IAI
Quality and Innovation

GB

Simple-to-use Cylinder with Built-in Controller

EC EleCylinder

Simple & Wireless Operation

IP67
Waterproof
Specification

Rod Type
Radial Cylinder

www.iai-automation.com

www.elecylinder.de

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.

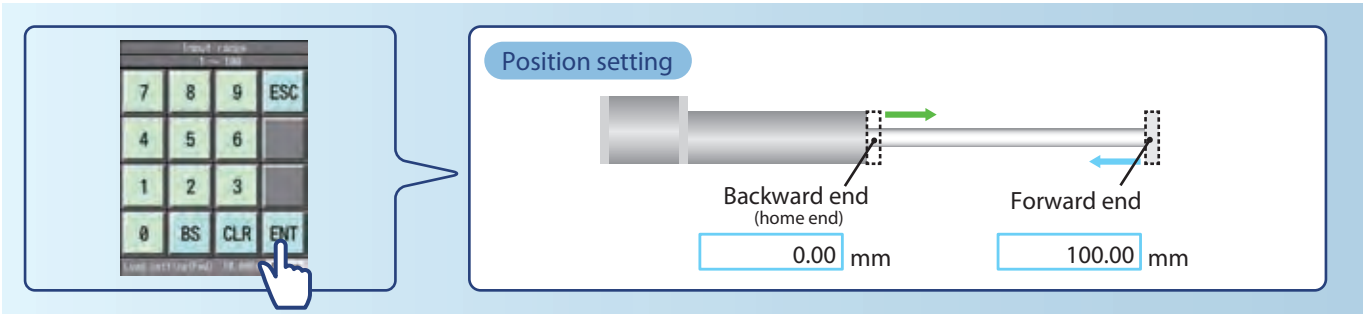
➡ **www.elecylinder.de -> quick select**

Simple programming-free operation

Operation is possible with data entry. No need to perform complicated programming.
Operation is possible with ON/OFF signal, just like solenoid valves.

Start and end points can be set to any position

■ Enter stop position.

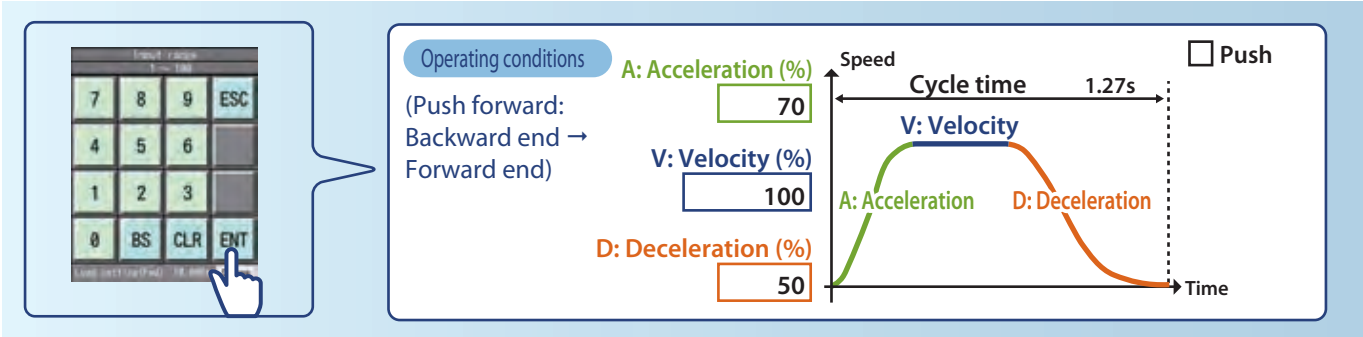


AVD values are easily set

■ Enter the operating conditions.

Operating conditions abbreviation: AVD

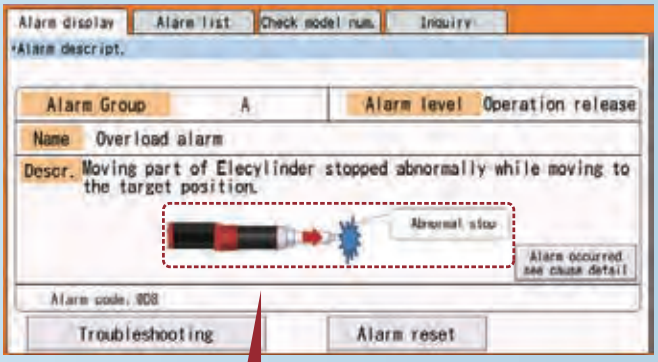
Acceleration
Velocity
Deceleration
→ **AVD**



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.

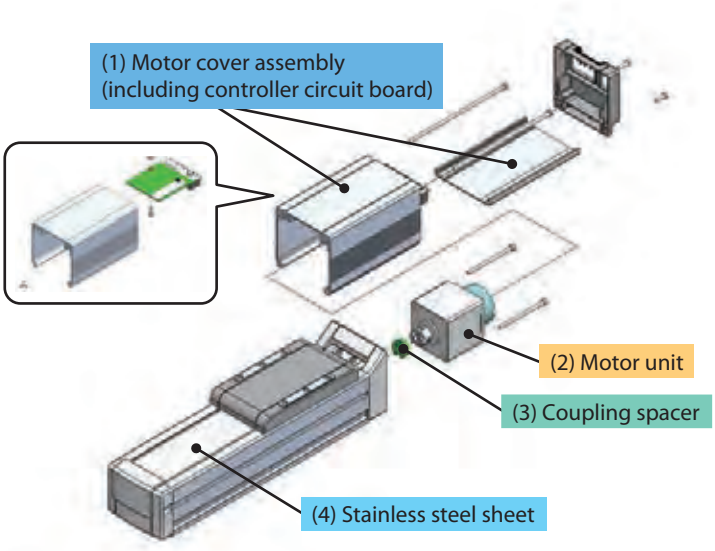
Point 1 The optimal countermeasure is displayed.



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.

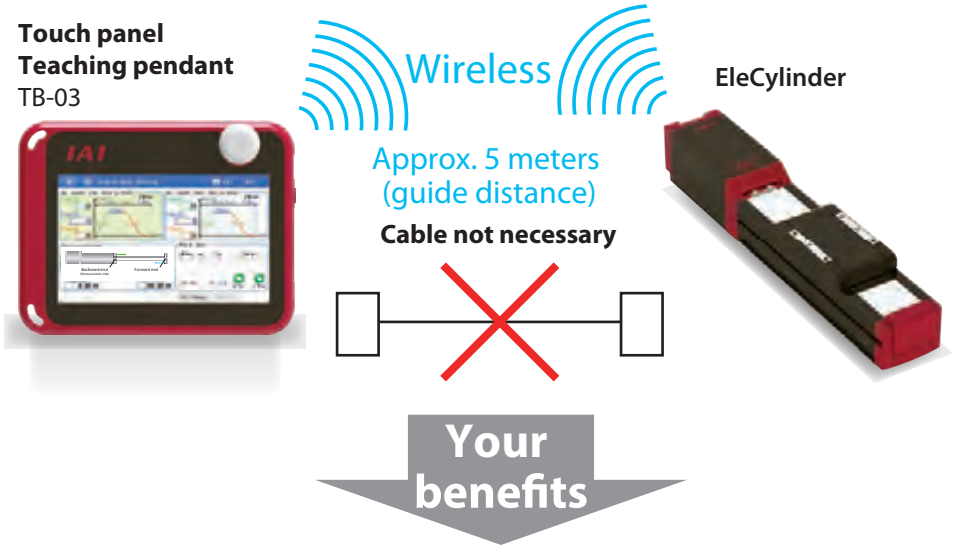
Wireless

ELECYLINDER

EleCylinder is connected **wirelessly** and easy to use by anyone.

No troublesome cable connection is necessary

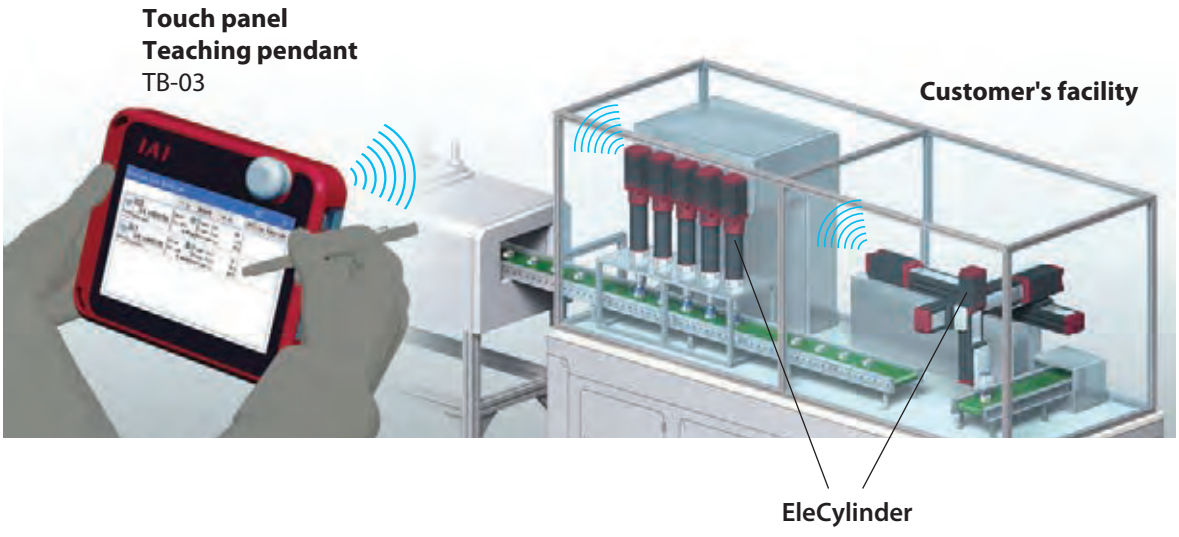
The **EleCylinder** main unit (controller) and the touch panel teaching pendant TB-03 can be connected wirelessly, eliminating troublesome cable connections.



Your benefits

Easy adjustments are possible by watching the parts closer

Wireless operations from the TB-03 enable the operator to watch the part to be adjusted closer to it, allowing easier position adjustments, operating condition inputs and trial operations. It make customer's adjustment works more efficient.



Reduced trouble recovery time and easier daily inspection

The TB-03 receives data wirelessly from the **EleCylinder** continuously and displays operating conditions up to 16 axes on its screen for monitoring at a glance.
The **EleCylinder** showing "Maintenance needed / Alarm ringing" can be identified easily from the list on the screen.

Touch panel
Teaching pendant
TB-03

Monitor screen for operating conditions

Alarm generating axis !

EleCylinder (connectable up to 16 axes)

Display of axis names
The names can be selected (changed) freely.

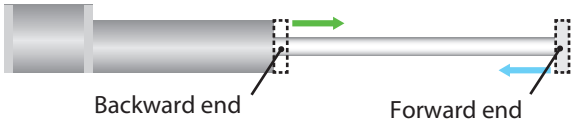
Condition monitoring
The axis conditions can be monitored, enabling a maintenance timing to be confirmed.

Error status monitor
Displays when an alarm or warning has generated.
Useful for troubleshooting.

Troubleshooting screen

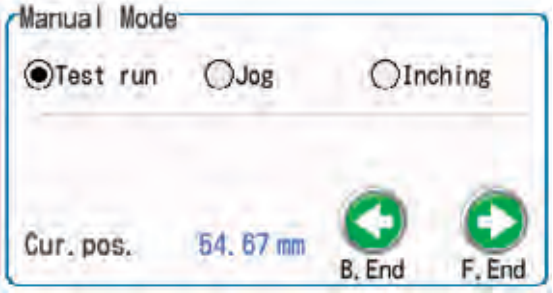
Easy to operate by anyone

The **ELECYLINDER®** can be operated by simply pushing the forward and backward buttons.
No expertise is needed.



Touch panel
Teaching pendant
TB-03

Simple screen for operation



(Note) For wireless operations of the EleCylinder, there are safety cautions. Please make sure to refer to P118.

High Performance

ELECYLINDER

Easy operation and **high performance** too.

AVD can be adjusted individually

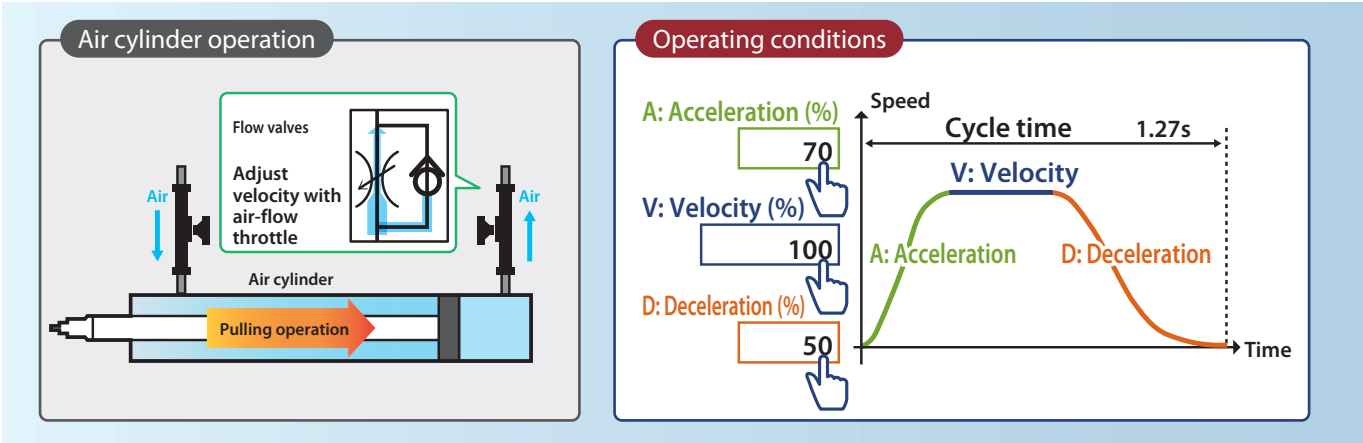
Air cylinders use flow valves to control its speed by adjusting the air flow rate of a speed controller. It is impossible to control speed, acceleration and deceleration accurately.

The **EleCylinder** can control them accurately by entering AVD individually in percentages. You can enter these values in percentages or actual numeric values {within system limitations}

Operating conditions abbreviation: AVD

- **A**cceleration
- **V**elocity
- **D**eceleration

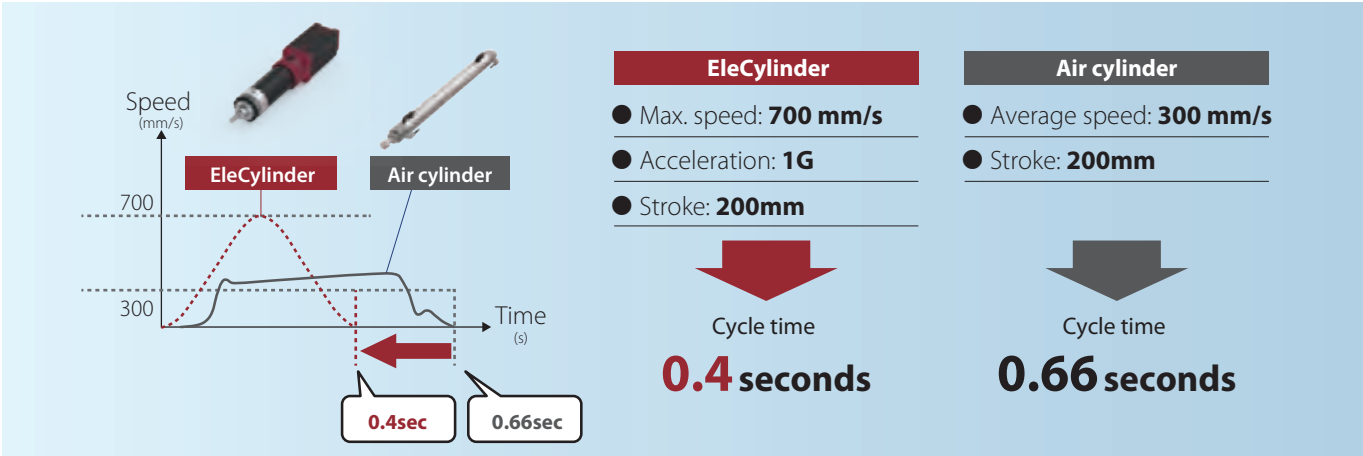
→ **AVD**



Shorter Cycle Times

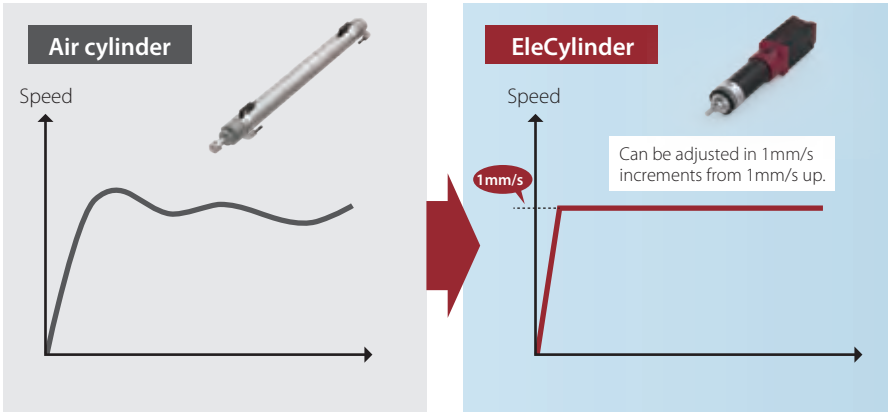
Air cylinders cannot operate at high velocity due to the impact at stroke ends which occurs when excess velocity is applied.

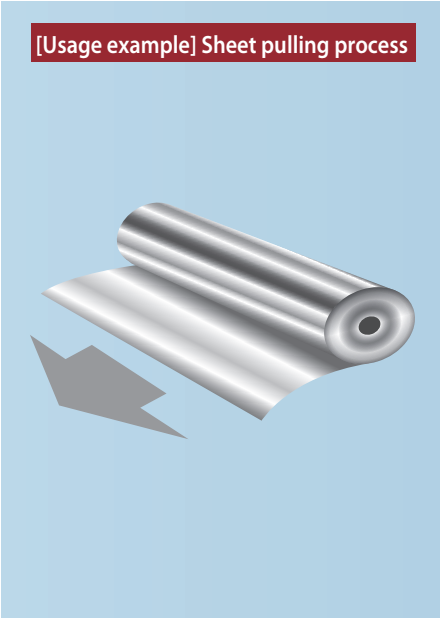
The **EleCylinder** can start and stop smoothly at high velocity, reducing cycle time.



Stable velocity

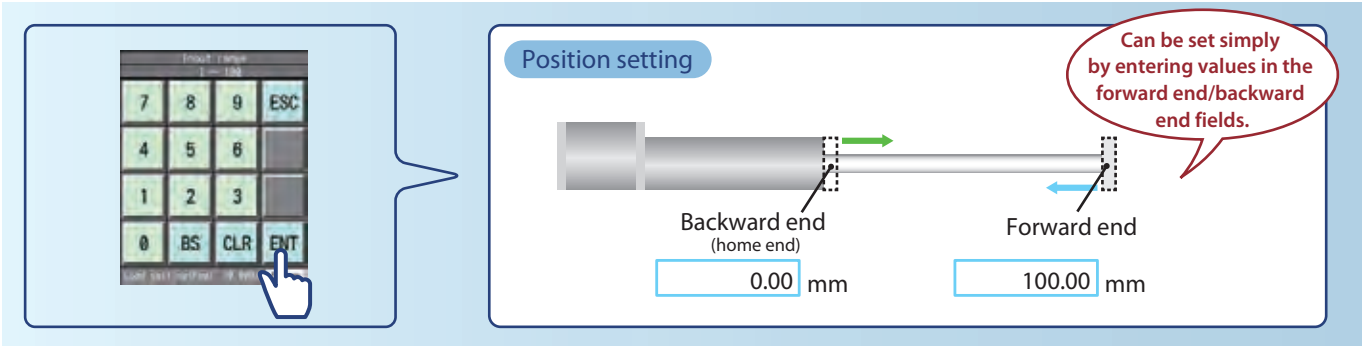
Has excellent velocity stability even in the low velocity range.
Maintains consistent quality without film slack, even in low-velocity film or sheet pulling operations.





Fine tuning

To set **EleCylinder** 's start/end points, only two desired values are entered.
Air cylinders require position adjustments for mechanical end, auto switch and shock absorber, as well as checking and tuning of each component's positioning.



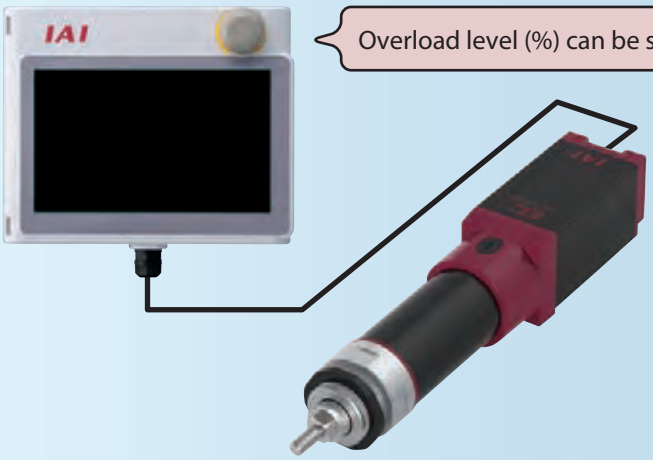
Easy To Maintain

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.

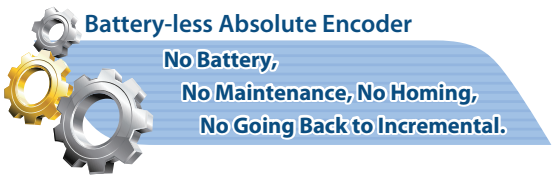


Preventive maintenance	Predictive maintenance
Operation distance (km/m)	Overload warning
Movement count (times)	

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.



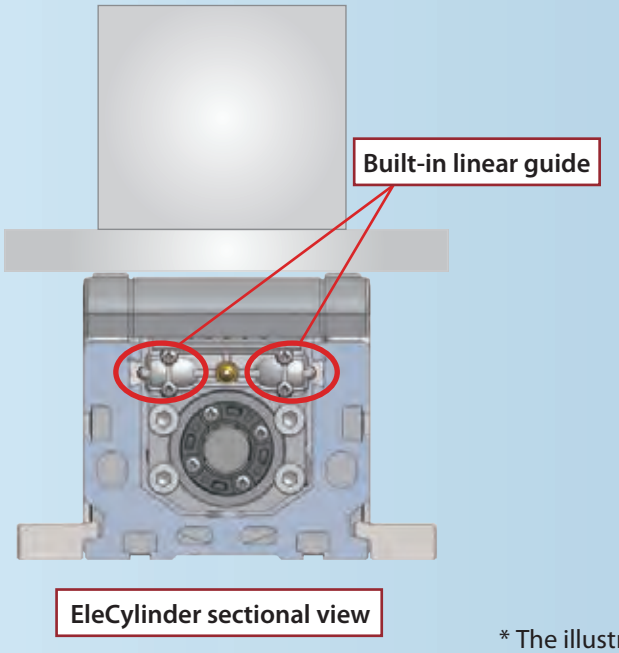
Battery-less means maintenance-free

- 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

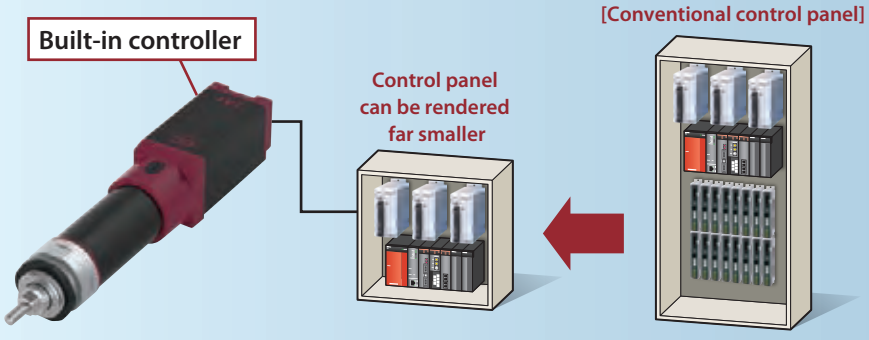
The slider and radial cylinder types have built-in guides, so no external guide installation is needed.
This keeps the equipment profile compact.



* The illustration shows the slider type.

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.

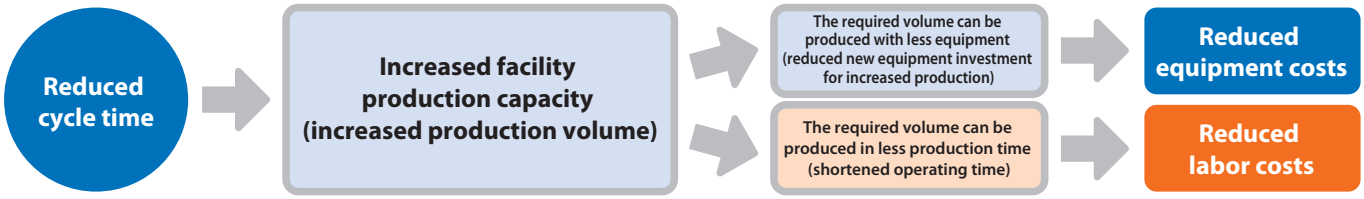


Profitable

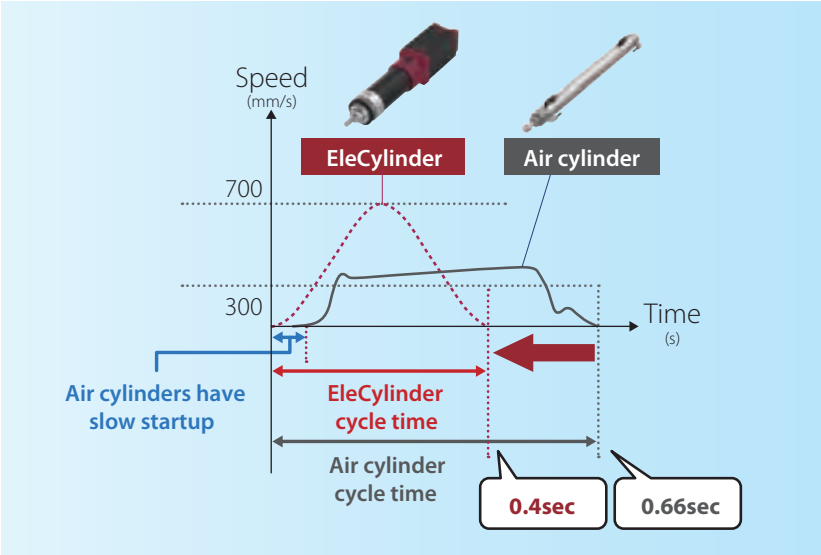
ELECYLINDER

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

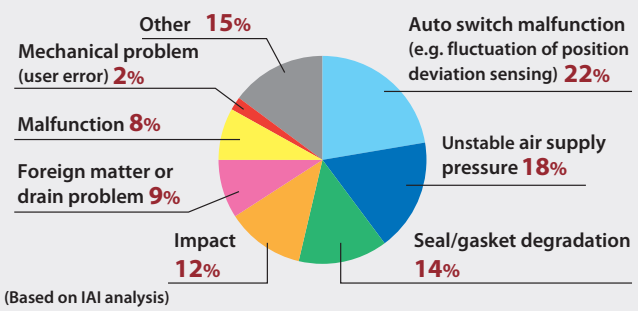
- **A**cceleration
- **V**elocity
- **D**eceleration

→ **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)

EC
ELECYLINDER

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. 16000km	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

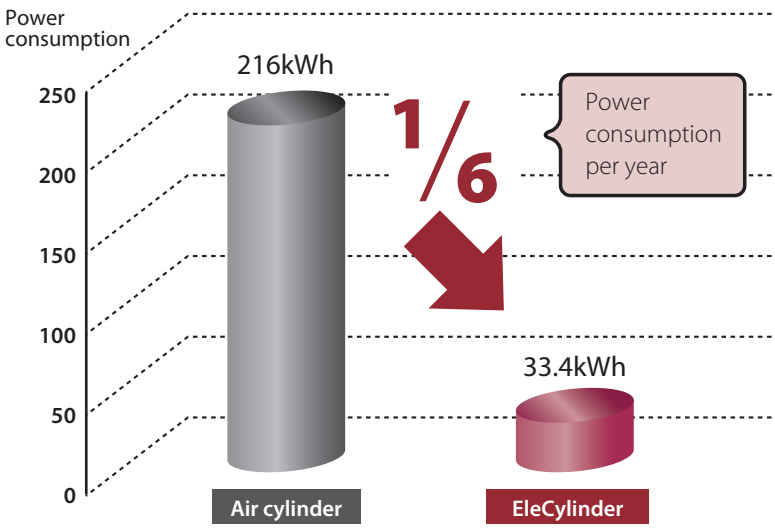
Reduces electricity bills

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



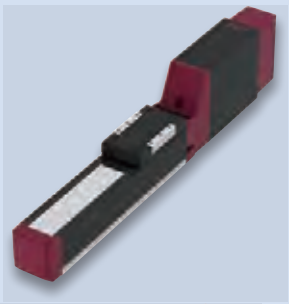
EC Models & Features

Standard

Small type

EC-S3 ▶P35
EC-S4 ▶P37

Attention! Check P.14!



Slider type

EC-S6 ▶P39
EC-S7 ▶P41

Motor side-mounted

EC-S6□R ▶P47
EC-S7□R ▶P49

Attention! Check P.15!

Rod type

EC-R6 ▶P55
EC-R7 ▶P57

<Features>

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

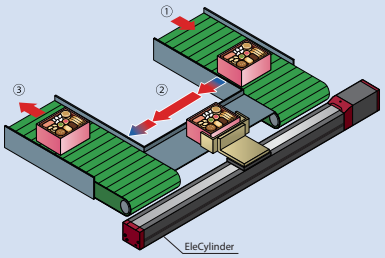
<Applications>

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

<Application Examples>

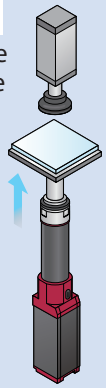
Slider type

Transferring between conveyors



Rod type

Pushes up the set workpiece



Compact

<Features>

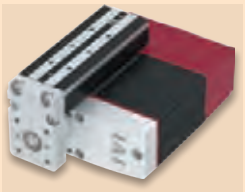
- For the mini table type, the table on the top of the body operates.
- For the mini guided rod type, the rod operates.
- The use of a nut rotation mechanism reduces the size.

<Applications>

Suitable for conveying and pushing workpieces in narrow spaces.

Mini Table type

EC-TC4 ▶P85
EC-TW4 ▶P87



Attention! Check P.18!

Mini Guided rod type

EC-GS4 ▶P81
EC-GD4 ▶P83

Attention! Check P.18!

High Rigidity

Small type Radial Cylinder

EC-RR3 ▶P59
EC-RR4 ▶P61

Attention! Check P.14!

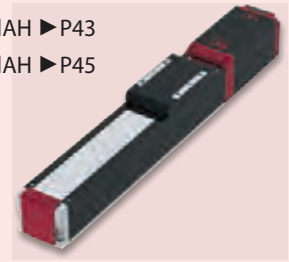
Motor side-mounted

EC-S6□AHR ▶P51
EC-S7□AHR ▶P53
EC-RR6□R ▶P71
EC-RR7□R ▶P73
EC-RR6□AHR ▶P75
EC-RR7□AHR ▶P77

Attention! Check P.15!

High rigidity slider type

EC-S6□AH ▶P43
EC-S7□AH ▶P45



High rigidity Radial Cylinder

EC-RR6□AH ▶P67
EC-RR7□AH ▶P69

Radial Cylinder

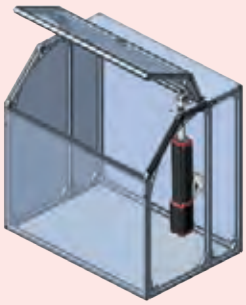
EC-RR6 ▶P63
EC-RR7 ▶P65

<Features>

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

<Application Example>

Door open/close



<Applications>

Radial Cylinder	Suitable for swinging operations such as clamping and opening/closing doors.
High rigidity slider type	Suitable for applications where a large reaction force is applied, such as tightening screws and drilling holes.

Environmental Resistance

Waterproof Radial Cylinder

EC-RR6□W ▶P93
EC-RR7□W ▶P95

Waterproof rod type

EC-R6□W ▶P89
EC-R7□W ▶P91

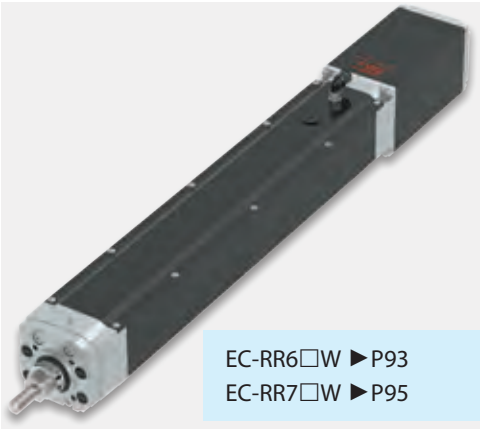
Attention! Check P.13!

<Features>

- The rod operates in the same way as a rod type air cylinder.
- Waterproof type with ingress protection rating of IP67.
- The Radial Cylinder type is equipped with a ball circulating type built-in linear guide.

<Applications>

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



EC-RR6□W ▶P93
EC-RR7□W ▶P95

Immersed in water? No problem!

Waterproof type Radial Cylinder

1. The ingress protection rating is IP67.

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 an environment where oil mist is present around processing machines, with an option. (Option code: G5)*

* It cannot be used underwater.

Ingress protection Indication

IP □ □

The first number
Protection against ingress from solid objects, including fingers.

The second number
Protection against water.
*Please consult with us when liquid other than water is used.

Description of protection rating

IP67	Solid objects	: Completely protected from ingress by dust or solid particles.
	Water	: No ingression by water, even when immersed.

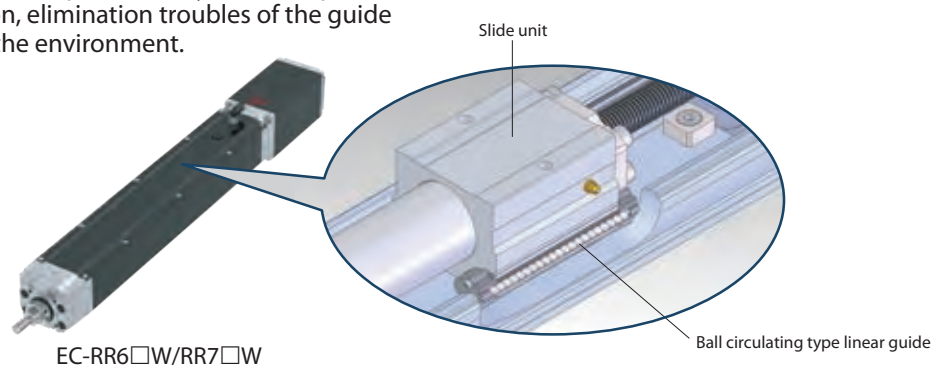
2. Fluororubber seal option is added as an option.

A fluororubber seal, which has excellent resistance against cutting oil and cleaning fluid, is added as an option to be used for O-rings and gaskets.
(Option code: SLF)
The Radial Cylinder can be used near machine tools where oil mist scatters.

<Application Example>
Processing machine door open/close

3. Equipped with a built-in guide.

A ball circulating type built-in linear guide is equipped in the rod.
The guide part is protected by the waterproof construction, elimination troubles of the guide caused by the environment.



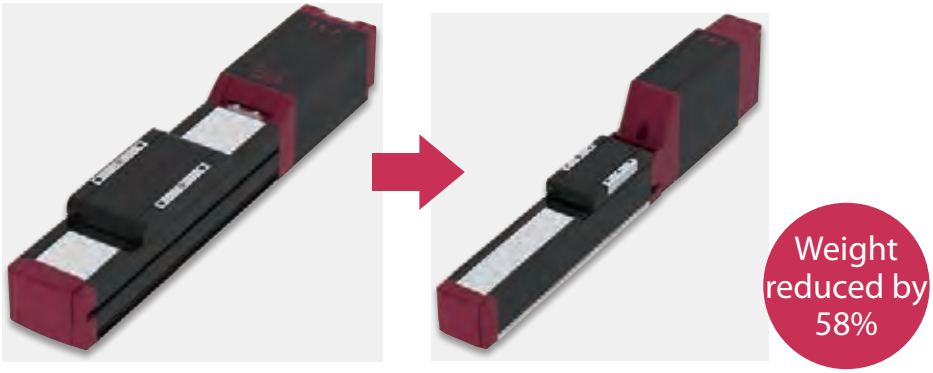
EC-RR6□W/RR7□W

Body widths 35mm and 44mm are now available!

Compact slider type
Compact Radial Cylinder

1. Compact and lightweight

The body width is only 35mm wide thanks to the built-in controller.
The main unit weight is reduced by 58%, compared to our conventional model with the same stroke.



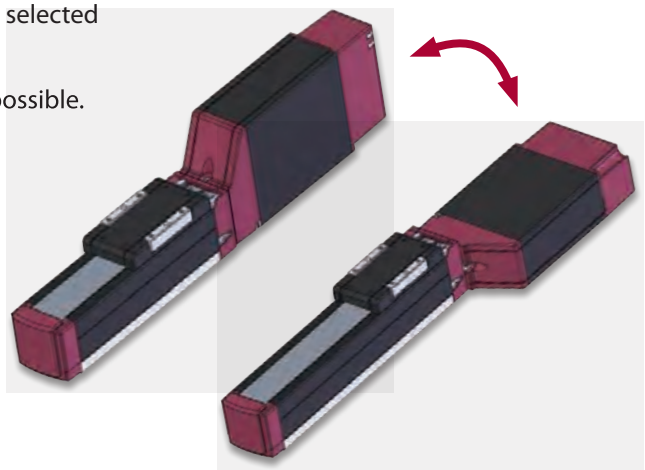
EC-S6
(Stroke 200mm)
2.4kg

EC-S3
(Stroke 200mm)
1.0kg

EC-S3

2. Mounting direction of the motor and controller unit is selectable.

The direction of the motor and controller unit can be selected according to the application (See P101).
Retrofit changes of the mounting direction are also possible.



Motor side-mounted type is added as standard!

Motor side-mounted specification

1. The overall length has been shortened.

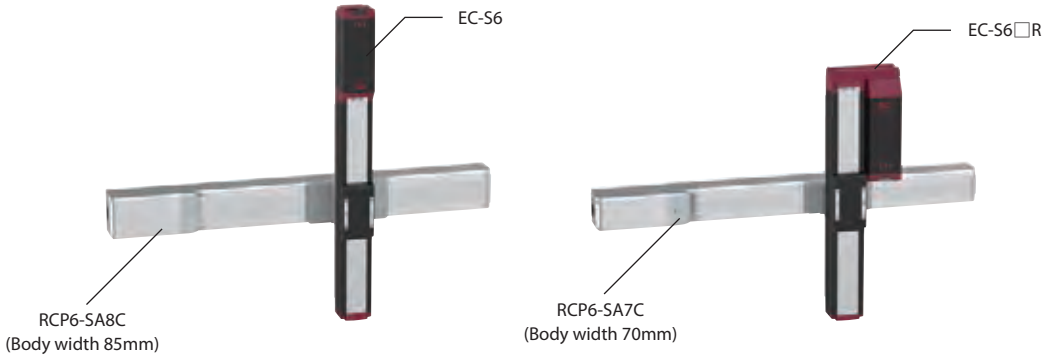
The overall length has been shortened by up to 133.5mm, allowing a smaller installation space in the longitudinal direction.

2. No extra space for maintenance is necessary.

A maintenance space required for the straight type is no longer necessary, providing wider options for equipment layout within the facility.

3. Compact combination possible

The shorter overall length results in a shorter overhang length, which allows more compact axes to be used in combined axis systems.



Increased rigidity thanks to the 4-row guide

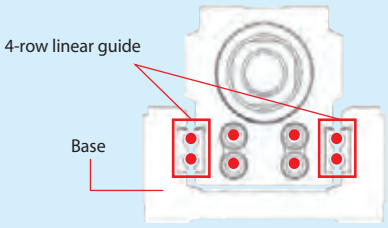
High Rigidity EleCylinder

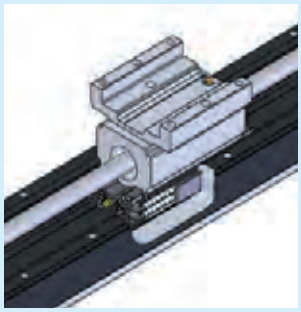
4-row linear guide construction (sectional view)

The 4-row steel balls disperse loads

Because of high rigidity

* **Increased dynamic allowable moment**
* **Increased load on overhang length**
* **Increased transferrable weight**

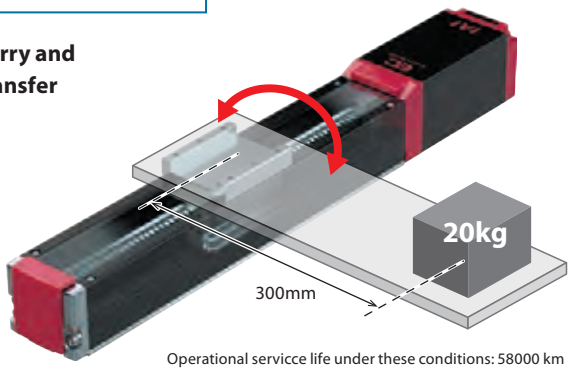




1. Dynamic allowable moment is 3.5 times greater than that of the conventional products.

Slider type

Carry and transfer



Operational servicce life under these conditions: 58000 km

EC-S6□AH ▶P43
EC-S7□AH ▶P45

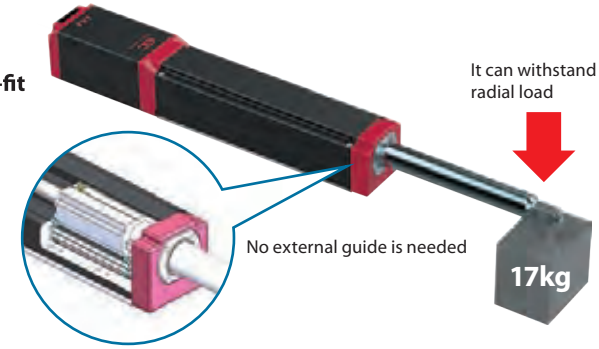
Specifications

	S6□AH	S7□AH
Maximum stroke	800mm	800mm
Maximum payload (horizontal)	40kg	51kg
Dynamic allowable moment (rolling direction)	Mc 55N・m	Mc 134N・m

2. Dynamic allowable radial load at the rod tip is 2.8 times greater than that of the conventional products.

Rod type (Radial Cylinder)

Push
Pull
Press-fit



EC-RR6□AH ▶P67
EC-RR7□AH ▶P69

Specifications

	RR6□AH	RR7□AH
Longest stroke	400mm	500mm
Dynamic allowable radial load at the rod tip *	130N	170N

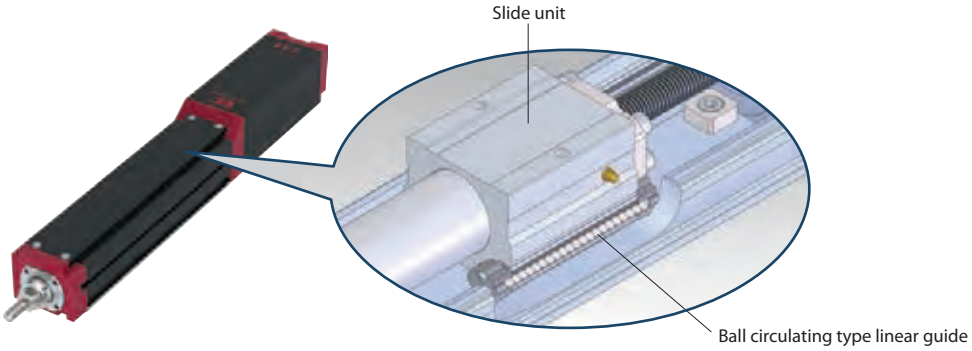
* Assuming a basic rated service life of 5000km.
(Note) Please confirm the conditions specified on P106 before use.

Radial load can be applied without an external guide!

Radial Cylinder

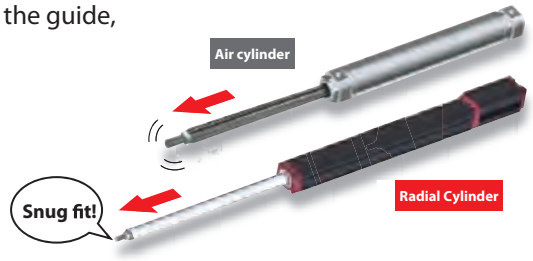
1. Includes a built-in guide.

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.

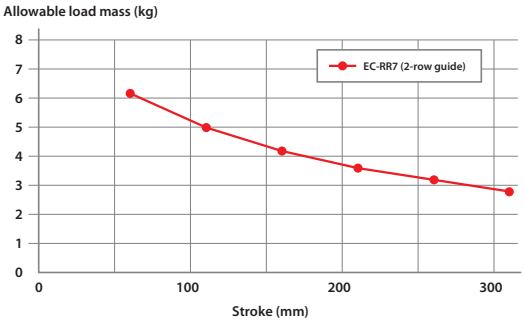
Since it has a built-in linear guide and the rod is supported by the guide, there is no runout to the tip.

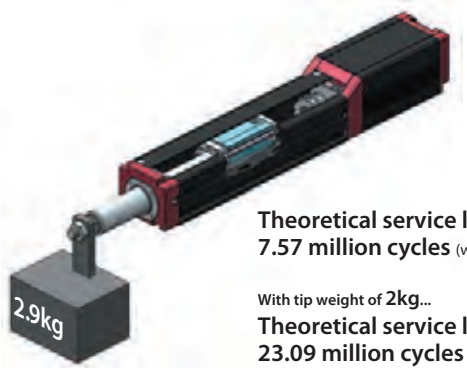


(2) It can be used in narrow spaces.

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

The theoretical operation life of the 315mm stroke Radial Cylinder, with a load of 2.9kg applied to the rod tip, is 4770km.
When the load on rod tip is halved, the theoretical service life increases 8-fold.



