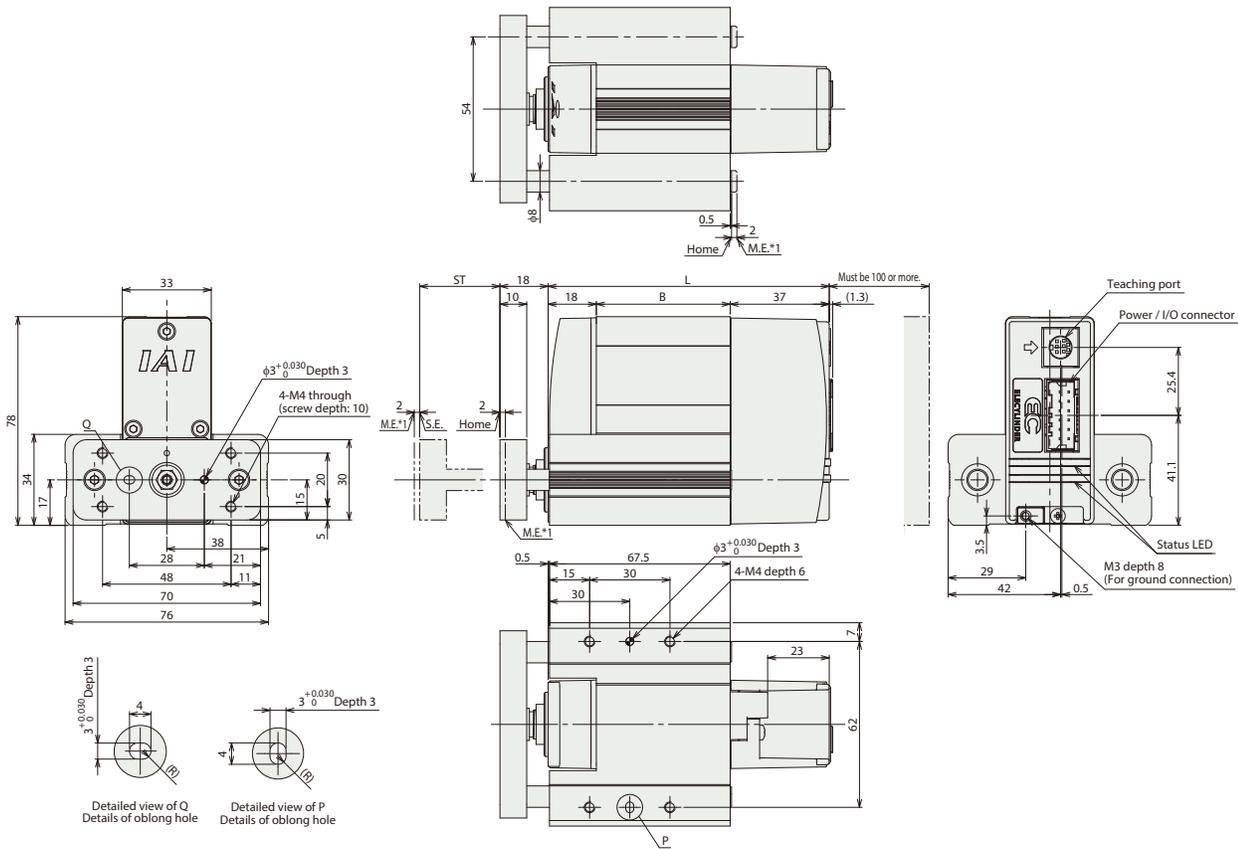
* For system configurations using the above tools, refer to P.68.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com

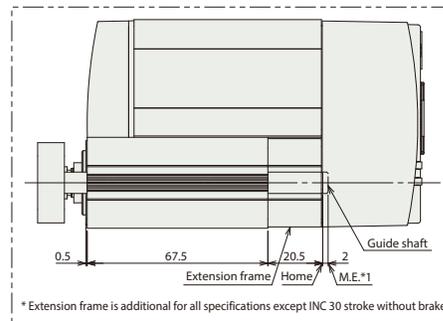


*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end



■ Dimensions and Mass by Stroke

Encoder Type	Incremental		Battery-less Absolute		
	Stroke	30	50	30	50
L	W/o Brake	105	125	125	125
	With Brake	135	135	155	155
B	W/o Brake	50	70	70	70
	With Brake	80	80	100	100
Weight (kg)	W/o Brake	0.9	0.9	0.9	0.9
	With Brake	1.0	1.0	1.0	1.1



Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-TC4

Mini Table Type Motor Unit Type Side-mounted Motor Body Width **78 mm** **24v Stepper Motor**

Model Specification Items
EC — **TC4**
 Series — Type
 Lead — Stroke — Cable Length — (Options)
 H : 6mm M : 4mm L : 2mm
 30:30mm 50:50mm
 0: With terminal block type connector
 1: 1m
 2: 2m
 10:10m
 Refer to Options below.

* Please refer to P.16 for more information about the model specification items.

* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 6					Lead 4				
Orientation	Horizontal		Vertical		Orientation	Horizontal		Vertical	
	Acceleration (G)					Acceleration (G)			
Speed (mm/s)	0.3	0.5	0.3	0.5	Speed (mm/s)	0.3	0.5	0.3	0.5
0	2.5	2.5	1	1	0	4	4	1.5	1.5
300	2.5	2.5	1	1	200	4	4	1.5	1.5

Lead 2				
Orientation	Horizontal		Vertical	
	Acceleration (G)			
Speed (mm/s)	0.3		0.3	
0	8		2.5	
100	8		2.5	

(1) The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4, 6.
 (2) When performing push-motion operation, refer to P.65.
 (3) Be sure to select an option code for the table mounting direction from the options table below.

Actuator Specifications

Lead and Payload					Stroke and Max Speed (Unit: mm/s)				
Model number	Lead (mm)	Max. payload		Max. push force (N)*	Lead (mm)	30 (mm)		50 (mm)	
		Horizontal (kg)	Vertical (kg)						
EC-TC4H-①-②-(③)	6	2.5	1	30	6	300			
EC-TC4M-①-②-(③)	4	4	1.5	45	4	200			
EC-TC4L-①-②-(③)	2	8	2.5	90	2	100			

Legend: ① Stroke ② Cable Length ③ Option *Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-TC4
30	○
50	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

Name	Option code	Reference page
Brake	B	See P.59
Table right mount	GT2	See P.60
Table bottom mount	GT3	See P.60
Table left mount	GT4	See P.60
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw φ6mm, rolled C10
Positioning repeatability	±0.05mm
Table/frame	Material: Aluminum, black alumite treatment
Allowable static moment	Ma direction: 5.9N·m, Mb direction: 5.9N·m, Mc direction: 9.3N·m
Allowable dynamic moment (*)	Ma direction: 3.77N·m, Mb direction: 3.77N·m, Mc direction: 6.01N·m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5,000km or 50 million cycles

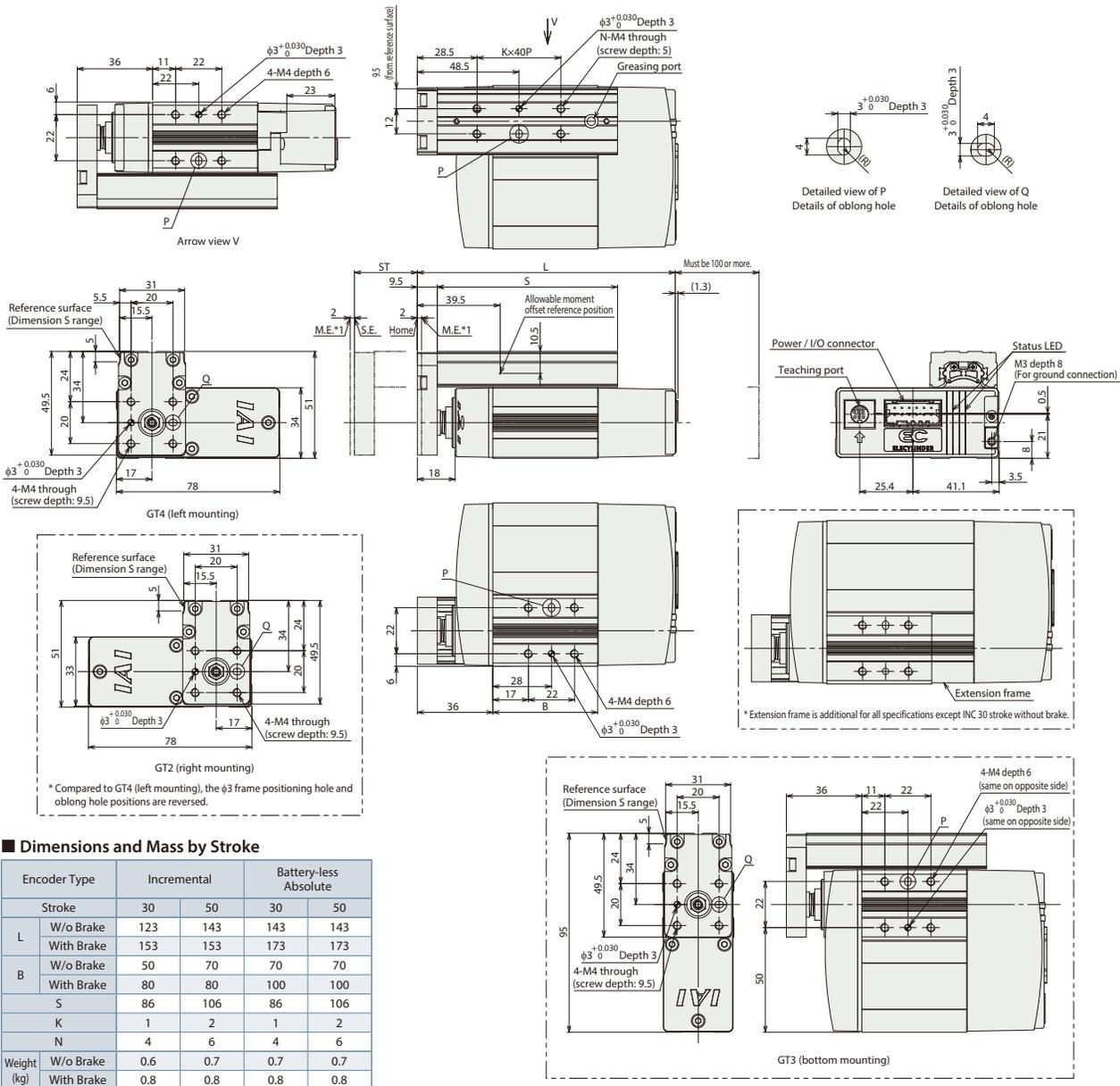
· Overhang load length guideline:
 Ma direction: 100mm or less in the table top direction, 50mm or less in the table tip direction
 Mb/Mc direction: 120mm or less
 (*) For reference rated life of 5,000km. The service life differs according to operation conditions and mounting status. Contact IAI to check the service life.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end S.E: Stroke end



■ Dimensions and Mass by Stroke

Encoder Type	Incremental		Battery-less Absolute		
	Stroke	30	50	30	50
L	W/o Brake	123	143	143	143
	With Brake	153	153	173	173
B	W/o Brake	50	70	70	70
	With Brake	80	80	100	100
S		86	106	86	106
K		1	2	1	2
N		4	6	4	6
Weight (kg)	W/o Brake	0.6	0.7	0.7	0.7
	With Brake	0.8	0.8	0.8	0.8

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

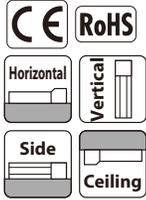
EC-TW4

Mini Table Type Motor Unit Type Side-mounted Motor Body Width **78 mm** **24v Stepper Motor**

Model Specification Items

EC	TW4				
Series	Type	Lead	Stroke	Cable Length	Options
		H : 6mm M : 4mm L : 2mm	30:30mm 50:50mm	0: With terminal block type connector 1: 1m 2: 2m 3: 3m 4: 4m 5: 5m 6: 6m 7: 7m 8: 8m 9: 9m 10: 10m	Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.