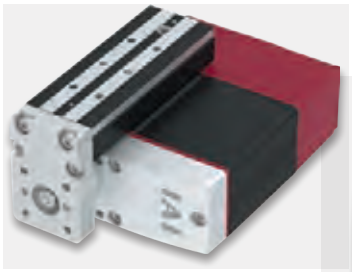


Theoretical service life: 4770km
7.57 million cycles (when moving 315mm)

With tip weight of **2kg**...
Theoretical service life: 14547km
23.09 million cycles (when moving 315mm)

Palm size

Mini EleCylinder

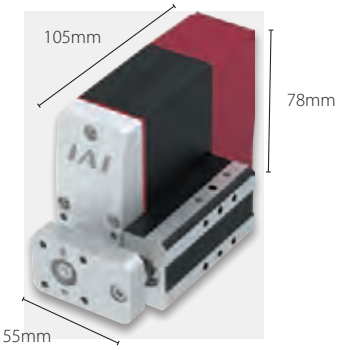


Mini Table type

Mini Guided rod type

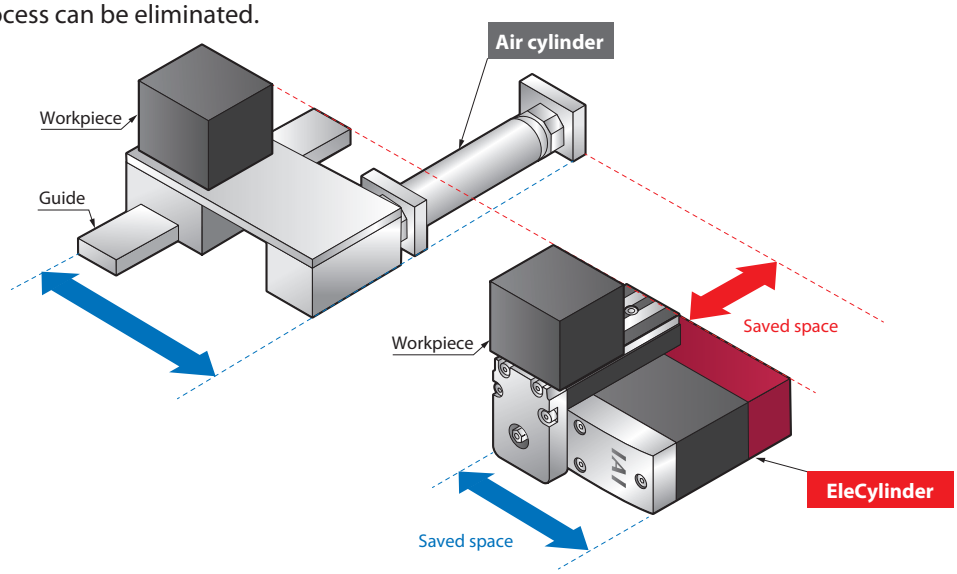
1. It can be used in narrow spaces.

(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.

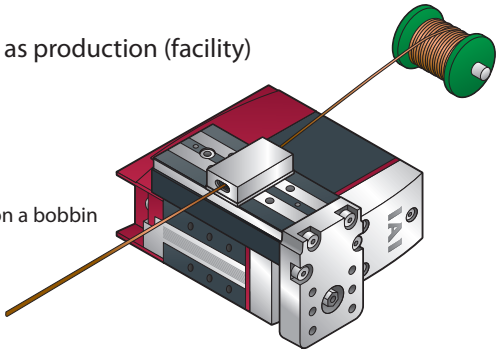


2. As it has a guide, no external guide is required.

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



<Applications>
It is suitable to downsize equipment such as production (facility) of small parts.



Device for winding copper wire on a bobbin

Model Specification Items

EleCylinder

EC - ( ) ( ) - ( ) - ( ) - ( )

Series | Type | Ball screw lead | Specifications | Motor mounting method | Stroke | Power / I/O cable length | Options

S3	Slider width 35mm
S4	Slider width 44mm
S6	Slider 63mm width
S7	Slider 73mm width (75mm for high rigidity type)
R6	Rod 63mm width
R7	Rod 73mm width
RR3	Radial Cylinder width 35mm
RR4	Radial Cylinder width 44mm
RR6	Radial cylinder 63mm width
RR7	Radial cylinder 73mm width (High rigid type is 75mm)
RP4	Rod type side-mounted motor specification 34mm width
GS4	Rod type side-mounted motor specification 55mm width (with single guide)
GD4	Rod type side-mounted motor specification 76mm width (with double guide)
TC4	Mini table type (table part) 31mm width
TW4	Mini table type (table part) 73mm width

0	0m
↕	↕
10	10m

Cable length
0: Power I/O connector supplied
1 to10: Power I/O cable supplied

30	30mm
↕	↕
800	800mm

(Blank)	Slider type, rod type, radial cylinder, mini table type
AH	High rigidity slider type, high rigidity radial cylinder
W	Waterproof specification

Blank	Motor in-line specification
R	Motor side-mounted specification

(Blank)	Incremental encoder specification, NPN specification, no option
AC5	Actuator pigtail cable length: 5m
B	Brake
FFA	Tip adapter (flange)
FL	Flange (front)
FT	Foot bracket (bolting from top)
GT2	GS4 guide right mount / TC4 table right mount
GT3	GS4 guide bottom mount / TC4 table bottom mount
GT4	GS4 guide left mount / TC4 table left mount
ML	Motor side-mounted to the left
MR	Motor side-mounted to the right
MOB	Motor mounting direction change (bottom)
MOL	Motor mounting direction change (left)
MOR	Motor mounting direction change (right)
MOT	Motor mounting direction change (top)
NFA	Tip adapter (internal thread)
NJ	Knuckle joint
NJPB	Knuckle joint + oscillation receiving bracket
NM	Non-motor end specification
PN	PNP specification
QR	Clevis bracket
QRPB	Clevis bracket + oscillation receiving bracket
TMD2	Split motor and controller power supply specification (*1)
WA	Battery-less Absolute Encoder specification
WL	Wireless communication specification
WL2	Wireless axis-operation specifications

(*1) If the cable length is 0m, this option is not supported.

<S3/RR3>

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

<S4/RR4>

L	Lead 2.5mm
M	Lead 5mm
H	Lead 10mm
S	Lead 16mm

<S6/R6/RR6>

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

<S7/R7/RR7>

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

<RP4/GS4/GD4/TC4/TW4>

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

* The range of selectable options varies according to the actuator type.
For details, please refer to the pages showing each type.

Product Lineup

Slider Type

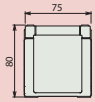
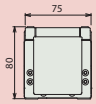
* Speed limitation applies to push motion. See the manual or contact IAI.

Motor	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Reference page
									Horizontal	Vertical	
Straight Motor	S3		 35mm	6	±0.05	50 to 300 (per 50st)	420	45	3.5	1.5	P35
				4			280	68	6	2.5	
				2			140	136	9	3.5	
	S4		 44mm	16	±0.05	50 to 300 (per 50st)	800	41	7	1.5	P37
				10			700	66	12	2.5	
				5			350	132	15	5	
				2.5			175 <150>	263	18	6.5	
	S6		 63mm	20	±0.05	50 to 400 (per 50st)	800	67	15	1	P39
				12			700	112	26	2.5	
				6			450	224	32	6	
				3			225	449	40	12.5	
	S7		 73mm	24	±0.05	50 to 500 (per 50st)	860	139	37	3	P41
				16			700	209	46	8	
				8			420	418	51	16	
				4			210 <175>	836	51	19	
Side-mounted Motor	S6□R		 63mm	20	±0.05	50 to 400 (per 50st)	800	67	15	1	P47
				12			700	112	26	2.5	
				6			450 <400>	224	32	6	
				3			225	449	40	12.5	
	S7□R		 73mm	24	±0.05	50 to 500 (per 50st)	860	139	37	3	P49
				16			700	209	46	8	
				8			420 <350>	418	51	16	
				4			190 <175>	836	51	19	

Figures in < > represent vertical operations.

High Rigidity Slider Type

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

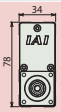
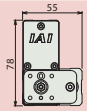
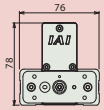
Motor	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Reference page
									Horizontal	Vertical	
Straight Motor	S6□AH		 63mm	20	±0.05	50 to 800 (per 50st)	1440 <1280>	67	15	1	P43
				12			900	112	26	2.5	
				6			450	224	32	6	
				3			225	449	40	16	
	S7□AH		 75mm	24	±0.05	50 to 800 (per 50st)	1230	139	37	3	P45
				16			980 <840>	209	46	8	
				8			420	418	51	16	
				4			210 <175>	836	51	25	
Side-mounted Motor	S6□AHR		 63mm	20	±0.05	50 to 800 (per 50st)	1120	67	15	1	P51
				12			900 <800>	112	26	2.5	
				6			450 <400>	224	32	6	
				3			225	449	40	16	
	S7□AHR		 75mm	24	±0.05	50 to 800 (per 50st)	1080 <860>	139	37	3	P53
				16			840 <700>	209	46	8	
				8			420 <350>	418	51	16	
				4			190 <175>	836	51	25	

Figures in < > represent vertical operations.

Product Lineup

Rod Type / Mini Rod Type

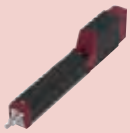
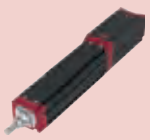
* Speed limitation applies to push motion. See the manual or contact IAI.

Motor	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Reference page
									Horizontal	Vertical	
Side-mounted Motor	RP4		 34mm	6	±0.05	30, 50	300	30	2.5	1	P79
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	GS4		 55mm	6	±0.05	30, 50	300	30	2.5	1	P81
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	GD4		 76mm	6	±0.05	30, 50	300	30	2.5	1	P83
				4			200	45	4	1.5	
				2			100	90	8	2.5	
Straight Motor	R6		 63mm	20	±0.05	50 to 300 (per 50st)	800	67	6	1.5	P55
				12			700	112	25	4	
				6			450	224	40	10	
				3			225	449	60	12.5	
	R7		 73mm	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	

Figures in < > represent vertical operations.

Radial Cylinder

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

Motor	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Reference page
									Horizontal	Vertical	
Straight Motor	RR3		 35mm	6	±0.05	50 to 300 (per 50st)	420	45	9	1.5	P59
				4			280	68	14	2.5	
				2			140	136	18	3.5	
	RR4		 44mm	16	±0.05	50 to 300 (per 50st)	800	41	7	1.5	P61
				10			700	66	16	2.5	
				5			350	132	25	5	
				2.5			175 <150>	263	35	6.5	
	RR6		 63mm	20	±0.05	65 to 315 (per 50st)	800	67	6	1.5	P63
				12			700	112	25	4	
				6			450	224	40	10	
				3			225	449	60	12.5	
	RR7		 73mm	24	±0.05	65 to 315 (per 50st)	860 <640>	182	20	3	P65
				16			700 <560>	273	50	8	
				8			350	547	60	18	
				4			175	1094	80	19	
Side-mounted Motor	RR6□R		 63mm	20	±0.05	65 to 315 (per 50st)	800	67	6	1.5	P71
				12			700	112	25	4	
				6			450	224	40	10	
				3			225	449	60	12.5	
	RR7□R		 73mm	24	±0.05	65 to 315 (per 50st)	860 <640>	182	20	3	P73
				16			700 <560>	273	50	8	
				8			320 <280>	547	60	18	
				4			160 <140>	1094	80	19	

Figures in < > represent vertical operations.

High Rigidity Radial Cylinder

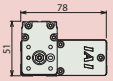
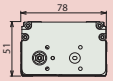
* Speed limitation applies to push motion. See the manual or contact IAI.

Motor	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Reference page
									Horizontal	Vertical	
Straight Motor	RR6□AH		 63mm	20	±0.05	50 to 400 (per 50st)	800	67	6	1.5	P67
				12			700	112	25	4	
				6			450	224	40	10	
				3			225	449	60	20	
	RR7□AH		 75mm	24	±0.05	50 to 500 (per 50st)	860 <640>	182	20	3	P69
				16			700 <560>	273	50	8	
				8			350	547	60	18	
				4			175	1094	80	28	
Side-mounted Motor	RR6□AHR		 63mm	20	±0.05	50 to 400 (per 50st)	800	67	6	1.5	P75
				12			700	112	25	4	
				6			450	224	40	10	
				3			225	449	60	20	
	RR7□AHR		 75mm	24	±0.05	50 to 500 (per 50st)	860 <640>	182	20	3	P77
				16			640 <560>	273	50	8	
				8			320 <280>	547	60	18	
				4			150 <140>	1094	80	28	

Figures in < > represent vertical operations

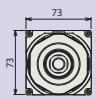
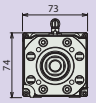
Mini Table Type

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

Motor	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Reference page
									Horizontal	Vertical	
Side-mounted Motor	TC4		 78mm	6	±0.05	30, 50	300	30	2.5	1	P85
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	TW4		 78mm	6	±0.05	30, 50	300	30	2.5	1	P87
				4			200	45	4	1.5	
				2			100	90	8	2.5	

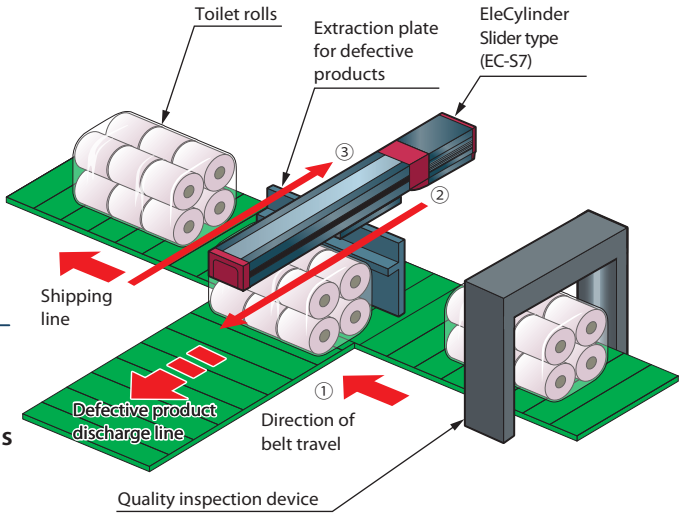
Waterproof Specification

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

Motor	Type	External view	Body width (mm)	Lead (mm)	Positioning repeatability (mm)	Stroke (mm)	Max. speed (mm/s)	Max. push force (N)*	Max. payload (kg)		Reference page
									Horizontal	Vertical	
Straight Motor	R6□W		 63mm	20	±0.05	50 to 300 (per 50st)	800	67	6	1.5	P89
				12			700	112	25	4	
				6			450	224	40	10	
				3			225	449	60	12.5	
	R7□W		 73mm	24	±0.05	50 to 300 (per 50st)	860 <640>	182	20	3	P91
				16			700 <560>	273	50	8	
				8			350	547	60	18	
				4			175	1094	80	19	
Straight Motor	RR6□W		 63mm	20	±0.05	65 to 315 (per 50st)	800	67	6	1.5	P93
				12			700	112	25	4	
				6			450	224	40	10	
				3			225	449	60	12.5	
	RR7□W		 73mm	24	±0.05	65 to 315 (per 50st)	860 <640>	182	20	3	P95
				16			700 <560>	273	50	8	
				8			350	547	60	18	
				4			175	1094	80	19	

Figures in < > represent vertical operations

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) 1500 units → (Improved) 2100 units = Productivity improved by 600 units/hour.

Production volume per day: 15000
(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 = €12000

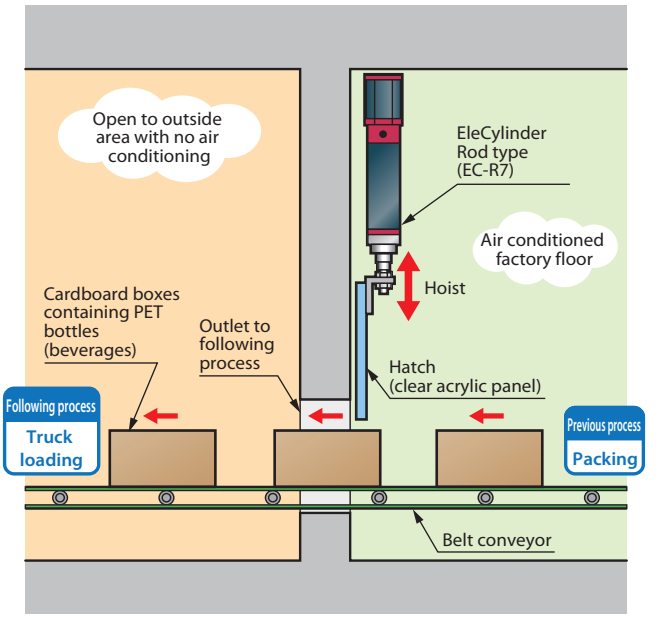
Cost reduction of €12000 per year has been achieved.

*Research conducted at IAI Japan. Exchange rate: 100 Yen = 1 €, Euro amounts rounded to the nearest 100 €

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

Disadvantage ❷ 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) × 5 = €1680

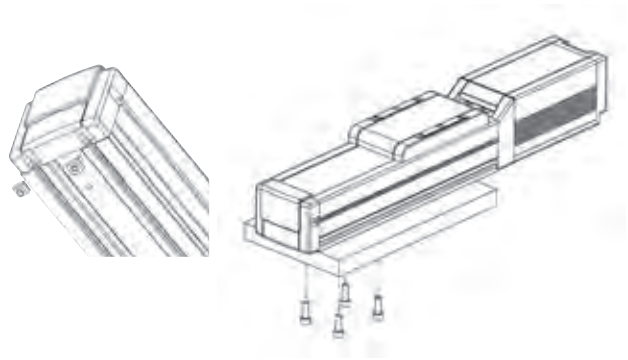
Cost reduction of €1680 per year has been achieved.

*Research conducted at IAI Japan. Exchange rate: 100 Yen = 1 €, Euro amounts rounded to the nearest 100 €

Mounting method

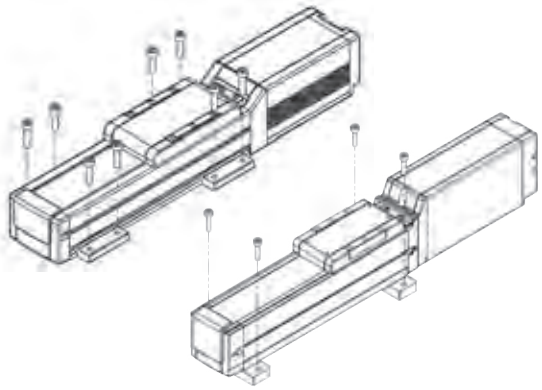
Slider type (S3/S4/S6/S7)

■ When using a square nut



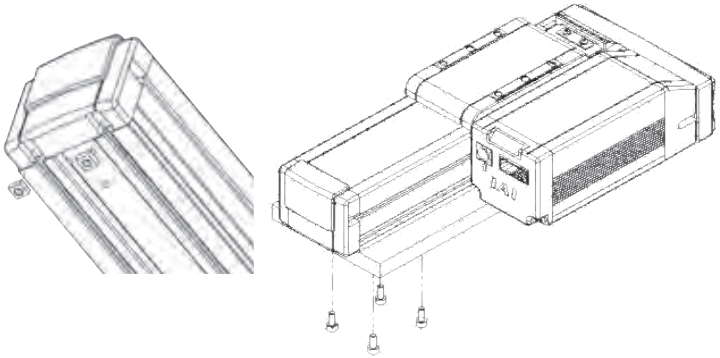
Number of square T nuts included: 6

■ When using a foot bracket
(Option code: FT)



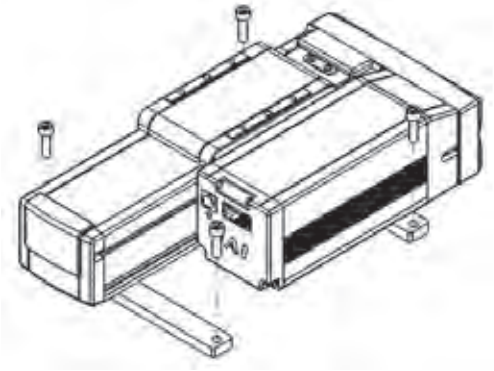
Slider type motor side-mounted specification (S6□R/S7□R)

■ When using a square nut



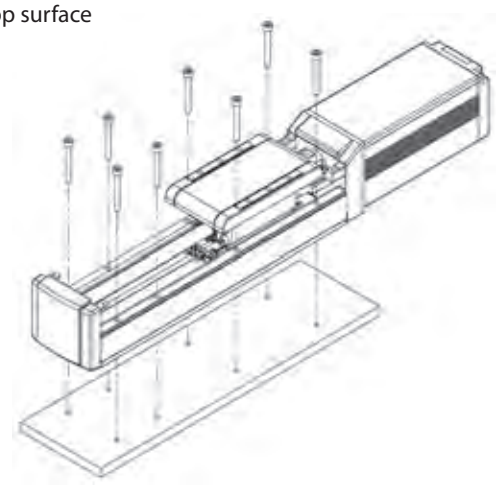
Number of square nuts supplied: 6

■ When using a foot bracket
(Option code: FT)

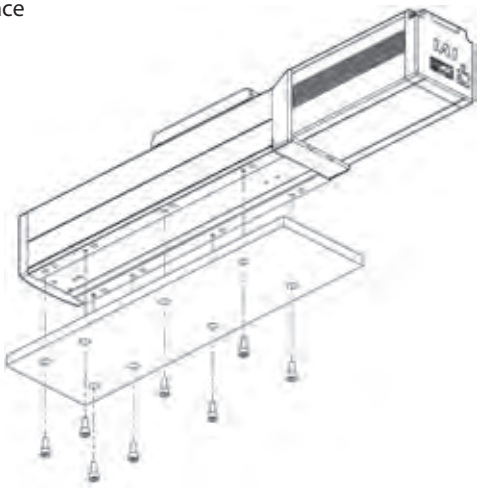


High rigidity slider type (S6□AH/S7□AH)

■ When using through holes at
the top surface

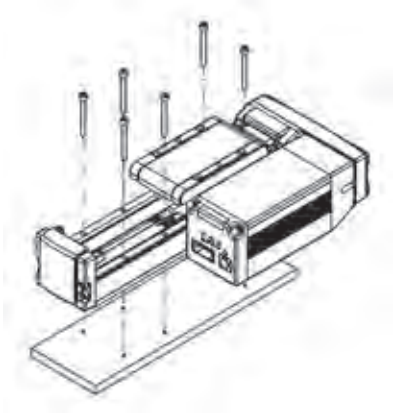


■ When using tap holes at the bottom
surface

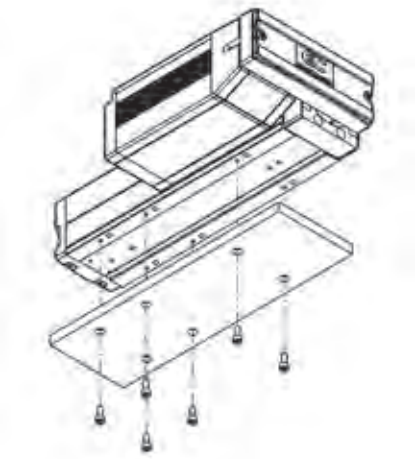


High rigid slider type motor side-mounted specification (S6☐AHR/S7☐AHR)

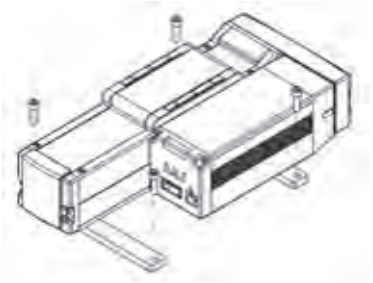
■ When using through holes at the top surface



■ When using tap holes at the bottom surface

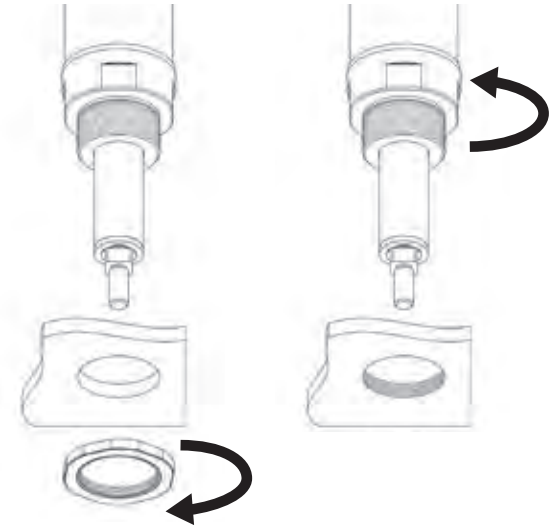


■ When using a foot bracket (Option code: FT)



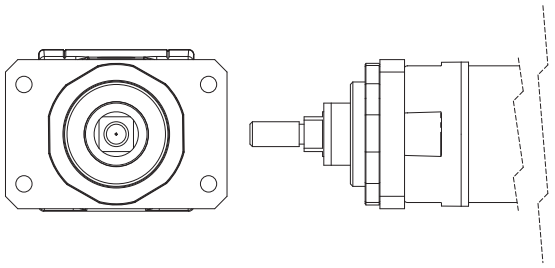
Rod type (R6/R7/R6☐W/R7☐W)

■ When using a front brackets ■ When using a bracket screws

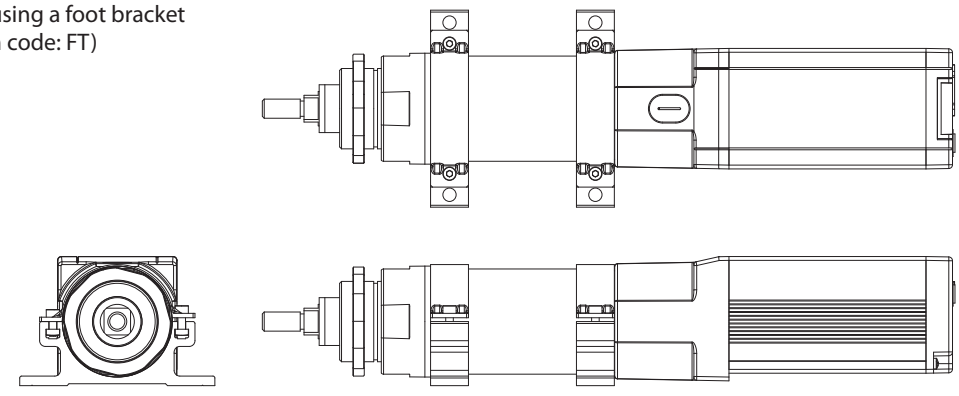


Nut for fixing at the front
Number of parts included: 1 pc.

■ When using a flange (front) (Option code: FL)



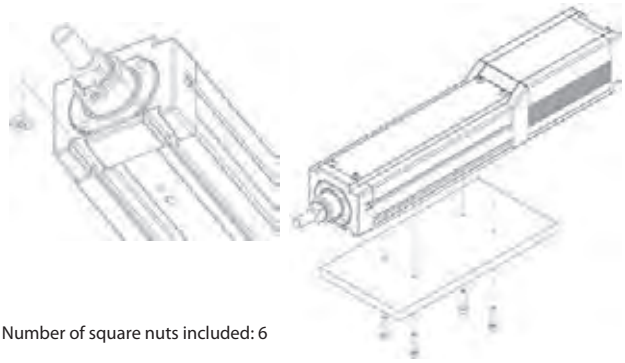
■ When using a foot bracket (Option code: FT)



Mounting method

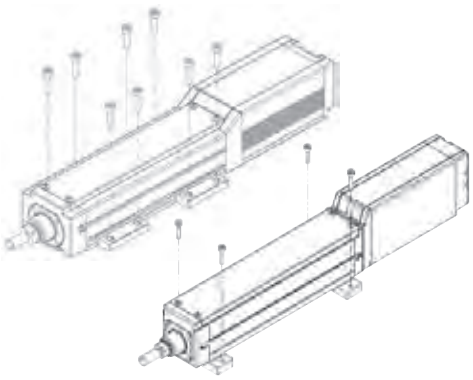
Radial Cylinder (RR3/RR4/RR6/RR7)

■ When using a square nuts

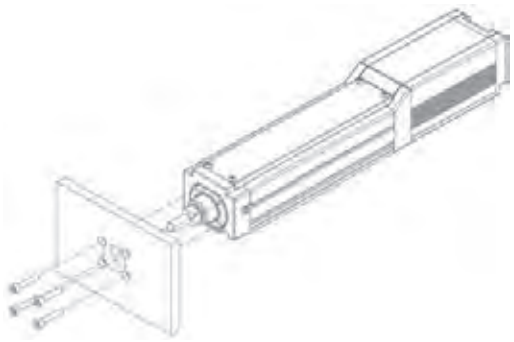


Number of square nuts included: 6

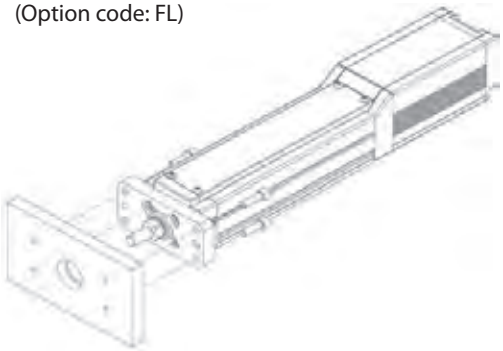
■ When using a foot brackets
(Option code: FT)



■ When using a front brackets

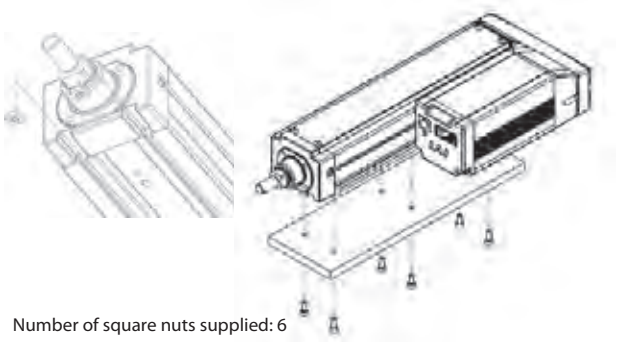


■ When using a flange (front)
(Option code: FL)



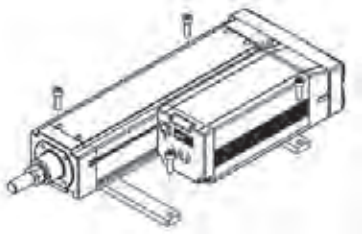
Radial Cylinder motor side-mounted specification (RR6□R/RR7□R)

■ When using a square nuts

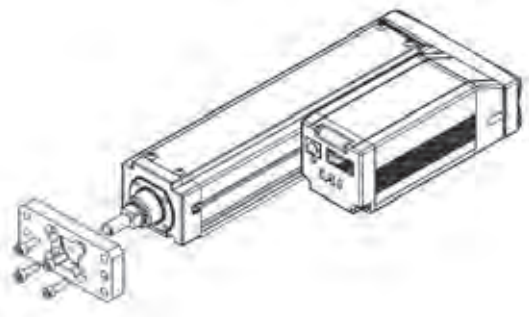


Number of square nuts supplied: 6

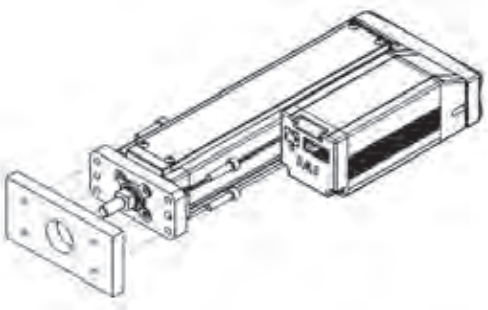
■ When using a foot brackets
(Option code: FT)



■ When using a front bracket

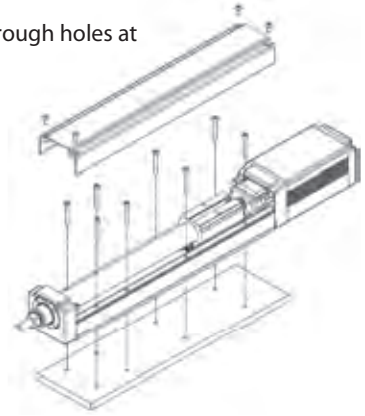


■ When using a flange (front)
(Option code: FL)

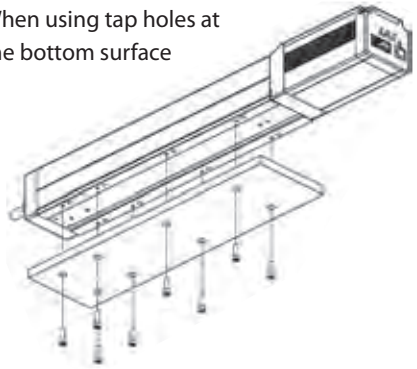


High Rigidity Radial Cylinder (RR6□AH/RR7□AH/RR6□W/RR7□W)

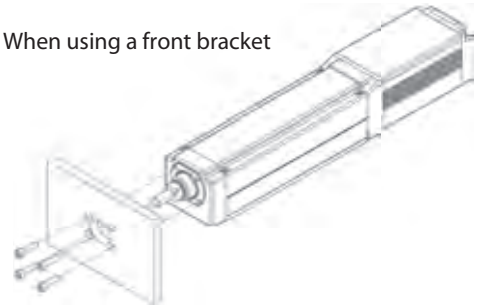
■ When using through holes at the top surface (not applicable for waterproof type)



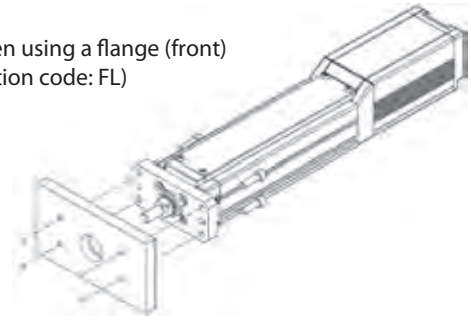
■ When using tap holes at the bottom surface



■ When using a front bracket

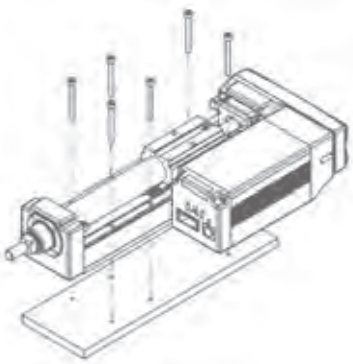


■ When using a flange (front) (Option code: FL)

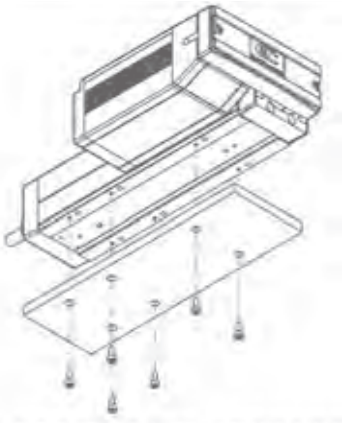


High Rigidity Radial Cylinder motor side-mounted specification (RR6□AHR/RR7□AHR)

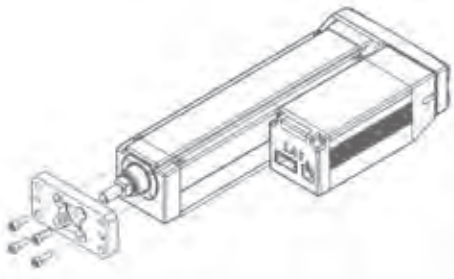
■ When using through holes at the top surface



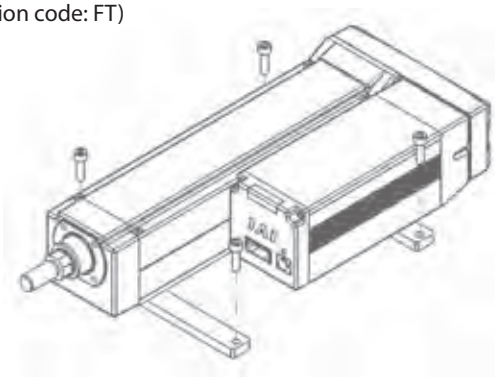
■ When using tap holes at the bottom surface



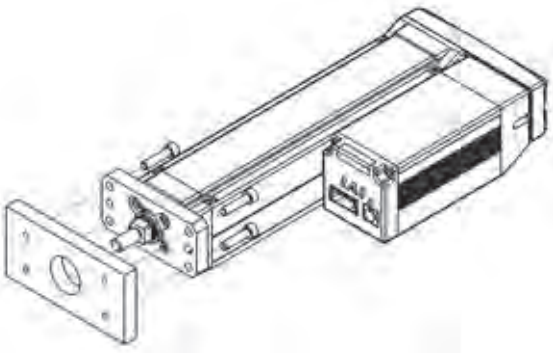
■ When using a front bracket



■ When using a foot bracket (Option code: FT)



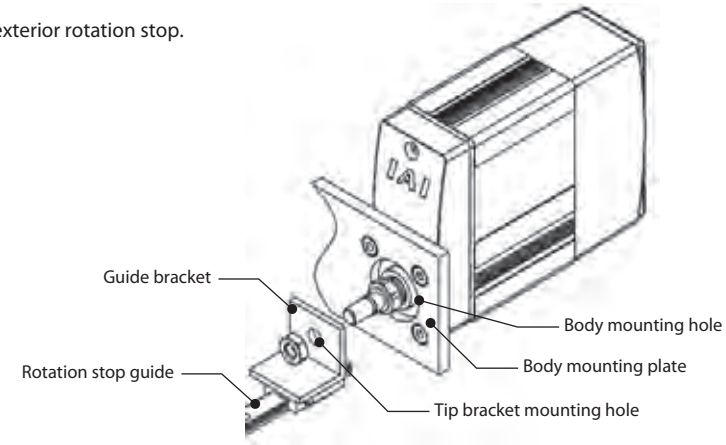
■ When using a flange (front) (Option code: FL)



Mounting method

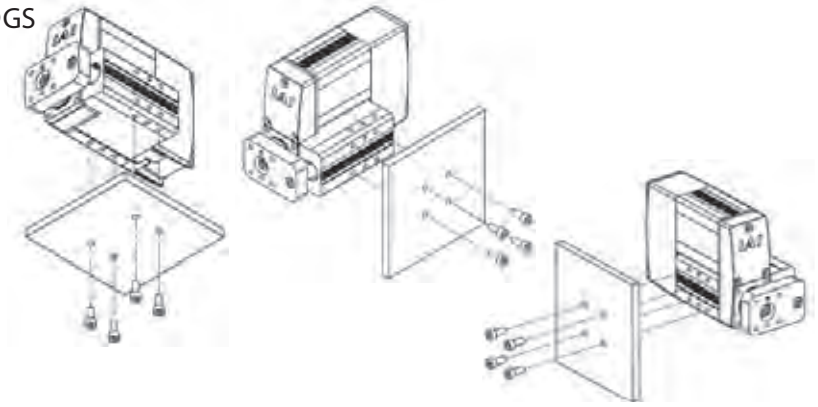
Mini Rod type (RP)

* Be sure to provide an exterior rotation stop.

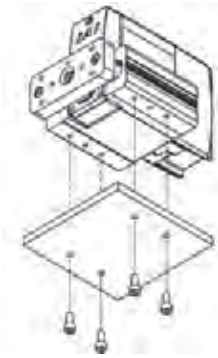


Mini Rod type (GS/GD)

●GS



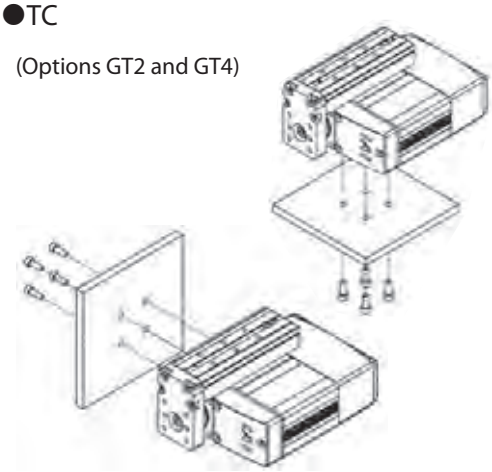
●GD



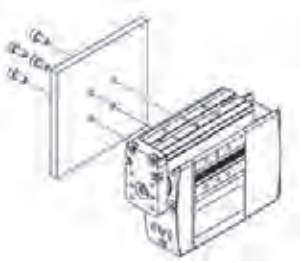
Mini Table type (TC/TW)

●TC

(Options GT2 and GT4)

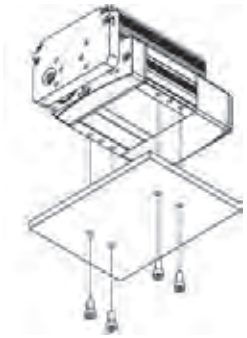


(Option GT3)



* Mounting from the opposite side is also possible.

●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, High rigidity Radial Cylinder, Rod (GS4/GD4), Table

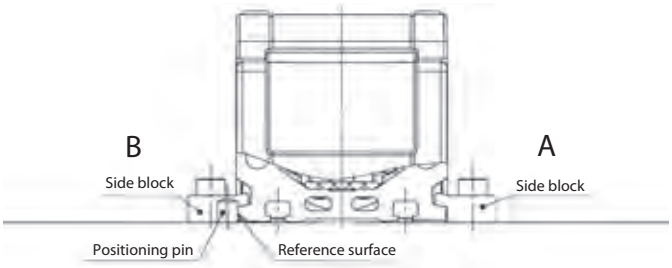
● Keep the body installation surface and workpiece mounting surface flatness at 0.05mm/m or lower.
Uneven flatness will increase the slider's sliding resistance and may cause malfunction.

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 positioning 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, High rigidity Radial Cylinder

● It is recommended that when radial load and moment are applied, all of the bottom surface of the base be fixed.
When fixing the front bracket, the product body will be deflected or warped due to radial load and moment, causing vibration, shorter service life and troubles.
● For the minimum stroke of the side-mounted specification, when both the brake option and the flange (front) option are selected, the fixing bolts may not go into place because there is no space between the flange mounting surface and the motor.

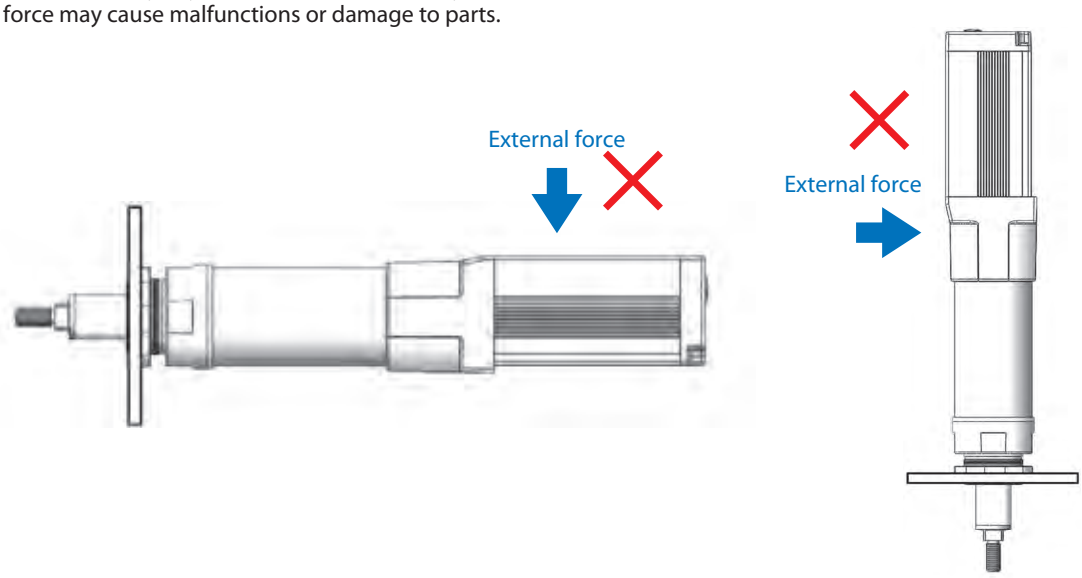
High rigidity slider type side-mounted motor specification, High rigid Radial Cylinder side-mounted motor specification

● For the side-mounted motor specification, the motor side cover cannot be removed when the stroke is 200mm or less.
When using the through bolt holes at the top surface, either the front bracket or motor unit assy should be removed.
If neither one is removed, please mount it from the top surface by using the foot bracket (option code: FT).

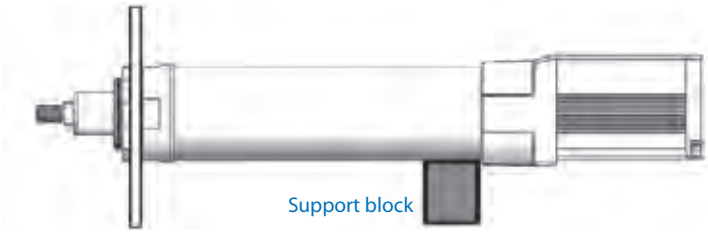
Precautions for Installation

Rod, Radial Cylinder, High rigidity 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.

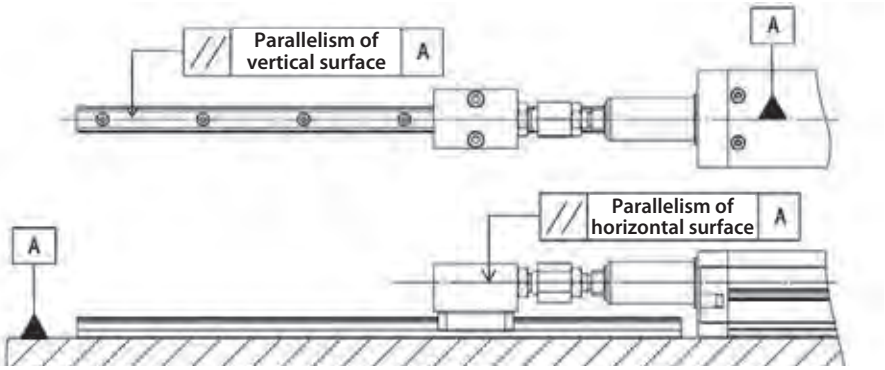


● When using front bracket mounting, flange (front) mounting, etc., if the device is mounted horizontally, fixed at a single point and has a stroke of 150mm or more, prepare a support block as shown in the figure below even if there is no external force applied on the body.
Even when the stroke is under 150mm stroke, 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.

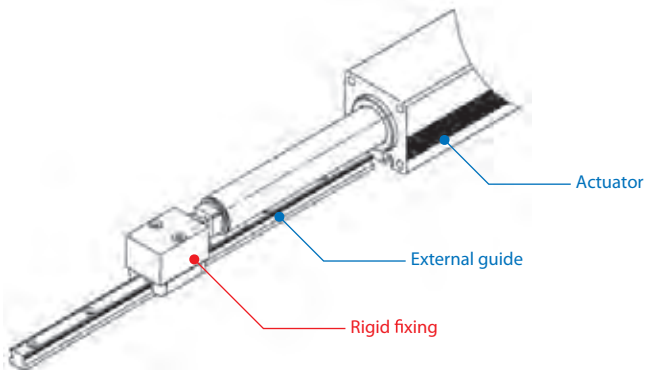


● **External guide fixing method**

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

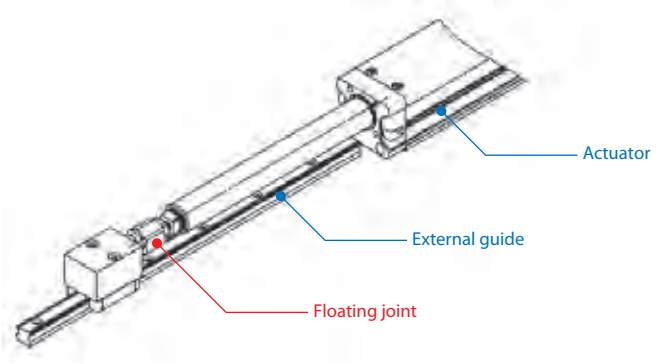
Rod type

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.)



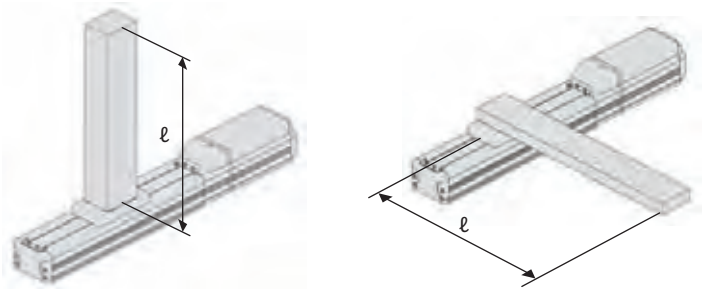
Radial Cylinder, High rigidity Radial Cylinder

"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.



Overhang Load Length (ℓ)

When a workpiece or a bracket is mounted at an offset distance from the actuator slider, the overhang load length indicates the recommended offset at which the actuator can operate smoothly. Be sure to keep the overhang load length within the recommended value, as exceeding the recommended value may cause malfunction due to vibration, etc. For details on the numerical values, refer to the applicable page for each model.



Operational Life

Operational life of a linear guide represents the total distance that can be traveled, without flaking, by 90% of a group of products that are operated separately under the same conditions. The operational life calculation method is as follows.

Operational life calculation method

Operational life of a linear guide can be calculated with the following formula using the allowable dynamic moment that is determined for each model.

$$L = \left(\frac{C_M}{M}\right)^3 \cdot URL$$

L: Operational Life (km), C_M: Allowable Dynamic Moment (N·m),
M: Acting moment (N·m), URL: Standard rated life (km)

For applications where the operational life may be decreased from vibrations and installation conditions, the operational life is calculated with the following formula.

$$L = \left(\frac{C_M}{M} \cdot \frac{f_{WS}}{f_W} \cdot \frac{1}{f_\alpha}\right)^3 \cdot URL$$

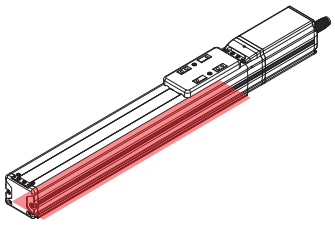
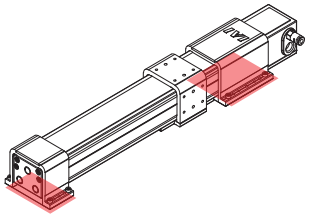
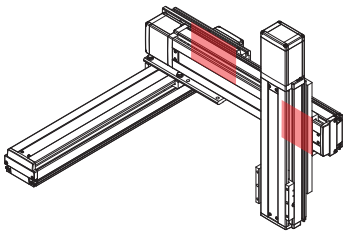
L: Service Life (km), C_M: Allowable Dynamic Moment (N·m), M: Acting moment (N·m),
f_{WS}: Standard load coefficient, f_W: Load coefficient, f_α: Attachment coefficient, URL: Standard rated life

The load coefficient f_W is a coefficient for taking into account the decrease in life from operating conditions. The standard load coefficient f_{WS} is a standard value of the load coefficient that is determined for each model. This coefficient is generally 1.2, but in the case that it is not 1.2, it is indicated in the specification of that model. The attachment coefficient fα is a coefficient for taking into account the decrease in life from the attachment condition of the actuator.

Load Coefficient

Operating Condition	Load coefficient f_W	Acceleration/Deceleration Guideline
Little vibration/impact, slow operation	1.0-1.5	(Less than 1.0G)
Moderate vibration/impact, sudden braking/acceleration	1.5-2.0	1.0G-2.0G
Large vibration/impact with sudden acceleration/deceleration	2.0-3.0	(Greater than 2.0G)

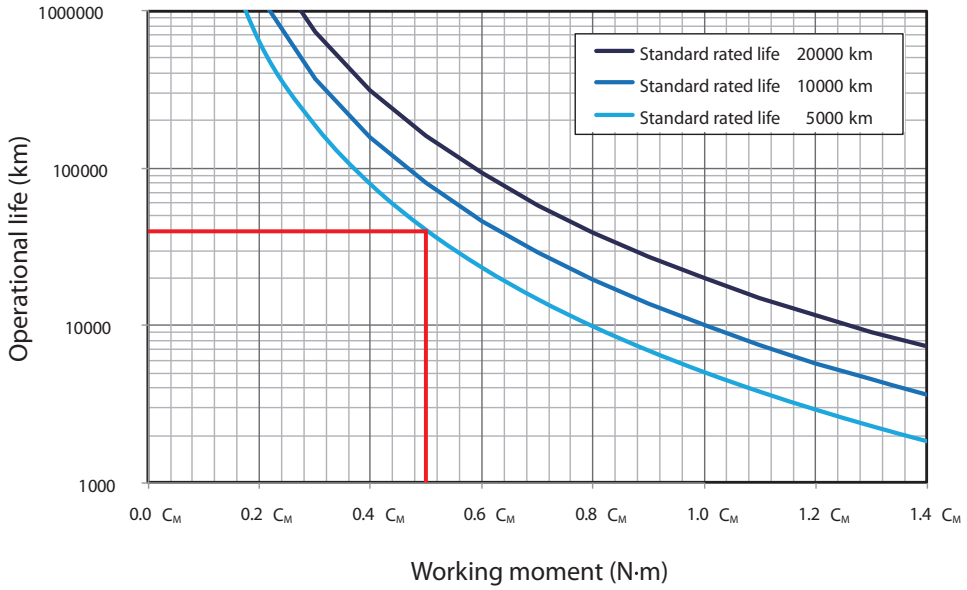
Attachment Coefficient

Attachment Condition	 Fixing entire surface	 Fixing at both ends	 Fixing sections
Attachment coefficient Fα	1.0	1.2	1.5

* As a general rule, please use every tapped hole on the mounting surface.
* Even when mounting the entire surface, please use the attachment coefficients of 1.2 or 1.5 depending on the length of the bolt for fixing.

The formula shows that the service life depends on the acting moment. With a light load, the service life will be longer than the standard rated life. For example, when a moment of 0.5C_M (half of the allowable dynamic moment) acts on a model with a standard rated life of 5000 km, the diagram below shows that the service life becomes 40000 km, which is 8 times the standard rated life.

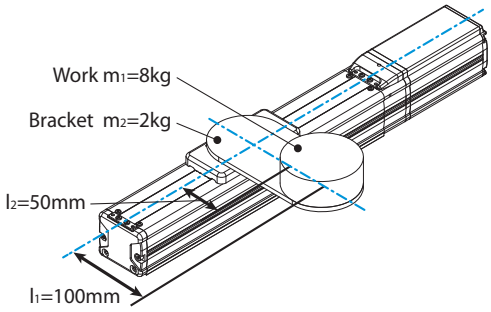
Relationship between working moment and operational life



* It is assumed that f_{WS}=f_W and $f\alpha$=1.0, and C_M indicates allowable dynamic moment.

Example calculation of service life

An example service life will be calculated using the operation conditions below.



Model	EC-S6M
Installation Condition	Horizontal Installation
Attachment Condition	Fixing entire surface
Allowable Dynamic Moment	23 N·m (Mc direction)
Acceleration/Deceleration	0.5G

m_1: mass of work
m_2: mass of bracket
l_1: Distance to the center of gravity of the work
l_2: Distance to the center of gravity of the bracket

Since moment acting in the Mc direction of the actuator is the dominant one, calculation will be made using the moment acting in the Mc direction. Moment acting in the Mc direction is calculated as follows.

$$M = \left(m_1 \times 9.8 \times \frac{l_1}{1000} \right) + \left(m_2 \times 9.8 \times \frac{l_2}{1000} \right) = \left(8 \times 9.8 \times \frac{100}{1000} \right) + \left(2 \times 9.8 \times \frac{50}{1000} \right) = 8.82 \text{ N·m}$$

The load coefficient will be 1.25 since acceleration/deceleration is 0.5G. The attachment coefficient will be 1.0 since the attachment condition is fixing the entire surface. For this model, the allowable dynamic moment in the Mc direction is 23 N·m, the standard rated life is 5000km, and the standard load coefficient is 1.2, so the service life is calculated as follows.

$$L = \left(\frac{C_M}{M} \cdot \frac{f_{WS}}{f_W} \cdot \frac{1}{f_\alpha} \right)^3 \cdot URL = \left(\frac{23 \text{ N·m}}{8.82 \text{ N·m}} \times \frac{1.2}{1.25} \times \frac{1}{1} \right)^3 \times 5000 \text{ km} = 78444 \text{ km}$$

This shows that the service life for the above operation conditions is 78444 km.

EC-S3

Slider Type | Motor Unit Coupled | Straight Motor | Body width 35 mm | 24V Pulse motor

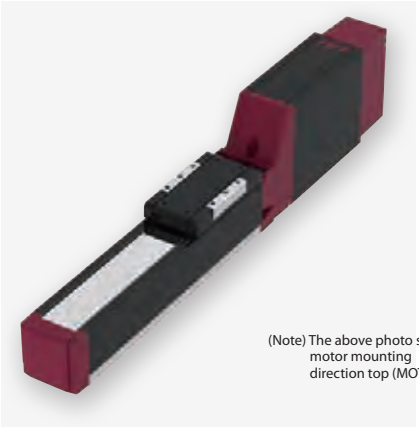
Model Specification Items

EC — S3 — [Lead] — [Stroke] — [Cable Length] — [Options]

Series	Type	Lead	Stroke	Cable Length	Options
EC	S3	H: 6mm M: 4mm L: 2mm	50 ~ 300: 50mm ~ 300mm (per 50mm)	0: With terminal block type connector 1 ~ 10: 1m ~ 10m	Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling



(Note) The above photo shows motor mounting direction top (MOT).

POINT Selection Notes

(1) 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" for more details.

(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.

(3) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

(4) Reference value of the overhang load length is under 100mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.

(5) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Motor mounting direction change (bottom) (Note 1)	**MOB**	See P.101
Motor mounting direction change (left) (Note 1)	**MOL**	See P.101
Motor mounting direction change (right) (Note 1)	**MOR**	See P.101
Motor mounting direction change (top) (Note 1)	**MOT**	See P.101
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Stroke and maximum speed

Lead (mm)	50-150 (per 50mm)	200 (mm)	250 (mm)	300 (mm)
6	420	300	210	150
4	280	200	140	100
2	140	100	70	50

(Unit is mm/s)

Cable length

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

(Note) Robot cables.

Main specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	3.5	6	9
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push force		Max. thrust force when pushing (N)*	45	68	136
		Max. speed when pushing (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

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

Item	Description
Driving system	Ball screw ø6mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	—
Base	Dedicated aluminum extruded material (A6063SS-T5 or equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 9N·m
	Mb: 13N·m
	Mc: 15N·m
Dynamic allowable moment (Note 2)	Ma: 3N·m
	Mb: 5N·m
	Mc: 6N·m
Ambient operation temperature/ humidity	0 to 40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse /rev.

(Note 2) Based on the standard rated operation life of 5000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed and Acceleration/Deceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.5	0.3
0	3.5	3	1.5
120	3.5	3	1.5
210	3.5	3	1.5
255	3.5	3	1.5
315	3.5	3	1.5
360	3.5	3	1.5
420	3	2.5	1

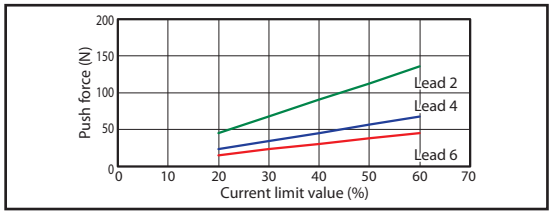
Lead 4

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	6	2.5
80	6	2.5
140	6	2.5
170	6	2.5
210	6	2.5
240	5.5	2.5
280	4.5	2

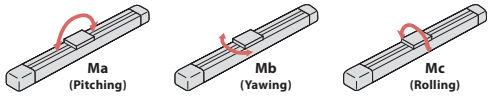
Lead 2

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	9	3.5
40	9	3.5
70	9	3.5
85	9	3.5
105	9	3.5
120	9	3
140	8	2.5

Correlation between push force and current limit value



Direction of slider type moment



■ Dimensions by Stroke

Stroke			50	100	150	200	250	300
L	Incremental	without brake	268	318	368	418	468	518
		with brake	293	343	393	443	493	543
	Battery-less absolute	without brake	293	343	393	443	493	543
		with brake	313	363	413	463	513	563

Stroke	50	100	150	200	250	300
A	143	193	243	293	343	393
B	114	164	214	264	314	364
J	50	100	150	200	250	300

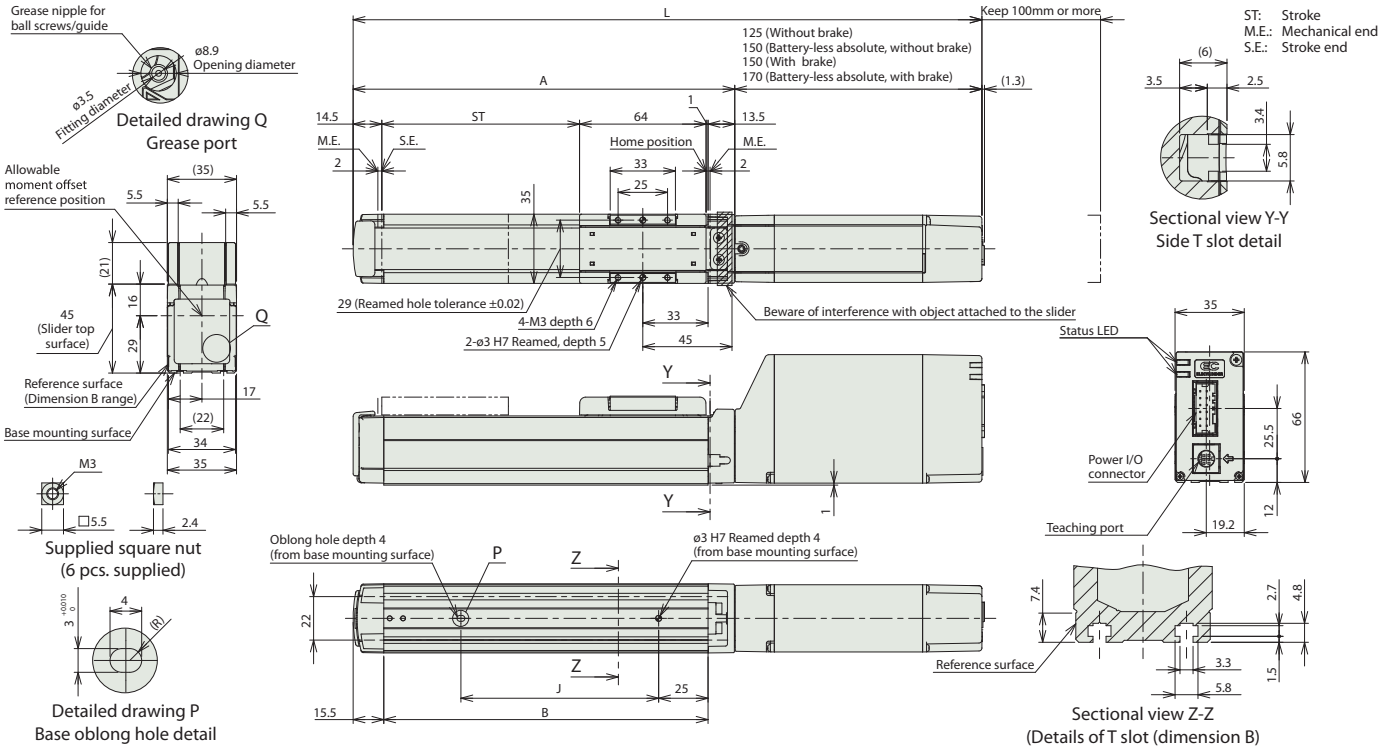
■ Mass by Stroke

Stroke		50	100	150	200	250	300
Weight (kg)	without brake	0.7	0.8	0.9	1.0	1.1	1.2
	with brake	0.8	0.9	1.0	1.1	1.2	1.3

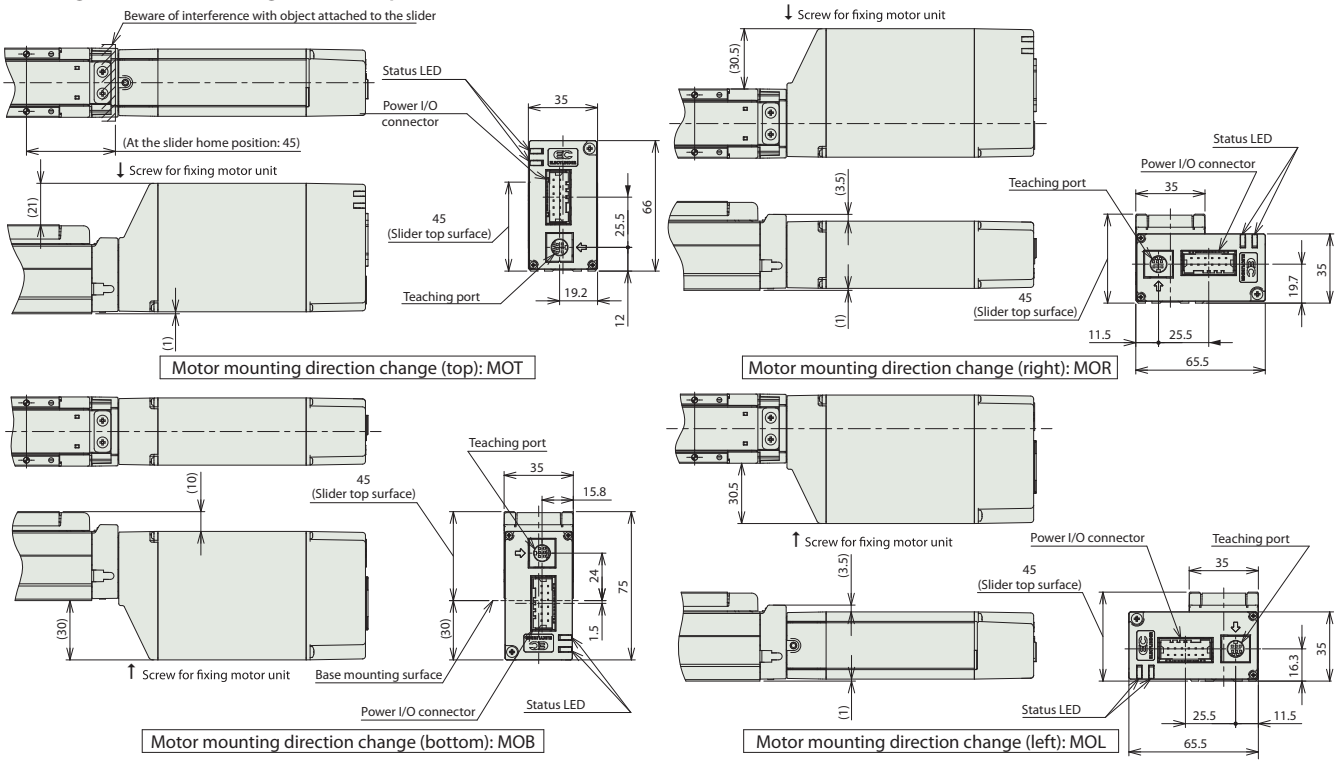
Dimensions

(Note) 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.
(Note) The drawing below represents motor mounting direction top (MOT).

CAD drawings can be downloaded from our website.
www.elecylinder.de



■ Change of motor mounting direction (optional)



Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S4

Slider Type | Motor Unit Coupled | Straight Motor | Body width 44 mm | 24V Pulse motor

Model Specification Items

EC — S4 — [Lead] — [Stroke] — [Cable Length] — [Options]

Series	Type
EC	S4

Lead	
S	16mm
H	10mm
M	5mm
L	2.5mm

Stroke	
50 ~ 300	50mm ~ 300mm (per 50mm)

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

Options
Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

(Note) The above photo shows motor mounting direction top (MOT).

POINT Selection Notes

(1) 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" for more details.

(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.

(3) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

(4) Reference value of the overhang load length is under 100mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.

(5) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Stroke and maximum speed

Lead (mm)	Energy-saving	50-200 (per 50mm)	250 (mm)	300 (mm)
16	disabled	800	760	540
	enabled	800 <560>	760 <560>	540
10	disabled	700	470	320
	enabled	525	470	320
5	disabled	350	240	160
	enabled	260	240	160
2.5	disabled	175 <150>	120	85
	enabled	135	120	85

Figures in < > represent vertical operations. (Unit is mm/s)

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Motor mounting direction change (bottom) (Note 1)	**MOB**	See P.101
Motor mounting direction change (left) (Note 1)	**MOL**	See P.101
Motor mounting direction change (right) (Note 1)	**MOR**	See P.101
Motor mounting direction change (top) (Note 1)	**MOT**	See P.101
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Main specifications

Item		Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	12	15	18
		Max. payload (kg) (energy-saving enabled)	4	10	12	14
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	800	700	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push force		Max. thrust force when pushing (N)*	41	66	132	263
		Max. speed when pushing (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø8mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	—
Base	Dedicated aluminum extruded material (A6063SS-T5 or equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 13N・m
	Mb: 18N・m
	Mc: 25N・m
Dynamic allowable moment (Note 2)	Ma: 5N・m
	Mb: 7N・m
	Mc: 9N・m
Ambient operation temperature/humidity	0 to 40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse /rev.

(Note 2) Based on the standard rated operation life of 5000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed and Acceleration/Deceleration

■ Energy-saving disabled

The unit for payload is kg. Operations in the blank locations are not possible

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	7	6	6	5	1.5	1.25
140	7	6	6	5	1.5	1.25
280	7	6	6	5	1.5	1.25
420	7	6	6	5	1.5	1.25
560	7	6	5.5	5	1.5	1.25
700	6	5	4.5	4	1.5	1.25
800		4	3.5	3		1

Lead 10

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	12	11	10	10	2.5	2
175	12	11	10	10	2.5	2
350	12	11	10	9	2.5	2
435	12	11	9	8	2.5	2
525	11	9	7	6	2	2
600	10	7	5	4.5	2	1.5
700		4	2.5	2.5		1

Lead 5

Orientation	Horizontal		Vertical	
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.3	0.5
0	15	14	5	4.5
85	15	14	5	4.5
130	15	14	5	4.5
215	15	14	5	4.5
260	15	14	5	4.5
300	15	14	4.5	4
350	13	12	4	3.5

Lead 2.5

Posture	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	18	6.5
40	18	6.5
85	18	6.5
105	18	6.5
135	18	6.5
150	18	6
175	18	

■ Energy-saving enabled

The unit for payload is kg. Operations in the blank locations are not possible

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	4	3.5	1
140	4	3.5	1
280	4	3.5	1
420	4	3.5	1
560	4	3	1
700	3	2	
800		1	

Lead 10

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	10	8	2
175	10	8	2
350	9	6	2
435	7	5	1.5
525	5	2.5	1

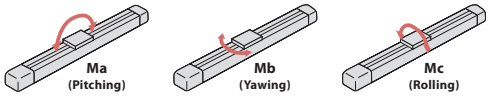
Lead 5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	12	4.5
85	12	4.5
130	12	4
215	10	4
260	9	2.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	14	6.5
40	14	6.5
85	14	6.5
105	14	6.5
135	14	5

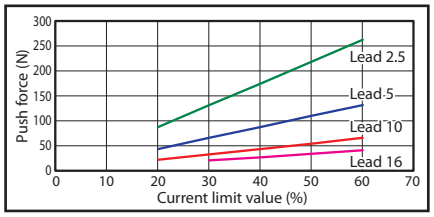
Direction of slider type moment



Mass by Stroke

Stroke		50	100	150	200	250	300
Weight (kg)	without brake	1.2	1.3	1.5	1.6	1.8	1.9
	with brake	1.3	1.5	1.6	1.8	1.9	2.1

Correlation between push force and current limit value



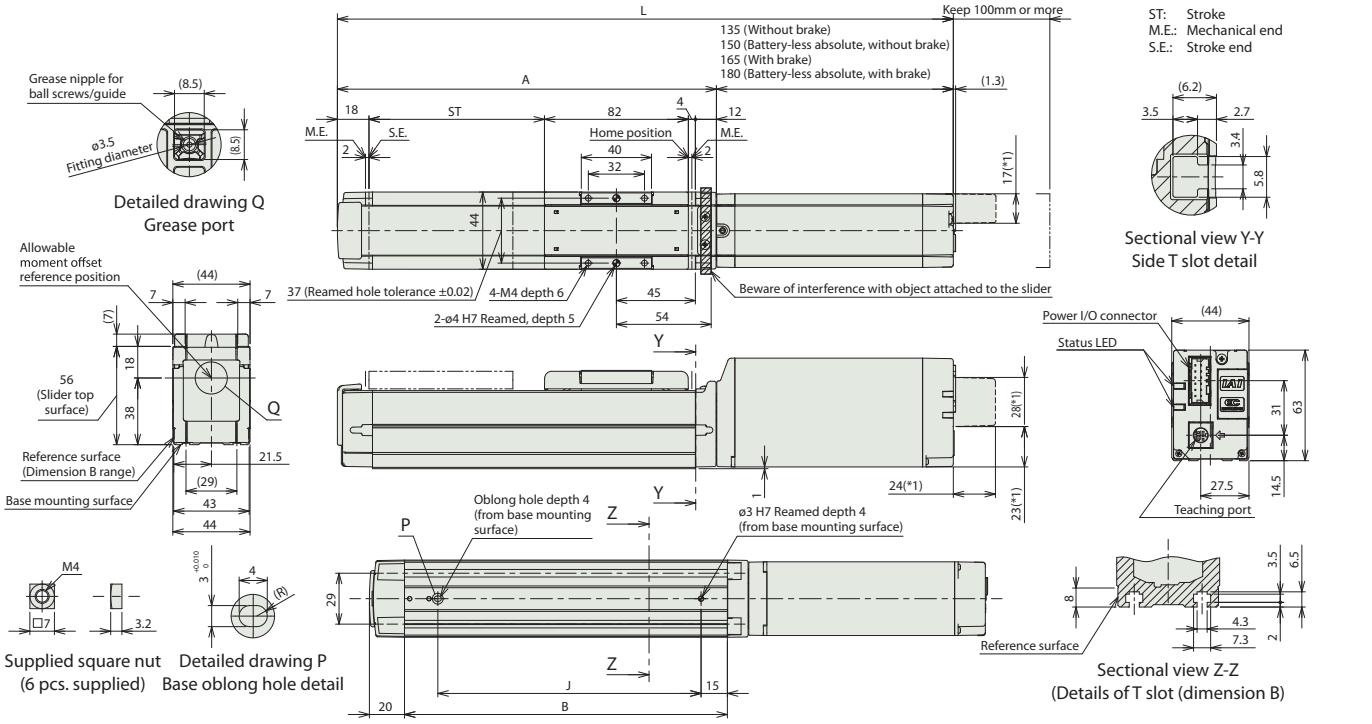
Dimensions by Stroke

Stroke			50	100	150	200	250	300
L	Incremental	without brake	301	351	401	451	501	551
		with brake	331	381	431	481	531	581
	Battery-less absolute	without brake	316	366	416	466	516	566
		with brake	346	396	446	496	546	596
A			166	216	266	316	366	416
B			134	184	234	284	334	384
J			100	150	200	250	300	350

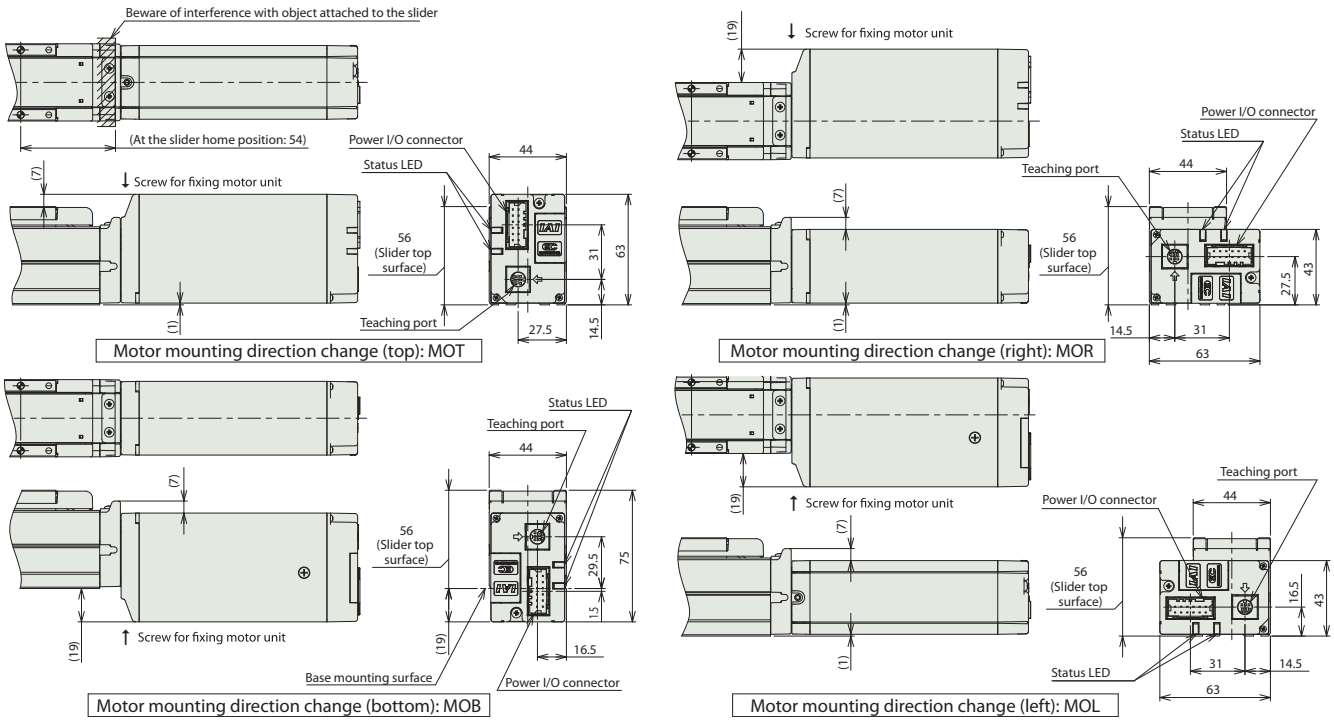
Dimensions

*1 These dimensions are for the wireless communication or wireless axis-operation optional specifications..
(Note) 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.
(Note) The drawing below represents motor mounting direction top (MOT).

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD



Motor mounting direction change (optional)



Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S6

Slider Type | Motor Unit Coupled | Straight Motor | Body width 63 mm | 24V Pulse motor

■ Model Specification Items

EC	—	S6	—		—		—		—	
Series		Type		Lead		Stroke		Cable Length		Options

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

Stroke	
50 ~ 400	50mm ~ 400mm (per 50mm)

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

Options: Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for details.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 220mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.

Cable Length

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

(Note) Robot cables.

Options

Type	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	12.5
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	67	112	224	449
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material (A6063SS-T5 Equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48N·m
	Mb: 69N·m
	Mc: 97N·m
Dynamic allowable moment (Note 1)	Ma: 11N·m
	Mb: 16N·m
	Mc: 23N·m
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) Based on the standard rated operation life of 5000 km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	

■ Setting for energy-saving enabled

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

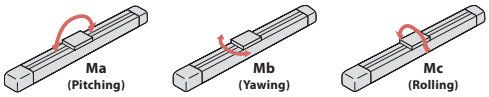
Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

■ Direction of slider type moment

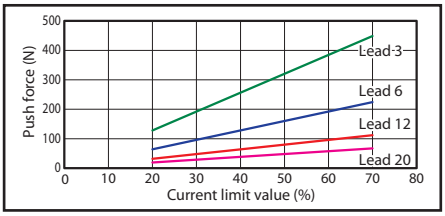


Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-200 (mm) (per 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)
20	Disabled	800			727	566
	Enabled	800			727	566
12	Disabled	700		521	392	305
	Enabled	680		521	392	305
6	Disabled	450	371	265	199	155
	Enabled	340		265	199	155
3	Disabled	225	188	134	100	78
	Enabled	170		134	100	78

(Unit is mm/s)

Correlation between push force and current limit value



Dimensions

(Note) 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.

CAD drawings can be downloaded from our website.
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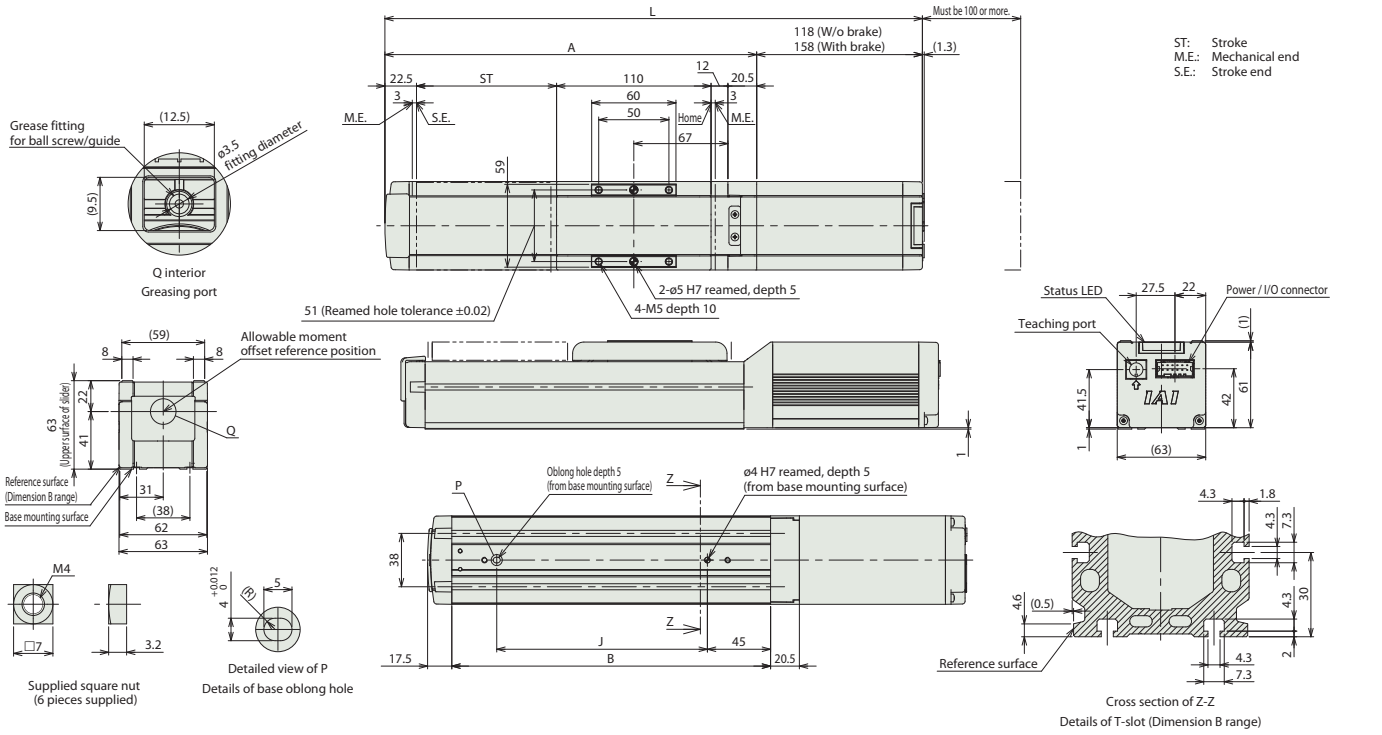
2D CAD 3D CAD



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400
L	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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
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

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S7

Slider Type | Motor Unit Coupled | Straight Motor | Body width 73 mm | 24V Pulse motor

■ Model Specification Items

EC	—	S7	—		—		—		—	
Series		Type		Lead		Stroke		Cable Length		Options

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

Stroke	
50 ~ 500	50mm ~ 500mm (per 50mm)

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

Options
Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for details.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for details.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 280mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.

Cable Length

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

(Note) Robot cables.

Options

Type	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	19
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	139	209	418	836
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material (A6063SS-T5 Equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 79N・m
	Mb: 114N・m
	Mc: 157N・m
Dynamic allowable moment (Note 1)	Ma: 17N・m
	Mb: 25N・m
	Mc: 34N・m
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) Based on the standard rated operation life of 5000 km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	10	7	4	3	2.5

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	10	5	3	3	2

Lead 8

Posture	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	40	28	20	15	8	7
350	30	9	4		5	4
420	7				2	

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	19	19
35	51	45	40	40	19	19
70	51	45	40	40	19	19
105	51	45	40	35	19	19
140	45	35	30	25	14	12
175	30	18			9	7.5
210	6					

■ Setting for energy-saving enabled Unit for payload is kg.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

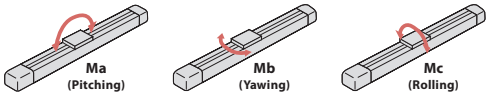
Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

■ Direction of slider type moment

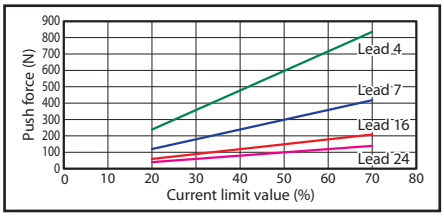


Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-300 (mm) (per 50mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
24	Disabled	860		774	619	506
	Enabled	800		774	619	506
16	Disabled	700	631	492	395	323
	Enabled	560		492	395	323
8	Disabled	420	322	251	200	164
	Enabled	280		251	200	164
4	Disabled	210<175>	163	126	101	83
	Enabled	140		126	101	83

Figures in < > represent vertical operations. (Unit is mm/s)

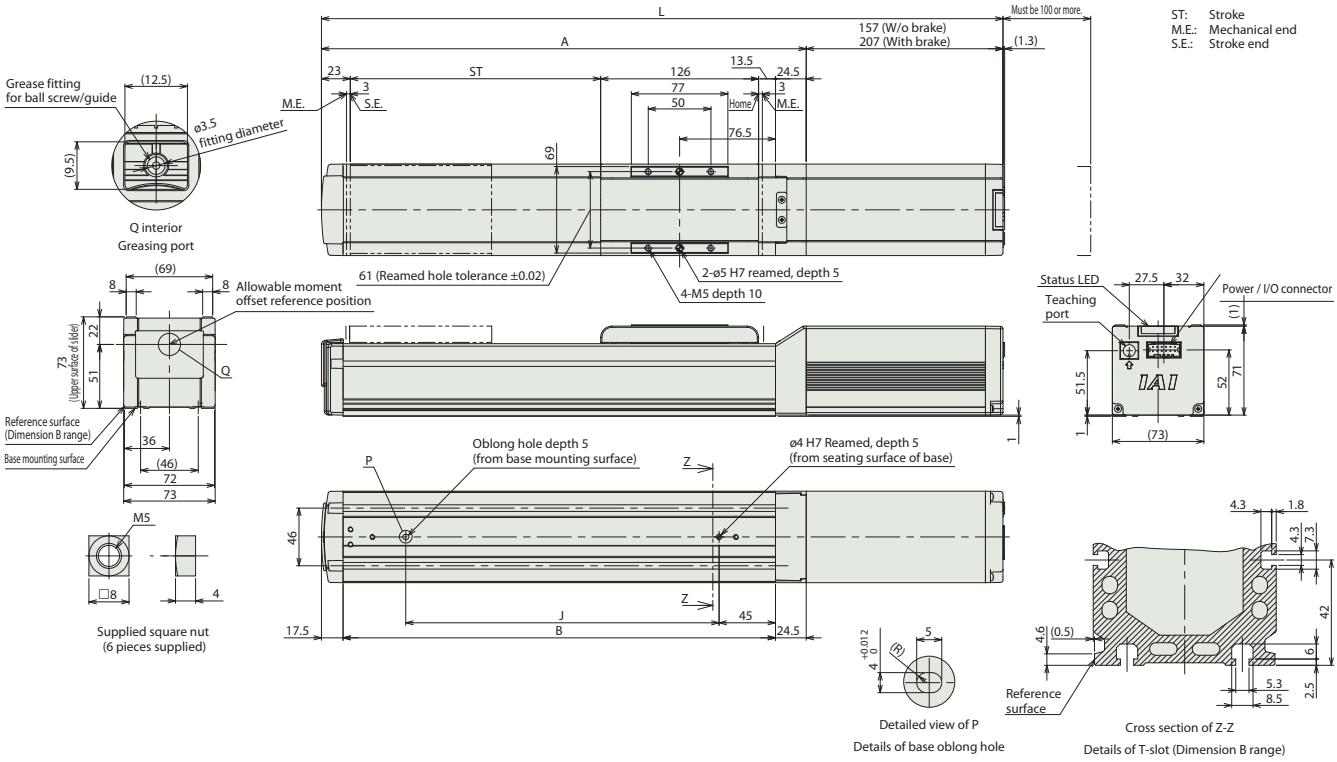
Correlation between push force and current limit value



Dimensions

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD

(Note) 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.



■ Dimensions 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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
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

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S6□AH

High Rigidity | Slider Type | Motor Unit Coupled | Straight Motor | Body width 63 mm | 24V Pulse motor

■ Model Specification Items

Series	Type	Lead	Specification	Stroke	Cable Length	Options
EC	S6	S: 20mm H: 12mm M: 6mm L: 3mm	AH: High Rigidity	50 ~ 800: 50mm ~ 800mm (per 50mm)	0: With terminal block type connector 1 ~ 10: 1m ~ 10m	Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for details.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for details.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1440	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	16
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1280	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	67	112	224	449
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	16
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material (A6063SS-T6 Equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48N・m Mb: 69N・m Mc: 103N・m
Dynamic allowable moment (Note 1)	Ma: 33N・m Mb: 40N・m Mc: 55N・m
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) Based on the standard rated operation life of 5000 km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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
960	8	5	3.5	1.5	1	1
1120	5	3	2	1	0.5	0.5
1280		1	1	0.5		0.5
1440		1	0.5			

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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
800	9	5	2	1	1.5	1
900	5	3	1	1	0.5	0.5

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	16	16
50	40	35	35	35	16	16
80	40	35	35	30	16	16
110	40	35	35	30	16	16
140	40	35	35	28	15	15
170	40	32	32	24	12.5	12
200	35	28	23	20	10	9
225	28	20	16	12	6	

■ Setting for energy-saving enabled Unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

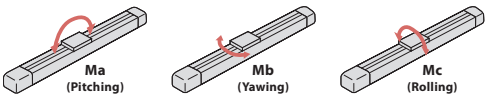
Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

■ Direction of slider type moment

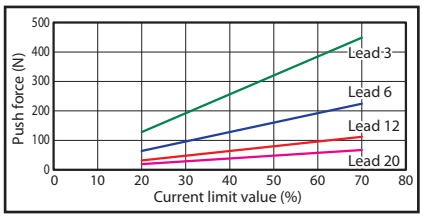


Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-300 (per 50mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	1440 <1280>		1280	1090	940	815	715	630	560
	Enabled	800						715	630	560
12	Disabled	900	845	705	585	515	445	390	345	305
	Enabled	680			585	515	445	390	345	305
6	Disabled	450	415	350	295	255	220	190	170	140
	Enabled	340			295	255	220	190	170	140
3	Disabled	225	205	170	145	125	110	95	85	70
	Enabled	170			145	125	110	95	85	70

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

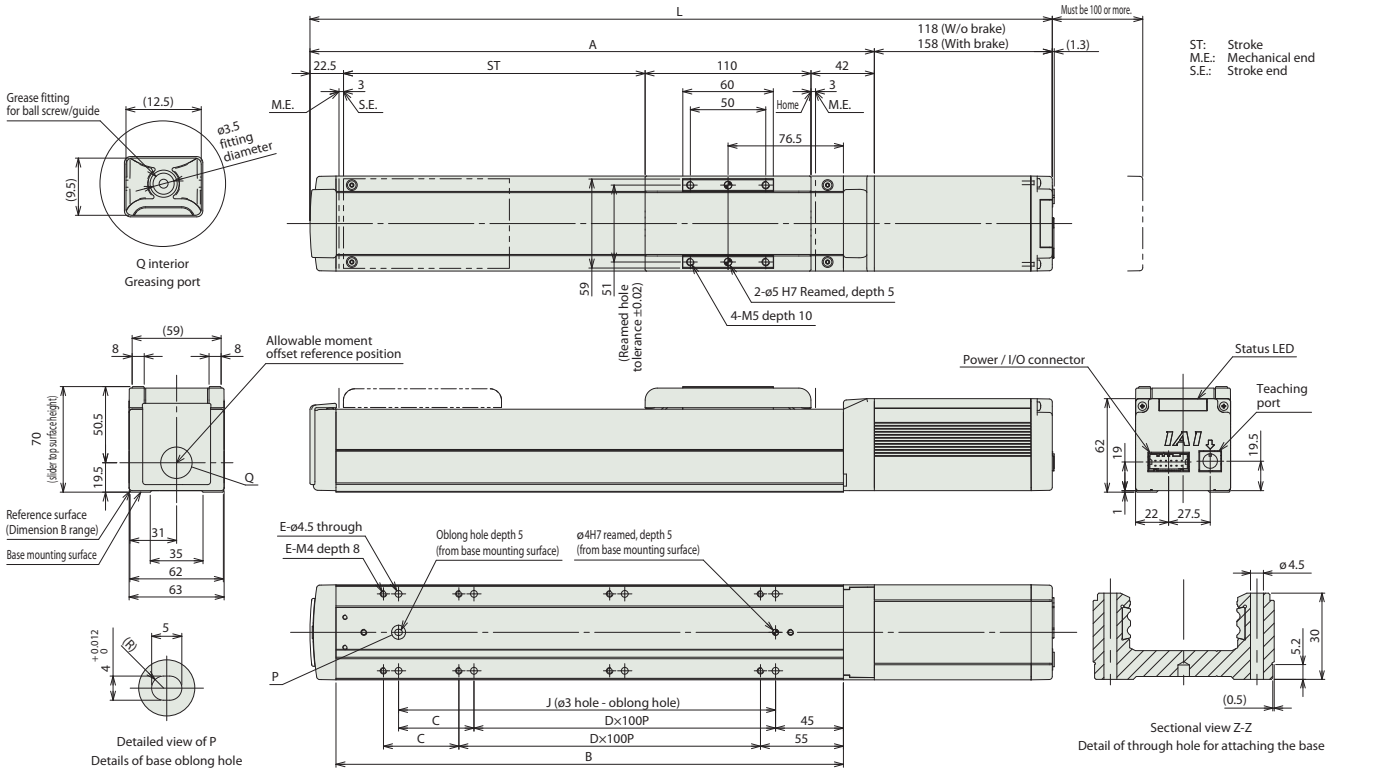
Correlation between push force and current limit value



Dimensions

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD

(Note) 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.