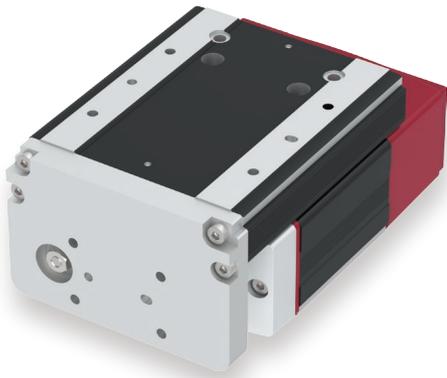


Table of Payload by Speed/Acceleration

Lead 6					Lead 4				
Orientation	Horizontal		Vertical		Orientation	Horizontal		Vertical	
	Acceleration (G)					Acceleration (G)			
Speed (mm/s)	0.3	0.5	0.3	0.5	Speed (mm/s)	0.3	0.5	0.3	0.5
0	2.5	2.5	1	1	0	4	4	1.5	1.5
300	2.5	2.5	1	1	200	4	4	1.5	1.5

Lead 2			
Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3		
0	8		2.5
100	8		2.5



(1) The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4, 6.
 (2) When performing push-motion operation, refer to P.65.

Actuator Specifications

Lead and Payload					Stroke and Max Speed (Unit: mm/s)				
Model number	Lead (mm)	Max. payload		Max. push force (N)*	Lead (mm)	30 (mm)		50 (mm)	
		Horizontal (kg)	Vertical (kg)						
EC-TW4H-①-②-③	6	2.5	1	30	6	300			
EC-TW4M-①-②-③	4	4	1.5	45	4	200			
EC-TW4L-①-②-③	2	8	2.5	90	2	100			

Legend: ① Stroke ② Cable Length ③ Option

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-TW4
30	○
50	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~10	6~10m

③ Options

Name	Option code	Reference page
Brake	B	See P.59
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw φ6mm, rolled C10
Positioning repeatability	±0.05mm
Table/frame	Material: Aluminum, black alumite treatment
Allowable static moment	Ma direction: 8.3N-m, Mb direction: 8.3N-m, Mc direction: 26.3N-m
Allowable dynamic moment (*)	Ma direction: 5.4N-m, Mb direction: 5.4N-m, Mc direction: 17.2N-m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5,000km or 50 million cycles

· Overhang load length guideline:
 Ma direction: 100mm or less in the table top direction, 50mm or less in the table tip direction
 Mb/Mc direction: 120mm or less
 (*) For reference rated life of 5,000km. The service life differs according to operation conditions and mounting status. Contact IAI to check the service life.

EC-R6□W

Water Proof / Dust Proof	IP67	Rod Type	Motor Unit Type	Coupled Motor	Body Width 63 mm	24v Stepper Motor
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Model Specification Items
EC — **R6** — **□** — **W** — **□** — **□** — **(□)**
 Series — Type — Lead — Dust/Splash-proof — Stroke — Cable Length — Options

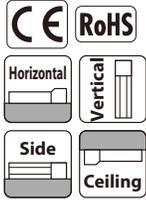
S : 20mm
 H : 12mm
 M : 6mm
 L : 3mm

50: 50mm
 300:300mm (Every 50mm)

0: With terminal block type connector
 1:1m
 2: 8.8m

Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.

Table of Payload by Speed/Acceleration

Lead 20							Lead 12						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5	0	25	18	16	12	4	4
160	6	6	5	5	1.5	1.5	100	25	18	16	12	4	4
320	6	6	5	3	1.5	1.5	200	25	18	16	10	4	4
480	6	6	5	3	1.5	1.5	400	20	14	10	6	4	4
640	6	4	3	2	1.5	1.5	500	15	8	6	4	3.5	3
800	4	3			1	1	700	6	2			2	1



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.
- (4) When performing push-motion operation, refer to P.65.
- (5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
- (7) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Lead 6							Lead 3						
Orientation	Horizontal			Vertical			Orientation	Horizontal			Vertical		
	Acceleration (G)							Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10	0	60	50	45	40	12.5	12.5
50	40	35	30	25	10	10	50	60	50	45	40	12.5	12.5
100	40	35	30	25	10	10	100	60	50	45	40	12.5	12.5
200	40	30	25	20	10	10	125	60	50	40	30	10	10
250	40	27.5	22.5	18	9	8	175	40	35	25	20	6	5
350	30	14	12	10	5	5	200	35	30	20	14	5	4.5
400	18	10	6	5	3	3	225	16	16	10	6	5	4
450	8	3			2	1							

Actuator Specifications

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-R6SW-①-②-③	20	6	1.5	56
EC-R6HW-①-②-③	12	25	4	93
EC-R6MW-①-②-③	6	40	10	185
EC-R6LW-①-②-③	3	60	12.5	370

Lead (mm)	Stroke and Max Speed (Unit: mm/s)		
	50~200 (Every 50mm)	250 (mm)	300 (mm)
20	800		
12	700	547	
6	450	376	268
3	225	186	133

Legend: ① Stroke ② Cable Length ③ Option

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-R6□W	① Stroke (mm)	EC-R6□W
50	○	200	○
100	○	250	○
150	○	300	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~8	6~8m

* Make sure that the total length of the actuator cable and power I/O cable is 10m or less.

③ Options

Name	Option code	Reference page
Actuator cable length: 5m	AC5	See P.59
Brake	B	See P.59
Flange (front)	FL	See P.59
Foot bracket	FT	See P.60
Tip adapter (internal thread)	NFA	See P.61
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw φ10mm, rolled C10
Positioning repeatability	±0.05mm
Rod	φ25mm Material: Aluminum, hard alumite treatment
Rod tip static allowable torque	0.5N·m
Rod tip maximum angular displacement (*)	±1.5 degrees
Degree of protection	IP67
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

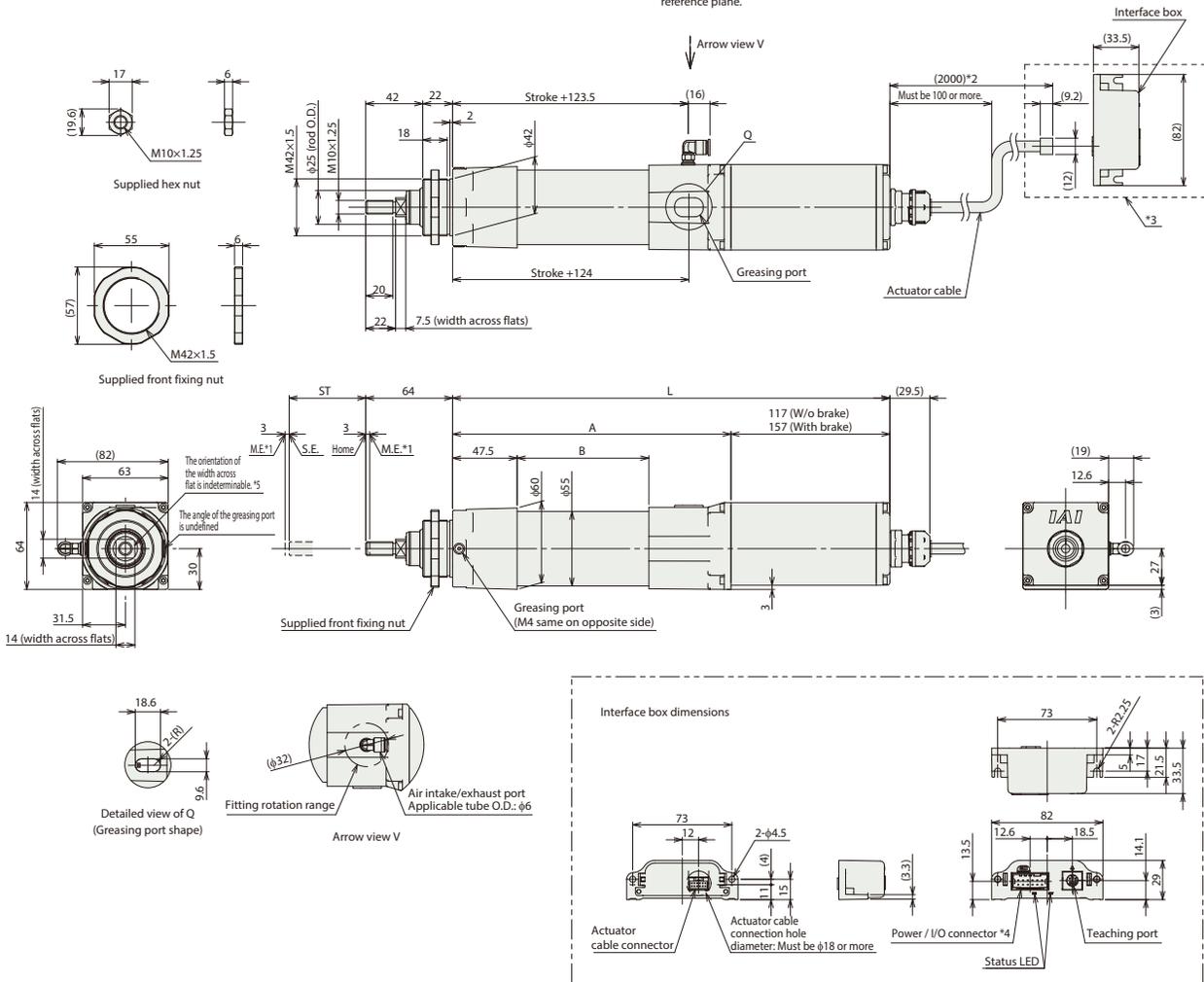
(*) The rod tip angular displacement (initial value for reference) when the allowable static torque on rod tip is applied with the rod fully retracted.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



- *1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
- M.E: Mechanical end S.E: Stroke end
- *2 The length of the actuator cable can be set to 5m as an option.
- *3 The interface box relay section within the dashed line is not dust-proof or splash-proof.
- *4 Make sure that the total length of the actuator cable and power I/O cable is 10m or less.
- *5 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.



■ Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	
L	W/o Brake	322	372	422	472	522	572
	With Brake	362	412	462	512	562	612
	A	205	255	305	355	405	455
B	97	147	197	247	297	347	
Weight (kg)	W/o Brake	1.8	2.0	2.2	2.4	2.6	2.8
	With Brake	2.1	2.3	2.5	2.7	2.9	3.1

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

EC-R7□W

Water Proof / Dust Proof	IP67	Rod Type	Motor Unit Type	Coupled Motor	Body Width 73 mm	24v Stepper Motor
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Model Specification Items
EC — **R7** — — **W** — — — ()
 Series — Type — Lead — Dust/Splash-proof — Stroke — Cable Length — Options

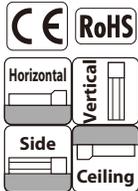
S : 24mm
 H : 16mm
 M : 8mm
 L : 4mm

50: 50mm
 300:300mm (Every 50mm)

0: With terminal block type connector
 1:1m
 2: 8.8m

Refer to Options below.

* Please refer to P.16 for more information about the model specification items.



* Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.



Table of Payload by Speed/Acceleration

Lead 24

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	3	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	14	10	4.5	4
560	10	5	3	2	2	1
700	2					

Lead 8

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	34	20	15	11	5	4
350	12	4	1		2	1

Lead 4

Orientation	Horizontal			Vertical		
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	19	19
35	80	70	65	60	19	19
70	80	70	65	60	19	19
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	



- (1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
- (2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" at right for more details.
- (3) The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.
- (4) When performing push-motion operation, refer to P.65.
- (5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P.67 for more information.
- (6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
- (7) The power capacity can be reduced according to the setting. Please refer to P.63 for the relevant "Table of Payload by Speed/Acceleration."

Actuator Specifications

Lead and Payload

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-R7SW-①-②-③	24	20	3	182
EC-R7HW-①-②-③	16	50	8	273
EC-R7MW-①-②-③	8	60	18	547
EC-R7LW-①-②-③	4	80	19	1094

Legend: ① Stroke ② Cable Length ③ Option

Stroke and Max Speed

(Unit: mm/s)

Lead (mm)	Stroke (mm)	Max. Speed (mm/s)
24	50~300 (Every 50mm)	860<640>
16	700<560>	
8	350	
4	175	

<> represents vertical operation.

*Speed limitation applies to push motion. See the manual or contact IAI.

① Stroke

① Stroke (mm)	EC-R7□W	① Stroke (mm)	EC-R7□W
50	○	200	○
100	○	250	○
150	○	300	○

② Cable Length

Cable code	Cable length
0	No cable (with connector)
1~3	1~3m
4~5	4~5m
6~8	6~8m

* Make sure that the total length of the actuator cable and power I/O cable is 10m or less.

③ Options

Name	Option code	Reference page
Actuator cable length: 5m	AC5	See P.59
Brake	B	See P.59
Flange (front)	FL	See P.59
Foot bracket	FT	See P.60
Tip adapter (internal thread)	NFA	See P.61
Non-motor end specification	NM	See P.62
PNP specification	PN	See P.62
Battery-less Absolute Encoder specification	WA	See P.62
Wireless communication specification	WL	See P.62

Actuator Specifications

Item	Description
Drive system	Ball screw φ12mm, rolled C10
Positioning repeatability	±0.05mm
Rod	φ30mm Material: Aluminum, hard alumite treatment
Rod tip static allowable torque	0.5N·m
Rod tip maximum angular displacement (*)	±1.5 degrees
Degree of protection	IP67
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)

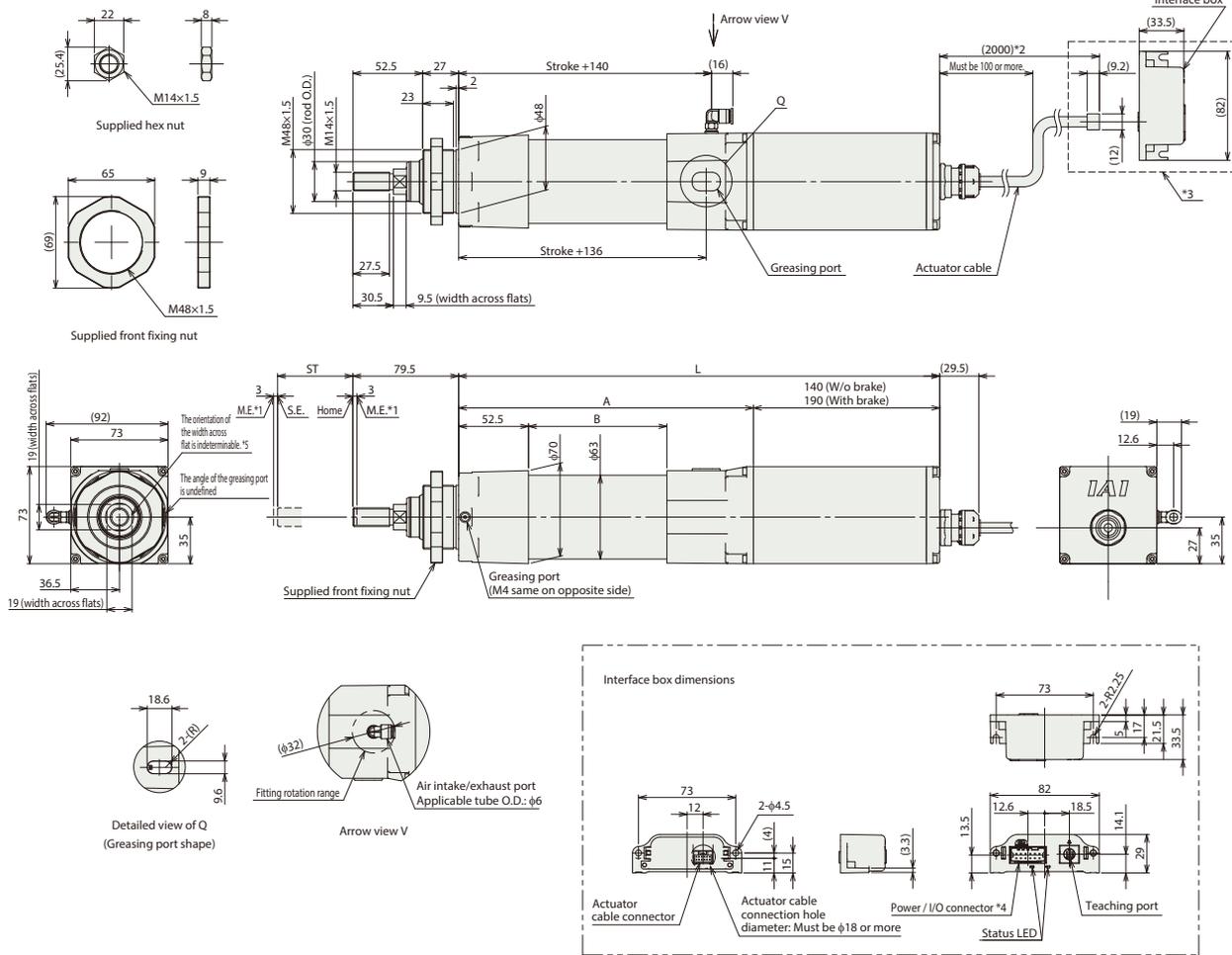
(*) The rod tip angular displacement (initial value for reference) when the allowable static torque on rod tip is applied with the rod fully retracted.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com



- *1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
- M.E: Mechanical end S.E: Stroke end
- *2 The length of the actuator cable can be set to 5m as an option.
- *3 The interface box relay section within the dashed line is not dust-proof or splash-proof.
- *4 Make sure that the total length of the actuator cable and power I/O cable is 10m or less.
- *5 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.



■ Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	
L	W/o Brake	361.5	411.5	461.5	511.5	561.5	611.5
	With Brake	411.5	461.5	511.5	561.5	611.5	661.5
	A	221.5	271.5	321.5	371.5	421.5	471.5
	B	104	154	204	254	304	354
Weight (kg)	W/o Brake	3.6	3.8	4.0	4.2	4.4	4.6
	With Brake	4.2	4.4	4.6	4.8	5.0	5.2

Controller side Options/Accessories

Name	Touch Panel Teaching Pendant	PC software	24VDC power supply
External view			
Model	<input type="checkbox"/> TB-02 (for wired connection only) <input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)	<input type="checkbox"/> PS-241 (100V input) <input type="checkbox"/> PS-242 (200V input)
Overview	<ul style="list-style-type: none"> ● TB-02 A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring. ● TB-03 A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection. 	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.	A 24VDC power supply that can instantaneously output up to 17A. Input voltage 200VAC and 100VAC specifications are available.

* For system configurations using the above tools, refer to P.68.

ELECYLINDER Series Options

Actuator cable length: 5 m

Model **AC5** Applicable Models EC-R6□W/R7□W

Description Although the standard length of the actuator cable of the EC waterproof series is 2m, it can be changed to 5m as an option.
 * Make sure that the total length of the actuator cable and power I/O cable is within 10m.
 (When the actuator cable length 5m (AC5) is selected, the power / I/O cable must be 5m at the longest.)

Brake

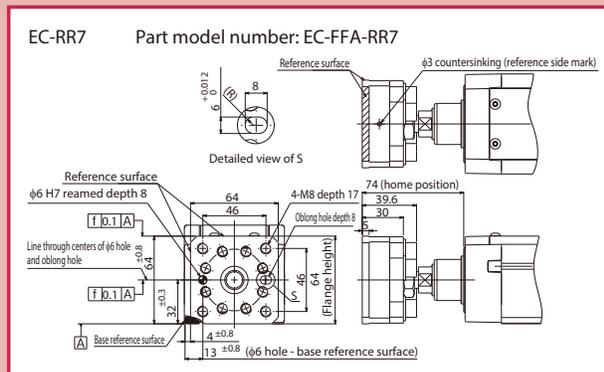
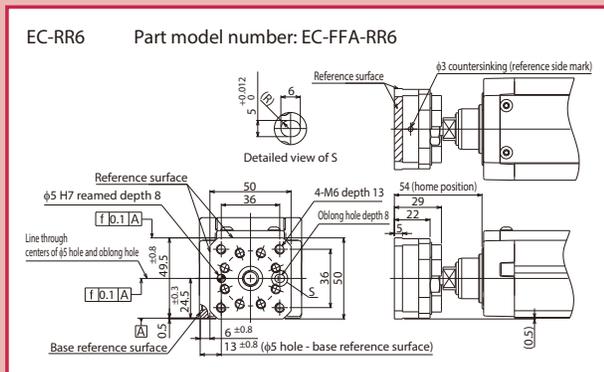
Model **B** Applicable Models All Models

Description When the actuator is mounted vertically, this works as a holding mechanism that prevents the slider or rod from falling and damaging any attachments when the power or servo is turned off.