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	W/o Brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With Brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A		224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5
B		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C		0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg)	W/o Brake	2	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4	4.2	4.4	4.7	4.9	5.1	5.3
	With Brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5	5.2	5.4	5.6

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S7□AH

High Rigidity | Slider Type | Motor Unit Coupled | Straight Motor | Body width 75 mm | 24V Pulse motor

■ Model Specification Items

Series	Type	Lead	Specification	Stroke	Cable Length	Options
EC	S7	S: 24mm H: 16mm M: 8mm L: 4mm	AH: High Rigidity	50 ~ 800: 50mm ~ 800mm (per 50mm)	0: With terminal block type connector 1 ~ 10: 1m ~ 10m	Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but when energy-saving is activated, the specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for details.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for details.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhand distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Main specifications

Item		Description				
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1230	980	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	25
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1230	840	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	139	209	418	836
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	25
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material (A6063SS-T6 Equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 115N・m Mb: 115N・m Mc: 229N・m
Dynamic allowable moment (Note 1)	Ma: 75N・m Mb: 90N・m Mc: 134N・m
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) Based on the standard rated operation life of 5000 km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	10	7	4	3	2.5
1080	8	4.5	3	1.5	1	0.5
1230	3	1.5	1	0.5	0.5	

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	10	5	3	3	2
840	7	4	2		0.5	
980	4					

Lead 8

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

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	25	25
35	51	45	40	40	25	25
70	51	45	40	40	25	25
105	51	45	40	35	20	19
140	45	35	30	25	14	12
175	30	18			9	7.5
210	6					

■ Setting for energy-saving enabled Unit for payload is kg.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

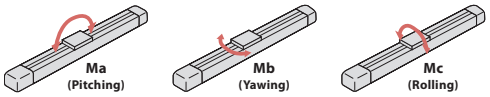
Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

■ Direction of slider type moment

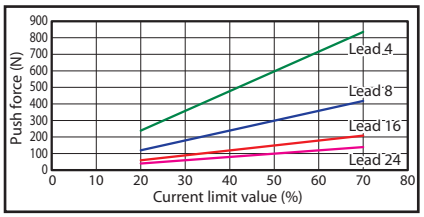


Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-500 (per 50mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	1230			1080	950	840	750
	Enabled	800						750
16	Disabled	980 <840>	955 <840>	820	715	625	555	495
	Enabled	560					555	495
8	Disabled	420		405	350	310	275	245
	Enabled	280					275	245
4	Disabled	210 <175>		195 <175>	175	150	135	120
	Enabled	140					135	120

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

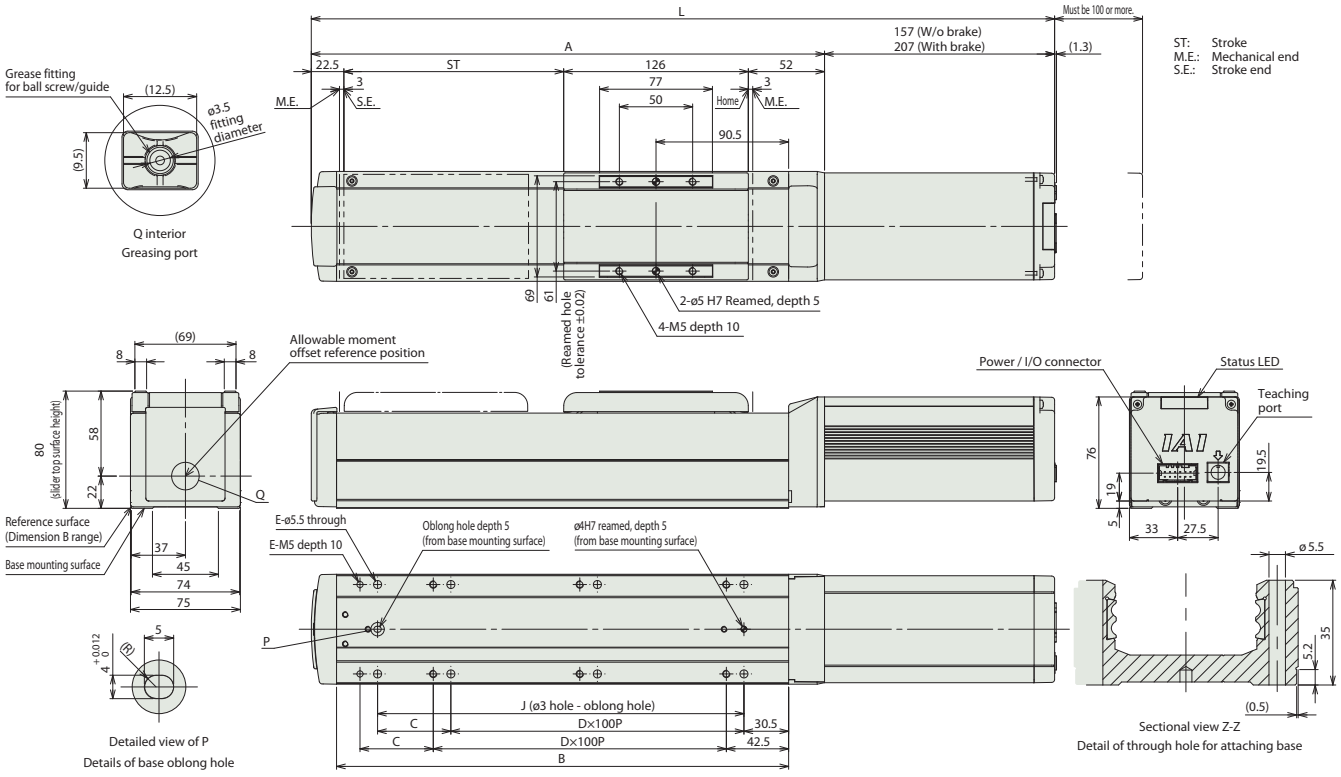
Correlation between push force and current limit value



Dimensions

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD

(Note) 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.



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	W/o Brake	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5
	With Brake	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5
A		250.5	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg)	W/o Brake	3.9	4.1	4.4	4.7	4.9	5.2	5.5	5.7	6	6.3	6.5	6.8	7.1	7.3	7.6	7.9
	With Brake	4.4	4.6	4.9	5.2	5.4	5.7	6	6.2	6.5	6.8	7	7.3	7.6	7.8	8.1	8.4

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S6□R

Slider Type | Motor Unit Coupled | Side-mounted Motor | Body width 63 mm | 24V Pulse motor

■ Model Specification Items

EC	—	S6		R	—		—		—	
Series	—	Type	Lead	Specification	—	Stroke	—	Cable Length	—	Options

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

Specification	
R	Side-mounted motor

Stroke	
50	50mm
≀	≀
400	400mm (per 50mm)

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

Options
Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 220mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Cable length price list (standard price)

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 1)	**ML**	See P.101
Motor side-mounted to the right (Note 1)	**MR**	See P.101
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Make sure to enter a code in the option column of the model spec item.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	12.5
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	400	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	67	112	224	449
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material(A6063SS-T5 or equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48N·m
	Mb: 69N·m
	Mc: 97N·m
Dynamic allowable moment (Note 2)	Ma: 11N·m
	Mb: 16N·m
	Mc: 23N·m
Ambient operation temperature/humidity	0~40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) Based on the standard rated operation life of 5000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed and Acceleration

■ **Energy-saving disabled** The unit for payload is kg. Operations in the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	6.5	6	5	1	1
800	9	5	4	3	1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	9	2.5	2.5
560	26	12	7	5	2.5	2.5
700	18	5	3	4	1.5	1

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	18	15	6	5.5
340	25	14	12	9	4	3.5
400	15	8	8	5	2.5	2
450	10	5				

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	9	8
200	35	20	15	12	6	4
225	18	10			3	

■ Energy-saving enabled The unit for payload is kg. Operations in the blank locations are not possible.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	2		

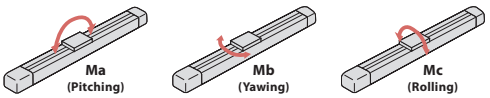
Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	8	1	1

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	5	2

■ Direction of slider type moment

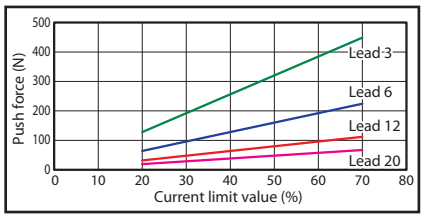


Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-200 (per 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)
20	Disabled	800			727	566
	Enabled	800			727	566
12	Disabled	700		521	392	305
	Enabled	680 <560>		521	392	305
6	Disabled	450 <400>	371	265	199	155
	Enabled	340		265	199	155
3	Disabled	225	188	134	100	78
	Enabled	170		134	100	78

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

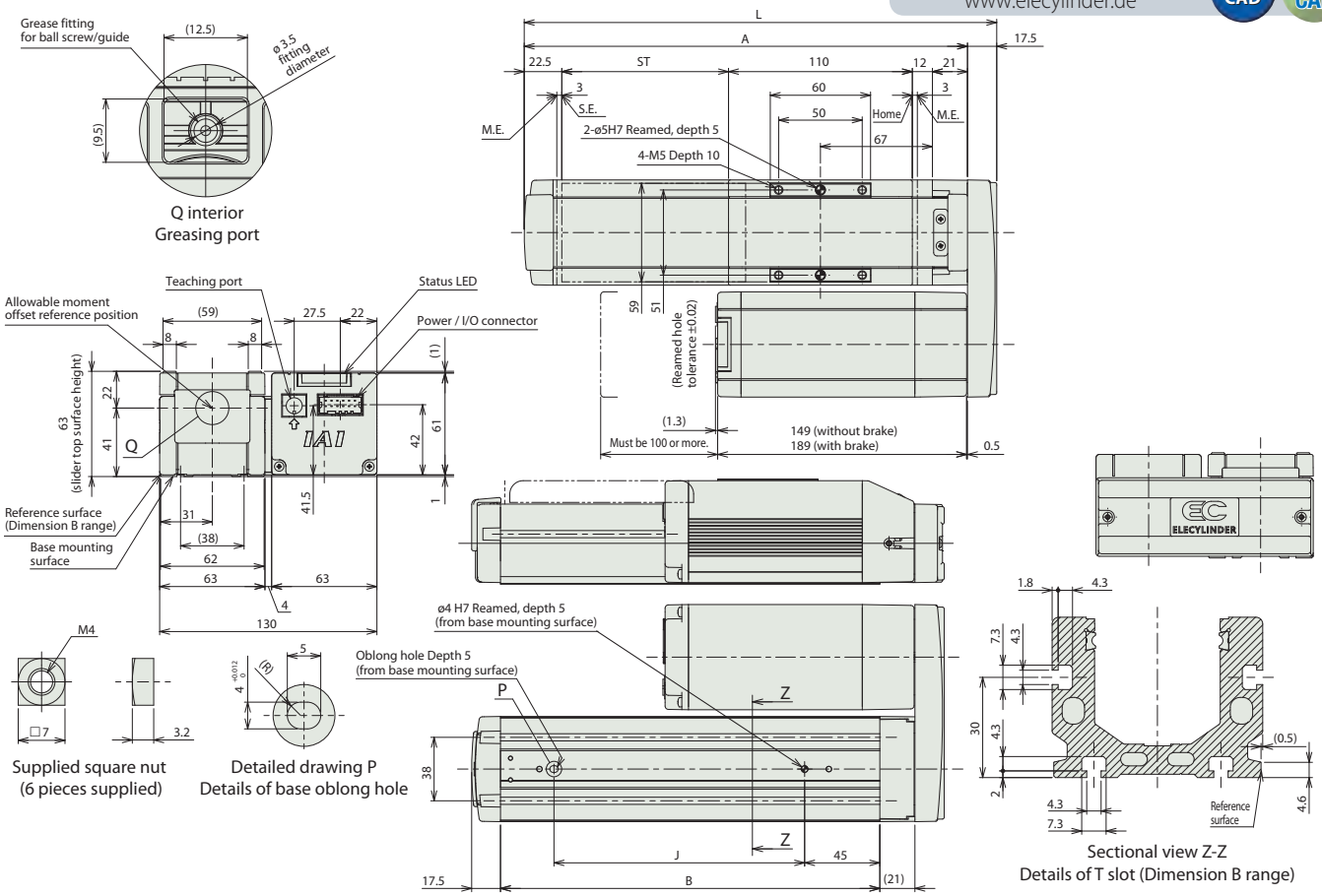
Correlation between push force and current limit value



Dimensions

(Note) 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.
(Note) The drawing below represents motor side-mounted to the left (ML).

CAD drawings can be downloaded from our website.
www.elecylinder.de



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400
L	233	283	333	383	433	483	533	583
A	215.5	265.5	315.5	365.5	415.5	165.5	515.5	565.5
B	177	227	277	327	377	427	477	527
J	100	150	200	250	300	350	400	450

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Weight (kg)	without brake	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6
	with brake	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S7□R

Slider Type | Motor Unit Coupled | Side-mounted Motor | Body width 73 mm | 24V Pulse motor

■ Model Specification Items

EC	—	S7		R	—		—		—	
Series		Type	Lead	Specification		Stroke		Cable Length		Options

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

Specification	
R	Side-mounted motor

Stroke	
50 ~ 500	50mm ~ 500mm (per 50mm)

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

Options
Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 280mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 1)	**ML**	See P.101
Motor side-mounted to the right (Note 1)	**MR**	See P.101
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	420	190
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	19
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	139	209	418	836
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material(A6063SS-T5 or equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 79N・m
	Mb: 114N・m
	Mc: 157N・m
Dynamic allowable moment (Note 2)	Ma: 17N・m
	Mb: 25N・m
	Mc: 34N・m
Ambient operation temperature/humidity	0~40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) Based on the standard rated operation life of 5000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed and Acceleration

■ **Energy-saving disabled** The unit for payload is kg. Operations in the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	18	13	9	7.5	3	3
860	9	6	4	3	1.5	1

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	14	8	6	3	2.5
700	10	5	3	1	1.5	1

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	36	20	15	15	8	7
350	20	5	4		3	2
420	2					

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	19	19
35	51	45	40	40	19	19
70	51	45	40	40	19	19
105	51	45	40	35	19	19
140	45	35	30	25	12.5	12
175	30	16			5	4
190	5					

■ Energy-saving enabled The unit for payload is kg. Operations in the blank locations are not possible.

Lead 24

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

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
500	7.5	1.5	0.5
560	2		

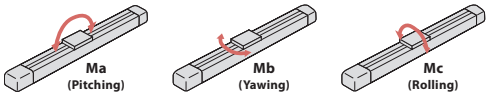
Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	5		0.5

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
120	15	6	2

■ Direction of slider type moment

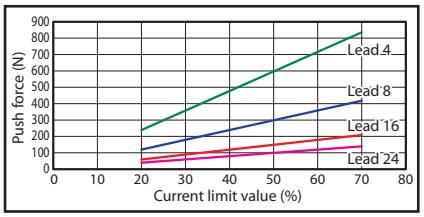


Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-300 (per 50mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
24	Disabled	860		774	619	506
	Enabled	800 <640>		774 <640>	619	506
16	Disabled	700	631	492	395	323
	Enabled	560 <500>		492	395	323
8	Disabled	420 <350>	322	251	200	164
	Enabled	280		251	200	164
4	Disabled	190 <175>	163	126	101	83
	Enabled	10			101	83

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

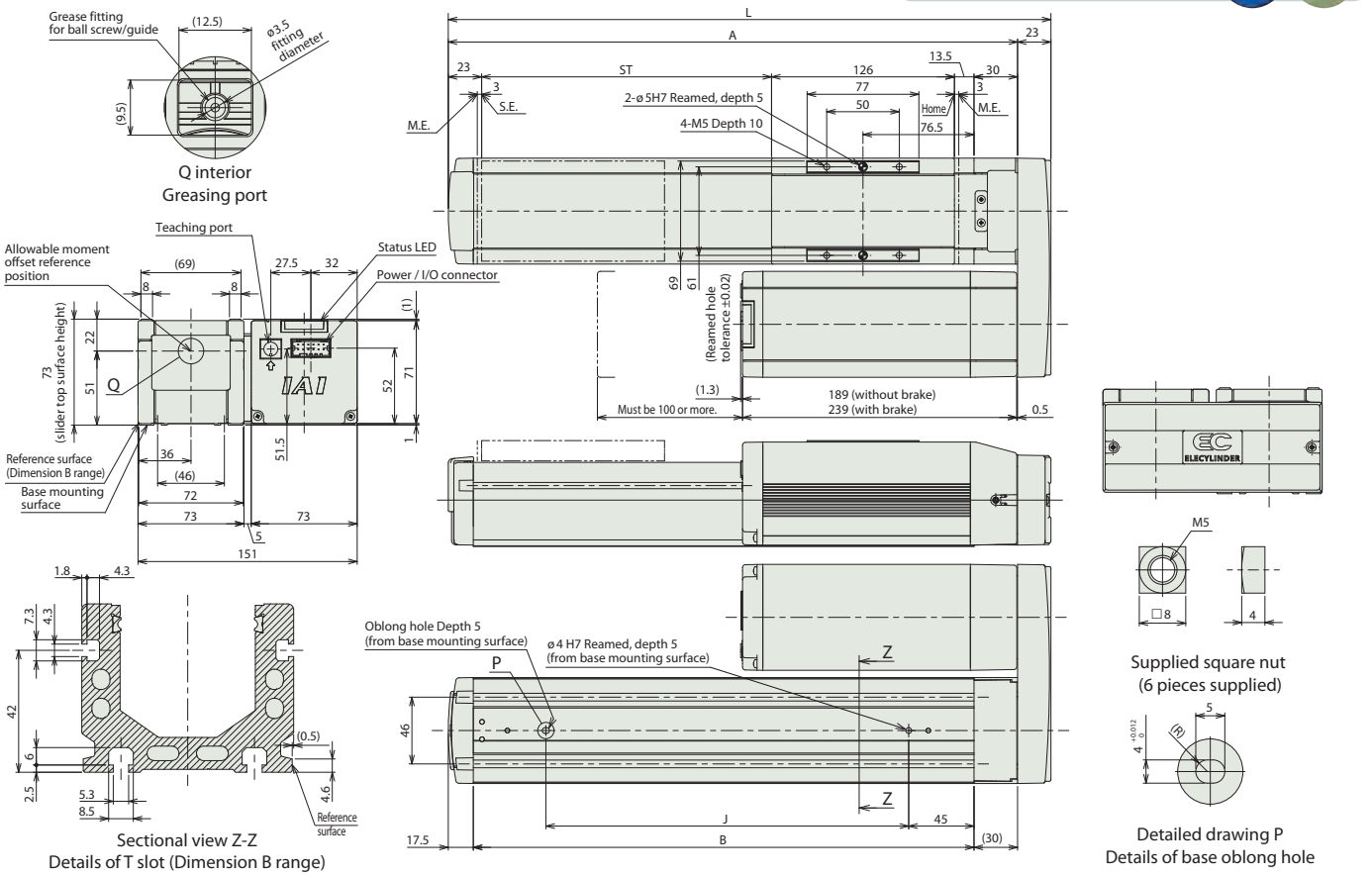
Correlation between push force and current limit value



Dimensions

(Note) 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.
(Note) The drawing below represents motor side-mounted to the left (ML).

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500
L	265.5	315.5	365.5	415.5	465.5	515.5	565.5	615.5	665.5	715.5
A	242.5	292.5	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5
B	195	245	295	345	395	445	495	545	595	645
J	100	150	200	250	300	350	400	450	500	550

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Weight (kg)	without brake	4.2	4.4	4.7	4.9	5.2	5.4	5.7	5.9	6.2	6.4
	with brake	4.7	4.9	5.2	5.4	5.7	5.9	6.2	6.4	6.7	6.9

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S6□AHR

High Rigidity | Slider Type | Motor Unit Coupled | Side-mounted Motor | Body width 63 mm | 24V Pulse motor

■ Model Specification Items

EC — S6 [ ] AHR — [ ] — [ ] — [ ]

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	S6	S	20mm	R	Side-mounted motor	50 ~ 800	50mm ~ 800mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	12mm					1 ~ 10	1m ~ 10m	
		M	6mm							
		L	3mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 1)	**ML**	See P.101
Motor side-mounted to the right (Note 1)	**MR**	See P.101
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1120	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	16
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1120	800	400	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	67	112	224	449
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	16
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material (A6063SS-T5 or equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48N·m
	Mb: 69N·m
	Mc: 103N·m
Dynamic allowable moment (Note 2)	Ma: 33N·m
	Mb: 40N·m
	Mc: 50N·m
Ambient operation temperature/humidity	0~40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) Based on the standard rated operation life of 5000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed and Acceleration

■ **Energy-saving disabled** The unit for payload is kg. Operations in the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	6.5	6	5	1	1
800	9	5	4	3	1	1
960	7	4	3	1.5	0.75	0.5
1120	5	2.5	1.5		0.5	

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	9	2.5	2.5
560	17.5	12	7	5	2.5	2.5
700	10	5	3.5	2	1	0.5
800	6	3	1		0.5	
900	3					

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	18	15	6	5.5
340	25	14	12	9	4	3.5
400	15	8	8	5	2	2
450	10	5				

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	16	16
50	40	35	35	35	16	16
80	40	35	35	30	16	16
110	40	35	35	30	16	16
140	40	35	35	28	15	15
170	40	32	25	20	9	8
200	28	20	15	8	6	4
225	18	5			2	

■ Energy-saving enabled The unit for payload is kg. Operations in the blank locations are not possible.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	2		

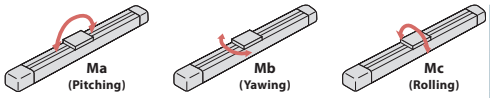
Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	8	1	1

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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	5	2

■ Direction of slider type moment

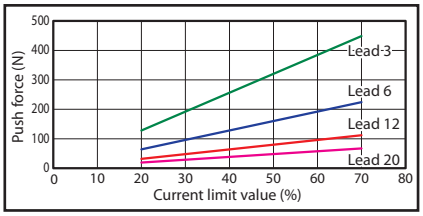


Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-400 (per 50mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	1120			1090	940	815	715	630	560
	Enabled	800						715	630	560
12	Disabled	900 <800>	845 <800>	705	585	515	445	390	345	315
	Enabled	680 <560>			585 <560>	515	445	390	345	315
6	Disabled	450 <400>	415 <400>	350	295	255	220	190	170	140
	Enabled	340			295	255	220	190	170	140
3	Disabled	225	205	170	145	125	110	95	85	70
	Enabled	170			145	125	110	95	85	70

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

Correlation between push force and current limit value



Dimensions

(Note) 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.
(Note) The drawing below represents motor side-mounted to the left (ML).

CAD drawings can be downloaded from our website.
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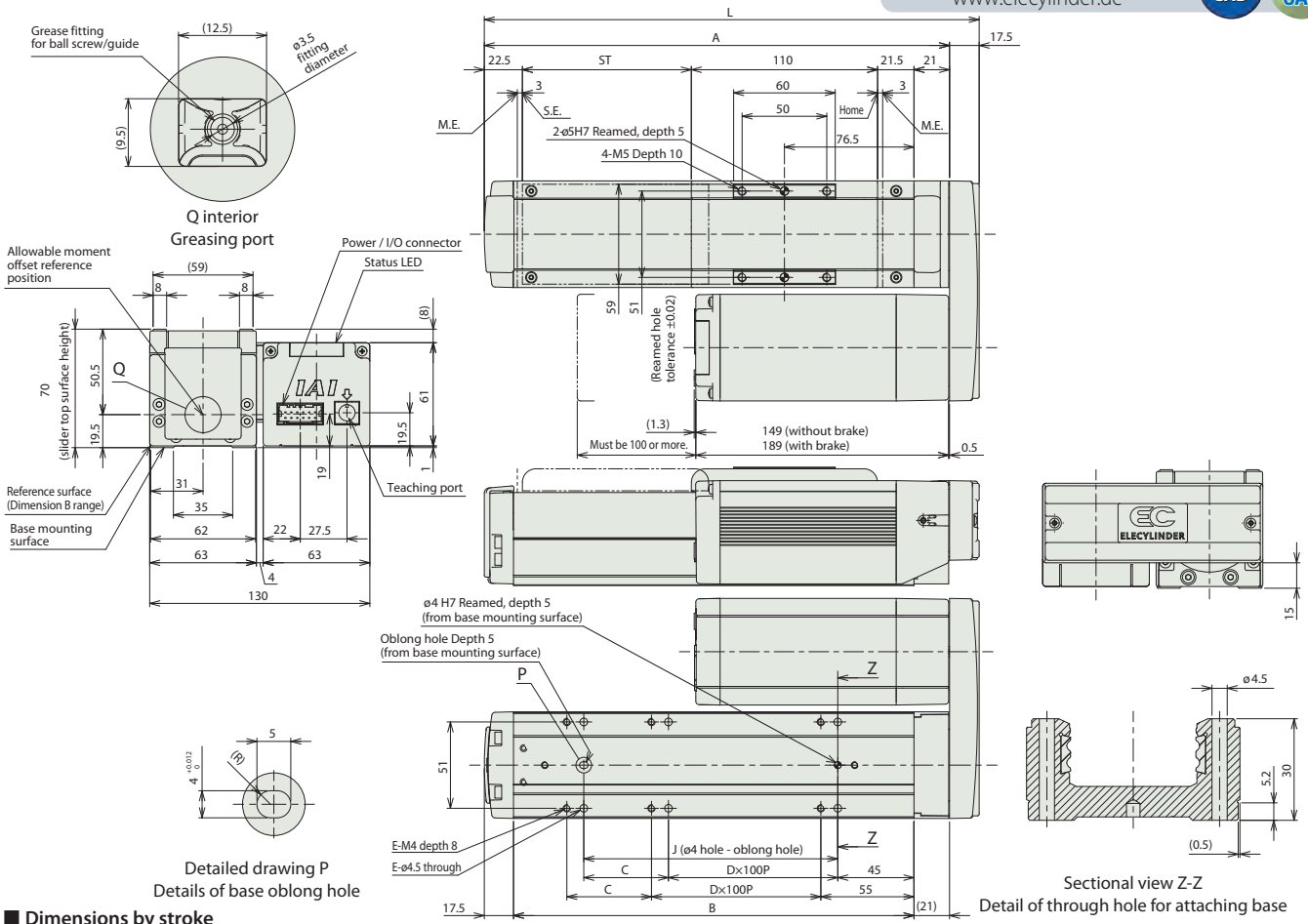
2D CAD 3D CAD



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	242.5	292.5	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5
A	225	275	325	375	425	475	525	575	625	675	725	775	825	875	925	975
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg)	without brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5	5.2	5.4	5.6
	with brake	2.6	2.8	3	3.2	3.5	3.7	3.9	4.1	4.4	4.6	4.8	5	5.3	5.5	5.7	5.9

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-S7□AHR

High Rigidity | Slider Type | Motor Unit Coupled | Side-mounted Motor | Body width 75 mm | 24V Pulse motor

■ Model Specification Items

Series	Type	Lead	Specification	Stroke	Cable Length	Options
EC	S7		AHR			

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

Specification	
AHR	Motor side-mounted

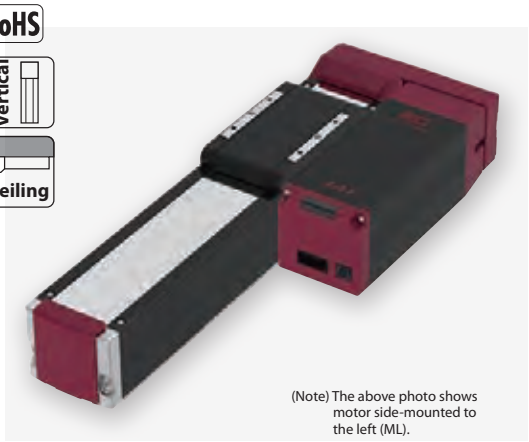
Stroke	
50 ~ 800	50mm ~ 800mm (per 50mm)

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

Options
Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling



(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.
(3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb and Mc directions. Please refer to the illustration on P32 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 1)	**ML**	See P.101
Motor side-mounted to the right (Note 1)	**MR**	See P.101
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1080	840	420	190
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	25
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	139	209	418	836
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	25
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

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

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Base	Dedicated aluminum extruded material(A6063SS-T5 or equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 115N・m
	Mb: 115N・m
	Mc: 229N・m
Dynamic allowable moment (Note 2)	Ma: 75N・m
	Mb: 90N・m
	Mc: 134N・m
Ambient operation temperature/humidity	0~40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) Based on the standard rated operation life of 5000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P33.

Table of Payload by Speed and Acceleration

■ **Energy-saving disabled** The unit for payload is kg. Operations in the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	11	3	3
640	15	10	8	6.5	3	2
860	9	6	4	3	1.5	1
1080	3	2				
1230	3	1.5	1	0.5	0.5	

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	30	25	15	10	5	4.5
560	15	12	7	5	3	2.5
700	10	5	3	1	1.5	1
840	3					
980	4					

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	9	8
280	35	20	15	12.5	6	5
350	20	5	4		3	2
420	2					

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	25	25
35	51	45	40	40	25	25
70	51	45	40	40	25	25
105	51	45	40	35	20	19
140	45	35	30	25	12.5	10
175	20	15			4	3
190	5					

■ **Energy-saving enabled** The unit for payload is kg. Operations in the blank locations are not possible.

Lead 24

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

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
500	7.5	1.5	0.5
560	2		

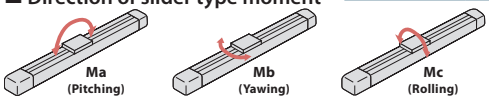
Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	5		0.5

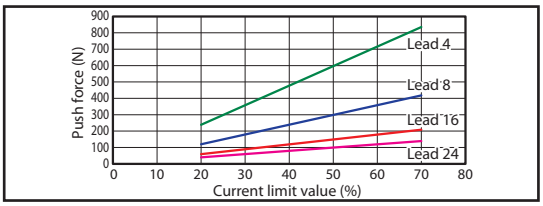
Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
120	15	6	2

■ **Direction of slider type moment**



Correlation between push force and current limit value



Stroke and maximum speed

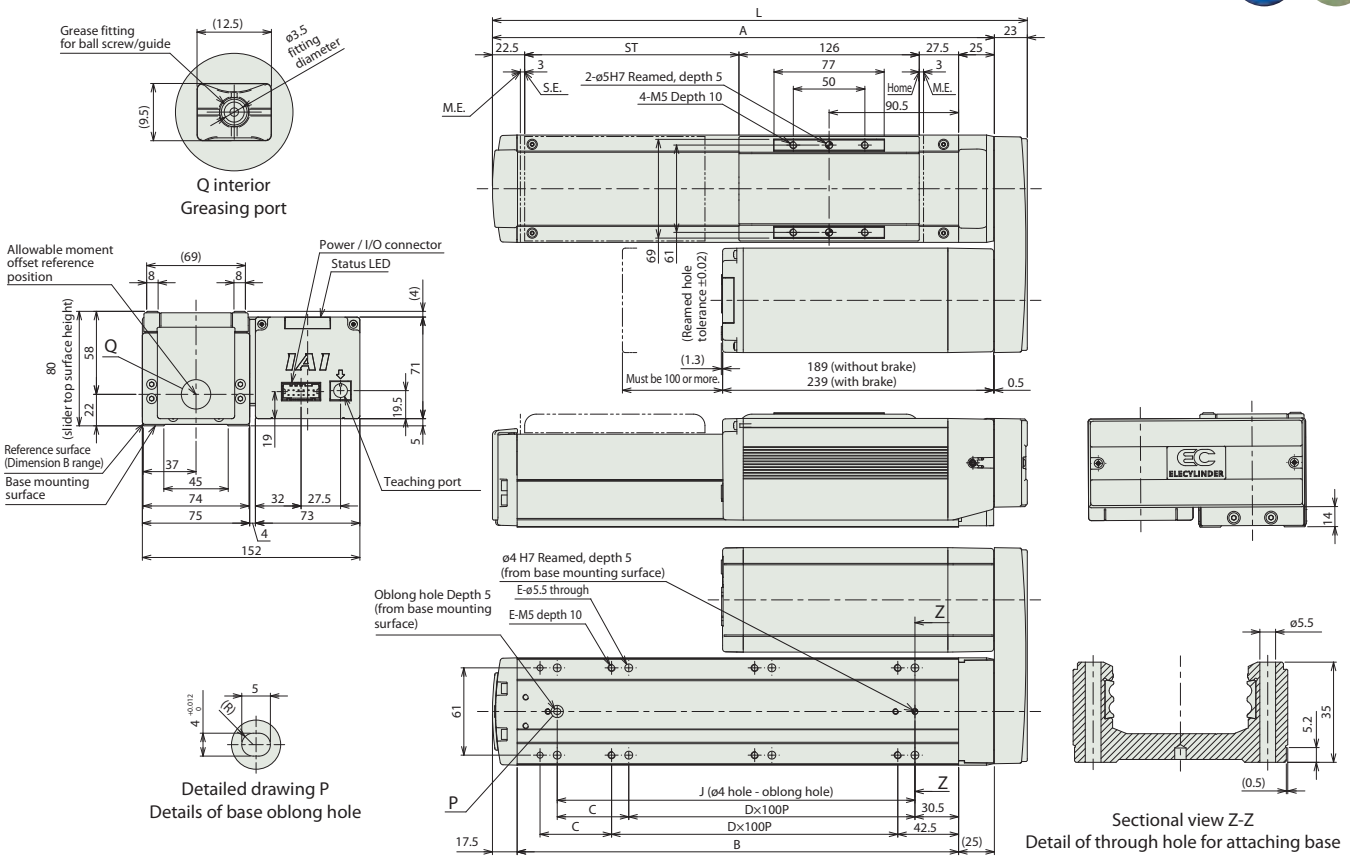
Lead (mm)	Energy-saving mode	50-500 (per 50mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	1080 <860>				950	840	750
	Enabled	800 <640>						750 <640>
16	Disabled	840 <700>		820 <700>	715 <700>	625	555	495
	Enabled	560 <500>					555 <500>	495
8	Disabled	420 <350>		405 <350>	350	310	275	245
	Enabled	280					275	245
4	Disabled	190 <175>			175	150	135	120
	Enabled	120						

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

Dimensions

(Note) 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.
(Note) The drawing below represents motor side-mounted to the left (ML).

CAD drawings can be downloaded from our website.
www.elecylinder.de



■ **Dimensions by stroke**

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	274	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024
A	251	301	351	401	451	501	551	601	651	701	751	801	851	901	951	1001
B	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ **Mass by stroke**

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg)	without brake	4.5	4.7	5	5.3	5.5	5.8	6.1	6.3	6.6	6.9	7.1	7.4	7.7	7.9	8.2	8.5
	with brake	5.0	5.2	5.5	5.8	6.0	6.3	6.6	6.8	7.1	7.4	7.6	7.9	8.2	8.4	8.7	9.0

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-R6

Rod Type | Motor Unit Coupled | Straight Motor | Body width 63 mm | 24V Pulse motor

■ Model Specification Items

EC — R6 — [ ] — [ ] — [ ] — [ ]

Series	Type	Lead		Stroke		Cable Length		Options
		S	20mm	50 ~ 300	50mm ~ 300mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	12mm			1 ~ 10	1m ~ 10m	
		M	6mm					
		L	3mm					

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) 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" for more details.
(2) 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.
(3) When performing a push-motion operation, pleasae refer to the "Correlation graph between push force and current limit value." Push force is only a Reference value. Please refer to P110 for details.
(4) Limit on duty may be needed depending on the ambient operation temperature. Please refer to P110 for details.
(5) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Options

Type	Option code	Reference page
Brake	**B**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Tip adapter (Internal thread)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Cable Length

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

(Note) Robot cables.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	67	112	224	449
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Rod	ø25mm Material: Aluminum Hard alumite treatment
Rod non-rotation accuracy (Note 1)	±1.5 degree
Allowable load and torque on the rod tip.	0.5N・m
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) The rod tip displacement angle (initial reference value) when allowable static torque is applied on rod tip when most of the rod is in the body.

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

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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

■ Setting for energy-saving enabled Unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

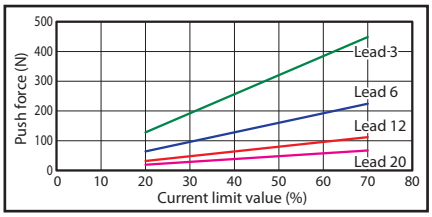
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-200 (per 50mm)	250 (mm)	300 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700		547
	Enabled	500		
6	Disabled	450	376	268
	Enabled	250		
3	Disabled	255	186	133
	Enabled	125		

(Unit is mm/s)

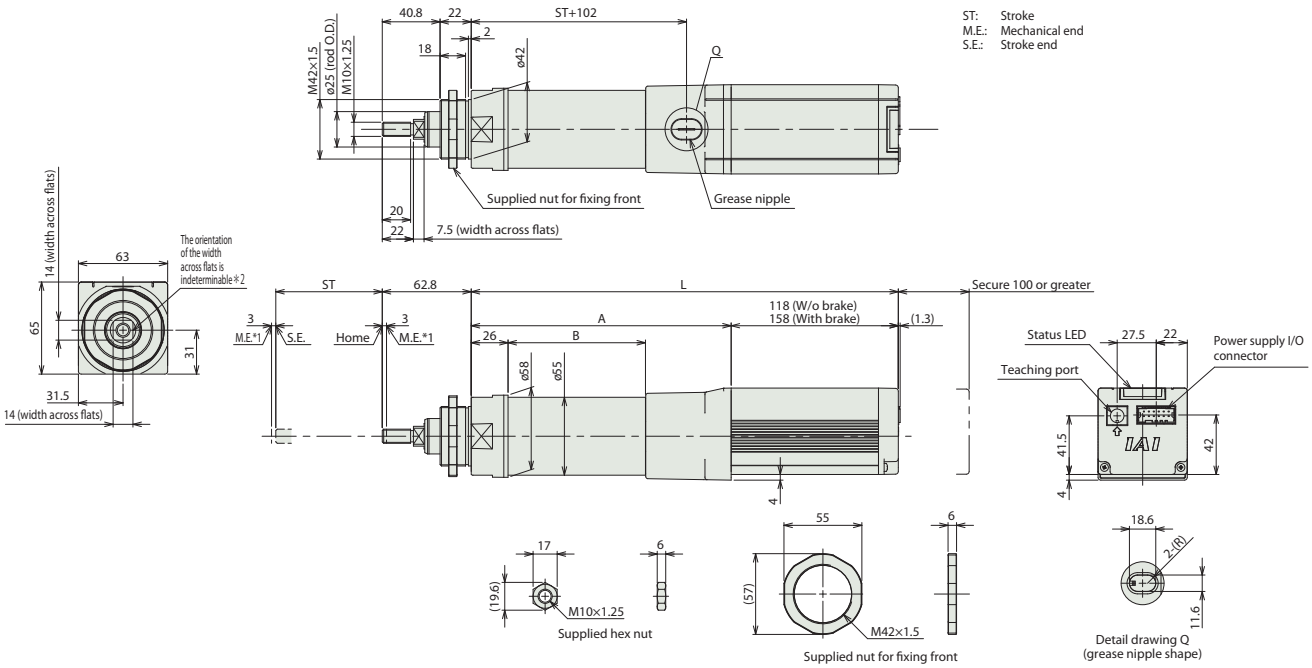
Correlation between push force and current limit value



Dimensions

*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.
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de



■ Dimensions 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

■ Mass by stroke

Stroke		50	100	150	200	250	300
Weight (kg)	W/o Brake	1.6	1.8	2	2.2	2.4	2.6
	With Brake	1.8	2	2.2	2.4	2.6	2.8

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-R7

Rod Type | Motor Unit Coupled | Straight Motor | Body width 73 mm | 24V Pulse motor

■ Model Specification Items

EC	—	R7		—		—		—	
Series		Type	Lead		Stroke		Cable Length		Options

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

Stroke	
50 ~ 300	50mm ~ 300mm (per 50mm)

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

Options: Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) 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" for more details.
(2) 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.
(3) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for details.
(4) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for details.
(5) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Options

Type	Option code	Reference page
Brake	**B**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Tip adapter (Internal thread)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Cable length

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

(Note) Robot cables.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	182	273	547	1094
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Rod	ø30mm Material: Aluminum Hard alumite treatment
Rod non-rotation accuracy (Note 1)	±1.5 degree
Allowable load and torque on the rod tip.	0.5N·m
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) The rod tip displacement angle (initial Reference value) when allowable static torque is applied on rod tip when most of the rod is in the body.

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

Table of Payload by Speed and Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	

■ Setting for energy-saving enabled Unit for payload is kg. Operations on the blank locations are not possible

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

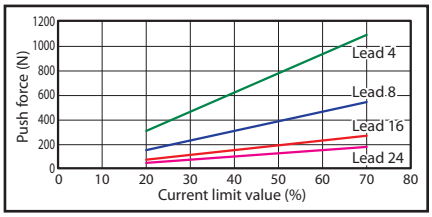
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-300 (per 50mm)
24	Disabled	860<640>
	Enabled	600<400>
16	Disabled	700<560>
	Enabled	420<280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

(Note) Figures in < > represent vertical operation. (Unit is mm/s)

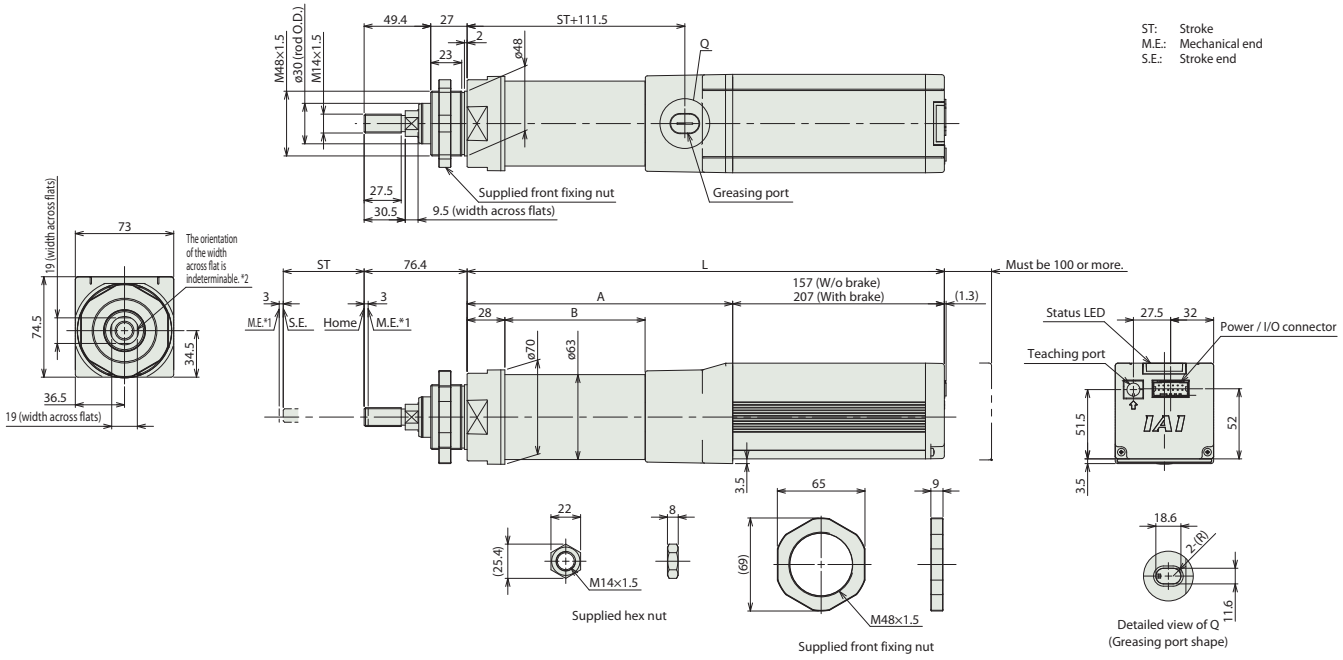
Correlation between push force and current limit value



Dimensions

*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.
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD



■ Dimensions 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

■ Mass by stroke

Stroke		50	100	150	200	250	300
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

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR3

Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 35 mm | 24V Pulse motor

Model Specification Items

EC	—	RR3		—		—		—	
Series		Type	Lead		Stroke		Cable Length		Options

Lead	
H	6mm
M	4mm
L	2mm

Stroke	
50 ~ 300	50mm ~ 300mm (per 50mm)

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

Options: Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder

(Note) The above photo shows motor mounting direction top (MOT).

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Frange (front)	**FL**	See P.98
Foot bracket (front)	**FT**	See P.99
Motor mounting direction change (bottom) (Note 1)	**MOB**	See P.101
Motor mounting direction change (left) (Note 1)	**MOL**	See P.101
Motor mounting direction change (right) (Note 1)	**MOR**	See P.101
Motor mounting direction change (top) (Note 1)	**MOT**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WA**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Stroke and maximum speed

Lead (mm)	50-150 (per 50mm)	200 (mm)	250 (mm)	300 (mm)
6	420	300	210	150
4	280	200	140	100
2	140	100	70	50

(Unit is mm/s)

Cable length

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

(Note) Robot cables.

Main specifications

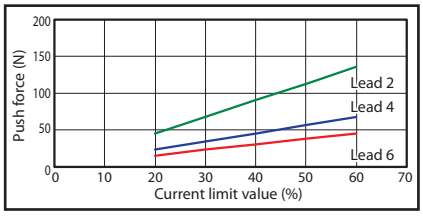
Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	9	14	18
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push force		Max. thrust force when pushing (N)*	45	68	136
		Max. speed when pushing (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

Item	Description
Driving system	Ball screw ø6mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø16mm, Material: aluminum, Hard alumite treatment
Rod no-rotation precision (Note 2)	0 degree
Ambient operation temperature/humidity	0 to 40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2, 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse /rev.

(Note 2) The rod tip displacement angle when no load is applied.

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

Correlation between push force and current limit value



Rod deflection value (reference value)

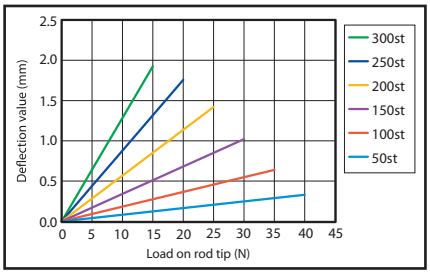


Table of Payload by Speed/Acceleration

Unit of payload is kg.