Tip adapter (flange)

Model **FFA** Applicable Models EC-RR6/RR7

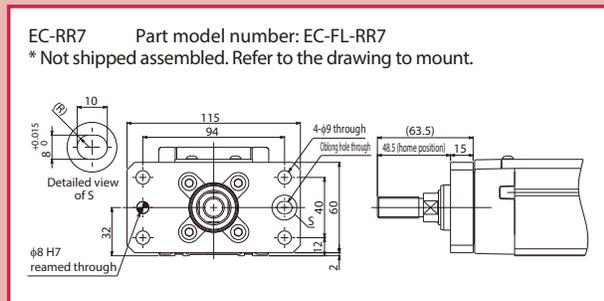
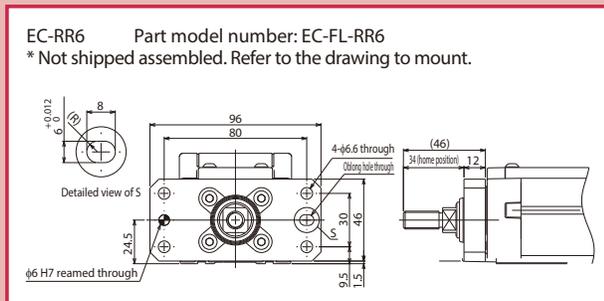
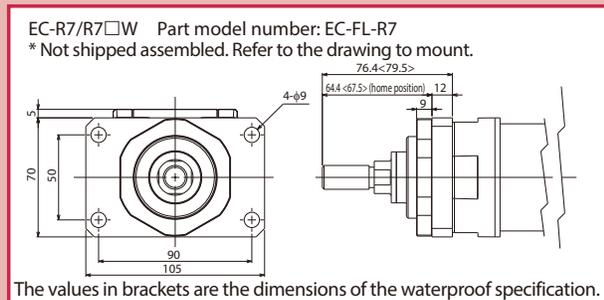
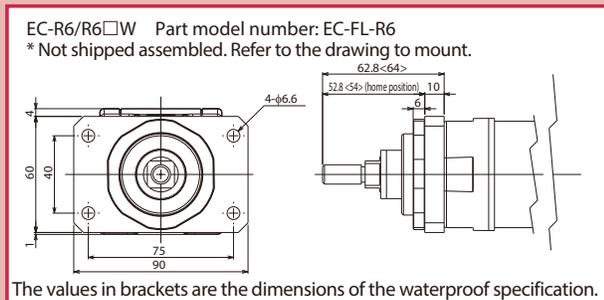
Description This adapter is used to mount jigs, etc., on the rod tip with four bolts.



Flange (front)

Model **FL** Applicable Models EC-R6/R7/RR6/RR7, EC-R6□W/R7□W

Description This bracket is used for fixing the actuator body side with bolts.

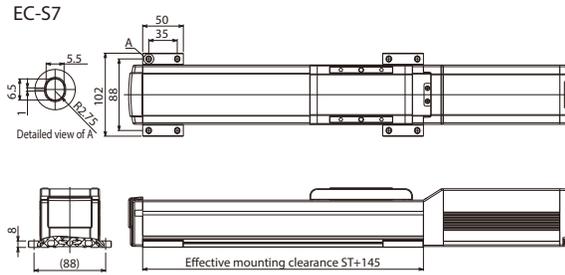
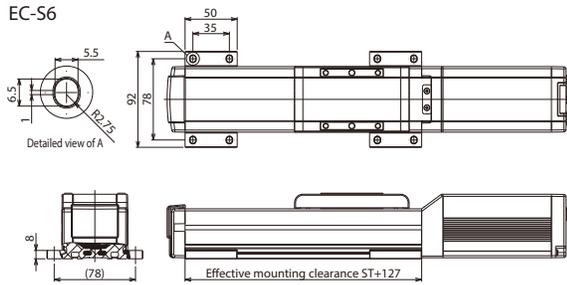


Foot bracket

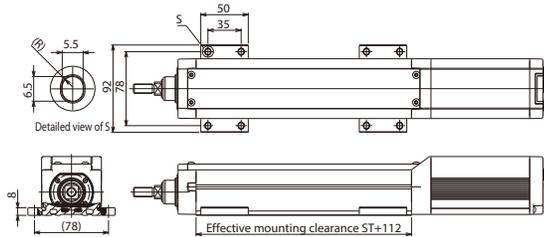
Model FT **Applicable Models** EC-S6/S7/R6/R7/RR6/RR7, EC-R6□W/R7□W

Description This bracket is used for fixing the actuator body from the top with bolts.

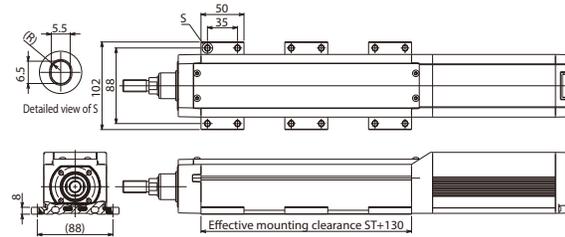
EC-S□ Part model number: EC-FTSB (4-piece set)
* Not shipped assembled. Refer to the drawing to mount.



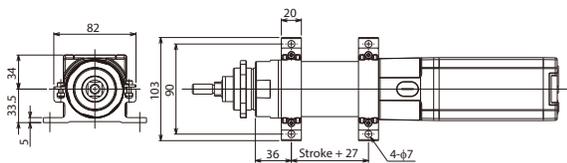
EC-RR6 Part model number: EC-FTSB (4-piece set)
* Not shipped assembled. Refer to the drawing to mount.



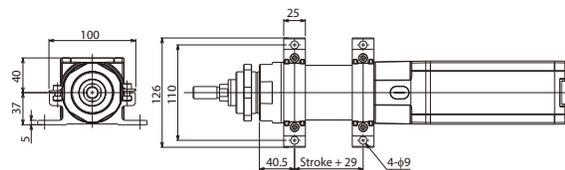
EC-RR7 Part model number: EC-FTSB-02 (6-piece set)
* Not shipped assembled. Refer to the drawing to mount.



EC-R6/EC-R6□W Part model number: EC-FT-R6 (2-piece set)
* Not shipped assembled. Refer to the drawing to mount.



EC-R7/EC-R7□W Part model number: EC-FT-R7 (2-piece set)
* Not shipped assembled. Refer to the drawing to mount.

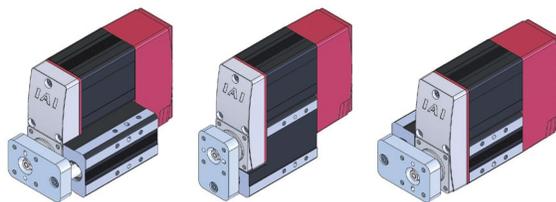


Guide mounting direction / Table mounting direction

Model GT2 / GT3 / GT4 **Applicable Models** EC-GS4/TC4

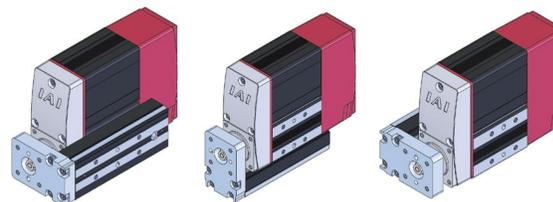
Description Select the guide shaft position of EC-GS4 and the table position of EC-TC4.

EC-GS4



GT2 Guide right mount
GT3 Guide bottom mount
GT4 Guide left mount

EC-TC4



GT2 Table right mount
GT3 Table bottom mount
GT4 Table left mount

Non-motor end specification

Model **NM** **Applicable Models** Models other than EC-RP4/GS4/GD4

Description The normal home position is set by the slider and rod on the motor side, but there is the option for the home position to be on the other side to accommodate variations in equipment layout, etc.

PNP specification

Model **PN** **Applicable Models** All Models

Description The EC series offers NPN specification input/output for connecting external devices as standard. Specifying this option changes input/output to PNP specification.

Clevis bracket

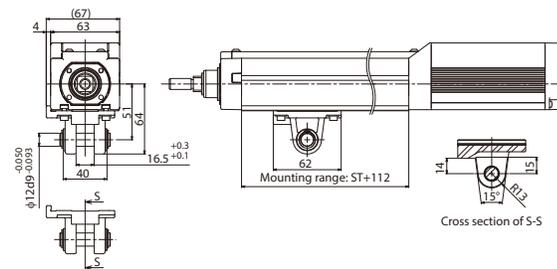
Model **QR** **Applicable Models** EC-RR6/RR7

Description When the motion of the object mounted on the rod tip differs from the rod operation direction, this bracket is used to make it track the cylinder body.

EC-RR6 Part model number: EC-QR-RR6

* Not shipped assembled. Refer to the drawing to mount.

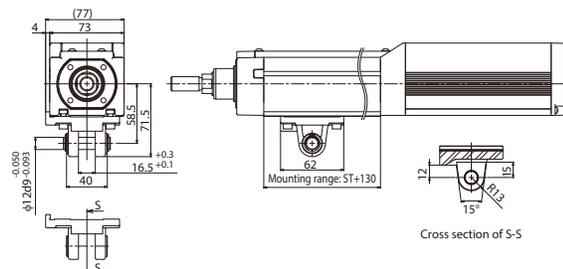
When making adjustments, we recommend that the parallelism fall within the level mentioned on the mechanical drawings provided. Use the knuckle joint and the clevis bracket together as a set.



EC-RR7 Part model number: EC-QR-RR7

* Not shipped assembled. Refer to the drawing to mount.

When making adjustments, we recommend that the parallelism fall within the level mentioned on the mechanical drawings provided. Use the knuckle joint and the clevis bracket together as a set.

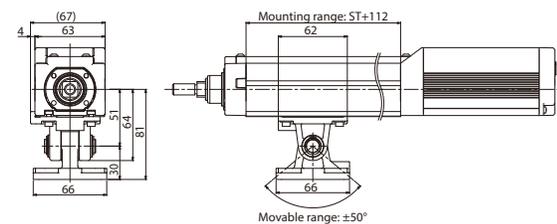


Clevis bracket + oscillation receiving bracket

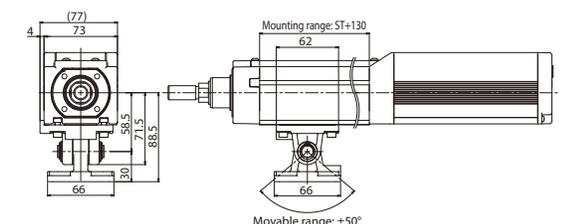
Model **QRPB** **Applicable Models** EC-RR6/RR7

Description This is the oscillation receiving bracket with the clevis. The mounting method of the oscillation receiving bracket is the same as NJPB.