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.5	0.3
0	9	7	1.5
120	9	7	1.5
210	9	7	1.5
255	9	7	1.5
315	9	7	1
360	8	6	1
420	6	5	1

Lead 4

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	14	2.5
80	14	2.5
140	14	2.5
170	14	2.5
210	14	2.5
240	13	2.5
280	12	2

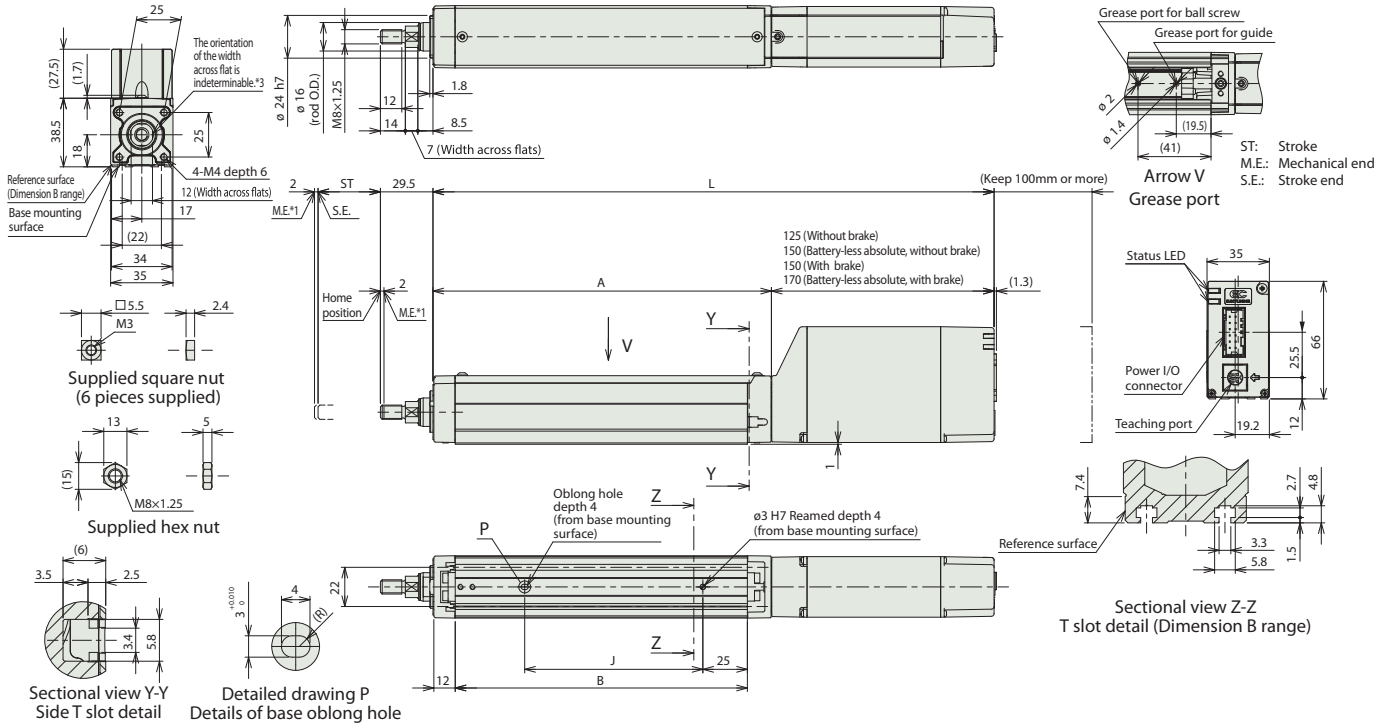
Lead 2

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	18	3.5
40	18	3.5
70	18	3.5
85	18	3.5
105	18	3.5
120	18	3
140	17	2.5

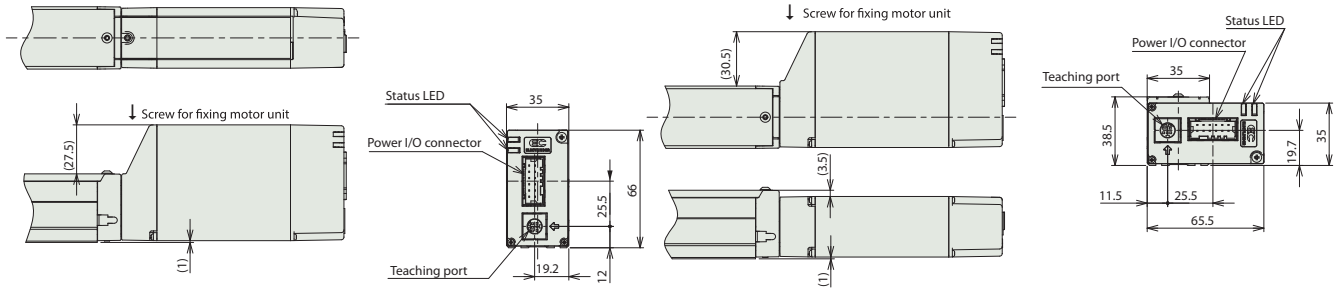
Dimensions

*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.
*2 The drawing below represents motor mounting direction top (MOT).
*3 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de

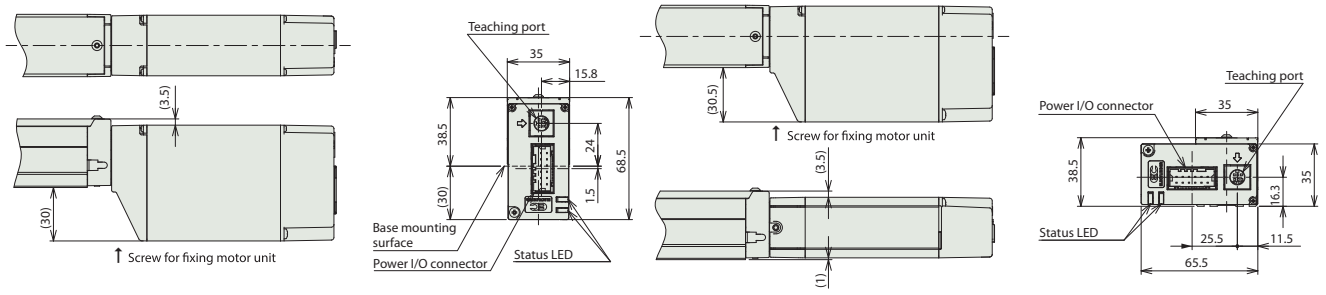


■ Motor mounting direction change (optional)



Motor mounting direction change (top): MOT

Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB

Motor mounting direction change (left): MOL

■ Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	265	315	365	415	465	515
		With brake	290	340	390	440	490	540
	Battery-less absolute	Without brake	290	340	390	440	490	540
		With brake	310	360	410	460	510	560
A			140	190	240	290	340	390
B			114	164	214	264	314	364
J			50	100	150	200	250	300

■ Mass by stroke

Stroke		50	100	150	200	250	300
Weight (kg)	Without brake	0.8	0.9	1	1.1	1.2	1.3
	With brake	0.9	1	1.1	1.2	1.3	1.4

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR4

Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 44 mm | 24V Pulse motor

Model Specification Items

EC — RR4 — [ ] — [ ] — [ ] — [ ]

Series	Type	Lead	Stroke	Cable Length	Options
EC	RR4	S 16mm H 10mm M 5mm L 2.5mm	50 ~ 300: 50mm ~ 300mm (per 50mm)	0: With terminal block type connector 1 ~ 10: 1m ~ 10m	Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder

(Note) The above photo shows motor mounting direction top (MOT).

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Stroke and maximum speed

Lead (mm)	Energy-saving	50-150 (per 50mm)	200 (mm)	250 (mm)	300 (mm)
16	disabled	800		600	440
	enabled	560			440
10	disabled	700	570	390	290
	enabled	525		390	290
5	disabled	350	280	190	140
	enabled	260		190	140
2.5	disabled	175 <150>	135	90	70
	enabled	135		90	70

Figures in < > represent vertical operations. (Unit is mm/s)

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Motor mounting direction change (bottom) (Note 1)	**MOB**	See P.101
Motor mounting direction change (left) (Note 1)	**MOL**	See P.101
Motor mounting direction change (right) (Note 1)	**MOR**	See P.101
Motor mounting direction change (top) (Note 1)	**MOT**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Main specifications

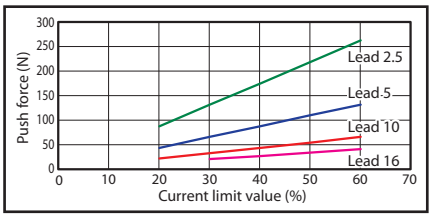
Item		Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	16	25	35
		Max. payload (kg) (energy-saving enabled)	5	10	22	35
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push force		Max. thrust force when pushing (N)*	41	66	132	263
		Max. speed when pushing (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø8mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø20mm, Material: aluminum, Hard alumite treatment
Rod no-rotation precision (Note 2)	0 degree
Ambient operation temperature/humidity	0 to 40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2, 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse /rev.

(Note 2) The rod tip displacement angle when no load is applied.

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

Correlation between push force and current limit value



Rod deflection value (reference value)

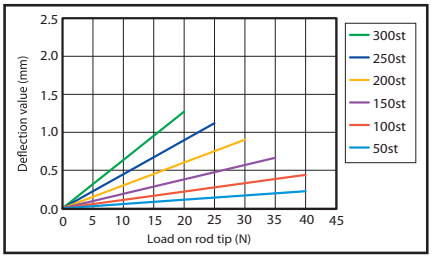


Table of Payload by Speed and Acceleration/Deceleration

Energy-saving disabled

The unit for payload is kg. Operations in the blank locations are not possible

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	7	6	5	3.5	1.5	1.25
140	7	6	5	3.5	1.5	1.25
280	7	6	4.5	3.5	1.5	1.25
420	7	6	3.5	2.5	1.5	1.25
560	6.5	5.5	3.5	2.5	1.5	1.25
700	5.5	3.5	2.5	1.5	1	1
800		1	1	1		1

Lead 10

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	16	15	13	11	2.5	2
175	16	15	13	11	2.5	2
350	16	11	11	7.5	2.5	2
435	15	9	8	6.5	2.5	2
525	11	7	5.5	4.5	2.5	2
600	7	4.5	3.5	2.5	2	2
700		2.5	1.5			1

Lead 5

Orientation	Horizontal		Vertical	
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.3	0.5
0	25	22	5	4.5
85	25	22	5	4.5
130	25	22	5	4.5
215	25	22	5	4.5
260	25	22	5	4.5
300	22	18	5	4
350	18	11	3	3

Lead 2.5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	35	6.5
135	32	6
150	30	6
175	28	

Energy-saving enabled

The unit for payload is kg. Operations in the blank locations are not possible

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	5	3	1
140	5	3	1
280	5	3	1
420	4	3	1
560	3	1.5	1

Lead 10

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	10	6.5	2
175	10	6.5	2
350	9	6.5	2
435	5	2.5	1.5
525	1		1

Lead 5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	22	4.5
85	22	4.5
130	22	4.5
215	18	3
260	12	2

Lead 2.5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	30	6
135	25	3.5

Dimensions

*1 The dimensions represent for wireless communication specification (optional) or wireless axis- operation specification (optional).
*2 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.
*3 The drawing below represents motor mounting direction top (MOT).
*4 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

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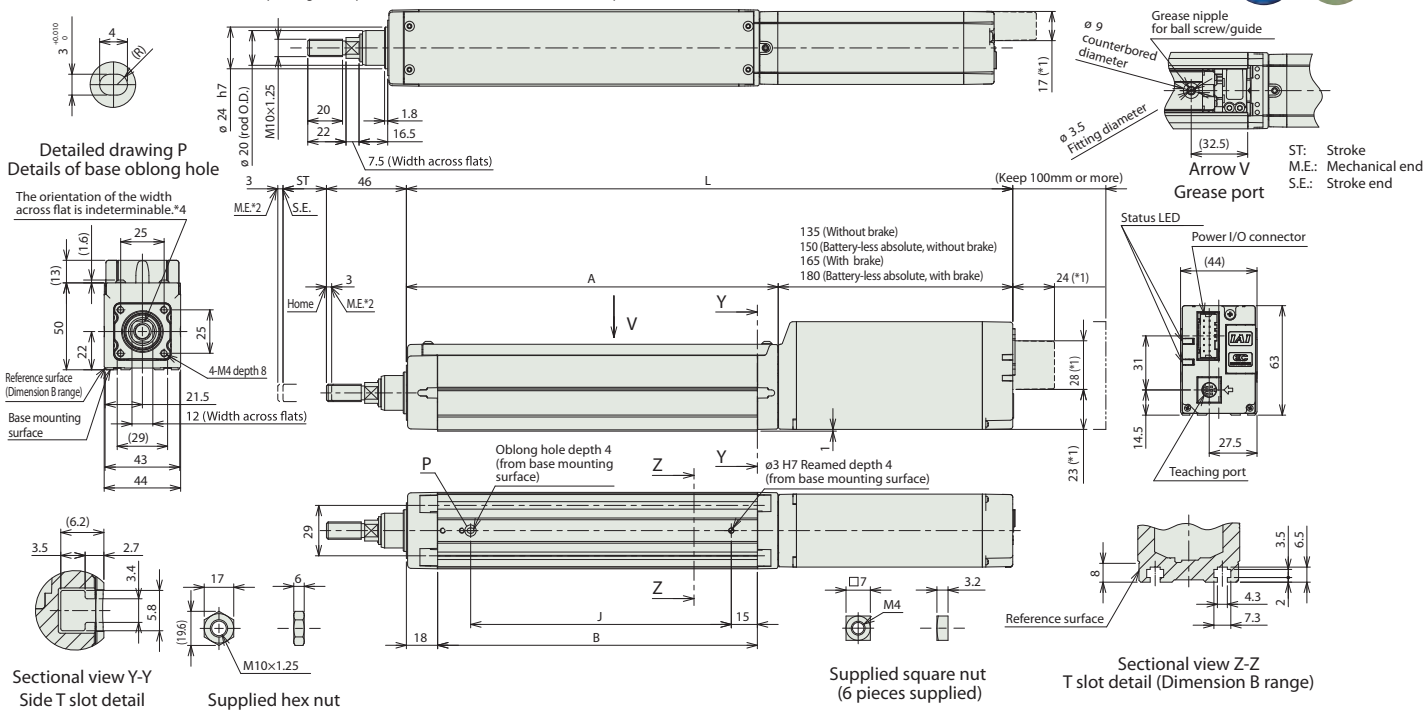
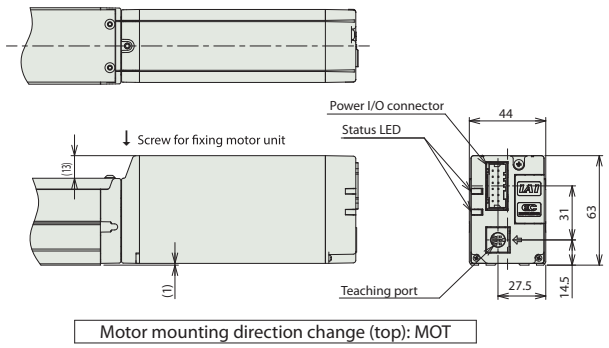
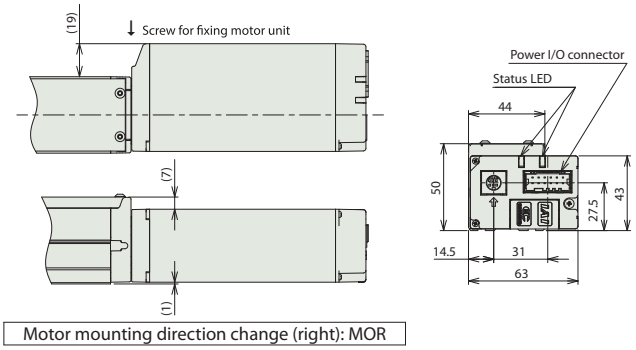


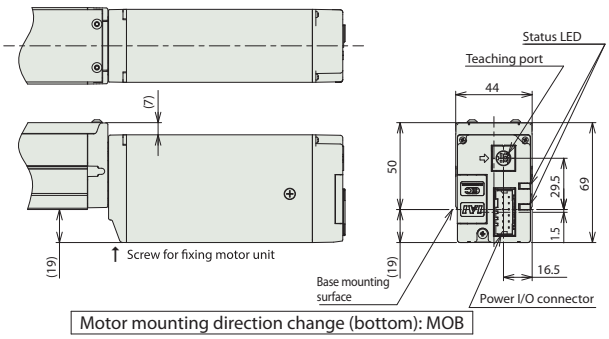
■ Motor mounting direction change (optional)



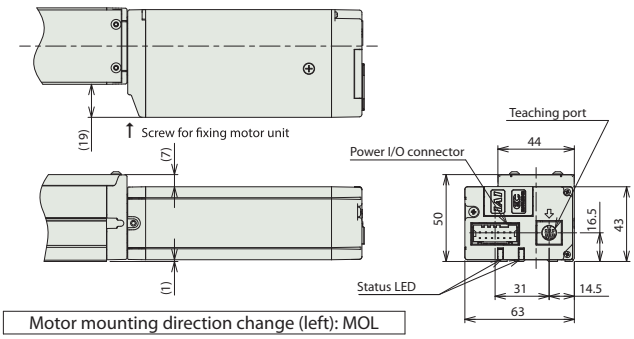
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB



Motor mounting direction change (left): MOL

■ Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	299	349	399	449	499	549
		With brake	329	379	429	479	529	579
	Battery-less absolute	Without brake	314	364	414	464	514	564
		With brake	344	394	444	494	544	594
A			164	214	264	314	364	414
B			134	184	234	284	334	384
J			100	150	200	250	300	350

■ Mass by stroke

Stroke		50	100	150	200	250	300
Weight (kg)	Without brake	1.3	1.5	1.7	1.9	2.1	2.3
	With brake	1.5	1.7	1.9	2.1	2.2	2.4

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR6

Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 63 mm | 24V Pulse motor

Model Specification Items

EC — RR6 — [ ] — [ ] — [ ] — [ ]

Series	Type	Lead	Stroke	Cable Length	Options
EC	RR6	S 20mm H 12mm M 6mm L 3mm	65 ~ 315: 65mm ~ 315mm (per 50mm)	0: With terminal block type connector 1 ~ 10: 1m ~ 10m	Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Options

Name	Option code	Reference page
Brake	B	See P.97
Tip adapter (flange)	FFA	See P.97
Flange (front)	FL	See P.98
Foot bracket	FT	See P.99
Tip adapter (female screw)	NFA	See P.102
Knuckle joint (Note 1)	NJ	See P.103
Knuckle joint + oscillation receiving bracket (Note 1)	NJPB	See P.103
Non-motor end specification	NM	See P.104
PNP specification	PN	See P.104
Clevis bracket (Note 1)	QR	See P.104
Clevis bracket + oscillation receiving bracket (Note 1)	QRPB	See P.105
Split motor and controller power supply specification	TMD2	See P.105
Battery-less absolute encoder	WA	See P.105
Wireless communication specification	WL	See P.105
Wireless axis-operation specification	WL2	See P.105

(Note 1) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set. Mounting is to be done by customer.

Cable Length

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

(Note) Robot cables.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	67	112	224	449
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø25mm Material: Aluminum Hard alumite treatment
Rod no-rotation precision (Note 2)	0 degree
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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

■ Setting for energy-saving enabled Unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

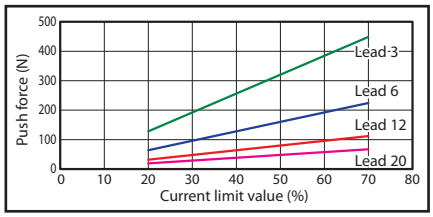
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	20
25	40	25	20
50	40	25	20
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and maximum speed

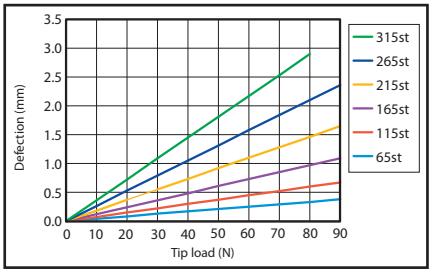
Lead (mm)	Energy-saving mode	65-215 (per 50mm)	265 (mm)	315 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700	660	480
	Enabled	500		480
6	Disabled	450	325	235
	Enabled	250		235
3	Disabled	225	160	115
	Enabled	125		115

(Unit is mm/s)

Correlation between push force and current limit value



Rod deflection (reference value)



Dimensions

*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.
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

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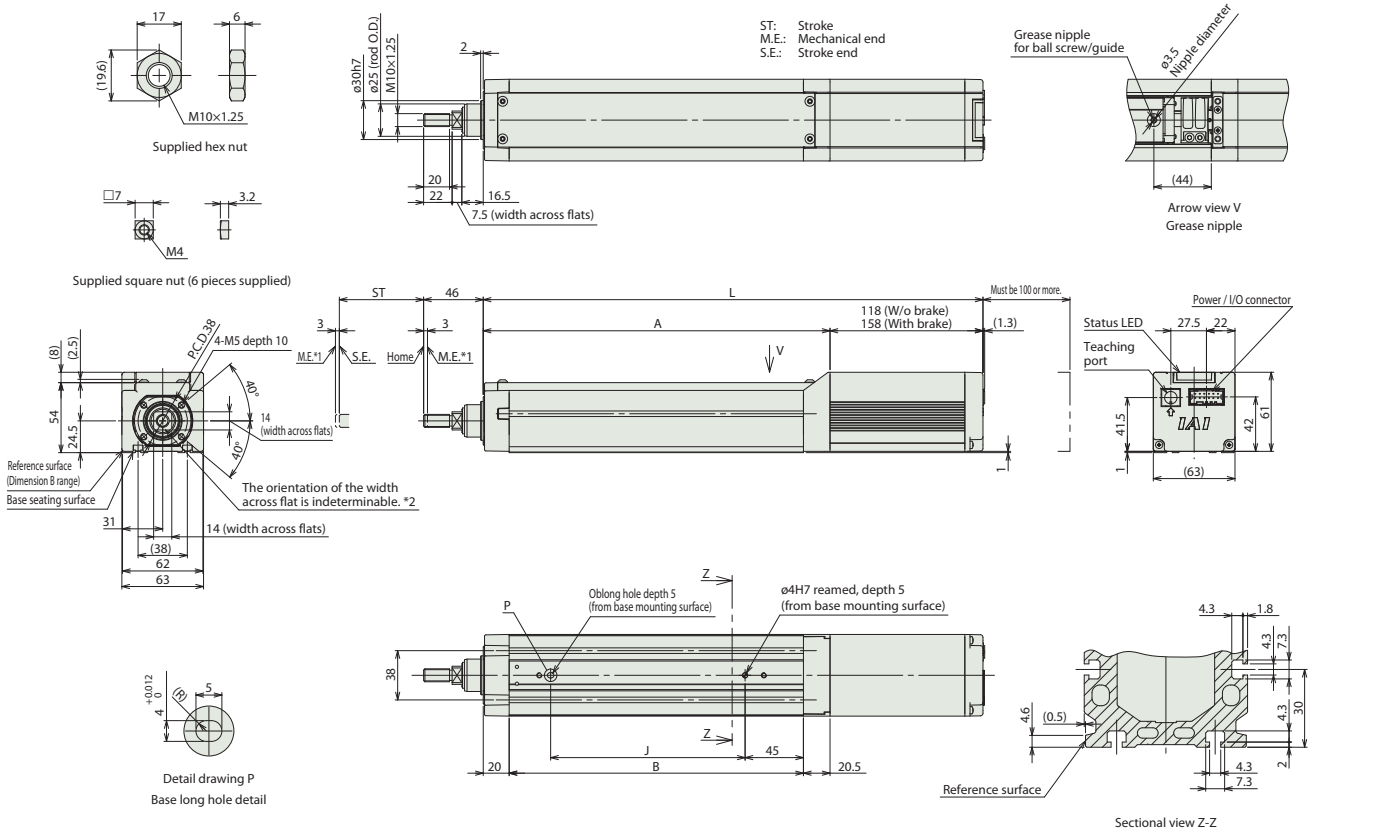


■ Dimensions by stroke

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

■ Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without 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

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR7

Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 73 mm | 24V Pulse motor

Model Specification Items

EC — RR7 — [ ] — [ ] — [ ] — [ ]

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

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder

POINT Selection Notes

(1) 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" for more details.

(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.

(3) The value of the horizontal payload assumes the use of an external guide.

(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.

(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.

(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Tip adapter (female screw)	**NFA**	See P.102
Knuckle joint (Note 1)	**NJ**	See P.103
Knuckle joint + oscillation receiving bracket (Note 1)	**NJPB**	See P.103
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Clevis bracket (Note 1)	**QR**	See P.104
Clevis bracket + oscillation receiving bracket (Note 1)	**QRPB**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set. Mounting is to be done by customer.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	182	273	547	1094
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø30mm Material: Aluminum Hard alumite treatment
Rod non-rotation accuracy (Note 2)	0 degree
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	

■ Setting for energy-saving enabled Unit for payload is kg. Operations on the blank locations are not possible

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

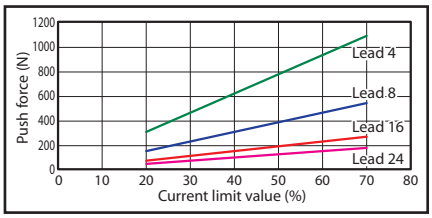
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

Stroke and maximum speed

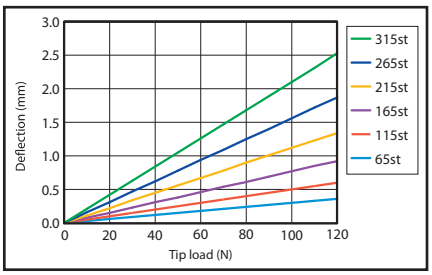
Lead (mm)	Energy-saving mode	65-215 (per 50mm)	265 (mm)	315 (mm)
24	Disabled	860<640>		
	Enabled	600<420>		
16	Disabled	700<560>		
	Enabled	420<280>		
8	Disabled	350		
	Enabled	210		
4	Disabled	175		
	Enabled	105		

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

Correlation between push force and current limit value



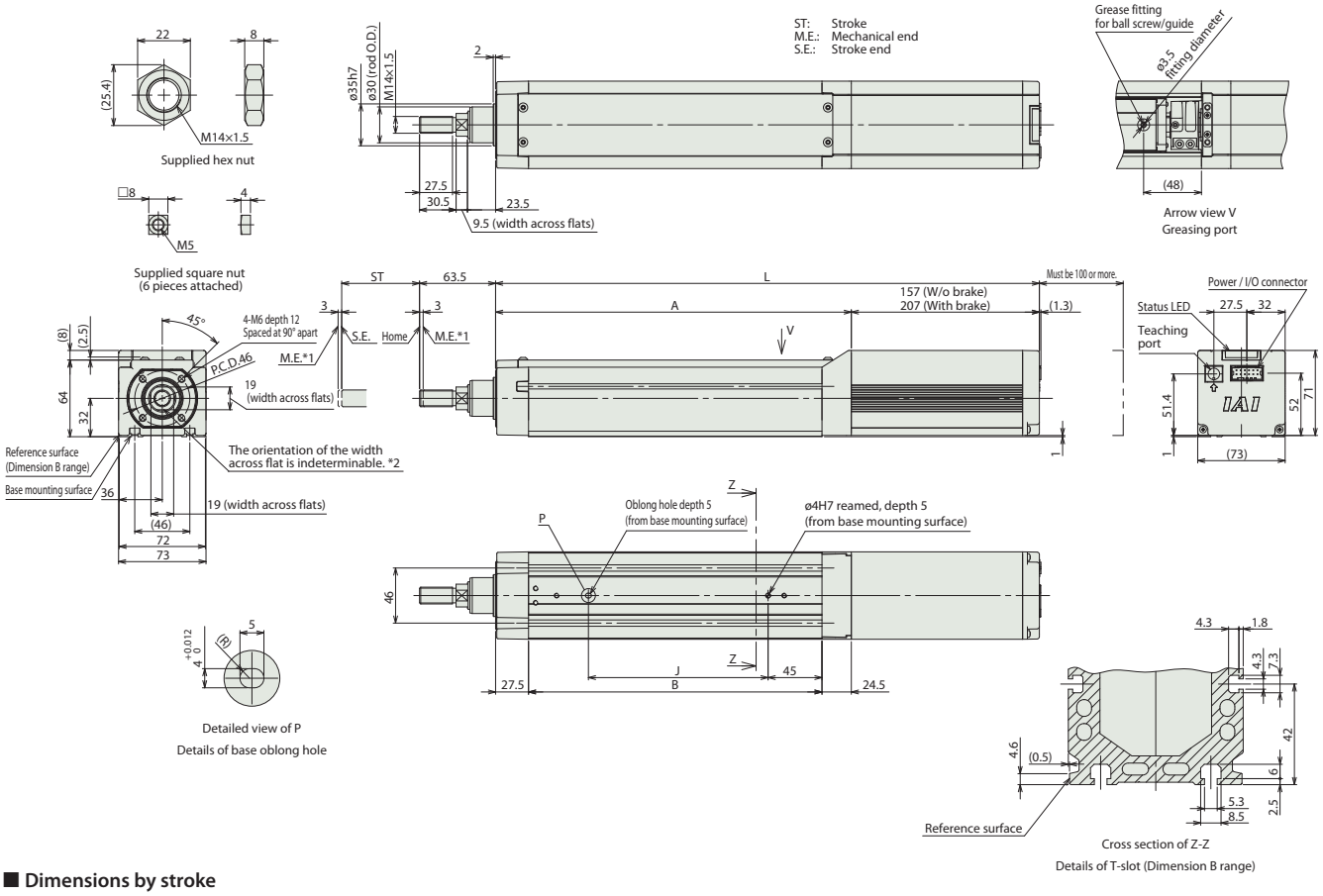
Rod deflection (reference value)



Dimensions

*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.
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD



■ Dimensions by stroke

Stroke		65	115	165	215	265	315
L	W/o Brake	404	454	504	554	604	654
	With Brake	454	504	554	604	654	704
A		247	297	347	397	447	497
B		195	245	295	345	395	445
J		100	150	200	250	300	350

■ Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	3.7	4.1	4.4	4.8	5.2	5.5
	With brake	4.3	4.6	5.0	5.3	5.7	6.1

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR6□AH

High Rigidity | Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 63 mm | 24V Pulse motor

Model Specification Items

EC — RR6 [ ] AH — [ ] — [ ] — [ ]

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	RR6	S	20mm	AH	High Rigidity	50 ~ 400	50mm ~ 400mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	12mm					1 ~ 10	1m ~ 10m	
		M	6mm							
		L	3mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front)	**FL**	See P.98
Tip adapter (female screw)	**NFA**	See P.102
Knuckle joint (Note 1)	**NJ**	See P.103
Knuckle joint + oscillation receiving bracket (Note 1)	**NJPB**	See P.103
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Clevis bracket (Note 1)	**QR**	See P.104
Clevis bracket + oscillation receiving bracket (Note 1)	**QRPB**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	20
		Max. payload (kg) (energy-saving enabled)	1	4	10	20
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	67	112	224	449
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	20
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø25mm Material: Aluminum Hard alumite treatment
Rod non-rotation accuracy (Note 2)	0 degree
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed/Acceleration

Setting for energy-saving disabled Unit for payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	20	20
50	60	50	45	40	20	20
100	60	50	45	40	20	20
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

■ Setting for energy-saving enabled Unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

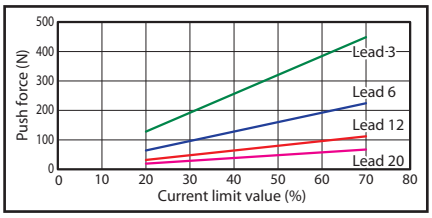
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	20
25	40	25	20
50	40	25	20
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and maximum speed

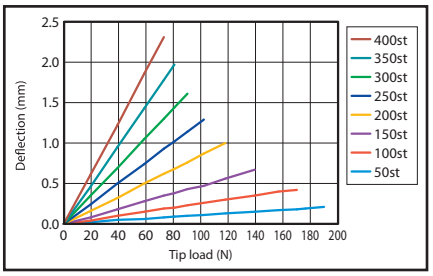
Lead (mm)	Energy-saving mode	50-400 (per 50mm)
20	Disabled	800
	Enabled	640
12	Disabled	700
	Enabled	500
6	Disabled	450
	Enabled	250
3	Disabled	225
	Enabled	125

(Unit is mm/s)

Correlation between push force and current limit value



Rod deflection (reference value)



Dimensions

*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.
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

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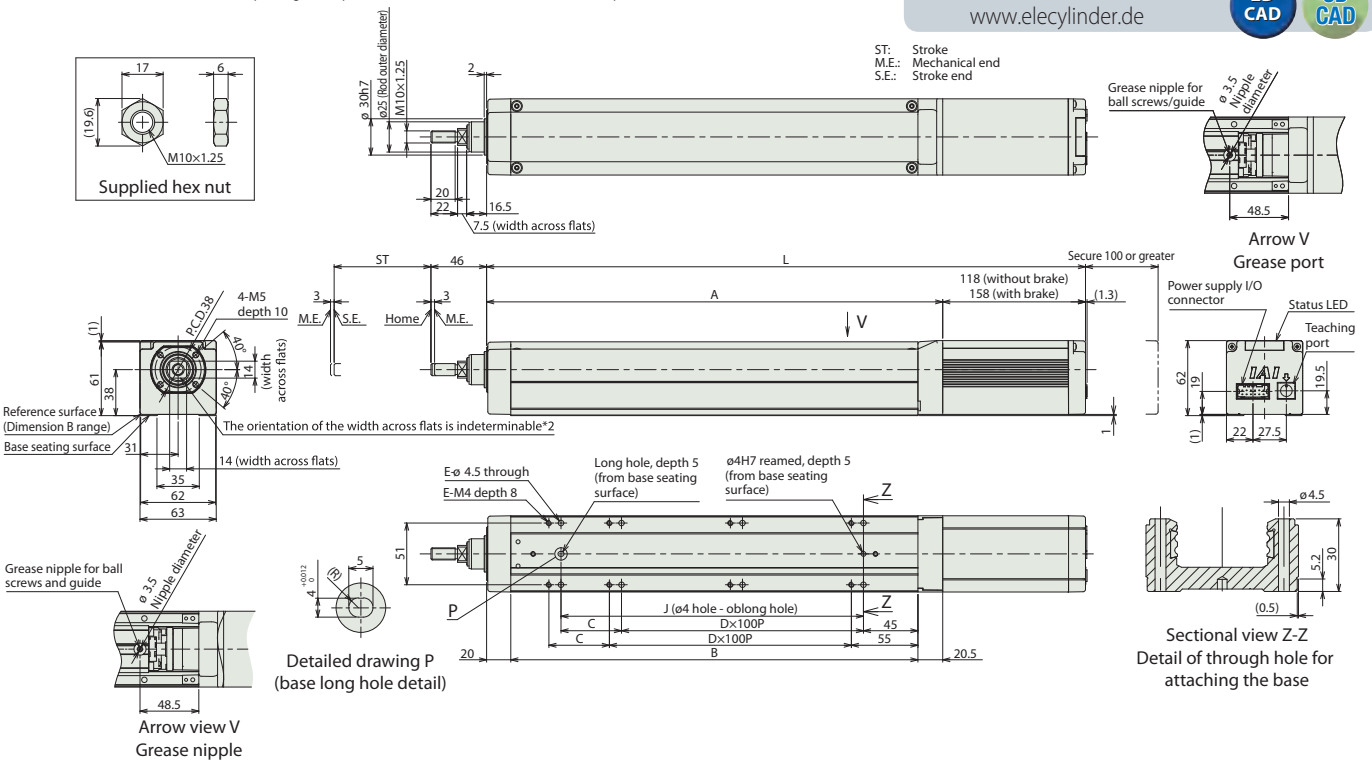


■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400
L	W/o Brake	345	395	445	495	545	595	645	695
	With Brake	385	435	485	535	585	635	685	735
A		227	277	327	377	427	477	527	577
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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Weight (kg)	W/o Brake	2	2.2	2.5	2.8	3	3.3	3.6	3.8
	With Brake	2.3	2.5	2.8	3.1	3.3	3.6	3.9	4.1

Applicable controller

The EC series is equipped with a controller built-in. Please refer to P111 for details.

EC-RR7□AH

High Rigidity | Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 75 mm | 24V Pulse motor

■ Model Specification Items

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	RR7	S	24mm	AH	High Rigidity	50 ~ 500	50mm ~ 500mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	16mm					1 ~ 10	1m ~ 10m	
		M	8mm							
		L	4mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front)	**FL**	See P.98
Tip adapter (female screw)	**NFA**	See P.102
Knuckle joint (Note 1)	**NJ**	See P.103
Knuckle joint + oscillation receiving bracket (Note 1)	**NJPB**	See P.103
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Clevis bracket (Note 1)	**QR**	See P.104
Clevis bracket + oscillation receiving bracket (Note 1)	**QRPB**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set. Mounting is to be done by customer.

Cable Length

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

(Note) Robot cables.

Main specifications

Item		Description				
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	28
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	26
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	182	273	547	1094
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	28
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø30mm Material: Aluminum Hard alumite treatment
Rod non-rotation accuracy (Note 2)	0 degree
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 2) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	28	28
35	80	70	65	60	28	28
70	80	70	65	60	28	28
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	

■ Setting for energy-saving enabled Unit for payload is kg. Operations on the blank locations are not possible

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
630	1		

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

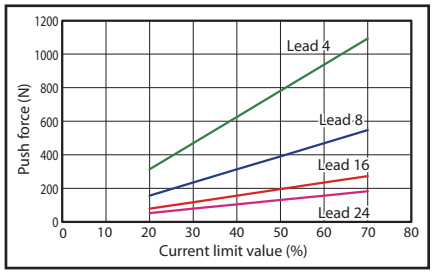
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	26
35	55	50	26
70	55	50	13
105	30	15	2

Stroke and maximum speed

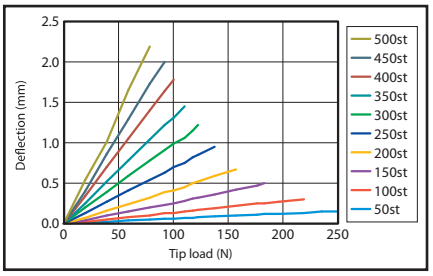
Lead (mm)	Energy-saving mode	50-500 (per 50mm)
24	Disabled	860<640>
	Enabled	630<420>
16	Disabled	700<560>
	Enabled	420<280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

Correlation between push force and current limit value



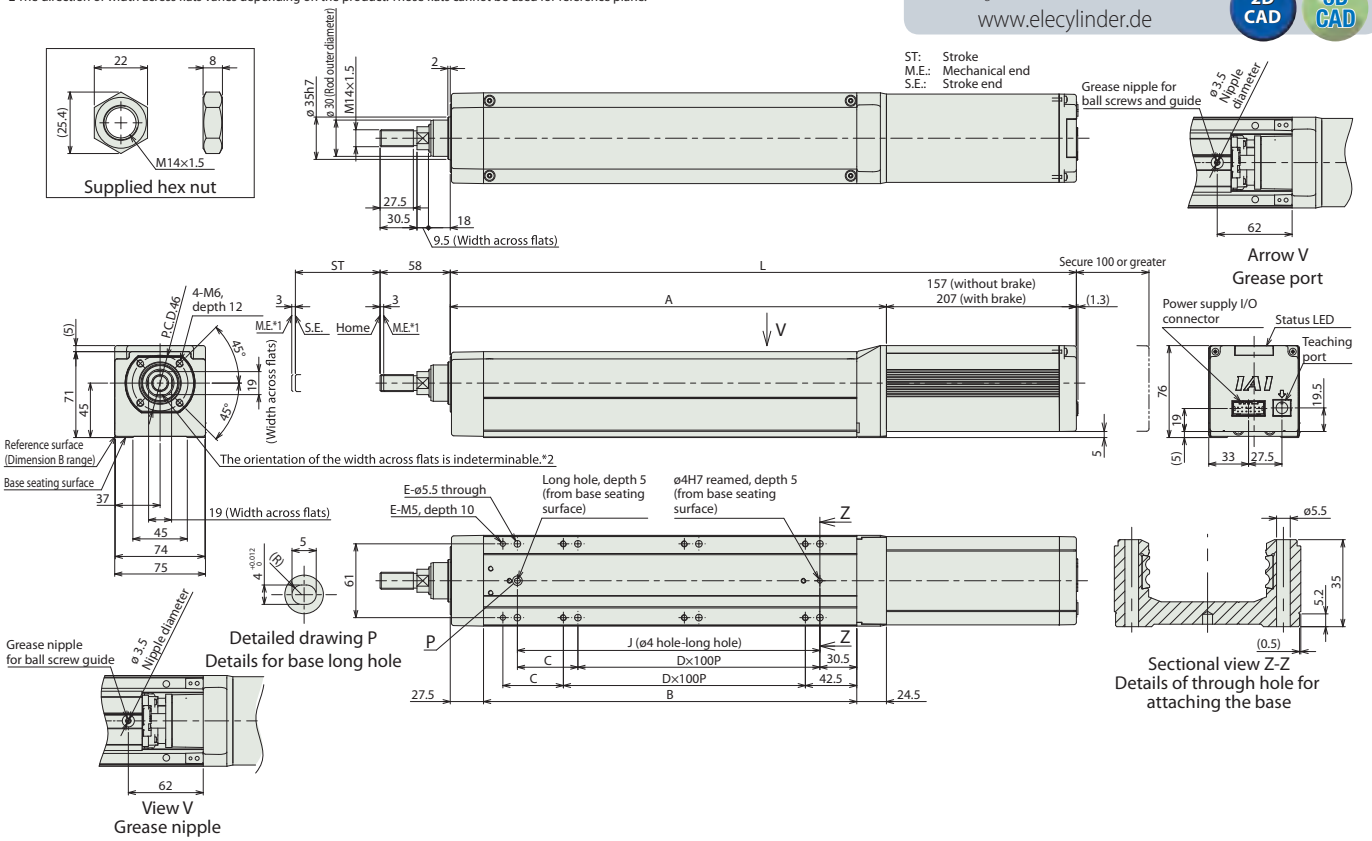
Rod deflection (reference value)



Dimensions

*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.
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de
2D CAD 3D CAD



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	417.5	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5
	With brake	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5
A		260.5	310.5	360.5	410.5	460.5	510.5	560.5	610.5	660.5	710.5
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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	4	4.4	4.7	5	5.4	5.7	6	6.4	6.7	7
	With brake	4.5	4.9	5.2	5.5	5.9	6.2	6.5	6.9	7.2	7.5

Applicable controller

(Note) The EC series is equipped with a controller built-in. Please refer to P111 for details.

EC-RR6□R

Radial Cylinder | Motor Unit Coupled | Side-mounted Motor | Body width 63 mm | 24V Pulse motor

Model Specification Items

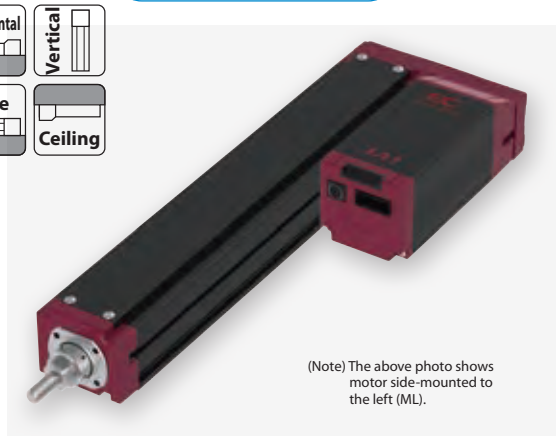
EC — RR6 [ ] R — [ ] — [ ] — [ ]

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	RR6	S	20mm	R	Motor side-mounted	65 ~ 315	65mm ~ 315mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	12mm					1 ~ 10	1m ~ 10m	
		M	6mm							
		L	3mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder



(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Options

Name	Option code	Reference page
Brake (Note 1)	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front) (Note 1)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 2)	**ML**	See P.101
Motor side-mounted to the right (Note 2)	**MR**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Knuckle joint (Note 3)	**NJ**	See P.103
Knuckle joint + oscillation receiving bracket (Note 3)	**NJPB**	See P.103
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Clevis bracket (Note 3)	**QR**	See P.104
Clevis bracket + oscillation receiving bracket (Note 3)	**QRPB**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When minimum stroke 65 mm is selected, brake and flange option (B/FL) cannot be selected together.
(Note 2) Please make sure to enter a code in the option column of the model spec item.
(Note 3) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set. Mounting is to be done by customer.