EC-RR6 Part model number: EC-QRPB-RR6



EC-RR7 Part model number: EC-QRPB-RR7



Battery-less Absolute Encoder specification

Model **WA** **Applicable Models** All Models

Description The EC series offers incremental encoder specification as standard. Specifying this option installs a built-in battery-less absolute encoder.

Wireless communication specification

Model **WL** **Applicable Models** All Models

Description This option supports wireless communication. Specifying this option enables wireless connection with a dedicated Touch Panel Teaching Pendant TB-03 with wireless data setting function for EC. The start point, end point, and AVD can be adjusted by wireless communication.

Table of Payload by Speed/Acceleration

Energy-saving enabled

■ EC-S6/S6□H

Lead 20

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.75

Lead 12

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	4	1	0.5

Lead 6

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	10	1	1

Lead 3

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

■ EC-S7/S7□H

Lead 24

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	5	0.5	0.5

Lead 16

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
560	7	0.5	0.5

Lead 8

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	10	1	1.5

Lead 4

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
140	15	6	2

■ EC-R6/RR6/R6□W

Lead 20

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

Lead 6

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

Lead 3

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

■ EC-R7/R7□W

Lead 24

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
400	11	6	1.5
420	10	5	
600	1		

Lead 16

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

■ EC-RR7

Lead 24

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
600	1		

Lead 16

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

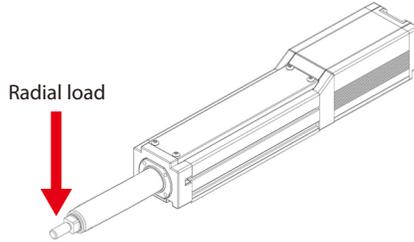
Lead 4

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

Radial load acting on the rod

Because the radial cylinder has a linear guide built into the body, radial and moment loads can be applied to the rod. The allowable radial and moment loads must meet the following three conditions.

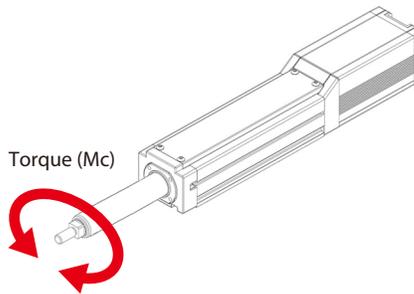
1. The radial load acting on the rod must not exceed the allowable value.



Type	Rod tip static allowable radial load	Rod tip dynamic allowable radial load (*1)
EC-RR6	90 N	45 N
EC-RR7	120 N	60 N

(*1) Value at a standard rated life of 5,000km.

2. The torque (Mc) acting on the rod must not exceed the allowable value.



Type	Rod tip static allowable torque	Rod tip dynamic allowable torque (*2)
EC-RR6	5.5N·m	5.5N·m
EC-RR7	10.5N·m	10.5N·m

(*2) Value at a standard rated life of 5,000km.

3. The uniform load acting on the rod must not exceed the allowable value.

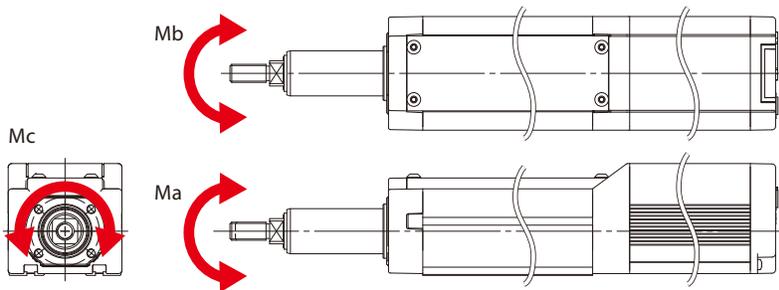
The uniform load is obtained by the following formula.

$$\text{Uniform load} = Ma \cdot Ka + Mb \cdot Kb + Mc \cdot Kc$$

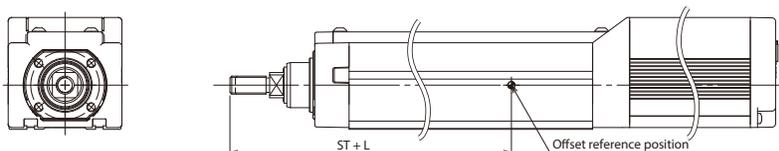
Type	Static allowable uniform load	Dynamic allowable uniform load (*3)	Load uniform coefficient Ka	Load uniform coefficient Kb	Load uniform coefficient Kc
EC-RR6	4400N	1050N	124 /m	87 /m	62 /m
EC-RR7	5680N	1260N	98 /m	69 /m	50 /m

(*3) Value at a standard rated life of 5,000km.

Ma, Mb, Mc: Moment load



Moment offset reference position



Type	L
EC-RR6	111mm
EC-RR7	144.5mm

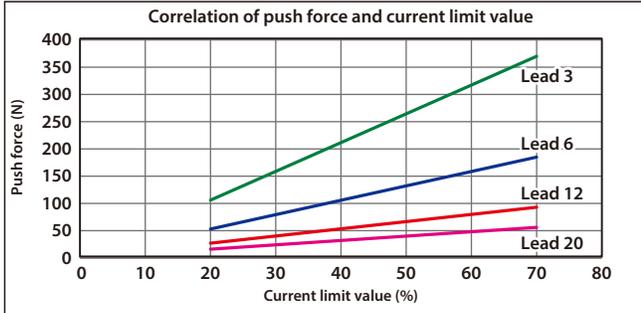
Correlation of push force and current limit value

In push-motion operation, the push force can be changed by setting the current limit value of the controller between 20% and 70%.

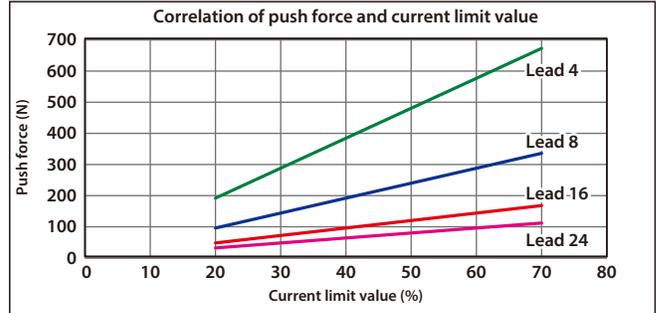
The maximum push force will vary depending on the model, so please refer to the graphs below and on the following page, and select a type based on the needed push force for your intended use.

Correlation of Push Force and Current Limit Value

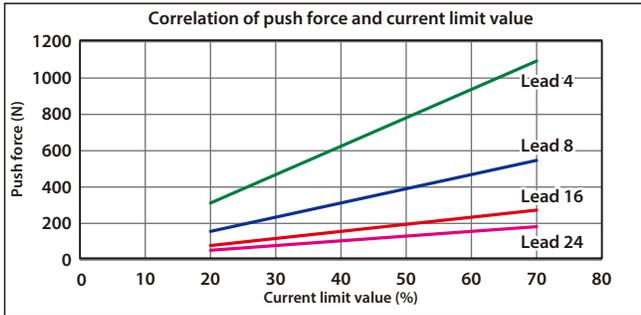
EC-S6/S6□H/R6/RR6/R6□W



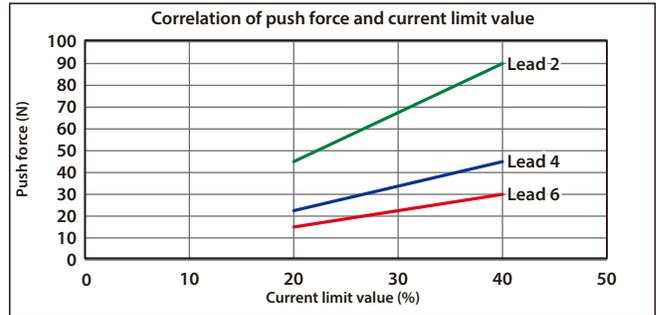
EC-S7/S7□H



EC-R7/RR7/R7□W



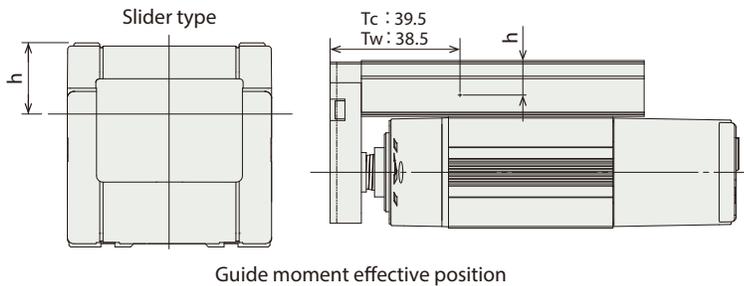
EC-RP4/GS4/GD4/TC4/TW4



* During push motion, the speed is fixed to 20 mm/s. If the velocity setting value (V) is less than 20 mm/s, the speed setting of V is used for the push speed but the push force will be unstable.

Notes for Slider and Mini Table Types

When performing the push-motion operation with the slider type, and mini table type please limit the push current in order that the reactive moment caused by the push force does not exceed the dynamic allowable moment (Ma, Mb) in the catalog. Please refer to the figures below, which show the working point of the guide moment, for help with calculating the moment. This can be done by considering the offset of the push force application position. Please note that if excessive force which exceeds the dynamic allowable moment is applied, it may damage the guide and shorten its service life. Please keep this in mind and select a push current that is safely within its limits.



h dimension			
Slider type		Mini table type	
S6	22	TC4	10.5
S7	22	TW4	10.5
S6□H	50.5		
S7□H	58		

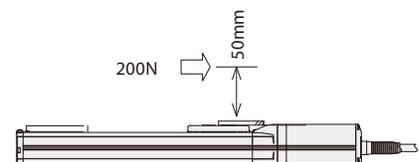
*Unit: mm

Calculation example)

When 200N push operation is performed with EC-S7 at the position shown in the figure at right, the moment applied to the guide is:

$$Ma = (22+50) \times 200 = 14400 \text{ (N}\cdot\text{mm)}$$

$$= 14.4 \text{ (N}\cdot\text{m)}.$$

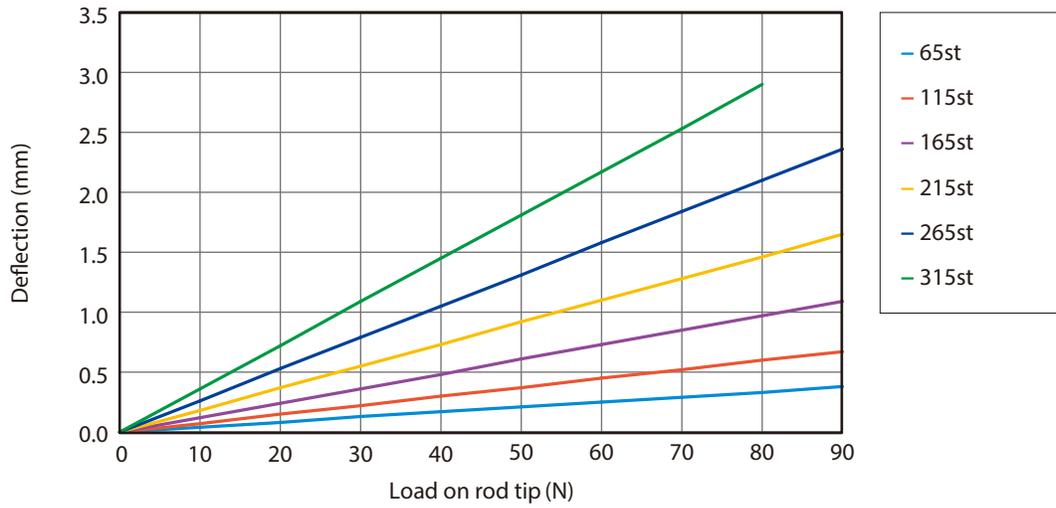


The dynamic allowable moment for EC-S7 is $Ma = 17.7 \text{ (N}\cdot\text{m)}$, which means it is OK since $17.7 > 14.4$.

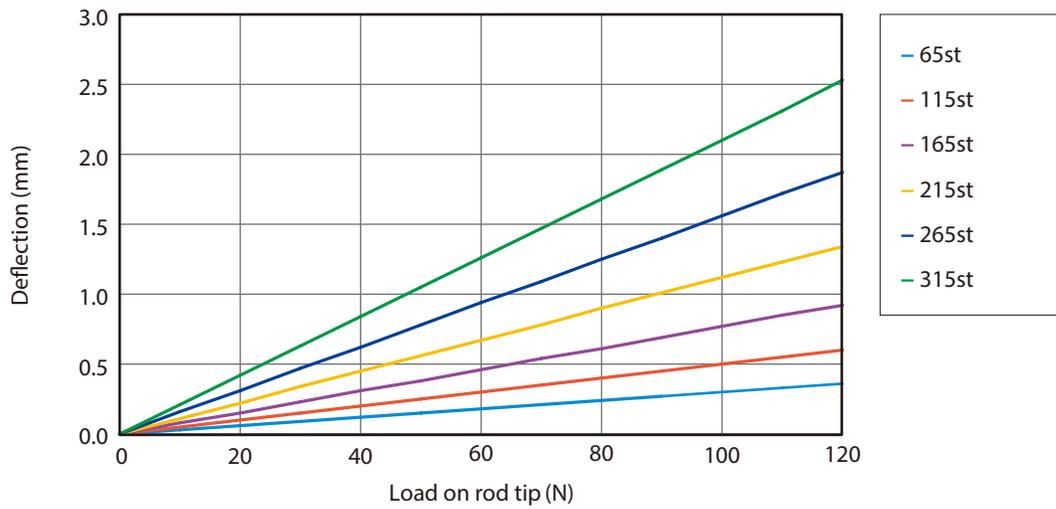
Also, should an Mb moment occur due to the push operation, calculate the moment from the overhang and ensure that it is within range of the dynamic allowable moment.

EC-RR6C/RR7C Rod Deflection

■ Rod Deflection of EC-RR6C (Reference Values)



■ Rod Deflection of EC-RR7C (Reference Values)



Duty cycle

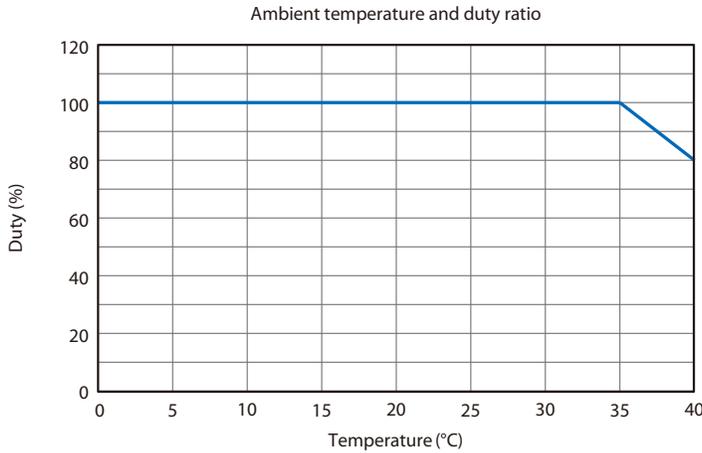
Duty cycle is the percentage of the actuator's active operation time in each cycle.

The duty ratio for each ELECYLINDER type is limited to the values below.

* The data below is applicable even during operation at maximum velocity/acceleration/deceleration.

(Note) For RP, GS, GD, TC, and TW, the duty is 100% at ambient temperatures of 0 to 40°C.

■ Ambient temperature and duty ratio

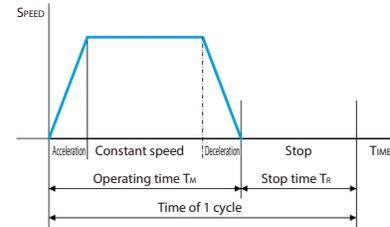


[Duty Cycle]

The duty ratio is the operating rate shown as the actuator's operating time during one cycle in %.

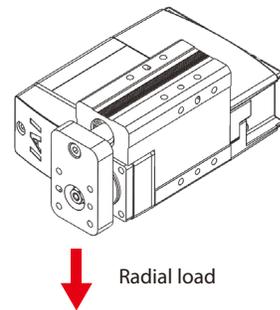
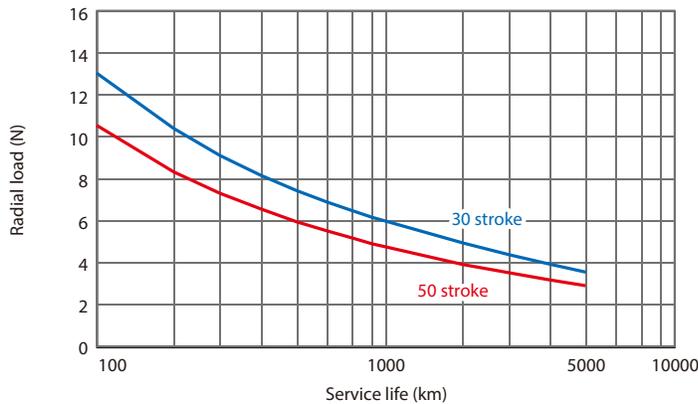
$$D = \frac{T_M}{T_M + T_R} \times 100 (\%)$$

D: Duty
T_M: Operating time (including push-motion operation)
T_R: Stop time

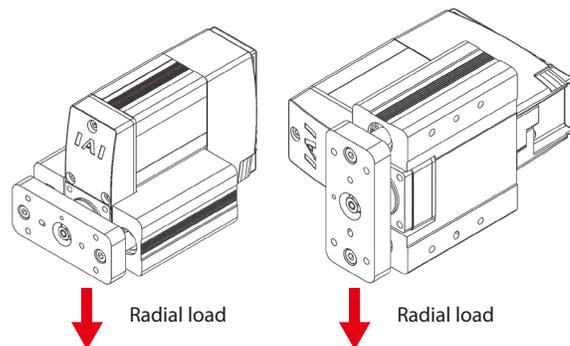
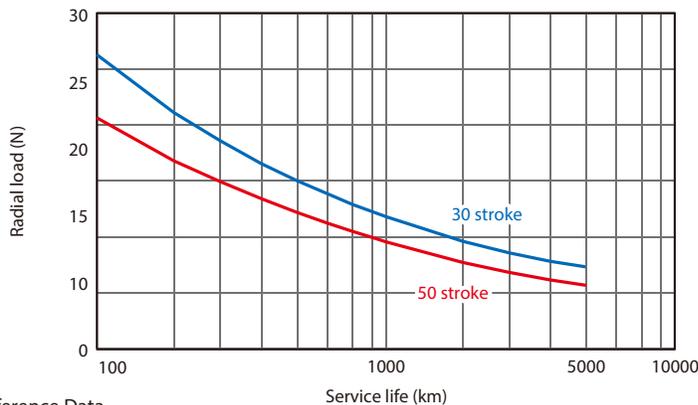