Cable length

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

(Note) Robot cables.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed/acceleration/deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed/acceleration/deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	67	112	224	449
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø25mm Material: Aluminum Hard alumite treatment
Rod no-rotation precision (Note 4)	0 degree
Ambient operation temperature/humidity	0~40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 4) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed and Acceleration/Deceleration

■ **Energy-saving disabled** Unit of payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	23	15	10	5	4
225	16	10			2.5	

■ Energy-saving enabled Unit of payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

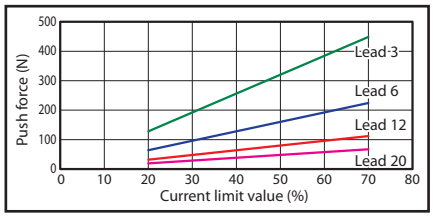
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and maximum speed

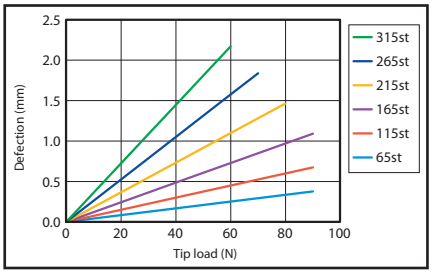
Lead (mm)	Energy-saving mode	65-215 (per 50mm)	265 (mm)	315 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700	660	480
	Enabled	500		480
6	Disabled	450	325	235
	Enabled	250		235
3	Disabled	225	160	115
	Enabled	125		115

(Unit is mm/s)

Correlation between push force and current limit value



Rod deflection value (reference value)

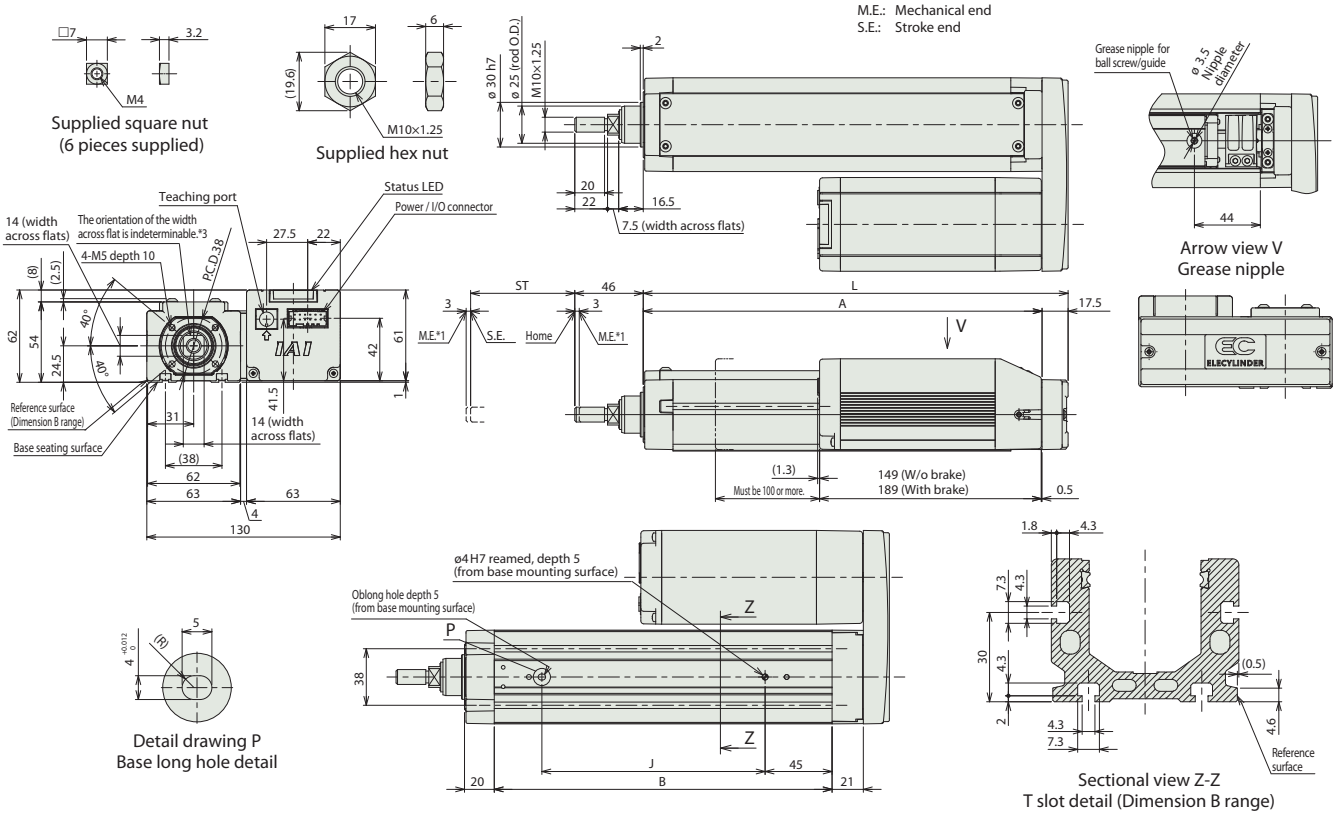


Dimensions

*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.
*2 The drawing below represents motor side-mounted to the left (ML).
*3 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de

ST: Stroke
M.E.: Mechanical end
S.E.: Stroke end



■ Dimensions by stroke

Stroke	65	115	165	215	265	315
L	235.5	285.5	335.5	385.5	435.5	485.5
A	218	268	318	368	418	468
B	177	227	277	327	377	427
J	100	150	200	250	300	350

■ Mass by stroke

Stroke		65	115	165	215	265	315
Weight (kg)	Without brake	2.1	2.4	2.6	2.9	3.1	3.4
	With brake	2.3	2.6	2.8	3.1	3.3	3.6

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR7□R

Radial Cylinder | Motor Unit Coupled | Side-mounted Motor | Body width 73 mm | 24V Pulse motor

■ Model Specification Items

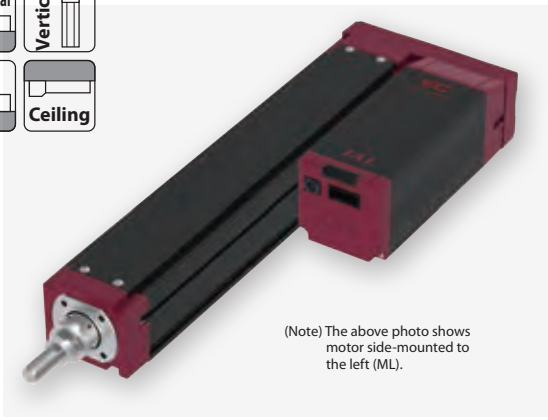
EC — RR7 [ ] R — [ ] — [ ] — [ ]

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	RR7	S	24mm	R	Motor side-mounted	65 ~ 315	65mm ~ 315mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	16mm					1 ~ 10	1m ~ 10m	
		M	8mm							
		L	4mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder



(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between Push force and Current Limit Value." Push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake (Note 1)	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front) (Note 1)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 2)	**ML**	See P.101
Motor side-mounted to the right (Note 2)	**MR**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Knuckle joint (Note 3)	**NJ**	See P.103
Knuckle joint + oscillation receiving bracket (Note 3)	**NJPB**	See P.103
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Clevis bracket (Note 3)	**QR**	See P.104
Clevis bracket + oscillation receiving bracket (Note 3)	**QRPB**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When minimum stroke 65 mm is selected, brake and flange option (B/FL) cannot be selected together.
(Note 2) Please make sure to enter a code in the option column of the model spec item.
(Note 3) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set. Mounting is to be done by customer.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed/acceleration/deceleration	Max. speed (mm/s)	860	700	320	160
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed/acceleration/deceleration	Max. speed (mm/s)	640	560	280	140
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	182	273	547	1094
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø30mm Material: Aluminum Hard alumite treatment
Rod no-rotation precision (Note 4)	0 degree
Ambient operation temperature/humidity	0~40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 4) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed and Acceleration/Deceleration

■ **Energy-saving disabled** Unit of payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	2.5	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	1.5	1	1
700	1					

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	25	10	8	6	3	2.5
320	5					

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	25	15	10	7	5
160	10					

■ **Energy-saving enabled** Unit of payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
630	1		

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

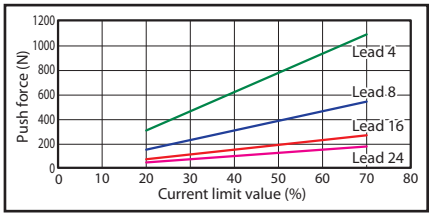
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

Stroke and maximum speed

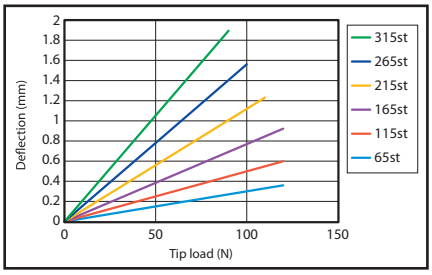
Lead (mm)	Energy-saving mode	65-215 (per 50mm)	265 (mm)	315 (mm)
24	Disabled	860<640>		
	Enabled	630<420>		
16	Disabled	700<560>		
	Enabled	420<280>		
8	Disabled	320<280>		
	Enabled	210		
4	Disabled	160<140>		
	Enabled	105		

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

Correlation between push force and current limit value



Rod deflection value (reference value)

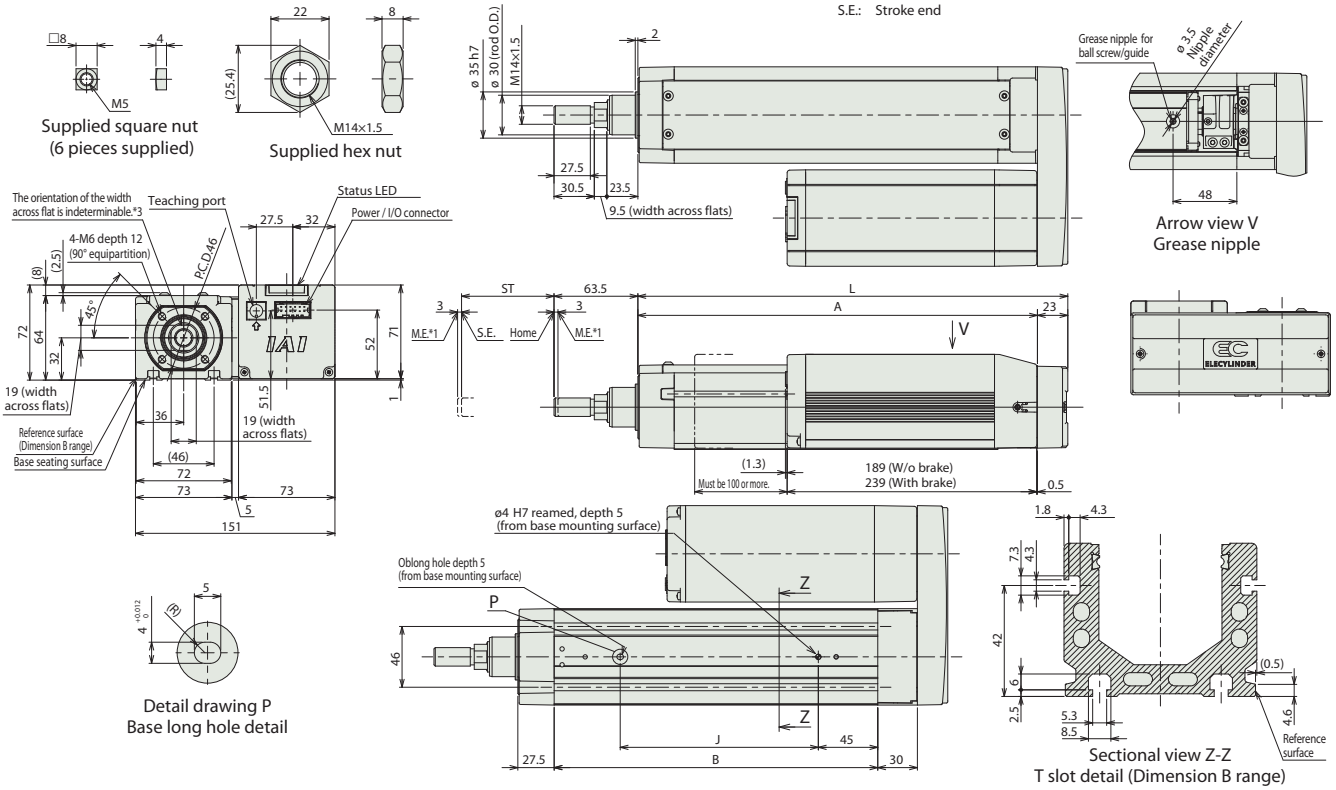


Dimensions

*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.
*2 The drawing below represents motor side-mounted to the left (ML).
*3 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de

ST: Stroke
M.E.: Mechanical end
S.E.: Stroke end



Dimensions by stroke

Stroke	65	115	165	215	265	315
L	275.5	325.5	375.5	425.5	475.5	525.5
A	252.5	302.5	352.5	402.5	452.5	502.5
B	195	245	295	345	395	445
J	100	150	200	250	300	350

Mass by stroke

Stroke		65	115	165	215	265	315
Weight (kg)	Without brake	4.4	4.8	5.1	5.5	5.8	6.2
	With brake	4.9	5.3	5.6	6.0	6.3	6.7

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR6□AHR

High Rigidity | Radial Cylinder | Motor Unit Coupled | Side-mounted Motor | Body width 63 mm | 24V Pulse motor

Model Specification Items

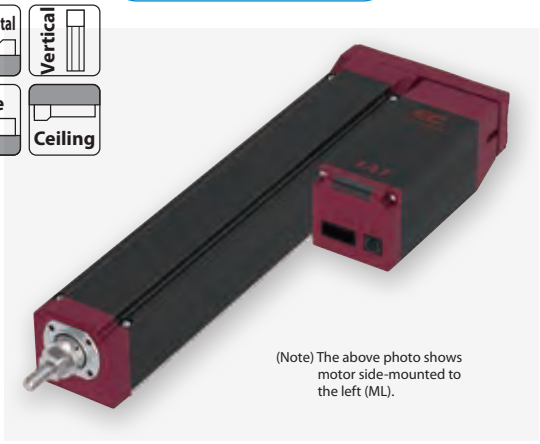
EC — RR6 [ ] AHR — [ ] — [ ] — [ ]

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	RR6	S	20mm	AHR	Motor side-mounted	50 ~ 400	50mm ~ 400mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	12mm					1 ~ 10	1m ~ 10m	
		M	6mm							
		L	3mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder



(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake (Note 1)	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front) (Note 1)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 2)	**ML**	See P.101
Motor side-mounted to the right (Note 2)	**MR**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Knuckle joint (Note 3)	**NJ**	See P.103
Knuckle joint + oscillation receiving bracket (Note 3)	**NJPB**	See P.103
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Clevis bracket (Note 3)	**QR**	See P.104
Clevis bracket + oscillation receiving bracket (Note 3)	**QRPB**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When minimum stroke 50 mm is selected, brake and flange option (B/FL) cannot be selected together.
(Note 2) Please make sure to enter a code in the option column of the model spec item.
(Note 3) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set. Mounting is to be done by customer.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	20
		Max. payload (kg) (energy-saving enabled)	1	4	10	20
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	67	112	224	449
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	20
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø10mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø25mm Material: Aluminum Hard alumite treatment
Rod no-rotation precision (Note 4)	0 degree
Ambient operation temperature/humidity	0~40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 4) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed and Acceleration/Deceleration

■ **Energy-saving disabled** Unit of payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	4.5
400	18	10	6	2	3	2.5
450	8	3			1	0.5

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	20	20
50	60	50	45	40	20	20
100	60	50	45	40	20	20
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	23	15	5	5	4
225	16				2	

■ Energy-saving enabled Unit of payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

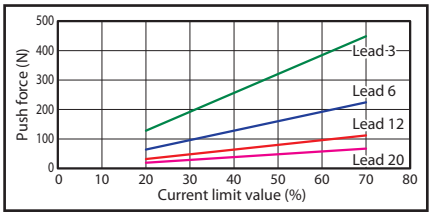
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	20
25	40	25	20
50	40	25	20
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and maximum speed

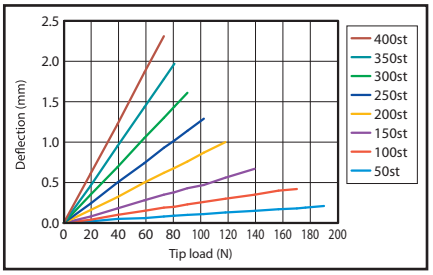
Lead (mm)	Energy-saving mode	50-400 (per 50mm)
20	Disabled	800
	Enabled	640
12	Disabled	700
	Enabled	500
6	Disabled	450
	Enabled	250
3	Disabled	225
	Enabled	125

(Unit is mm/s)

Correlation between push force and current limit value



Rod deflection value (reference value)



Dimensions

*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.
*2 The drawing below represents motor side-mounted to the left (ML).
*3 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

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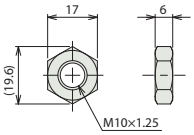
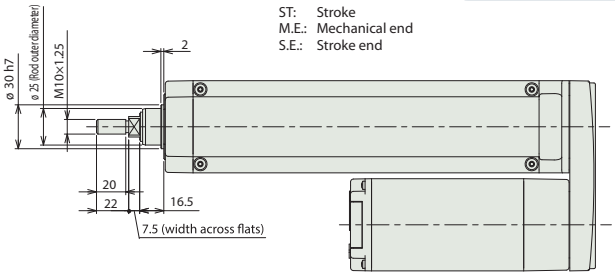
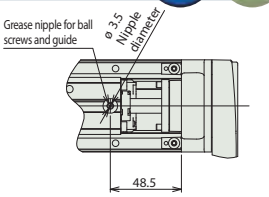
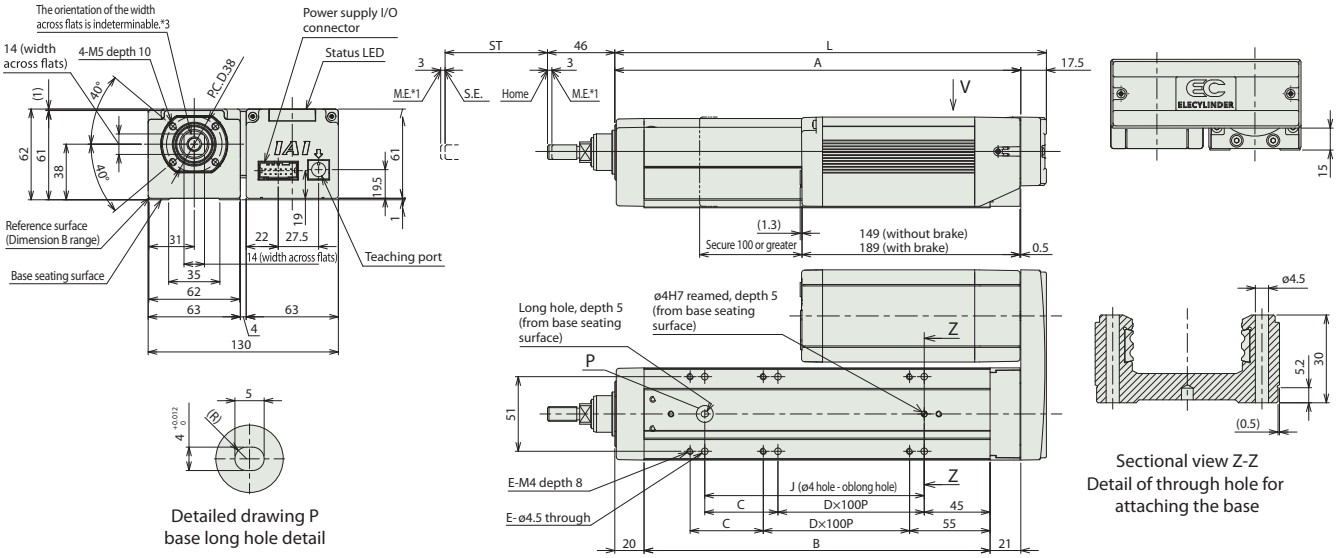


Supplied hex nut





Arrow view V
Grease nipple



Detailed drawing P
base long hole detail

Sectional view Z-Z
Detail of through hole for attaching the base

■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400
L	345	395	445	495	545	595	645	695
A	227	277	327	377	427	477	527	577
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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Weight (kg)	Without brake	2	2.2	2.5	2.8	3	3.3	3.6	3.8
	With brake	2.3	2.5	2.8	3.1	3.3	3.6	3.9	4.1

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR7□AHR

High Rigidity | Radial Cylinder | Motor Unit Coupled | Side-mounted Motor | Body width 75 mm | 24V Pulse motor

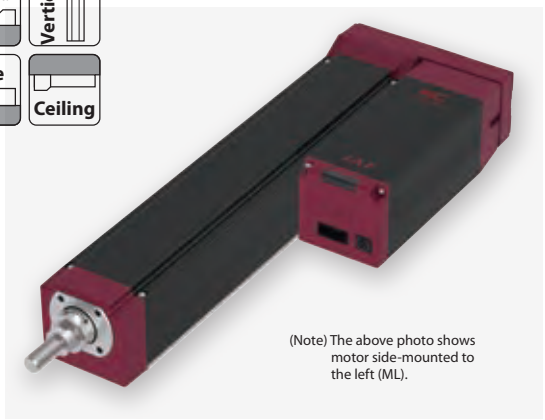
■ Model Specification Items

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	RR7	S	24mm	AHR	Motor side-mounted	50 ~ 500	50mm ~ 500mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	16mm					1 ~ 10	1m ~ 10m	
		M	8mm							
		L	4mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder



(Note) The above photo shows motor side-mounted to the left (ML).

POINT Selection Notes

(1) 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" for more details.
(2) The Radial Cylinder is equipped with a guide. Please refer to P106 for details of the radial loads applied to the rod.
(3) The value of the horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake (Note 1)	**B**	See P.97
Tip adapter (flange)	**FFA**	See P.97
Flange (front) (Note 1)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Motor side-mounted to the left (Note 2)	**ML**	See P.101
Motor side-mounted to the right (Note 2)	**MR**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Knuckle joint (Note 3)	**NJ**	See P.103
Knuckle joint + oscillation receiving bracket (Note 3)	**NJPB**	See P.103
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Clevis bracket (Note 3)	**QR**	See P.104
Clevis bracket + oscillation receiving bracket (Note 3)	**QRPB**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When minimum stroke 50 mm is selected, brake and flange option (B/FL) cannot be selected together.
(Note 2) Please make sure to enter a code in the option column of the model spec item.
(Note 3) Please purchase a clevis bracket (QR or QRPB) and a knuckle joint (NJ or NJPB) together as a set. Mounting is to be done by customer.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	182	273	547	1094
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ø12mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Linear guide	Linear motion infinite circulating type
Rod	ø30mm Material: Aluminum Hard alumite treatment
Rod no-rotation precision (Note 4)	0 degree
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 4) The rod tip displacement angle when no load is applied.

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

Table of Payload by Speed and Acceleration/Deceleration

■ **Energy-saving disabled** Unit of payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	2.5	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2					

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	10	10	4	3
560	7	5	2	1	0.5	0.5
640	2.5					

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	25	10	8	6	3	2.5
320	5					

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	28	28
35	80	70	65	60	28	28
70	80	70	65	60	28	28
105	80	60	50	40	18	18
140	40	15	10	5	5	3
150	20					

■ Energy-saving enabled Unit of payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
630	1		

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	1

Lead 4

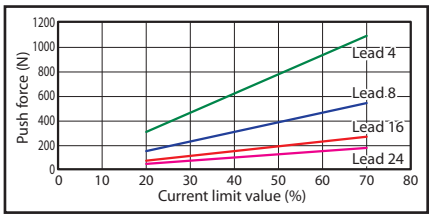
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	26
35	55	50	26
70	55	50	13
105	30	15	2

Stroke and maximum speed

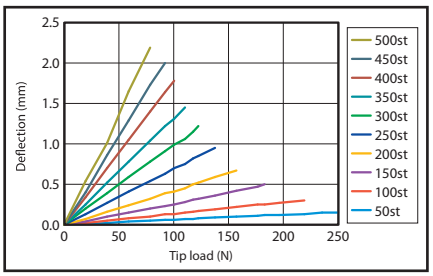
Lead (mm)	Energy-saving	50-500 (per 50mm)
24	Disabled	860<640>
	Enabled	630<420>
16	Disabled	640<560>
	Enabled	420<280>
8	Disabled	320<280>
	Enabled	210
4	Disabled	150<140>
	Enabled	105

(Note) Figures in < > represent vertical operations. (Unit is mm/s)

Correlation between pushg force and current limit value



Rod deflection (reference value)



Dimensions

*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.
*2 The drawing below represents motor side-mounted to the left (ML).
*3 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

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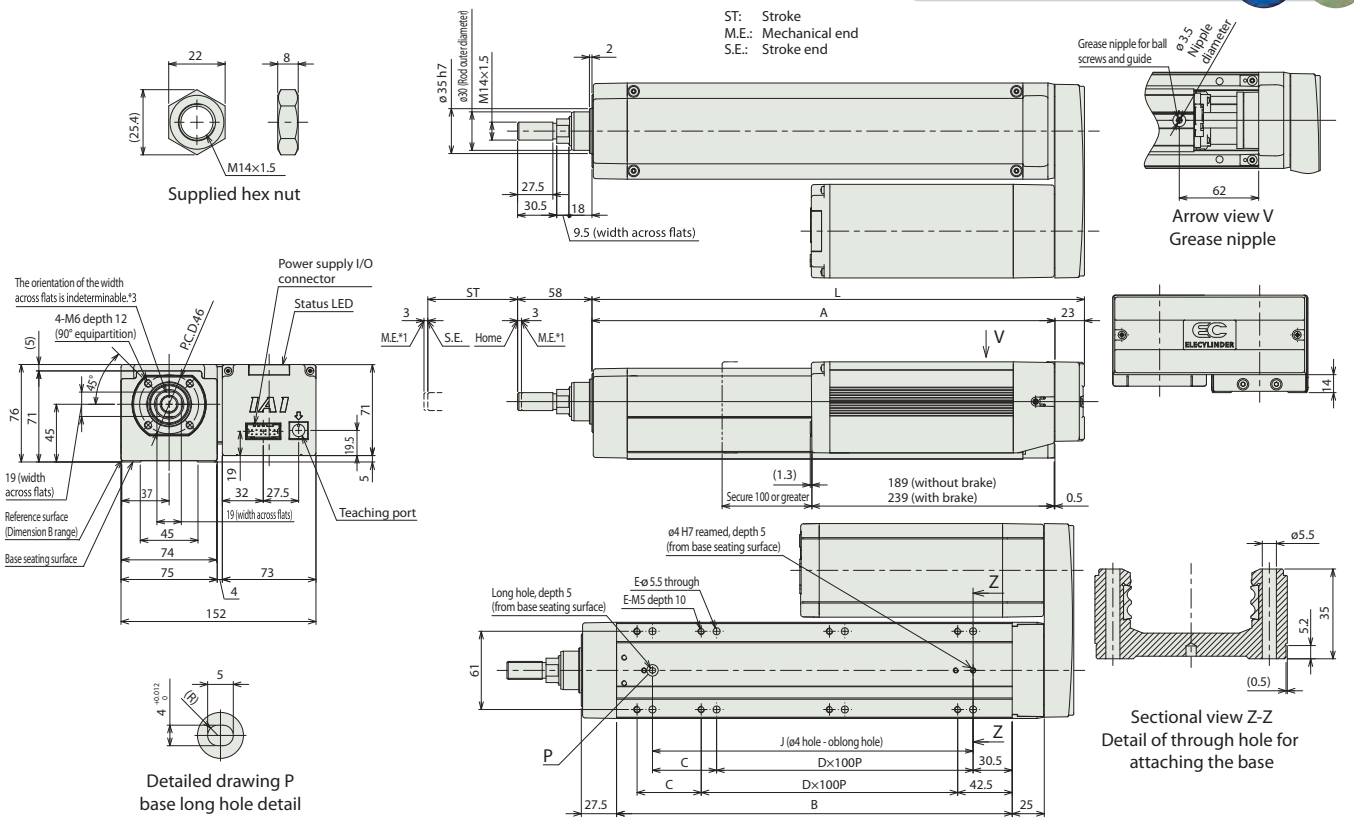


■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500
L	284	334	384	434	484	534	584	634	684	734
A	261	311	361	411	461	511	561	611	661	711
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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Weight (kg)	Without brake	4.6	5	5.3	5.6	6	6.3	6.6	7	7.3	7.6
	With brake	5.1	5.5	5.8	6.1	6.5	6.8	7.1	7.5	7.8	8.1

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RP4

Mini | Rod Type | Motor Unit Coupled | Side-mounted Motor | Body Width 34 mm | 24V Pulse motor

■ Model Specification Items

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

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) Please use a rotation stop apparatus such as a guide at the tip of the feed screw because it has no rotation stop. (If there is no rotation stop, the feed screw rotates and cannot move back and forth). Do not use floating joints or anything similar when connecting the rotation stop apparatus and the rod. Please refer to P29 + P32 for mounting method and conditions.

(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" for more details.

(3) The value of the horizontal payload assumes the use of an external guide. Please do not apply any external force other than the rod thrust direction.

(4) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.

(5) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Non-motor end specification	**WL2**	See P.105

Main specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1.0	1.0	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.3
Push force		Pushing max. thrust force (N)*	30	45	90
		Pushing max. speed (mm/s)	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

Item	Description
Driving system	Ball screw ø6mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Rod non-rotation accuracy	-
Operational service life	5000km or 50 million reciprocating motions
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

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

Table of Payload by Speed/Acceleration

Unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

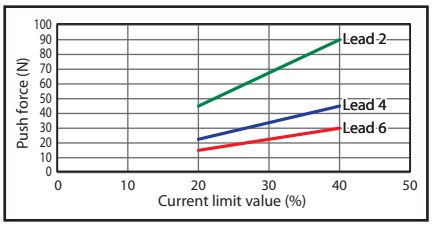
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	8	2.5
100	8	2.5

Stroke and maximum speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit is mm/s)

Correlation between push force and current limit value



Dimensions

*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.
*2 The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

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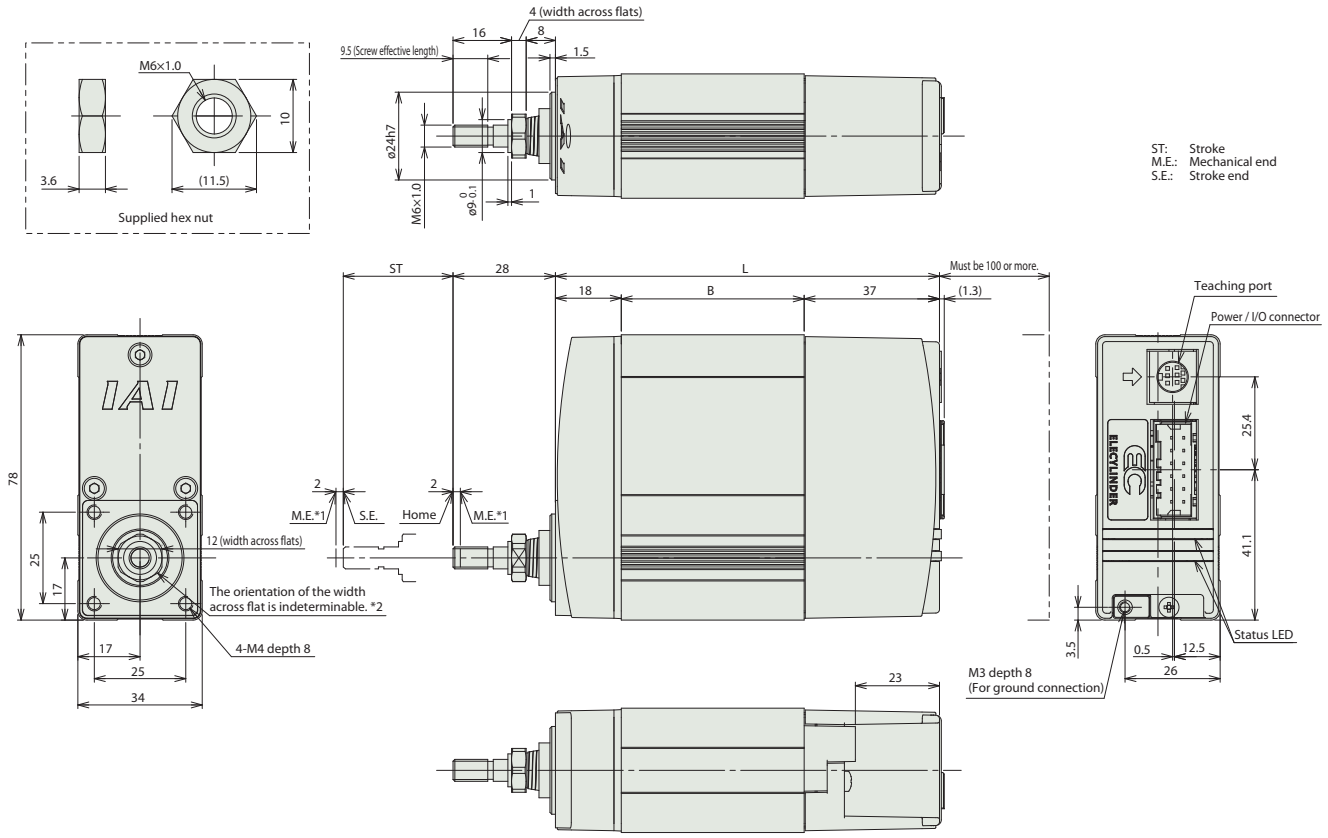
2D CAD 3D CAD



■ Dimensions 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

■ Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Weight (kg)	W/o Brake	0.5	0.6	0.6	0.6
	With Brake	0.7	0.7	0.7	0.7

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

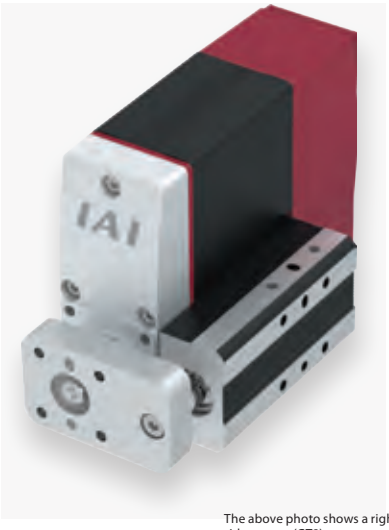
EC-GS4

Mini | Rod Type | Single Guide | Motor Unit Coupled | Side-mounted Motor | Body Width 55 mm | 24V Pulse motor

Model Specification Items

Series	Type	Lead	Stroke	Cable Length	Options
EC	GS4				
		H: 6mm M: 4mm L: 2mm	30: 30mm 50: 50mm	0: With terminal block type connector 1 ~ 10: 1m ~ 10m	Refer to the Options table below.

Horizontal | Vertical | Side | Ceiling



The above photo shows a right side-mount (GT2).

POINT Selection Notes

(1) 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" for more details.
(2) The value for horizontal payload assumes the use of an external guide so that radial and moment loads are not applied on the rod. If a guide is not installed, please refer to the "Correlation between Radial Load and Operation Life".
(3) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(4) Please make sure to select an option code from the option price list below for the guide mounting direction.
(5) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Guide right mount	**GT2**	See P.101
Guide bottom mount	**GT3**	See P.101
Guide left mount	**GT4**	See P.101
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Cable Length

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

(Note) Robot cables.

Main specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1.0	1.0	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.3
Push force		Pushing max. thrust force (N)*	30	45	90
		Pushing max. speed (mm/s)	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

Item	Description
Driving system	Ball screw ø6mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Rod non-rotation accuracy	-
Operational service life	5000km or 50 million reciprocating motions
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

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

Table of Payload by Speed/Acceleration

Unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

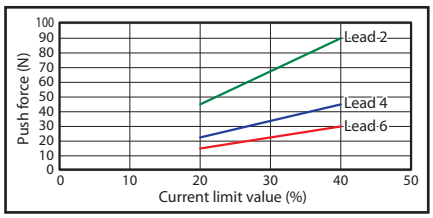
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	8	2.5
100	8	2.5

Stroke and maximum speed

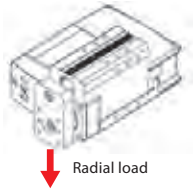
Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

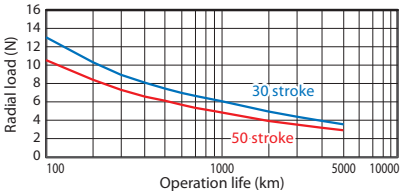
(Unit is mm/s)

Correlation between push force and current limit value



Radial load and operational service life





Dimensions

CAD drawings can be downloaded from our website.
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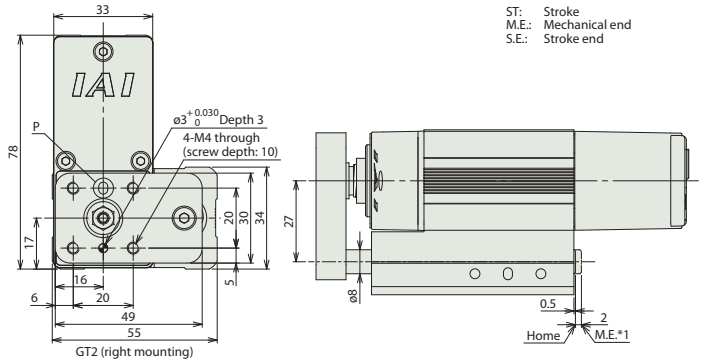
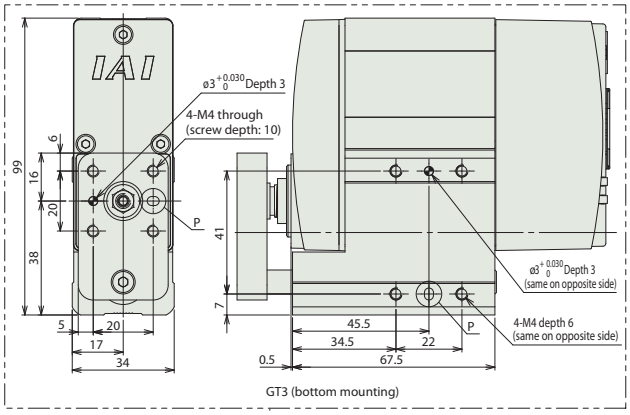
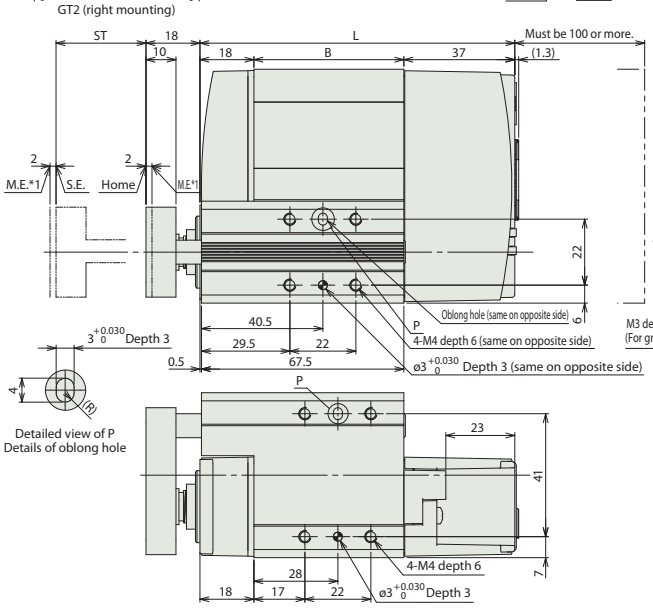
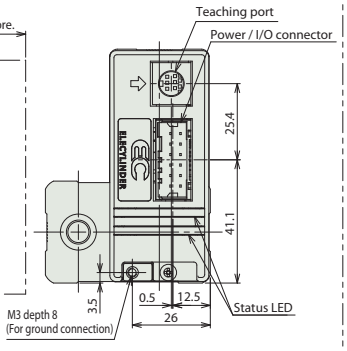
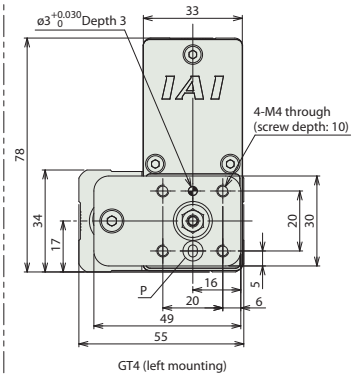
*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



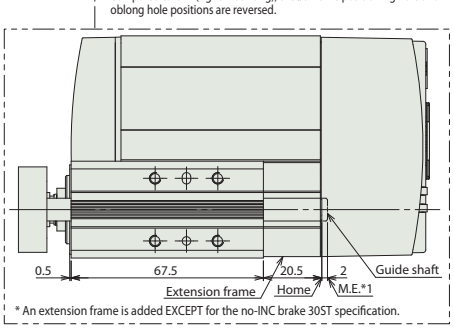








* Compared to GT2 (right mounting), the ø3 frame positioning hole and oblong hole positions are reversed.



* An extension frame is added EXCEPT for the no-INC brake 30ST specification.

■ Dimensions 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

■ Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Weight (kg)	W/o Brake	0.7	0.7	0.7	0.7
	With Brake	0.8	0.8	0.9	0.9

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-GD4

Mini | Rod Type | Double Guide | Motor Unit Coupled | Side-mounted Motor | Body Width 76 mm | 24V Pulse motor

Model Specification Items

EC — GD4 — [Lead] — [Stroke] — [Cable Length] — [Options]

Series	Type
EC	GD4

Lead	
H	6mm
M	4mm
L	2mm

Stroke	
30	30mm
50	50mm

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

Options
Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) 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" for more details.
(2) The value for horizontal payload assumes the use of an external guide so that radial and moment loads are not applied on the rod. If a guide is not installed, please refer to the "Correlation between Radial Load and Operation Life".
(3) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Main specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1.0	1.0	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.3
Push force		Pushing max. thrust force (N)*	30	45	90
		Pushing max. speed (mm/s)	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

Item	Description
Driving system	Ball screw ø6mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Rod non-rotation accuracy	-
Operational service life	5000km or 50 million reciprocating motions
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s^2 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

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

Table of Payload by Speed/Acceleration

Unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

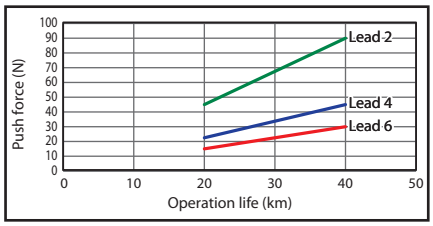
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	8	2.5
100	8	2.5

Stroke and maximum speed

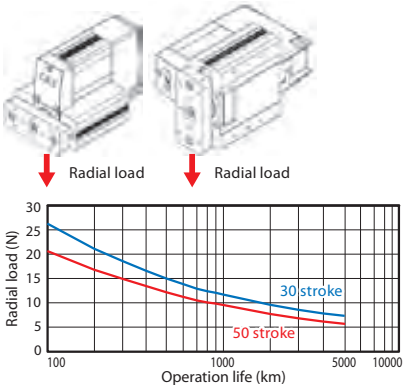
Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit is mm/s)

Correlation between push force and current limit value



Radial load and operational service life



Dimensions

(Note) 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.

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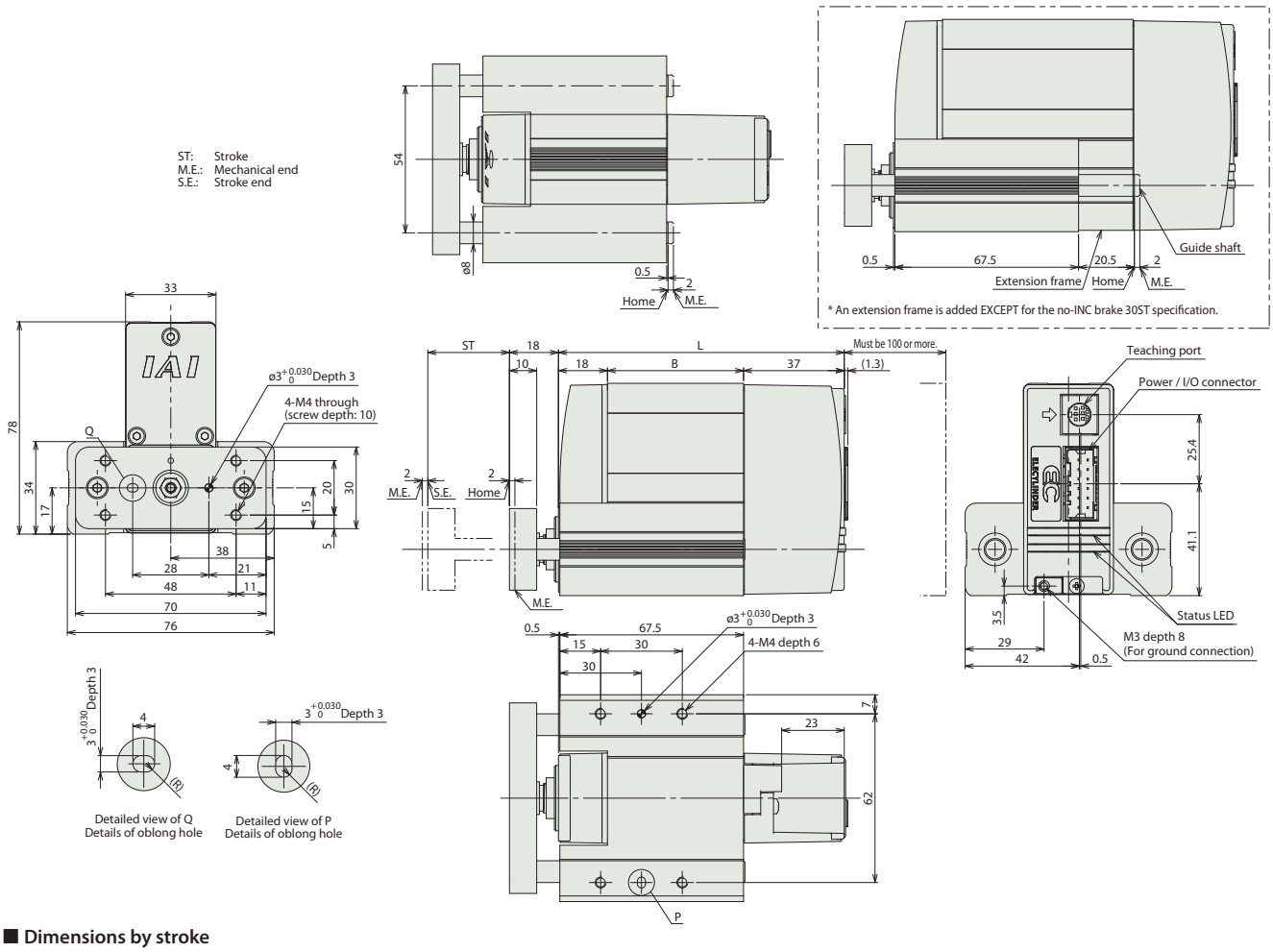
www.elecylinder.de
2D CAD 3D CAD

ST: Stroke
M.E.: Mechanical end
S.E.: Stroke end



■ Dimensions by stroke

Encoder		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	105	125	125	125
	With brake	135	135	155	155
B	Without brake	50	70	70	70
	With brake	80	80	100	100

■ Mass by stroke

Encoder		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Weight (kg)	Without brake	0.9	0.9	0.9	0.9
	With brake	1.0	1.0	1.0	1.1

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-TC4

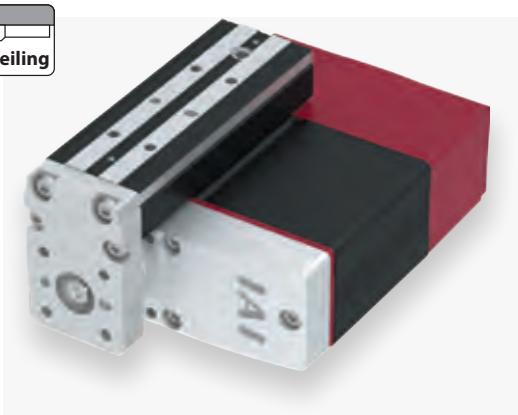
Mini | Table Type | Motor Unit Coupled | Side-mounted Motor | Body Width 78 mm | 24V Pulse motor

■ Model Specification Items

Series	Type	Lead	Stroke	Cable Length	Options
EC	TC4	H: 6mm M: 4mm L: 2mm	30: 30mm 50: 50mm	0: With terminal block type connector 1: 1m ~ 10: 10m	Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling



The above photo shows a left side-mount specification (GT4).

POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.
(3) Please make sure to select an option code from the option price list below for the table mounting direction.
(4) Reference value of the overhang load length is under 100mm in the table top surface of the Ma direction, under 50mm in the table fron direction and under 120mm in the Mb and Mc directions.
(5) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Table right mount	**GT2**	See P.101
Table bottom mount	**GT3**	See P.101
Table left mount	**GT4**	See P.101
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Main specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1.0	1.0	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.3
Push force		Pushing max. thrust force (N)*	30	45	90
		Pushing max. speed (mm/s)	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

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

Item	Description
Driving system	Ball screw ø6mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Static allowable moment	Ma: 5N・m Mb: 5N・m Mc: 9N・m
Dynamic allowable moment (Note 1)	Ma: 3N・m Mb: 3N・m Mc: 6N・m
Operational service life	5000km or 50 million reciprocating motions
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	-
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) Based on the standard rated operation life of 5000 km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P33.