Correlation of Allowable Radial Load and Service Life

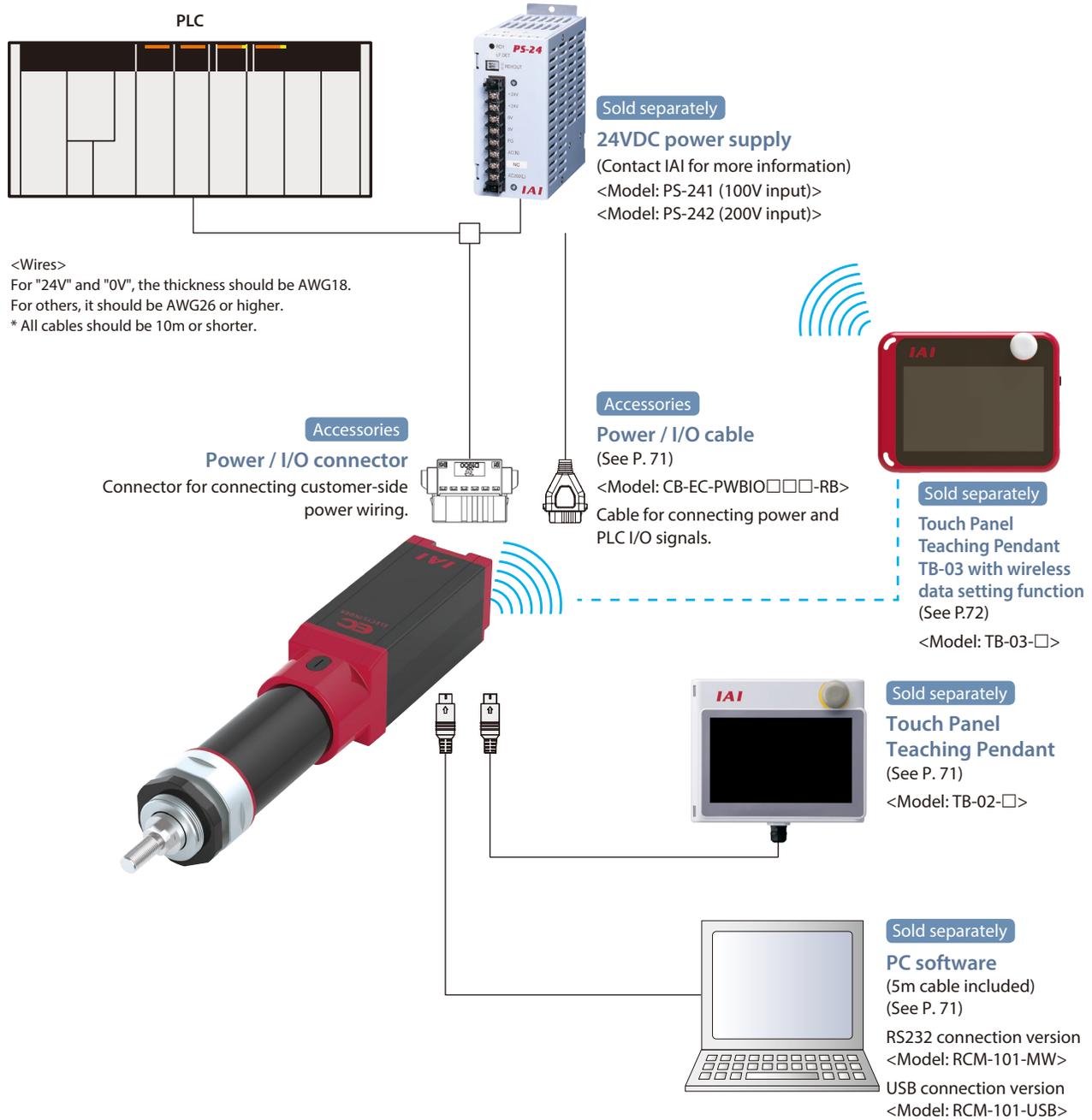
EC-GS4



EC-GD4



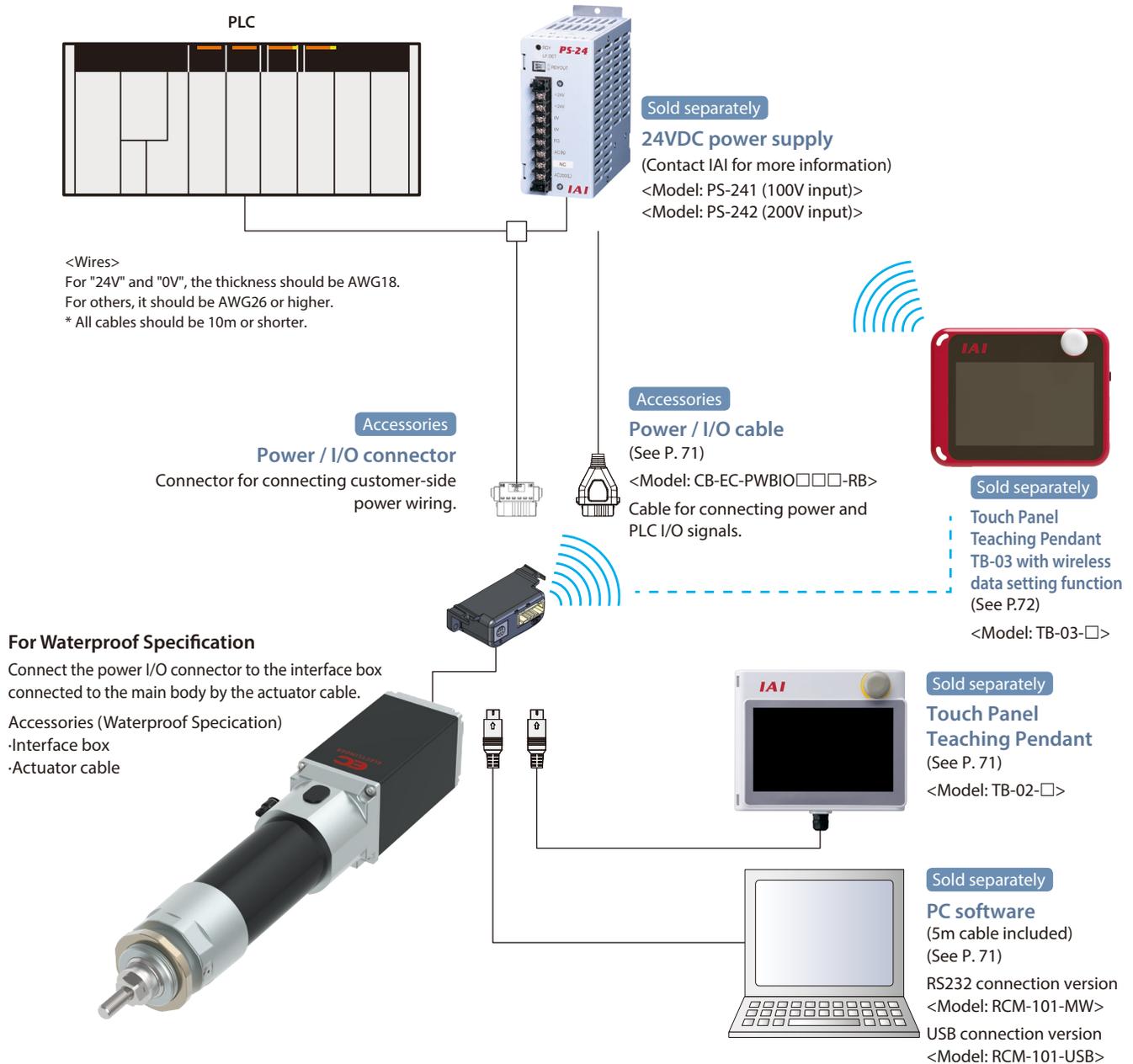
System Configuration



List of Accessories

Product category	Accessories
Without EC power / I/O cable	Power / I/O connector (1-1871940-6)
With EC power / I/O cable	Power / I/O cable (CB-EC-PWBIO□□□-RB)

System Configuration



List of Accessories

Product category	Accessories
Without EC power / I/O cable	Power / I/O connector (1-1871940-6)
With EC power / I/O cable	Power / I/O cable (CB-EC-PWBIO□□□-RB)
	Interface box (Waterproof Specification)
	Actuator cable (Waterproof Specification)

Basic Controller Specifications

Specification item		Specification content	
Number of controlled axes		1 axis	
Power supply voltage		24VDC ±10%	
Power capacity	Standard Dust/splash-proof High rigidity	With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Rated 2.2A	
	Mini type	Max. 2.0A (with energy-saving setting enabled only)	
Brake release power supply		24VDC ±10%, 200mA (only for external brake release)	
Generated heat		8W (at 100% duty)	
Inrush current	Standard Dust/splash-proof High rigidity	8.3A (with inrush current limit circuit)	
	Mini type	10A	
Momentary power failure resistance		Max 500μs	
Motor size		□28, □42, □56	
Motor rated current		1.2A	
Motor control system		Weak field-magnet vector control	
Supported encoders		Incremental (800pulse/rev), battery-less absolute encoder (800pulse/rev)	
SIO		RS485 1ch (Modbus protocol compliant)	
PIO	Input specification	Number of input	3 points (forward, backward, alarm clear)
		Input voltage	24VDC ±10%
		Input current	5mA per circuit
		Leakage current	Max 1mA/1 point
		Isolation method	Non-isolated
	Output specification	No. of output	3 points (forward complete, backward complete, alarm)
		Output voltage	24VDC ±10%
		Output current	50mA/1 circuit
		Residual voltage	2V or less
		Isolation method	Non-isolated
Data setting and input methods		PC software, touch panel teaching pendant, data setter	
Data retention memory		Position and parameters are saved in non-volatile memory. (No limit to rewrite)	
LED display	Controller status display	Servo ON (green light ON) / Alarm (red light ON) / Initializing when power comes ON (orange light ON) / Minor failure alarm (green/red alternately blinking) / Operation from teaching: Stop from teaching (red light ON) / Servo OFF (light OFF)	
	Wireless status display	Initializing wireless hardware, without wireless connection, or connecting from TP board (light OFF) Connecting through wireless (green blinking) / Wireless hardware error (red blinking) / Initializing when power comes ON (orange light ON)	
Predictive maintenance/ Preventative maintenance		When the number of movements or operation distance has exceeded the set value and when the LED (right side) blinks alternately green and red at overload warning * Only when configured in advance	
Ambient operating temperature		0 to 40°C	
Ambient operating humidity		85% RH or less (no condensation or freezing)	
Operating ambience		Avoid corrosive gas and excessive dust	
Insulation resistance		DC500V 10MΩ	
Electric shock protection mechanism		Class 1 basic insulation	
Cooling method		Natural air cooling	

I/O Signal Table

Power / I/O connector pin assignment			
Pin No.	Connector nameplate name	Signal abbreviation	Function overview
B3	Backward	ST0	Backward command
B4	Forward	ST1	Forward command
B5	Alarm cancel	RES	Alarm cancel
A3	Backward complete	LS0/PE0	Backward complete/push complete
A4	Forward complete	LS1/PE1	Forward complete/push complete
A5	Alarm	* ALM	Alarm detection (b-contact)
B1	24V	24V	24V input
A1	0V	0V	0V input

TB-03

Touch Panel Teaching Pendant TB-03 with wireless data setting function



1. Set operating conditions with wireless connection

Position adjustment and operating conditions can be set from outside the equipment, even without a cable connection to the ELECYLINDER body.

* Actuator operation requires cable connection.



2. Status monitoring makes daily maintenance easier and shortens trouble recovery time

TB-03 can monitor the operating status of up to 16 axes while receiving wireless data from the ELECYLINDER. Error recovery time also can be shortened by troubleshooting with wireless communication.

Status monitor screen

Axis Name Display
Can be configured (changed) arbitrarily according to customer applications.

Status Monitor
Axis status check can be used for confirmation of maintenance timing.

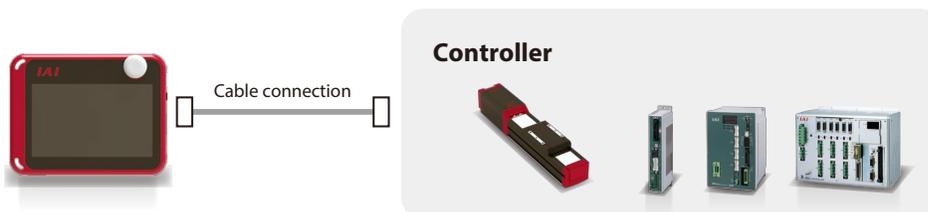
EC2 S/N A70761788 Selectable	Servo	Travel Cnt.	52	Alarm Group	Warnin
	Cur. pos. 0.00 mm	Travel Dist.	1 m	Maintenance warning	1
		Over load Lv.	12 %		

Error Status Monitor
Alarms and warnings are displayed when generated. Useful for troubleshooting.

Troubleshooting screen

3. Supports position/program controller

Dedicated cables can connect the TB-03 to all the controllers. The same functions and operation of the previous TB-02 are available.



Model Number

One unit supports all controllers, although the cable must be selected in accordance with the controller to be connected. Select the AC adapter for the appropriate operating environment.

Model **TB-03-** Cable - AC adapter

● **Body + cable + AC adapter set model**

Connected controller	Model		Cable	
	Body + cable	AC adapter	For ELECYLINDER/ position controller	For program controller
ELECYLINDER Position Controller	TB-03-C	(Blank)/C/E/K	① CB-TB3-C050	-
		N *2		
Program Controller	TB-03-S	(Blank)/C/E/K	-	② CB-TB3-S050 + ③ CB-SEL-SJS002
		N *2		
ELECYLINDER Position Controller Program Controller	TB-03-SC	(Blank)/C/E/K	① CB-TB3-C050	② CB-TB3-S050 + ③ CB-SEL-SJS002 (conversion cable) *3
		N *2		
	TB-03-SCN *1	(Blank)/C/E/K	-	-
		N *2		

*1 No cable

*2 No AC adapter

● **Cable single product model number**

Connected controller	Model
ELECYLINDER Position Controller	① CB-TB3-C050
Program Controller	② CB-TB3-S050
	③ CB-SEL-SJS002 (conversion cable) *3

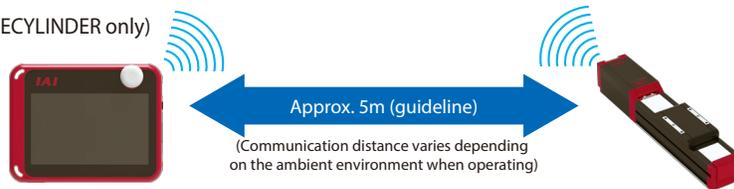
*3 Use with the ② cable when connecting to ASEL, PSEL, SSEL, or MSEL

● **AC adapter single product model number**

Connected controller	Model	Specification	Single product model number
ELECYLINDER Position Controller Program Controller	(Blank)	For Japan/North America/Thailand	UN318-5928
	C	For China	UNZ318-5928
	E	For Europe	UNE318-5928
	K	For Korea	UNR318-5928

Connection

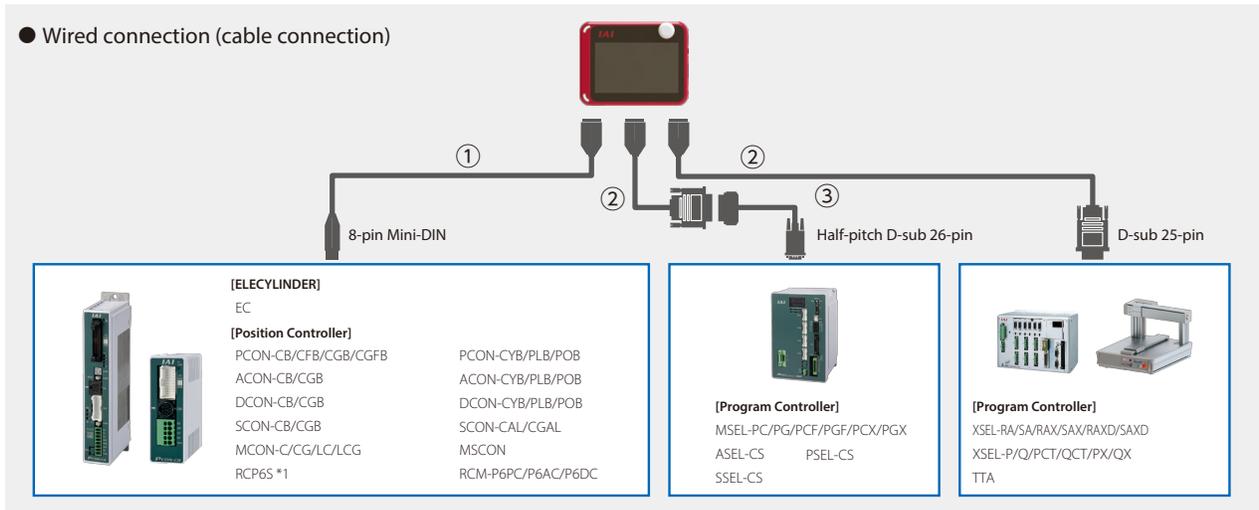
● **Wireless connection (ELECYLINDER only)**



* Connectable only for models with "WL" (wireless communication) option in the model number

Caution: Certification issues limit the countries in which wireless communication can be used. Contact our sales personnel for details.

● **Wired connection (cable connection)**



*1 A gateway unit or PLC connection unit is required in order to operate RCP6S.

Body Specifications

Power input voltage range	24VDC ±10% [supplied from controller]
Power consumption	3.6W or less
Consumption current	150mA (supplied from controller)
Ambient operating temperature	0 to 40°C (no condensation or freezing)
Ambient operating humidity	85% RH or less (no condensation or freezing)
Ambient storage temperature	-20 to 40°C
Vibration resistance	10 to 57Hz Amplitude 0.075mm
Ingress protection	IPX0
Mass	670g (body) + approx. 285g (dedicated cable)
Liquid crystal	7" TFT color WVGA (800 x 480)
External memory	SD/SDHC memory card interface mounted (1G to 32G)
Charging method	Wired connection with dedicated AC adapter/controller
Language support	Japanese/English/Chinese

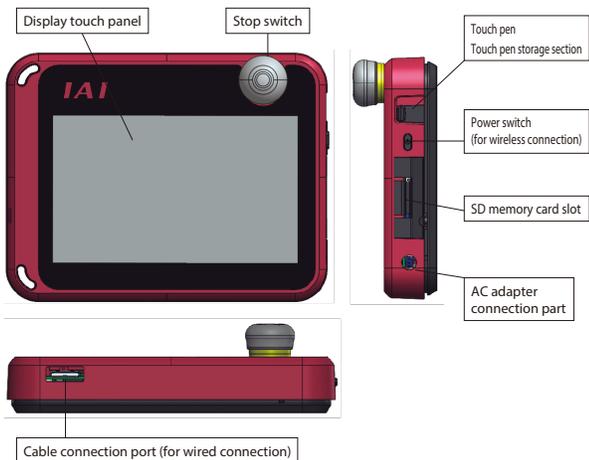
Wireless Function (when connected to ELECYLINDER only)

Wireless connection	Bluetooth 4.2 Class 2
Wireless function	Data setter/monitor function
Operation command/stop command	No
Max. number of connectable axes	16 axes
Operation	Battery (AB-7) operation
Wireless operating time	Max. 4 hours (battery driven)
Battery life	Cycle durability 300 times

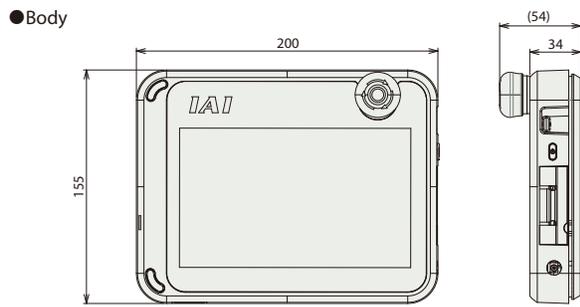
AC Adapter Common Specifications

Power input voltage range	Single-phase 100 to 240VAC ±10%
Power supply current	0.4A max.
Consumption current	2.8A max.
Output voltage	5.9VDC (5.7 to 6.3V)
Charging time	Approx. 3 hours
Cable length	1500 ±100mm

Name of Each Component

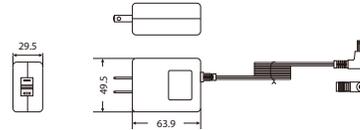


External Dimensions

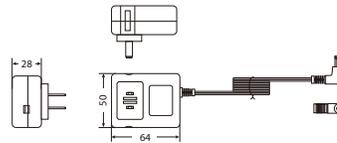


●Body

For Japan/North America/Thailand: UN318-5928

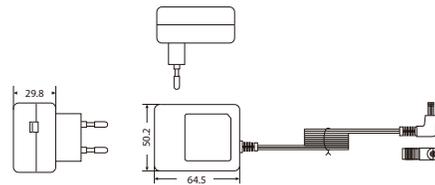


For China: UNZ318-5928



For Europe: UNE318-5928

For Korea: UNR318-5928



Options

●Strap: STR-1



●Spiral cable: SIC-1



●Grip belt: GRP-2



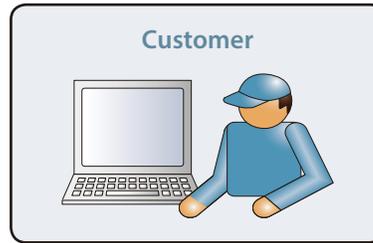
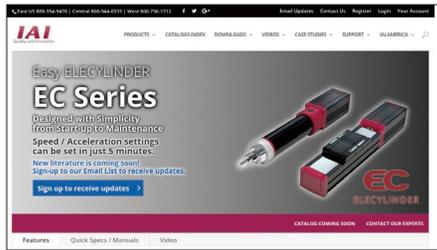
■Maintenance Parts

Battery unit: AB-7

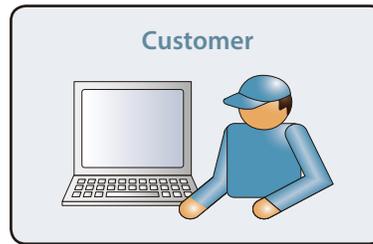
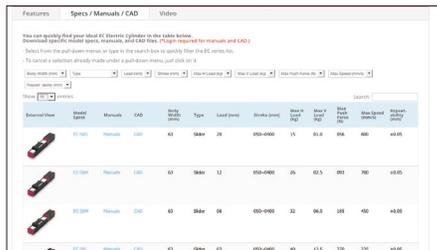


Select and Inquire from Website!

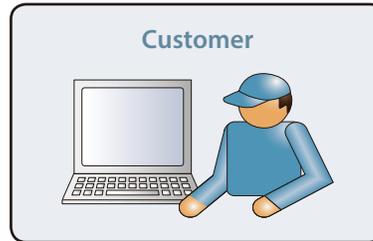
1 Access the IAI website <https://www.intelligentactuator.com/ec2>



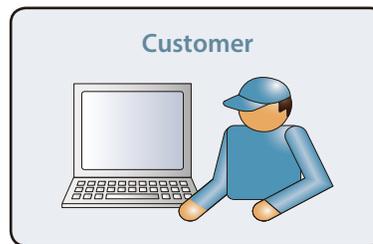
2 Select product



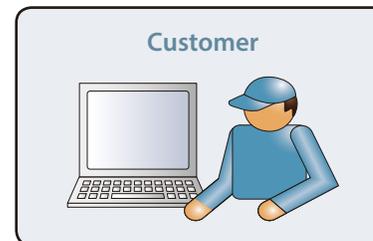
3 Contact IAI / Distributor



4 Order through Distributor



5 Delivery



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SUPPORT A network of authorized representatives in the US to serve you.

Support for phase of planning, product selection, quotation, problem solving, maintenance, training, etc.

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 ■ 48 local Distributors

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 ■ 5 local Distributors

MEXICO
 ■ 1 local Distributor

★ IAI AMERICA (CA) US Headquarters

Chicago Office (IL)

Atlanta Office (GA)

<http://www.intelligentactuators.com/inquiry/>

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