■ Direction of moment for the Table type

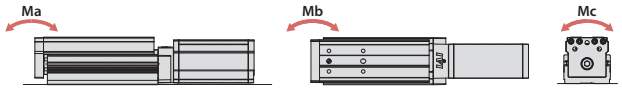


Table of Payload by Speed/Acceleration

Unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

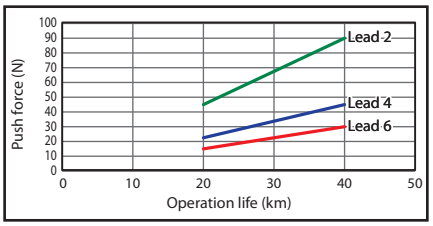
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	8	2.5
100	8	2.5

Stroke and maximum speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit is mm/s)

Correlation between push force and current limit value



Dimensions

CAD drawings can be downloaded from our website.
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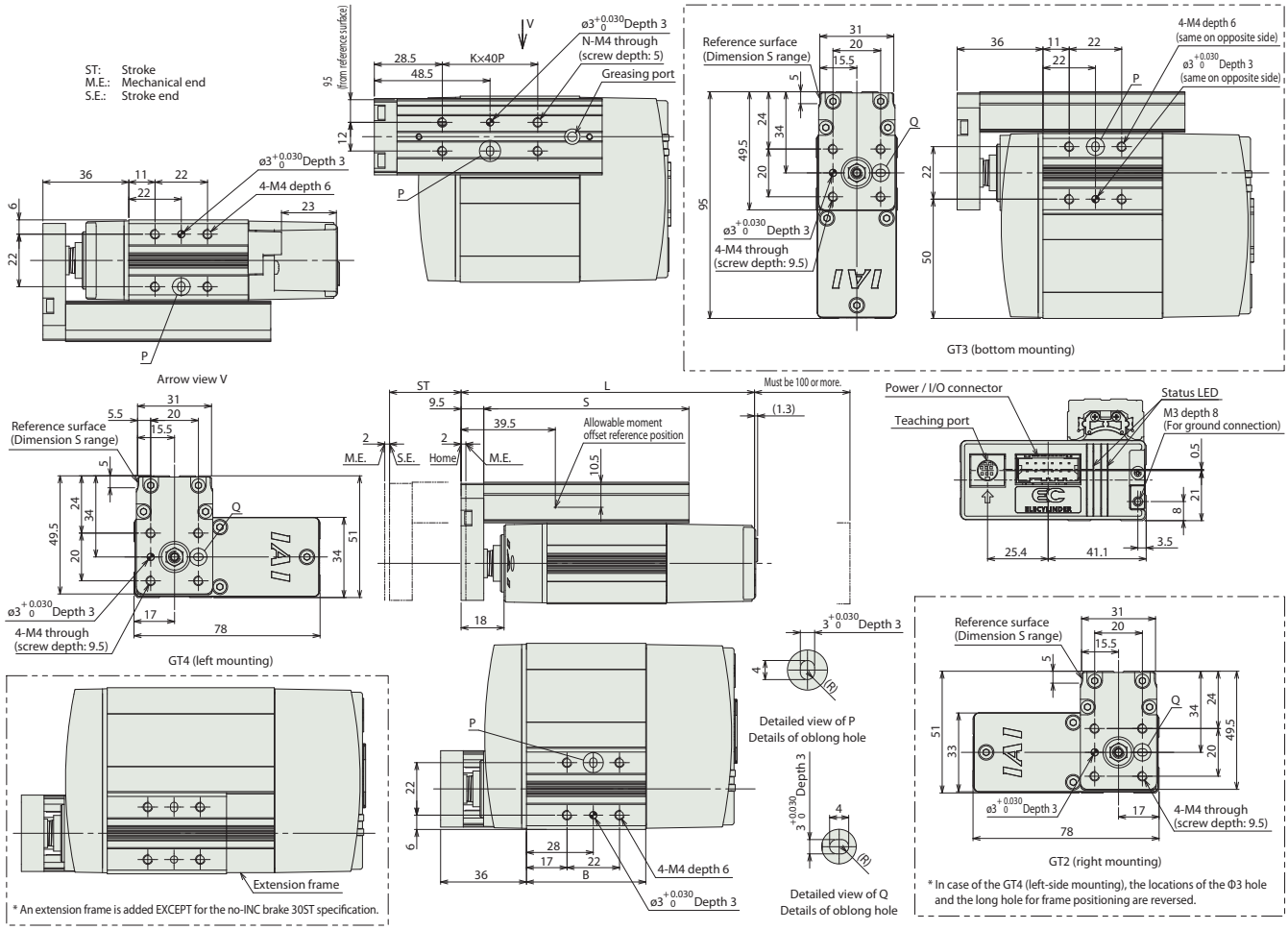
(Note) When the table is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



■ Dimensions by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	123	143	143	143
	With brake	153	153	173	173
B	Without 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

■ Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Weight (kg)	Without brake	0.6	0.7	0.7	0.7
	With brake	0.8	0.8	0.8	0.8

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-TW4

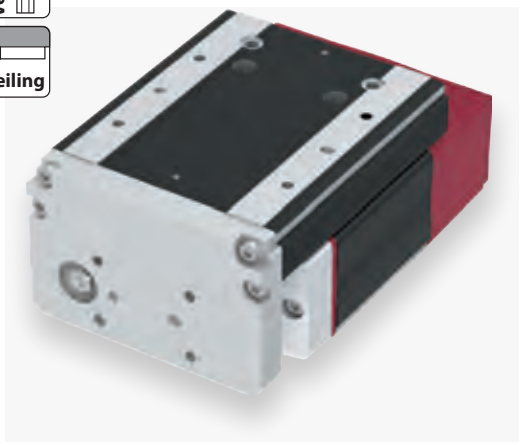
Mini | Table Type | Motor Unit Coupled | Side-mounted Motor | Body Width 78 mm | 24V Pulse motor

■ Model Specification Items

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

CE RoHS

Horizontal | Vertical | Side | Ceiling



POINT Selection Notes

(1) 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" for more details.
(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for cautions.
(3) Reference value of the overhang load length is under 100mm in the Ma direction of the table top direction, under 50mm in the table front direction and under 120mm in the Mb and Mc directions.
(4) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Cable Length

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

(Note) Robot cables.

Options

Name	Option code	Reference page
Brake	**B**	See P.97
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less Absolute Encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

Main specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1.0	1.0	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.3
Push force		Pushing max. thrust force (N)*	30	45	90
		Pushing max. speed (mm/s)	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

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

Item	Description
Driving system	Ball screw ø6mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	-
Static allowable moment	Ma: 8N・m Mb: 8N・m Mc: 26N・m
Dynamic allowable moment (Note 1)	Ma: 5N・m Mb: 5N・m Mc: 17N・m
Operational service life	5000km or 50 million reciprocating motions
Ambient operation temperature/humidity	0~40°C, 85%RH or less (Non-condensing)
Degree of protection	-
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE marking, RoHS (Restriction of Hazardous Substances)
Motor type	Pulse motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 1) Based on the standard rated operation life of 5000 km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P33.

■ Direction of moment for the Table type

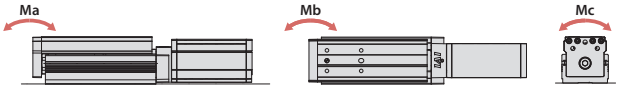


Table of Payload by Speed/Acceleration

Unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1.0	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

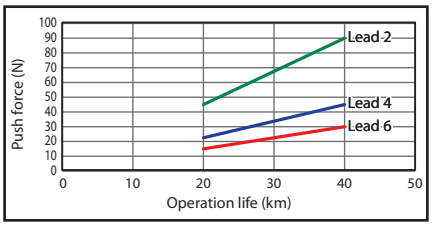
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	8	2.5
100	8	2.5

Stroke and maximum speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit is mm/s)

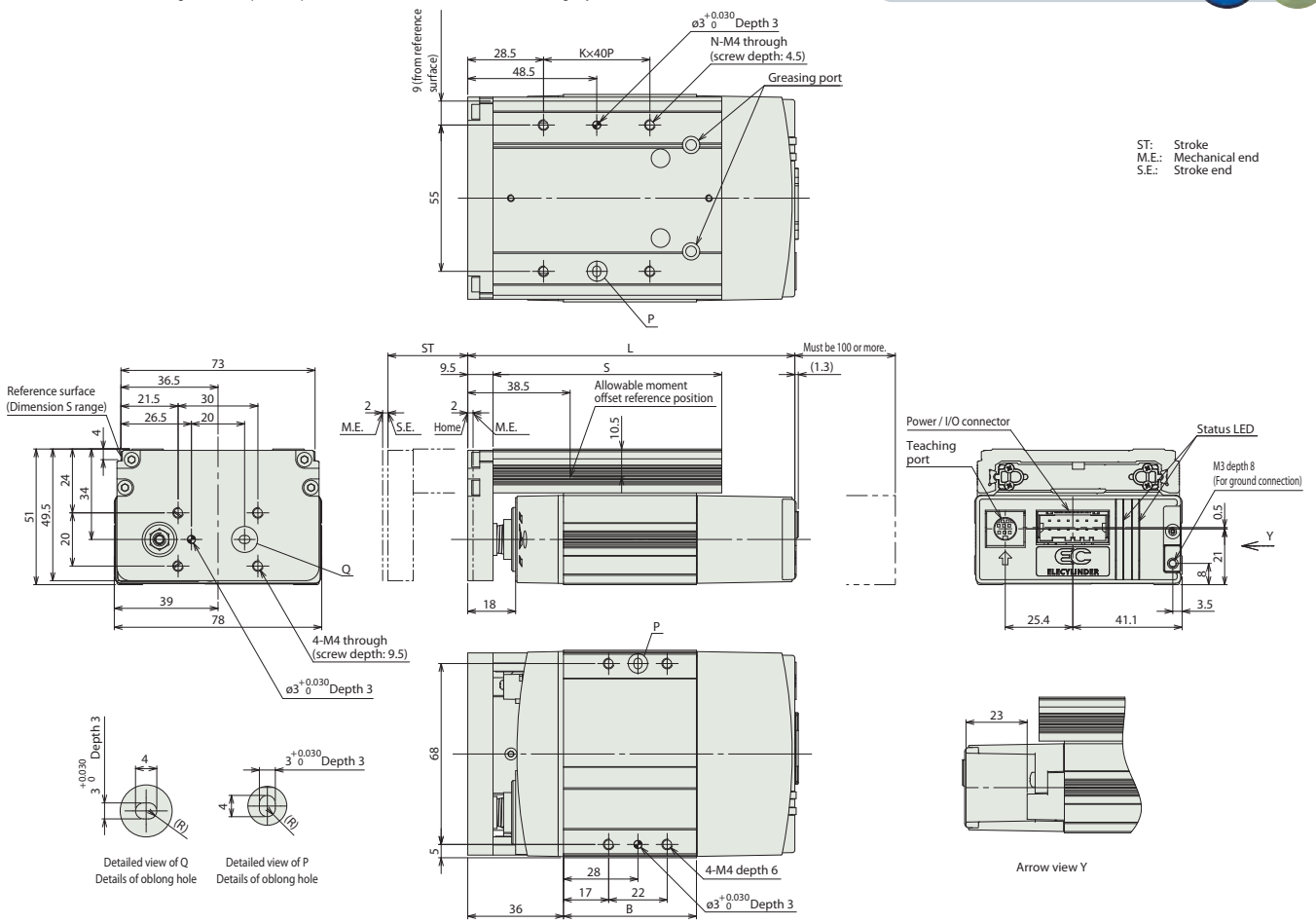
Correlation between push force and current limit value



Dimensions

CAD drawings can be downloaded from our website.
www.elecylinder.de

(Note) When the table is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



■ Dimensions by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	123	143	143	143
	With brake	153	153	173	173
B	Without 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

■ Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Weight (kg)	Without brake	0.8	0.9	0.8	0.9
	With brake	0.9	1.0	1.0	1.0

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-R6□W

Water Proof / Dust Proof | Rod Type | Motor Unit Coupled | Straight Motor | Body width 63 mm | 24V Pulse motor

■ Model Specification Items

EC — R6 [ ] W — [ ] — [ ] — [ ]

Series	Type	Lead		Specification		Stroke		Cable Length		Options
EC	R6	S	20mm	W	Dust/Water-proof	50 ~ 300	50mm ~ 300mm (per 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	12mm					1 ~ 8	1m ~ 8m	
		M	6mm							
		L	3mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but when energy-saving is activated, the specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) 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.
(3) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for details.
(4) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for details.
(5) Interface box is not processed for dust- and splash-proof. Please install it where there is no water splash.
(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Option

Name	Option code	Reference page
Actuator cable length 5m	**AC5**	See P.97
Actuator cable length 2m (Fluororubber cover specification) (Note 1)	**ACF2**	See P.97
Actuator cable length 5m (Fluororubber cover specification) (Note 1)	**ACF5**	See P.97
Brake	**B**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Specified grease applied specification	**G5**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Fluororubber seal specification (Note 1)	**SLF**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When selecting the change of the actuator cable length (fluororubber cover specification) (ACF2/ACF5), a fluororubber seal specification (SLF) is also supplied. Therefore, either one is selectable.

Cable Length

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

(Note) Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
(Note) Robot cable.

Main specifications

Item		Description				
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	67	112	224	449
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item		Description
Driving system		Ball screw ø10mm, Rolling C10
Positioning repeatability		±0.05mm
Lost motion		-
Main material	Rod	ø25mm, material: aluminum, white alumite treated
	Frame	Material: aluminum, black alumite treatment
	Dust seal	Rubber (NBR)
	Actuator cable	Polyvinyl chloride (PVC)
Rod non-rotation accuracy (Note 2)		±1.5 degree
Allowable load and torque on the rod tip.		0.5N·m
Ambient operation temperature/humidity		0~40°C, 85%RH or less (Non-condensing)
Degree of protection		IP67
Vibration & shock resistance		4.9m/s² 100Hz or less
Overseas standards		CE marking, RoHS (Restriction of Hazardous Substances)
Motor type		Pulse motor
Encoder type		Incremental / battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 2) The rod tip displacement angle (initial reference value) when allowable static torque is applied on rod tip when most of the rod is in the body.

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

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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

■ Setting for energy-saving enabled Unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

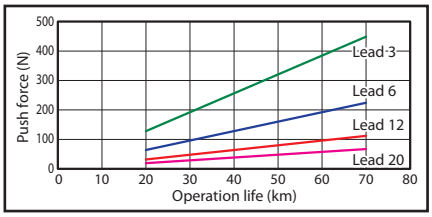
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-200 (per 50mm)	250 (mm)	300 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700		547
	Enabled	500		
6	Disabled	450	376	268
	Enabled	250		
3	Disabled	255	186	133
	Enabled	125		

(Unit is mm/s)

Correlation between push force and current limit value



Dimensions

*1 The actuator cable length of 5m is selectable as an option.
*2 The interface box terminal shown inside the broken line is not dust-proof treated.
*3 The total length of actuator cable and the power I/O cable should be under 10m.
*4 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.
*5 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

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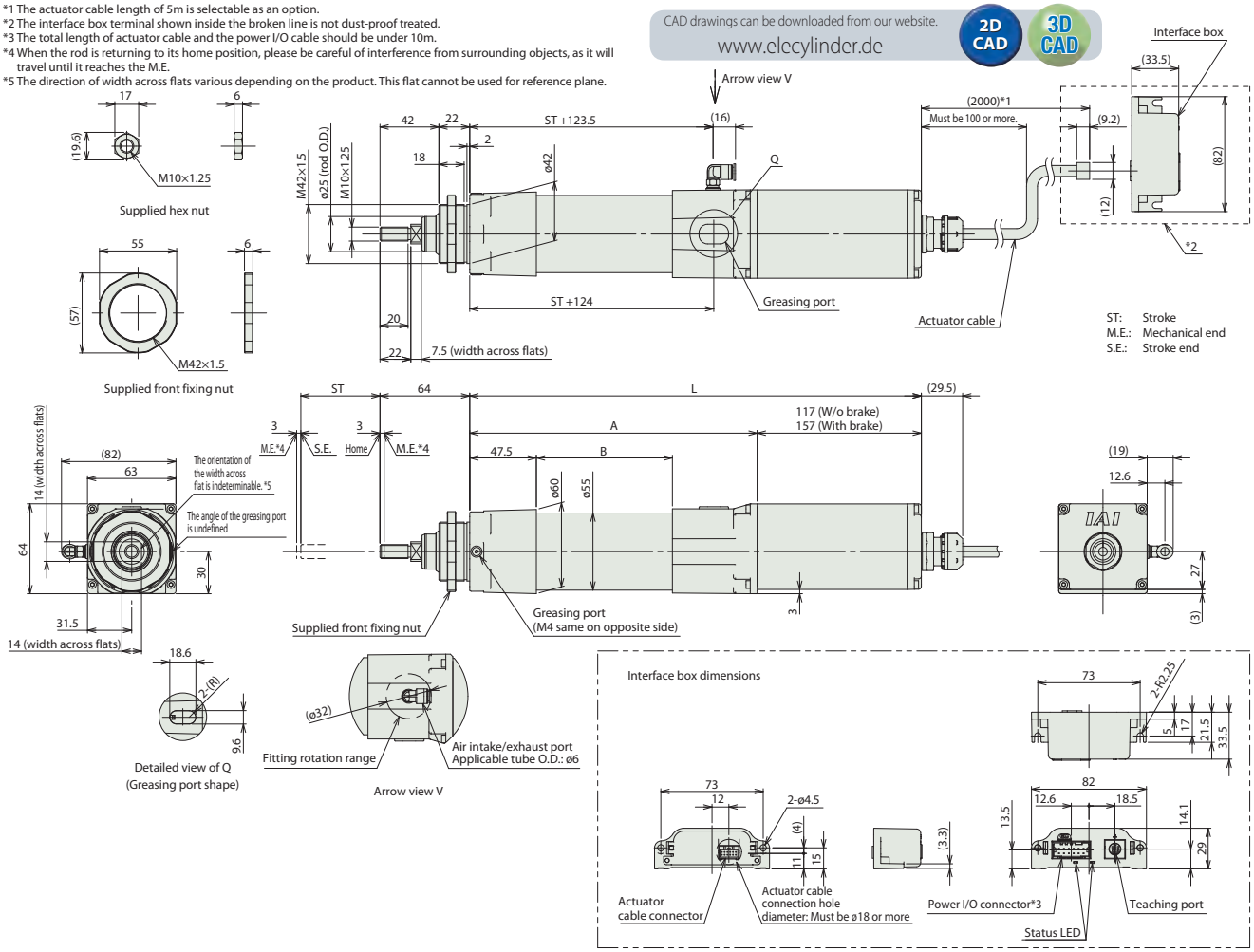


■ Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without 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

■ Mass by stroke

Stroke		50	100	150	200	250	300
Weight (kg)	Without 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

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-R7□W

Water Proof / Dust Proof | Rod Type | Motor Unit Coupled | Straight Motor | Body width 73 mm | 24V Pulse motor

■ Model Specification Items

Series	Type	Lead	Specification	Stroke	Cable Length	Options
EC	R7	S 24mm H 16mm M 8mm L 4mm	W Dust/Water-proof	50 ~ 300: 50mm ~ 300mm (per 50mm)	0: With terminal block type connector 1 ~ 8: 1m ~ 8m	Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) 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" for more details.

(2) The value of the horizontal payload assumes that there is an external guide. Beware that the rotation stop can be damaged when an external force is applied to the rod from any direction other than the moving direction.

(3) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P110 for details.

(4) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for details.

(5) Interface box is not processed for dust- and splash-proof. Install it where there is no water splash.

(6) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Option

Name	Option code	Reference page
Actuator cable length 5m	**AC5**	See P.97
Actuator cable length 2m (Fluororubber cover specification) (Note 1)	**ACF2**	See P.97
Actuator cable length 5m (Fluororubber cover specification) (Note 1)	**ACF5**	See P.97
Brake	**B**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Specified grease applied specification	**G5**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Fluororubber seal specification (Note 1)	**SLF**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When selecting the change of the actuator cable length (fluororubber cover specification) (ACF2/ACF5), a fluororubber seal specification (SLF) is also supplied. Therefore, either one is selectable.

Cable Length

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

(Note) Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
(Note) Robot cable.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. accleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Pushing max. thrust force (N)*	182	273	547	1094
		Pushing max. speed (mm/s)	20	20	20	20
Brake		Brake holding specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

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

Item		Description
Driving system		Ball screw ø12mm, Rolling C10
Positioning repeatability		±0.05mm
Lost motion		-
Main material	Rod	ø30mm, material: aluminum, white alumite treated
	Frame	Material: aluminum, black alumite treatment
	Dust seal	Rubber (NBR)
	Actuator cable	Polyvinyl chloride (PVC)
Rod non-rotation accuracy (Note 2)		±1.5 degree
Allowable load and torque on the rod tip.		0.5N・m
Ambient operation temperature/humidity		0~40°C, 85%RH or less (Non-condensing)
Degree of protection		IP67
Vibration & shock resistance		4.9m/s^2 100Hz or less
Overseas standards		CE marking, RoHS (Restriction of Hazardous Substances)
Motor type		Pulse motor
Encoder type		Incremental / battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 2) The rod tip displacement angle (initial reference value) when allowable static torque is applied on rod tip when most of the rod is in the body.

Table of Payload by Speed/Acceleration

■ **Setting for energy-saving disabled** Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	

■ Setting for energy-saving enabled Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

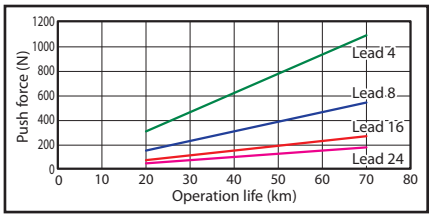
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

Stroke and maximum speed

Lead (mm)	Energy-saving mode	50-300 (per 50mm)
24	Disabled	860<640>
	Enabled	630<420>
16	Disabled	700<560>
	Enabled	420<280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

(Unit is mm/s)

Correlation between push force and current limit value



Dimensions

*1 The actuator cable length of 5m is selectable as an option.
*2 The interface box terminal shown inside the broken line is not dust-proof treated.
*3 The total length of actuator cable and the power I/O cable should be under 10m.
*4 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.
*5 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

CAD drawings can be downloaded from our website.
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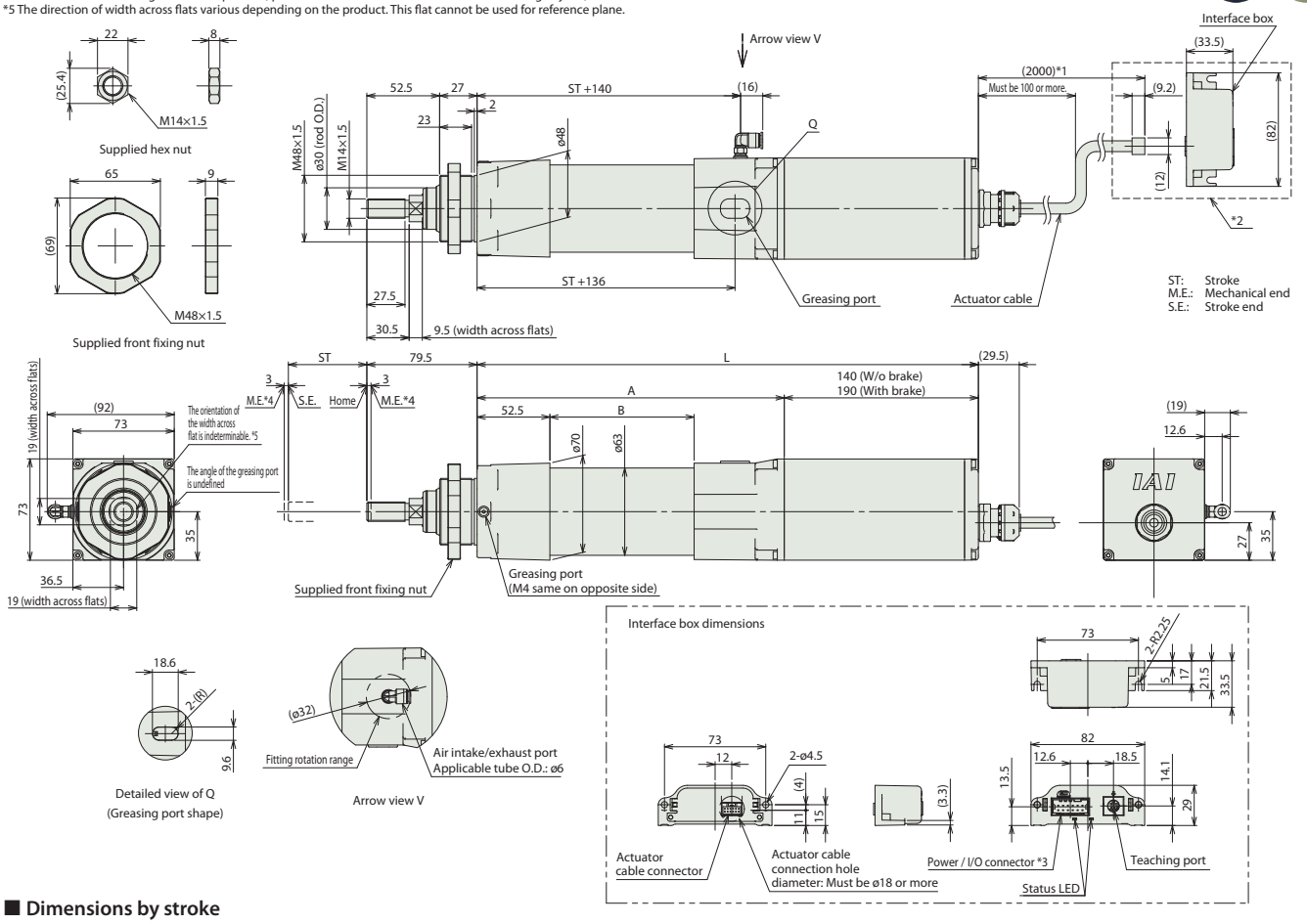
2D CAD 3D CAD



■ Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without 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

■ Mass by stroke

Stroke		50	100	150	200	250	300
Weight (kg)	Without 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

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR6□W

Water Proof / Dust Proof | Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 63 mm | 24V Pulse motor

■ Model Specification Items

EC — RR6 [ ] W — [ ] — [ ] — [ ]

Series	Type	Lead		Specification	
EC	RR6	S	20mm	W	Dust/Water-proof
		H	12mm		
		M	6mm		
		L	3mm		

Stroke	
65	65mm
⟂	⟂
315	315mm (per 50mm)

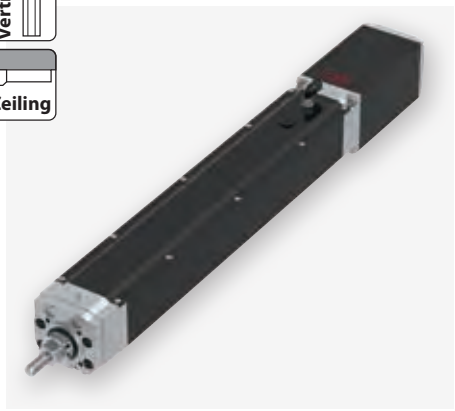
Cable Length	
0	With terminal block type connector
1	1m
⟂	⟂
8	8m

Options
Refer to the Options table below.

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder



POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but when energy-saving is activated, the specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) The radial cylinder is equipped with a guide. Refer to P106 for details of the radial load applied to the rod.
(3) The horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation diagram between pushing force and current limit value." push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) The interface box is not treated for dust- and splash-proof. Please use it where there is no splash of water.
(7) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Option

Name	Option code	Reference page
Actuator cable length 5m	**AC5**	See P.97
Actuator cable length 2m (Fluororubber cover specification) (Note 1)	**ACF2**	See P.97
Actuator cable length 5m (Fluororubber cover specification) (Note 1)	**ACF5**	See P.97
Brake	**B**	See P.97
Tip adaptor (flange)	**FFA**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Specified grease applied specification	**G5**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Fluororubber seal specification (Note 1)	**SLF**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When selecting the change of the actuator cable length (fluororubber cover specification) (ACF2/ACF5), a fluororubber seal specification (SLF) is also supplied. Therefore, either one is selectable.

Cable Length

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

(Note) Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
(Note) Robot cable.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	67	112	224	449
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item		Description
Driving system		Ball screw ø10mm, Rolling C10
Positioning repeatability		±0.05mm
Lost motion		-
Linear guide		Linear motion infinite circulating type
Main material	Rod	ø25mm, material: aluminum hard-alumite treated
	Frame	Material: aluminum, black alumite treated
	Dust seal	Rubber (NBR)
	Actuator cable	Polyvinyl chloride (PVC)
Rod rotational accuracy (Note 2)		0 degree
Ambient operation temperature/humidity		0 to 40°C, RH 85% or less (Non-condensing)
Degree of protection		IP67
Vibration & shock resistance		4.9m/s² 100Hz or less
Overseas standards		CE marking, RoHS
Motor type		Pulse motor
Encoder type		Incremental / battery-less absolute
Number of encoder pulses		800 pulse/rev.

(Note 2) Displacement angle in the rod rotational direction when no load is applied.

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

Table of Payload by Speed/Acceleration

■ **Energy-saving disabled** Unit for payload is kg. Operations are not possible in the blank cells.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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

■ Energy-saving enabled Unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

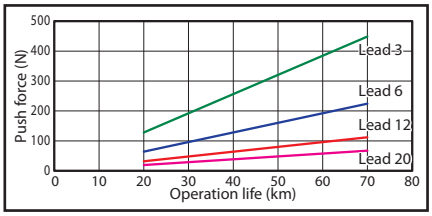
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and Max. Speed

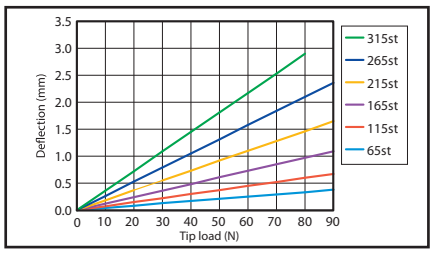
Lead (mm)	Energy-saving	65-215 (every 50mm)	265 (mm)	315 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700	660	480
	Enabled	500		480
6	Disabled	450	325	235
	Enabled	250		235
3	Disabled	225	160	115
	Enabled	125		115

(Unit is mm/s)

Correlation between push force and current limit value



Rod deflection

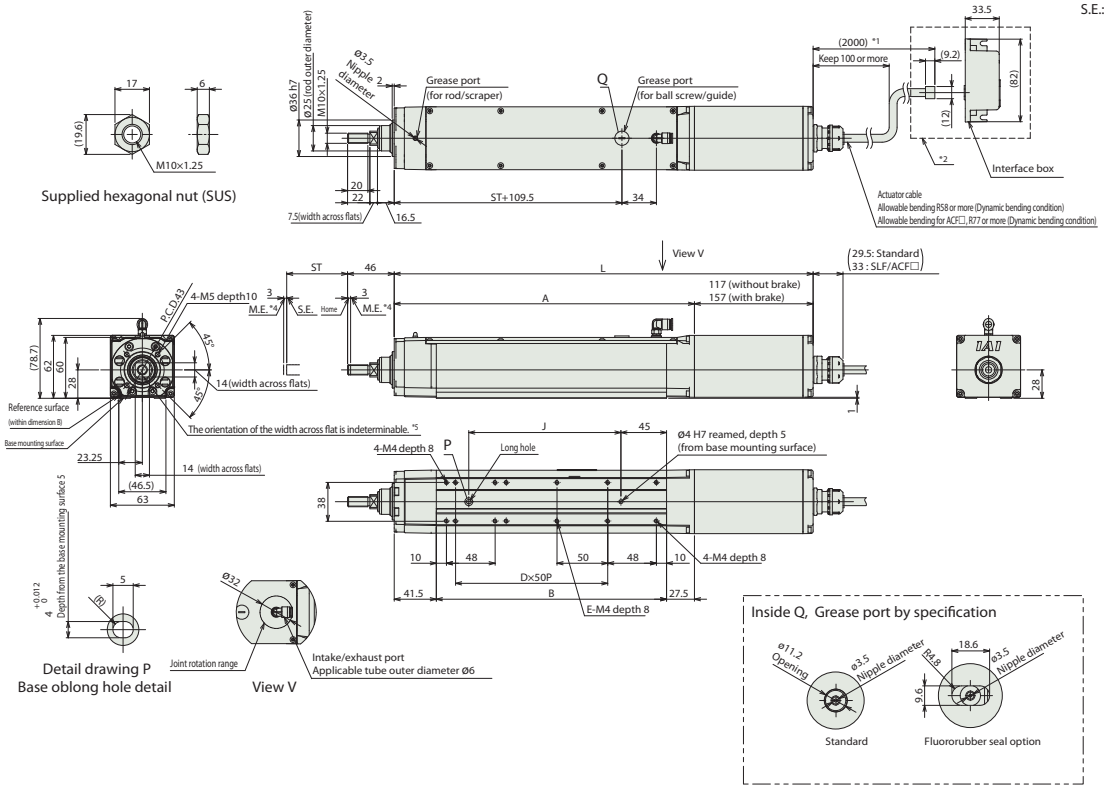


Dimensions

*1 A pigtail length of 5m is selectable as an option.
*2 The connecting part of the interface box shown inside the broken line is not dust- and splash-proof treated.
*3 Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
*4 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.
*5 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de

ST: Stroke
M.E.: Mechanical end
S.E.: Stroke end



■ Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	363	413	463	513	563	613
	With brake	403	453	503	553	603	653
A		246	296	346	396	446	496
B		177	227	277	327	377	427
D		2	3	4	5	6	7
E		4	6	8	10	12	14
J		100	150	200	250	300	350

■ Weight by Stroke

Stroke		65	115	165	215	265	315
Weight (kg)	Without brake	2.4	2.7	3.1	3.4	3.7	4.1
	With brake	2.7	3	3.3	3.7	4	4.3

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

EC-RR7□W

Water Proof / Dust Proof | Radial Cylinder | Motor Unit Coupled | Straight Motor | Body width 73 mm | 24V Pulse motor

■ Model Specification Items

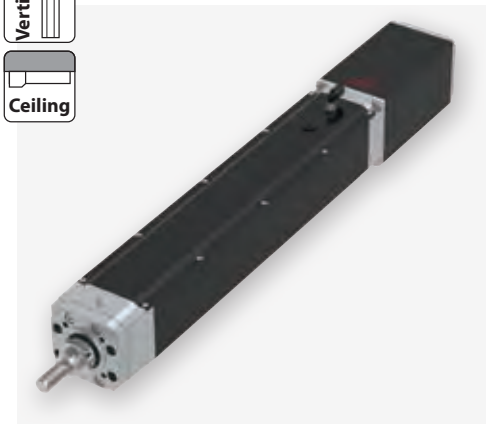
EC — RR7 [ ] W — [ ] — [ ] — [ ]

Series	Type	Lead		Specification		Stroke		Cable length		Options
EC	RR7	S	24mm	W	Dust/Water-proof	65 ~ 315	65mm ~ 315mm (every 50mm)	0	With terminal block type connector	Refer to the Options table below.
		H	16mm					1 ~ 8	1m ~ 8m	
		M	8mm							
		L	4mm							

CE RoHS

Horizontal | Vertical | Side | Ceiling

Radial load specification
Radial Cylinder



POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but when energy-saving is activated, the specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) The radial cylinder is equipped with a guide. Refer to P106 for details of the radial load applied to the rod.
(3) The horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation diagram between pushing force and current limit value." push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P110 for cautions.
(6) The interface box is not treated for dust- and splash-proof. Please use it where there is no splash of water.
(7) Special attention needs to be paid to the mounting orientation. Please refer to P30 for details.

Option

Name	Option code	Reference page
Actuator cable length 5m	**AC5**	See P.97
Actuator cable length 2m (Fluororubber cover specification) (Note 1)	**ACF2**	See P.97
Actuator cable length 5m (Fluororubber cover specification) (Note 1)	**ACF5**	See P.97
Brake	**B**	See P.97
Tip adaptor (flange)	**FFA**	See P.97
Flange (front)	**FL**	See P.98
Foot bracket	**FT**	See P.99
Specified grease applied specification	**G5**	See P.101
Tip adapter (female screw)	**NFA**	See P.102
Non-motor end specification	**NM**	See P.104
PNP specification	**PN**	See P.104
Fluororubber seal specification (Note 1)	**SLF**	See P.105
Split motor and controller power supply specification	**TMD2**	See P.105
Battery-less absolute encoder specification	**WA**	See P.105
Wireless communication specification	**WL**	See P.105
Wireless axis-operation specification	**WL2**	See P.105

(Note 1) When selecting the change of the actuator cable length (fluororubber cover specification) (ACF2/ACF5), a fluororubber seal specification (SLF) is also supplied. Therefore, either one is selectable.

Cable Length

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

(Note) Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
(Note) Robot cable.

Main specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push force		Max. thrust force when pushing (N)*	182	273	547	1094
		Max. speed when pushing (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item		Description
Driving system		Ball screw ø12mm, Rolling C10
Positioning repeatability		±0.05mm
Lost motion		-
Linear guide		Linear motion infinite circulating type
Main material	Rod	ø30mm, material: aluminum hard-alumite treated
	Frame	Material: aluminum, black alumite treated
	Dust seal	Rubber (NBR)
	Actuator cable	Polyvinyl chloride (PVC)
Rod rotational accuracy (Note 2)		0 degree
Ambient operation temperature/humidity		0 to 40°C, RH 85% or less (Non-condensing)
Degree of protection		IP67
Vibration & shock resistance		4.9m/s² 100Hz or less
Overseas standards		CE marking, RoHS
Motor type		Pulse motor
Encoder type		Incremental / battery-less absolute
Number of encoder pulses		800 pulse/rev.

(Note 2) Displacement angle in the rod rotational direction when no load is applied.

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

Table of Payload by Speed/Acceleration

■ **Energy-saving disabled** Unit for payload is kg.Operations are not possible in the blank cells.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	
Speed (mm/s)	Acceleration (G)					
	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	

■ Energy-saving Enabled Unit for payload is kg. Operations on the blank locations are not possible.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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
Speed (mm/s)	Acceleration (G)		
	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

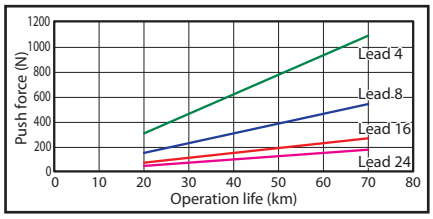
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

Stroke and maximum speed

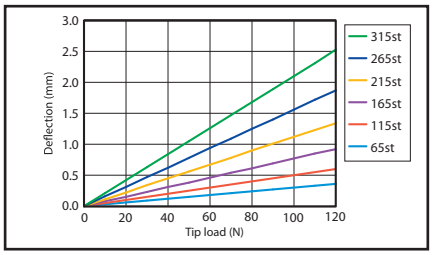
Lead (mm)	Energy-saving mode	65-315 (every 50mm)
24	Disabled	860<640>
	Enabled	630<420>
16	Disabled	700<560>
	Enabled	420<280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

(Unit is mm/s)

Correlation between push force and current limit value



Rod deflection

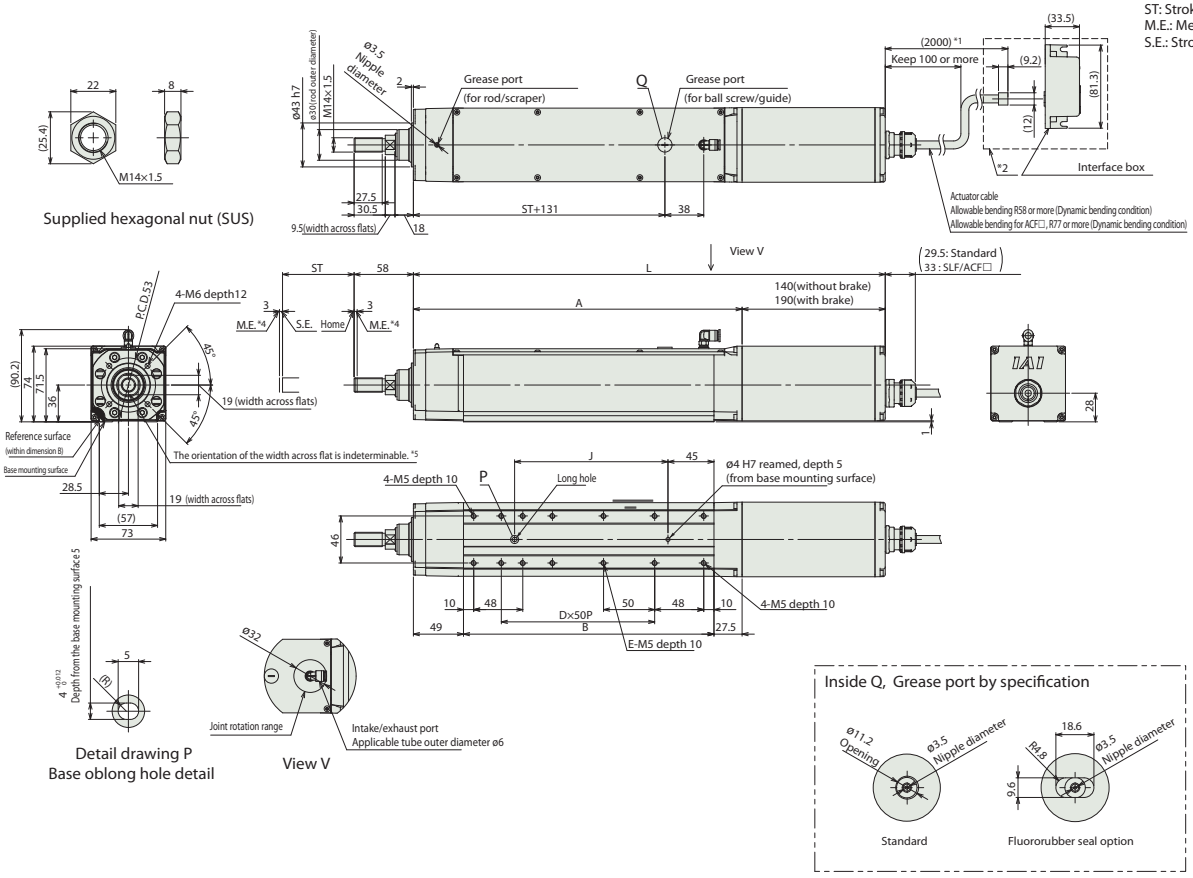


Dimensions

*1 A pigtail length of 5m is selectable as an option.
*2 The connecting part of the interface box shown inside the broken line is not dust- and splash-proof treated.
*3 Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
*4 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.
*5 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.elecylinder.de

ST: Stroke
M.E.: Mechanical end
S.E.: Stroke end



■ Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	411.5	461.5	511.5	561.5	611.5	661.5
	With brake	461.5	511.5	561.5	611.5	661.5	711.5
A		271.5	321.5	371.5	421.5	471.5	521.5
B		195	245	295	345	395	445
D		2	3	4	5	6	7
E		4	6	8	10	12	14
J		100	150	200	250	300	350

■ Weight by Stroke

Stroke		65	115	165	215	265	315
Weight (kg)	Without brake	4.7	5.1	6.6	6.1	6.5	7
	With brake	5.3	5.7	6.2	6.6	7.1	7.5

Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P111 for details.

Options for the EleCylinder series

Actuator pigtail cable length: 5 m

Model AC5 **Applicable Models** EC-R6□W/R7□W/RR6□W/RR7□W

Description Although the standard length of the actuator pigtail 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 pigtail cable and power I/O cable is within 10m.
(When the actuator pigtail cable length 5m (AC5) is selected, the power / I/O cable must be 5m or less.)

Actuator pigtail cable length change (flourorubber seal specification)

Model ACF2/ACF5 **Applicable Models** EC-R6□W/R7□W/RR6□W/RR7□W

Description The pigtail seal material is changed from NBR (nitrile rubber) to FKM (fluororubber), and the actuator pigtail cable jacket is changed from PVC (poly vinyl chloride) to FKM (fluororubber).
The cable length of ACF2 is 2m and ACF5 is 5m.

Brake

Model B **Applicable Models** All Models

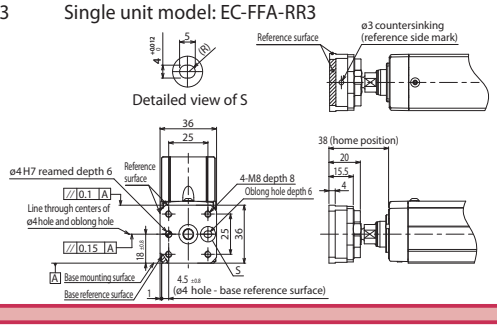
Description When the actuator is mounted vertically, this works as a holding mechanism that prevents the slider or rod from falling and damaging any attachments when the power or servo is turned off.

Tip adapter (flange)

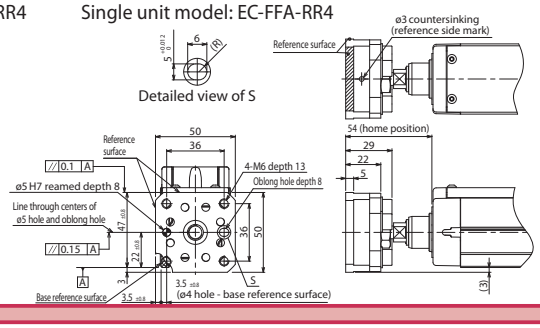
Model FFA **Applicable Models** EC-RR All Models

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

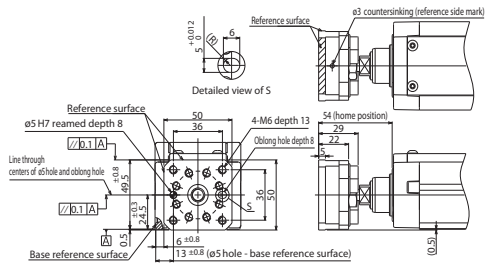
EC-RR3 Single unit model: EC-FFA-RR3



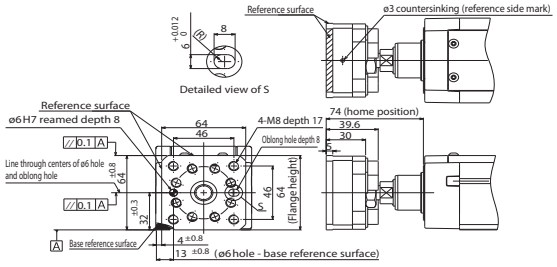
EC-RR4 Single unit model: EC-FFA-RR4



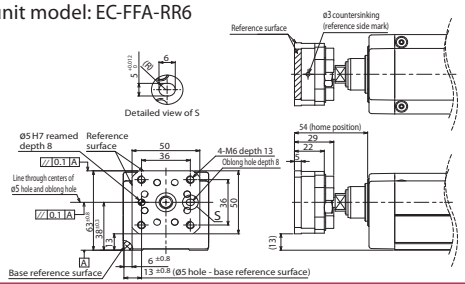
EC-RR6/RR6□R Single unit model: EC-FFA-RR6



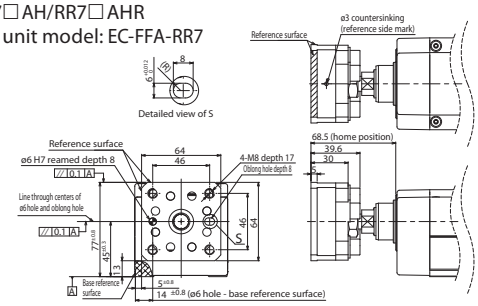
EC-RR7/RR7□R Single unit model: EC-FFA-RR7



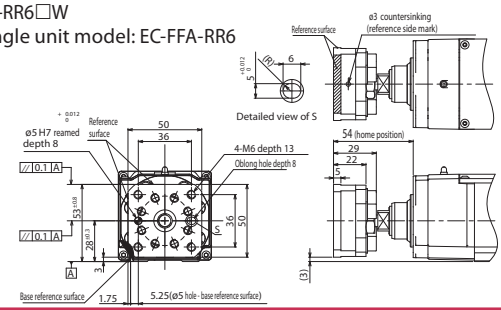
EC-RR6□AH/RR6□AHR
Single unit model: EC-FFA-RR6



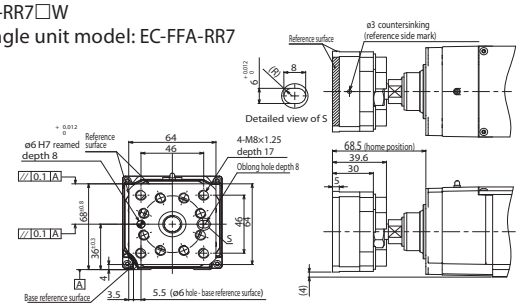
EC-RR7□AH/RR7□AHR
Single unit model: EC-FFA-RR7



EC-RR6□W
Single unit model: EC-FFA-RR6



EC-RR7□W
Single unit model: EC-FFA-RR7

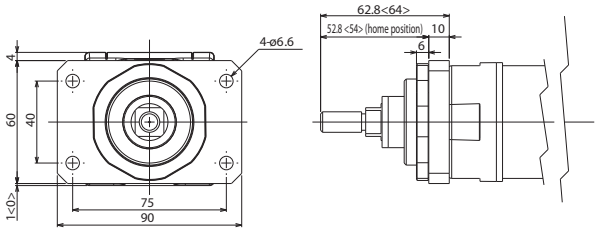


Flange (front)

Model **FL** **Applicable Models** **EC-R/RR All models**

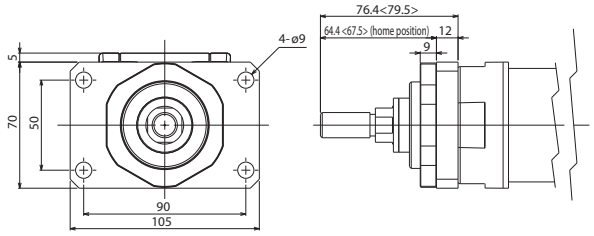
Description This bracket is used for mounting the actuator body side with bolts.
* Refer to the drawing and mount the part as it is not assembled before shipment.
Note that when this is ordered with the tip adapter "FFA," the flange "FL" is also assembled before shipping.

EC-R6/R6□W Single unit model: EC-FL-R6



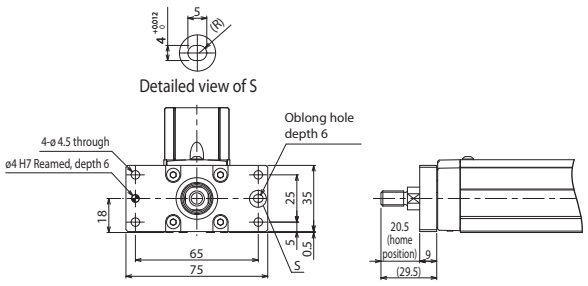
The dimensions in the < > represent water-proof type (R6□W).

EC-R7/R7□W Single unit model: EC-FL-R7

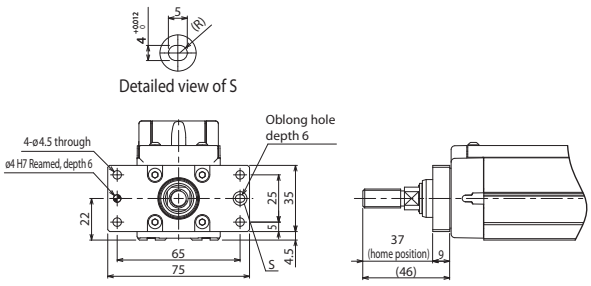


The dimensions in the < > represent water-proof type (R7□W).

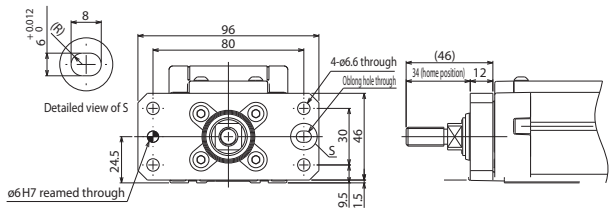
EC-RR3 Single unit model: EC-FL-RR3



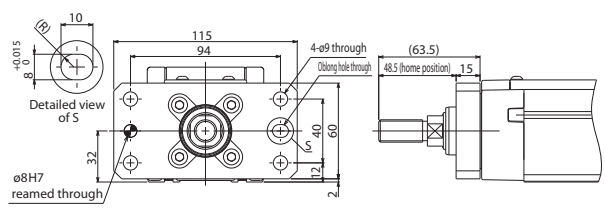
EC-RR4 Single unit model: EC-FL-RR4



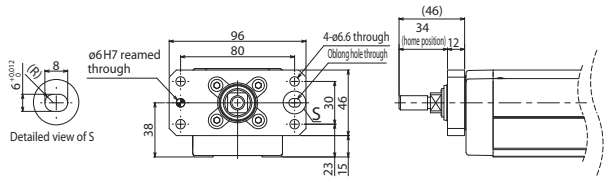
EC-RR6/RR6□R Single unit model: EC-FL-RR6



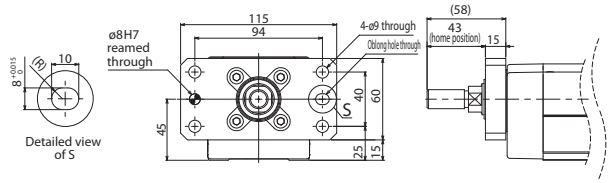
EC-RR7/RR7□R Single unit model: EC-FL-RR7



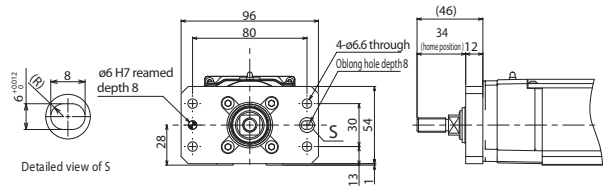
EC-RR6□AH/RR6□AHR Single unit model: EC-FL-RR6



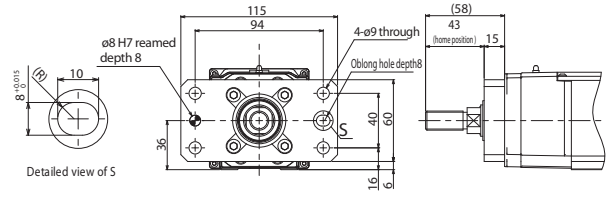
EC-RR7□AH/RR7□AHR Single unit model: EC-FL-RR7



EC-RR6□AH/RR6□W Single unit model: ECW-FL-RR6



EC-RR7□W Single unit model: ECW-FL-RR7

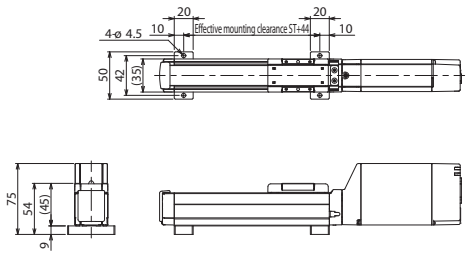


Foot bracket

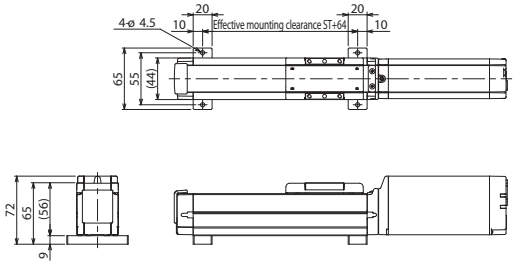
Model **FT** **Applicable Models** **All models of S/R/RR (except for S6□AH/S7□AH/RR6□AH/RR7□AH).**

Description This bracket is used for fixing the actuator body from the top with bolts.
* Please mount the bracekts referring to the drawing as it is not pre-assembled prior to shipment.

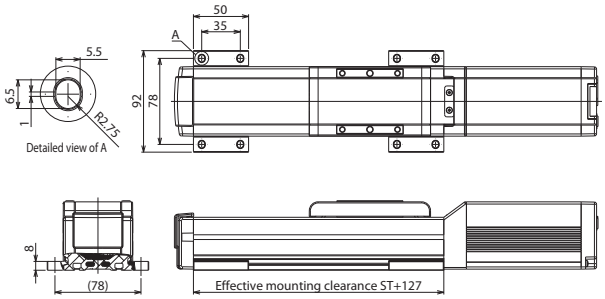
EC-S3 Single unit model: EC-FT-SRR3 (2-piece set)



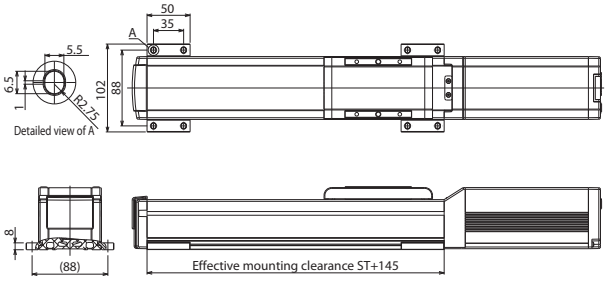
EC-S4 Single unit model: EC-FT-SRR4 (2-piece set)



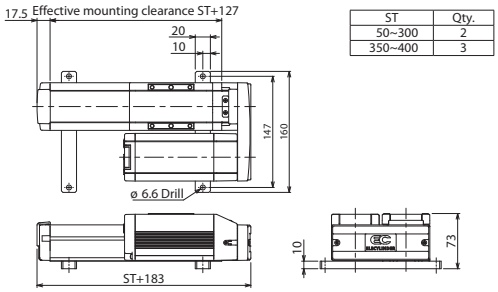
EC-S6 Single unit model: EC-FTSB



EC-S7 Single unit mode: EC-FTSB

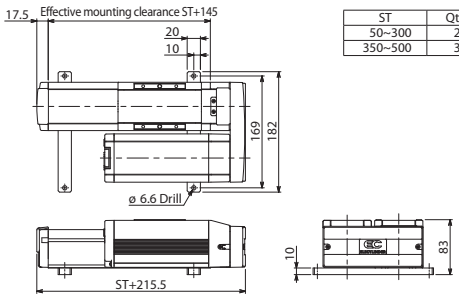


EC-S6□R Single unit model: EC-FT-SRR6R



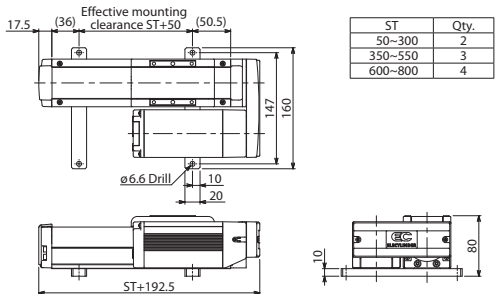
ST	Qty.
50~300	2
350~400	3

EC-S7□R Single unit model: EC-FT-SRR7R



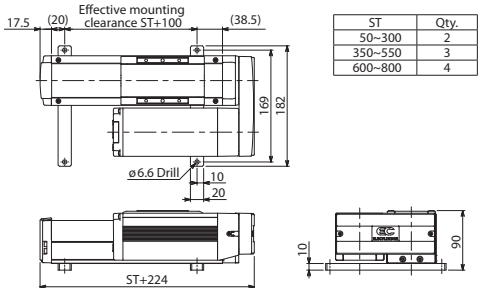
ST	Qty.
50~300	2
350~500	3

EC-S6□AHR Single unit model: EC-FT-SRR6R



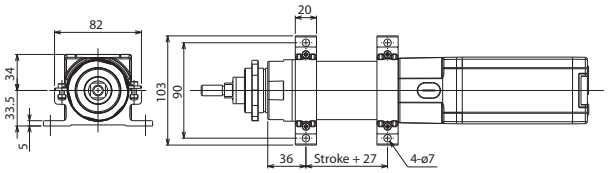
ST	Qty.
50~300	2
350~550	3
600~800	4

EC-S7□AHR Single unit model: EC-FT-SRR7R

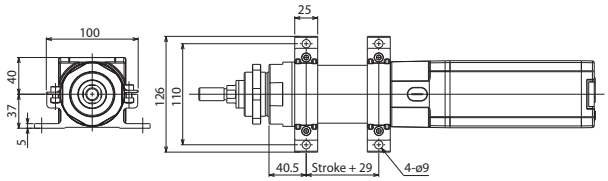


ST	Qty.
50~300	2
350~550	3
600~800	4

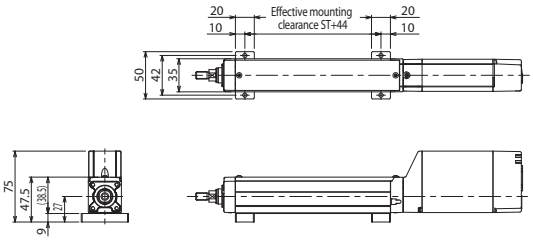
EC-R6/EC-R6□W Single unit model: EC-FT-R6



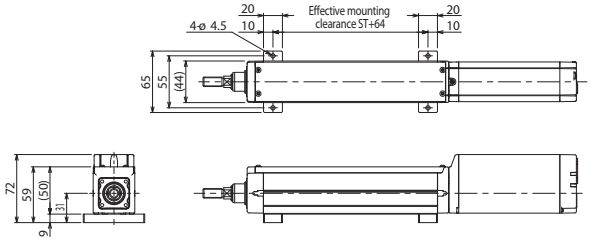
EC-R7/EC-R7□W Single unit model: EC-FT-R7



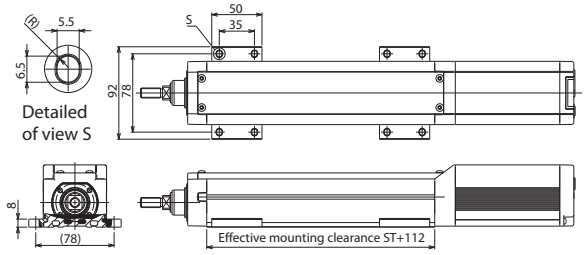
EC-RR3 Single unit model: EC-FT-SRR3 (2-piece set)



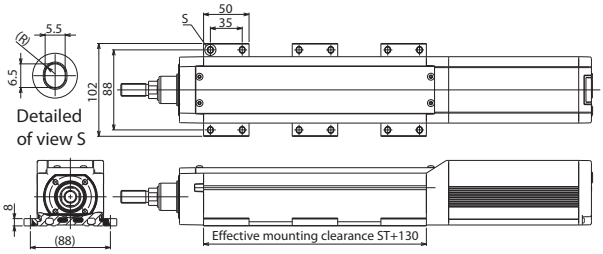
EC-RR4 Single unit model: EC-FT-SRR4 (2-piece set)



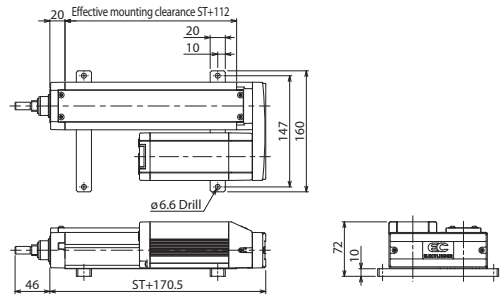
EC-RR6 Single unit model: EC-FTSB



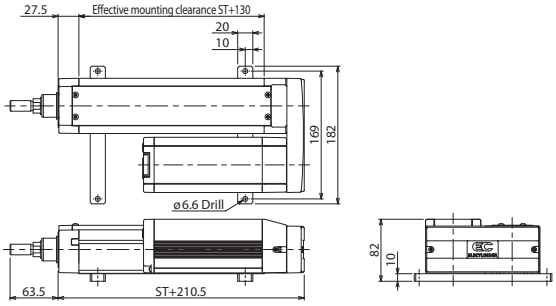
EC-RR7 Single unit mode: EC-FTSB-02



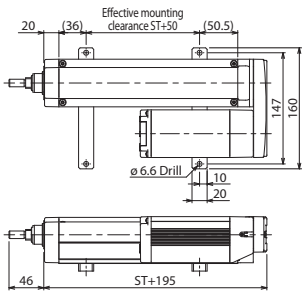
EC-RR6□R Single unit model: EC-FT-SRR6R



EC-RR7□R Single unit model: EC-FT-SRR7R

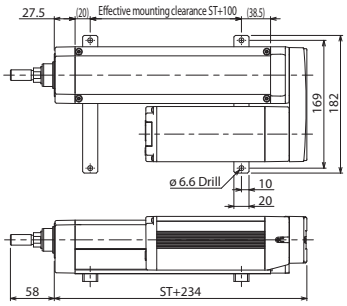


EC-RR6□AHR Single unit model: EC-FT-SRR6R



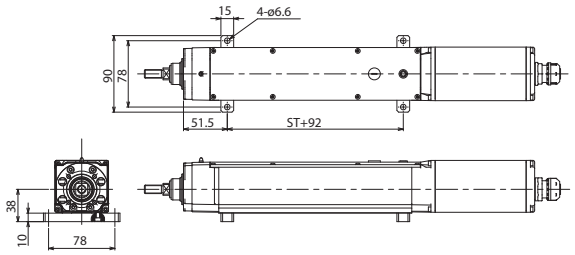
ST	Qty.
50~300	2
350~400	3

EC-RR7□AHR Single unit model: EC-FT-SRR7R

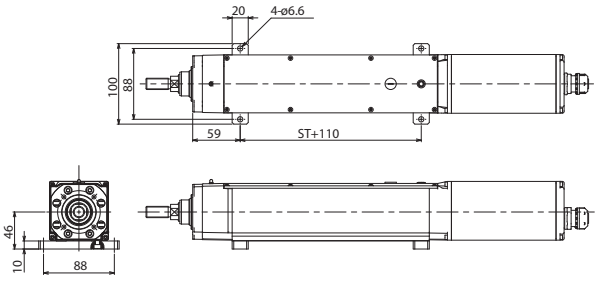


ST	Qty.
50~300	2
350~500	3

EC-RR6□W Single unit model: ECW-FT-RR6



EC-RR7□W Single unit model: ECW-FT-RR7



Food machinery grade grease

Model **G5** **Applicable Models** **EC-R6□W/R7□W/RR6□W/RR7□W**

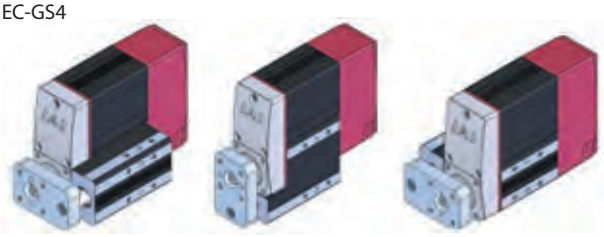
Description The grease put on the ballscrew, linear guide, and rod, is changed to food grade grease (White Alcom).

Guide mounting direction / Table mounting direction

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

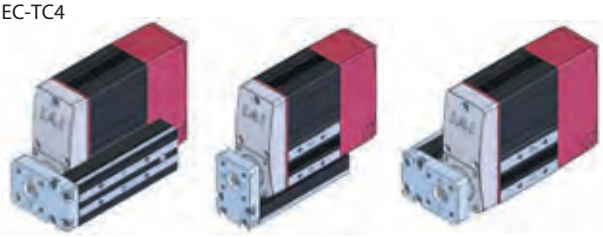
Description Select the guide shaft position of EC-GS4 and the table position of EC-TC4.

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

Motor side-mounted direction

Model **ML / MR** **Applicable Models** **Motor side-mounted specification**

Description This allows you to specify the direction of the side-mounted motor type.
As viewed from the motor-side of the actuator, side-mounting to left is ML and right is MR.

Motor mounting direction change

Model **MOB / MOL / MOR / MOT** **Applicable Models** **EC-S3/S4/RR3/RR4**

Description The motor mounting direction can be selected from 4 directions of bottom side / left side / right side / top side.
Please be sure to specify one of these options in the model number.

EC-S3

MOB
Motor mounting direction change (bottom)

MOL
Motor mounting direction change (left)

MOR
Motor mounting direction change (right)

MOT
Motor mounting direction change (top)

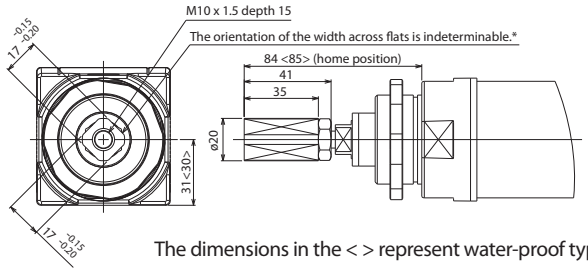
Tip adapter (Internal thread)

Model **NFA** **Applicable Models** **EC-R/RR All models**

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

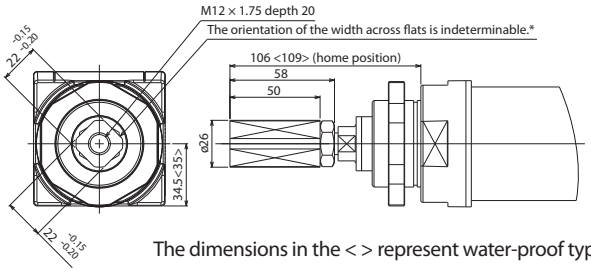
* The direction of width across flats varies depending on the product. Those flats cannot be used for reference plane.

EC-R6/R6□W Single unit model: EC-NFA-R6



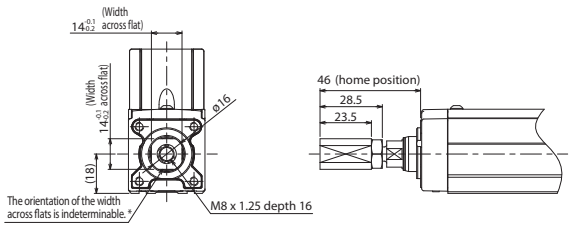
The dimensions in the < > represent water-proof type.

EC-R7/R7□W Single unit model: EC-NFA-R7

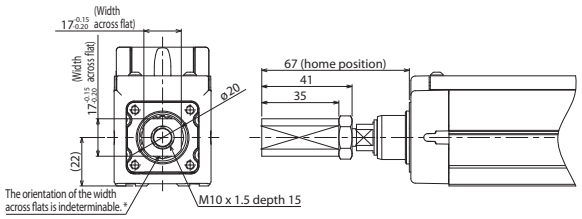


The dimensions in the < > represent water-proof type.

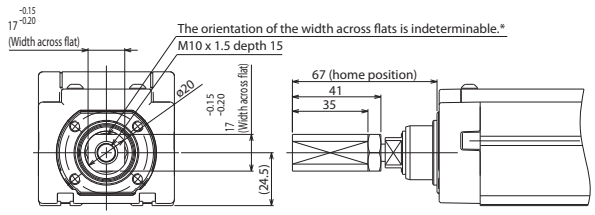
EC-RR3 Single unit model: EC-NFA-RR3



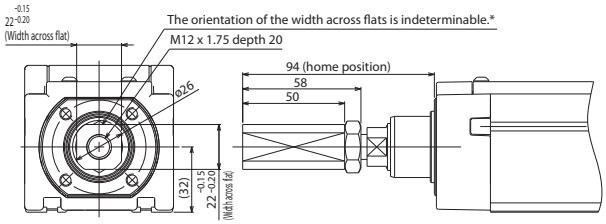
EC-RR4 Single unit model: EC-NFA-R6



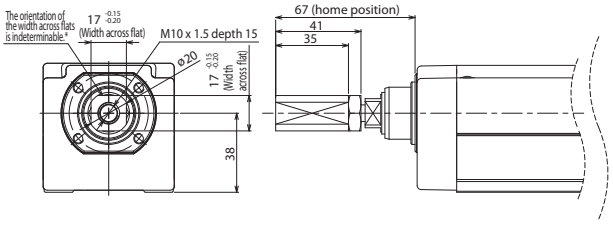
EC-RR6/RR6□R Single unit model: EC-NFA-R6



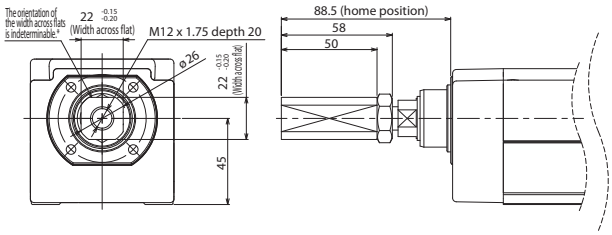
EC-RR7/RR7□R Single unit model: EC-NFA-R7



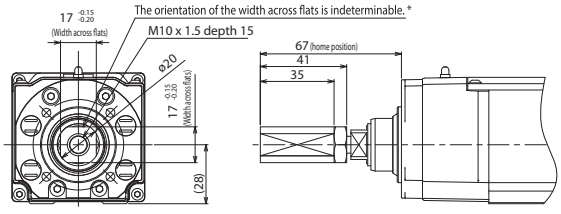
EC-RR6□AH/RR6□AHR Single unit model: EC-NFA-R6



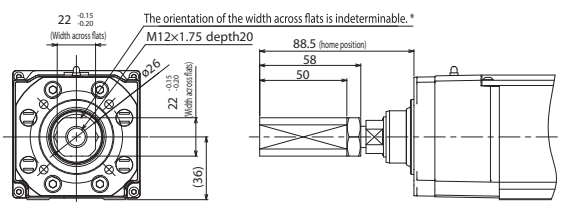
EC-RR7□AH/RR7□AHR Single unit model: EC-NFA-R7



EC-RR6□W Single unit model: EC-NFA-R6



EC-RR7□W Single unit model: EC-NFA-R7

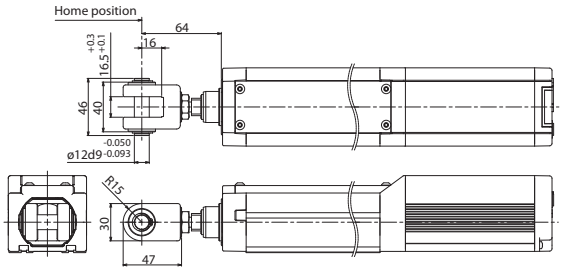


Knuckle joint

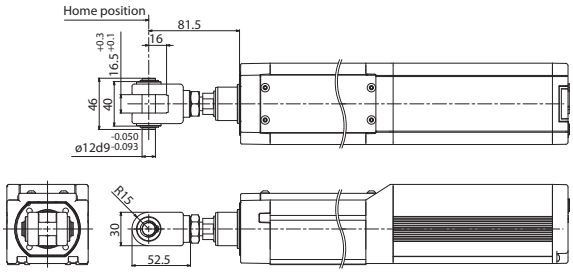
Model **NJ** **Applicable Models** **EC-RR6/RR7/RR6□AH/RR7□AH/RR6□R/RR7□R/RR6□AHR/RR7□AHR**

Description The bracket provides freedom (rotational) to the movement of actuator rod tip when using with a clevis or trunnion brackets.
Please use this together with the clevis bracket (QR or QRPB) as a set.

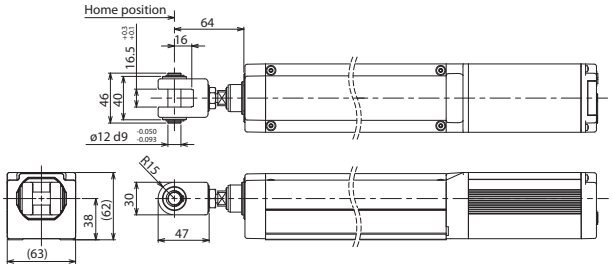
EC-RR6/RR6□R Single unit model: EC-NJ-RR6
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fall within the level mentioned on the mechanical drawings provided.



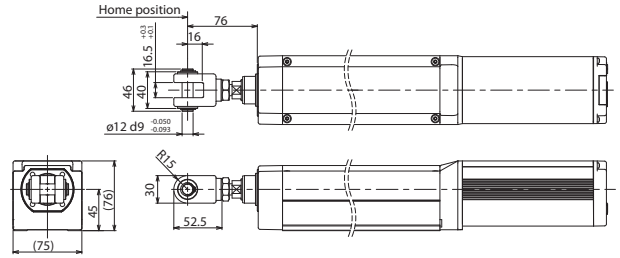
EC-RR7/RR7□R Single unit model: EC-NJ-RR7
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fall within the level mentioned on the mechanical drawings provided.



EC-RR6□AH/RR6□AHR Single unit model: EC-NJ-RR6
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fallwithin the level mentioned on the mechanical drawings provided.



EC-RR7□AH/RR7□AHR Single unit model: EC-NJ-RR7
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fallwithin the level mentioned on the mechanical drawings provided.

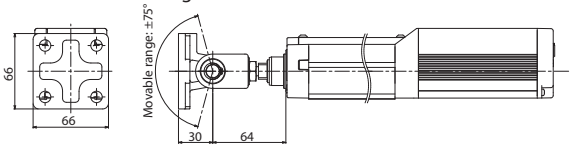


Knuckle joint + oscillation receiving bracket

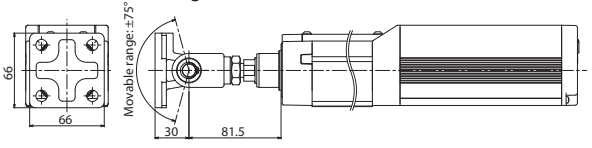
Model **NJPB** **Applicable Models** **EC-RR6/RR7/RR6□AH/RR7□AH/RR6□R/RR7□R/RR6□AHR/RR7□AHR**

Description Knuckle joint and oscillation receiving bracket.
Please use this together with the clevis bracket (QR or QRPB) as a set.

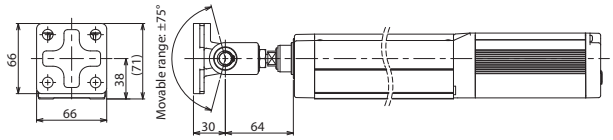
EC-RR6/RR6□R Single unit model: EC-NJPB-RR6



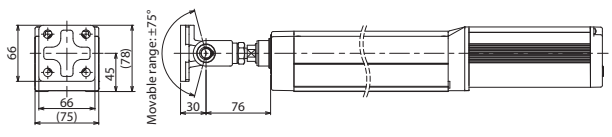
EC-RR7/RR7□R Single unit model: EC-NJPB-RR7



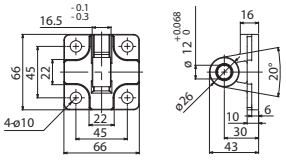
EC-RR6□AH/RR6□AHR Single unit model: EC-NJPB-RR6



EC-RR7□AH/RR7□AHR Single unit model: EC-NJPB-RR7



Dimensions of oscillation receiving bracket



Non-motor end specification

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

Description Although the home position is usually located on the motor side, it can be reversed as an option according to the requirement of the facility layout.

PNP specification

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

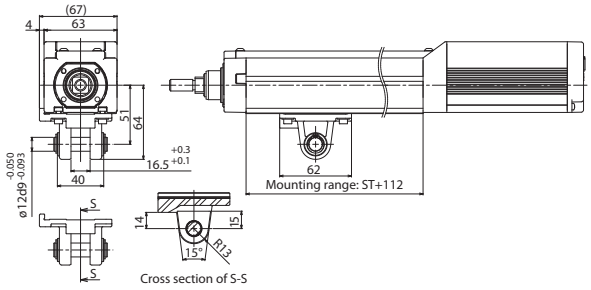
Description The EC series offers NPN specification input/output for connecting external devices as standard.
Specifying this option changes input/output to PNP specification.

Clevis bracket

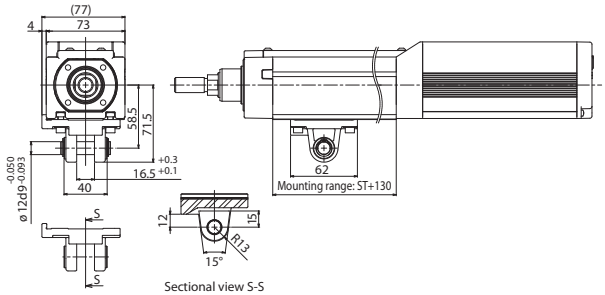
Model **QR** **Applicable Models** **EC-RR6/RR7/RR6□AH/RR7□AH/RR6□R/RR7□R/RR6□AHR/RR7□AHR**

Description This bracket makes the actuator unit follow the rod movement when the movement of the object attached to the rod tip is different from that of the rod.
Please use with a knuckle joint (NJ or NJPB) together as a set.

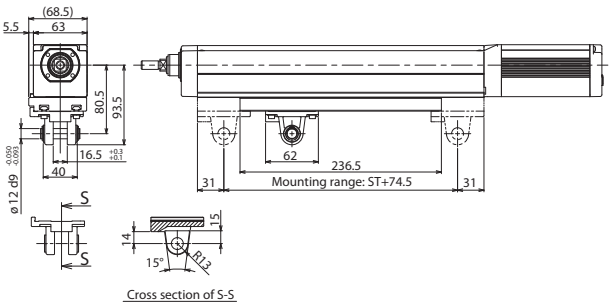
EC-RR6/RR6□R Single unit model: EC-QR-RR6
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fall within the level mentioned on the mechanical drawings provided.



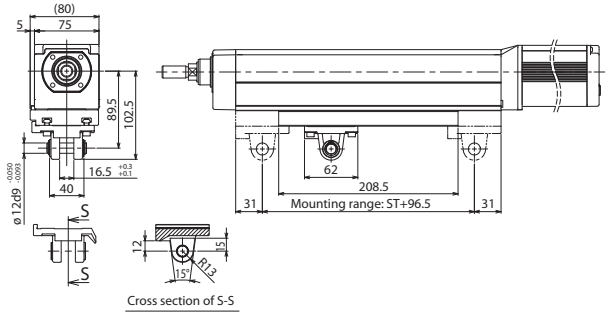
EC-RR7/RR7□R Single unit model: EC-QR-RR7
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fall within the level mentioned on the mechanical drawings provided.



EC-RR6□AH/RR6□AHR Single unit model: EC-QR-RR6
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fallwithin the level mentioned on the mechanical drawings provided.



EC-RR7□AH/RR7□AHR Single unit model: EC-QR-RR7
* Not shipped assembled. Refer to the drawing to mount.
When making adjustments, we recommend that the parallelism fallwithin the level mentioned on the mechanical drawings provided.

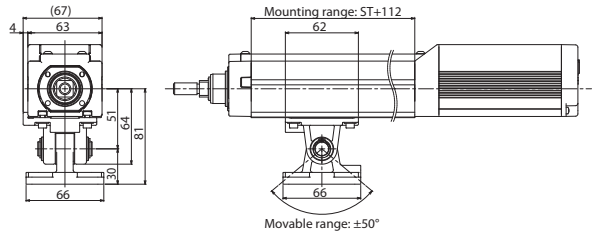


Clevis bracket + oscillation receiving bracket

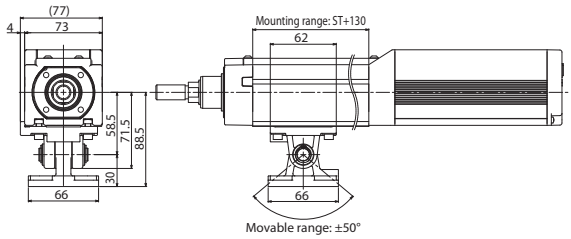
Model **QRPB** **Applicable Models** EC-RR6/RR7/RR6□AH/RR7□AH/RR6□R/RR7□R/RR6□AHR/RR7□AHR

Description This is the oscillation receiving bracket with the clevis. The mounting method of the oscillation receiving bracket is the same as NJPB.
Please use with a knuckle joint (NJ or NJPB) together as a set.

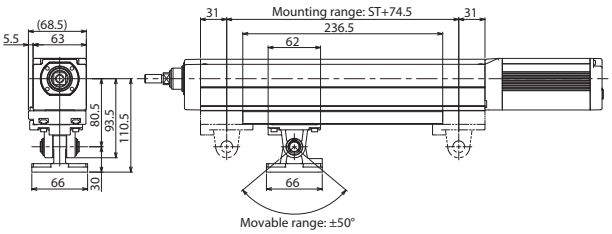
EC-RR6/RR6□R Single unit model: EC-QRPB-RR6



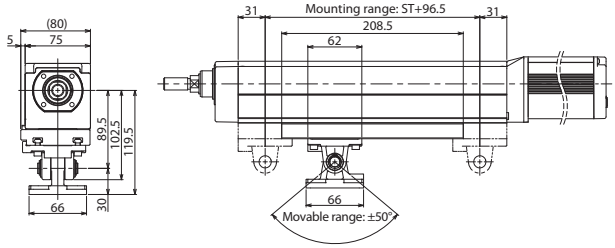
EC-RR7/RR7□R Single unit model: EC-QRPB-RR7



EC-RR6□AH/RR6□AHR Single unit model: EC-QRPB-RR6



EC-RR7□AH/RR7□AHR Single unit model: EC-QRPB-RR7



Sealing material specification

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

Description The sealing material is changed from NBR (Nitrile rubber) to FKM (fluororubber).

Split motor and controller power supply specification

Model **TMD2** **Applicable Models** All Models

Description Optional item to supply motor power and control power separately.
Please refer to P113 for wiring details.

* This option is not available, if the actuator model is only ordered with Power I/O connector without cable (if the cable length specification is 0m).

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 Optional item is for wireless communications.
By specifying this option, wireless communications with the teaching pendant TB-03 become available.
Please refer to P114 for wiring details.

Wireless axis-operation specifications

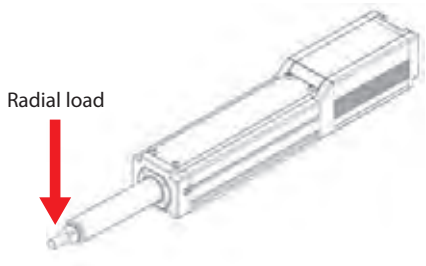
Model **WL2** **Applicable Models** All Models

Description By specifying WL2, all the wireless operations of WL (adjusting the starting point, the end point, and the AVD) are available, and test operation of axis movements (moving to forward/backward ends, jogging, and inching) are also possible. However, using this function for automated operations is not possible.
Please refer to P118 for cautions on axis operations using wireless connection. Alterations from WL to WL2, or vice versa cannot be made by customer. Please contact IAI.

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.

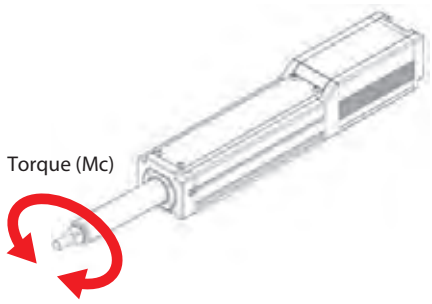


Type	Rod tip static allowable radial load	Rod tip dynamic allowable radial load (*1)
RR3/RR4	40N	20N
RR6/RR6□R/RR6□W	90N	45N
RR7/RR7□R/RR7□W	120N	60N

Type	Static allowable radial load on rod tip	Dynamic allowable radial load on rod tip (*1)					
		Stroke (mm)					
		50~250	300	350	400	450	500
RR6□AH/RR6□AHR	190N	130N	40N	35N	25N	–	–
RR7□AH/RR7□AHR	250N	170N	50N	45N	40N	35N	30N

(*1) In case of the standard rated service life of 5000km.

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)
RR3/RR4	3.5N·m	3.5N·m
RR6 /RR6□R/RR6□W	5.5N·m	5.5N·m
RR7 /RR7□R/RR7□W	10.5N·m	10.5N·m
RR6□AH/RR6□AHR	9N·m	5.5N·m
RR7□AH/RR7□AHR	17.6N·m	10.5N·m

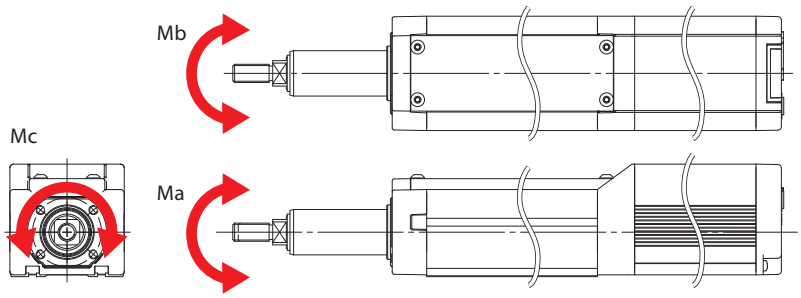
(*2) In case of the standard rated service life of 5000km.

3. The uniform load acting on the rod must not exceed the allowable value.
The uniform load is obtained by the following formula.
Uniform load = Ma · Ka + Mb · Kb + Mc · Kc

Type	Static allowable uniform load	Dynamic allowable uniform load (*3)	Load uniform coefficient Ka	Load uniform coefficient Kb	Load uniform coefficient Kc
RR3	1440N	580N	209/m	147/m	131/m
RR4	1720N	660N	181/m	127/m	93/m
RR6/RR6□R/RR6□W	4400N	1050N	124/m	87/m	62/m
RR7/RR7□R/RR7□W	5680N	1260N	98/m	69/m	50/m
RR6□AH/RR6□AHR	6700N	2400N	104/m	87/m	62/m
RR7□AH/RR7□AHR	11400N	3000N	90/m	76/m	50/m

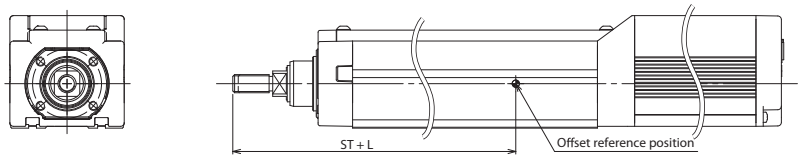
(*3) Value at a standard rated life of 5000km.

Ma, Mb, Mc: Moment load

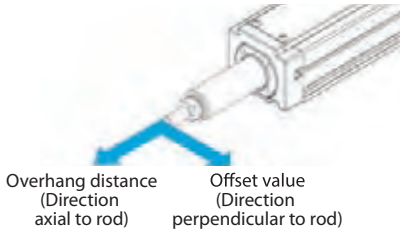


Type	L
RR3	73mm
RR4	102mm
RR6/RR6□R	111mm
RR7/RR7□R	144.5mm
RR6□W	131.3mm
RR7□W	161.5mm
RR6□AH/RR6□AHR	126mm
RR7□AH/RR7□AHR	153.5mm

Moment offset reference position



(Caution) The radial load applied on the rod should not exceed the allowable offset and allowable overhang distance.



Type	Allowable offset value	Allowable overhang distance
RR3/RR4	100mm	100mm
RR6/RR6□R/RR6□W	100mm	100mm
RR7/RR7□R/RR7□W	100mm	100mm
RR6□AH/RR6□AHR	100mm	100mm
RR7□AH/RR7□AHR	150mm	150mm

* Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.
* The center of gravity of the attached object should be less than the offset value or less than 1/2 of the overhang distance.

EC Dust-/Waterproof Spec. Table of Solution-Resistance by Material

■ EC-R□W/RR□W

Name		NBR Nitrile rubber	PVC Polyvinyl chloride	FKM Fluorine rubber
		Standard	Standard	Optional
Water-soluble cutting oil		○	○	△
Non-water-soluble cutting oil		△	○	○
Cleaning fluid		○	○	○
Lubricating oil	Engine oil	○	○	○
	Gear oil	○	○	○
	Torque converter oil	○		○
	Brake oil (glycol based)	△		—
	Brake oil (silicone based))	○		○
	Machine oil	○		○
	Spindle oil	○		○
	Refrigerator oil (mineral oil)	○		○
	Cup grease	○		○
	Lithium grease	○	○	○
	Silicon grease	○	○	○
Hydraulic oil	General petroleum	○	○	○
	Low temperature petroleum	○	○	○
	Fatty acid ester based oil	○		○
	Phosphoric ester based oil	—		△
	Water-glycol based oil	○	○	△
	Water-oil emulsion based oil	○	○	△
	Turbine oil Class 2	○		○
	Silicon based oil	○		○
	Brake oil	△		△
Chemicals	Hydrochloric acid 10% solution	○	○	○
	Sulfuric acid 30% solution	△		△
	Nitric acid 10% solution	—		△
	Sodium hydroxide 40% solution	○		—
	Benzene	—	—	—
	Alcohol	○		○
	Methyl ethyl ketone	—	—	—
	Trichlen	—	—	△
	Ethylene glycol	○	—	○
	Acetone	—	—	—
Others	Gasoline	△	—	○
	Distillate/ fuel oil	△		○
	Heavy oil	○		○
	Antifreeze solution (Ethylene glycol based)	○		—
	Water/hot water	○	○	○
	Sea water	○		○

Judgment	Effects by solution to the seal part
○	Usable: only minor effects
△	Check before use: may result in significant effects
—	Do not use: will result in major effects

*1 Judgment may vary depending on the brand

*2 The table of solution resistance is based on IAI's internal evaluation and general evaluations. Please use the data as a selection guide.

*3 Judgement may vary depending on the environment and operating conditions. Please confirm before use if there is a potential effect.

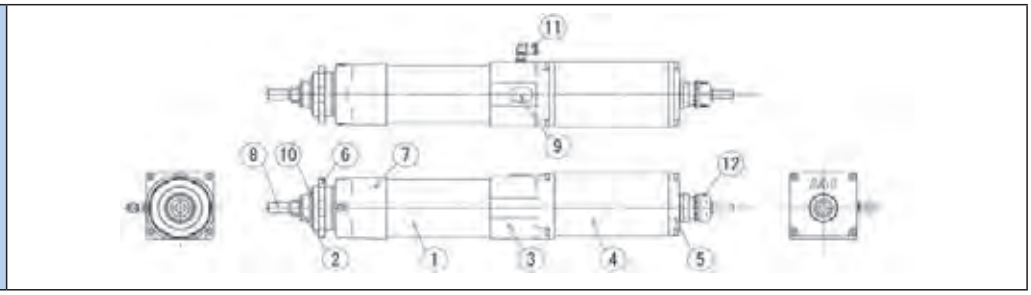
*4 We carry out resistance tests of customer-specified solutions. Please contact us if you would like a test.

EC Dust-/Waterproof Specification Materials of Exterior Components

■EC-R6□W/R7□W

	Name			Material	Treatment
Exterior Components	①Frame			Extruded aluminium	Black alumite
	②Rod			Drawn aluminium	Hard alumite
	③Rear bracket			Aluminium die cast	
	④Motor cover			Extruded aluminium	Black alumite
	⑤End cover			Aluminium die cast	
	⑥Front fixing nut			Steel	Trivalent chromate
	⑦Front bracket			Aluminium die cast	
	⑧Tip metal			Stainless steel	
	⑨Rubber cap (for grease nipple)		Standard	Rubber (NBR)	
			Option	Rubber (FKM)	
	⑩Scraper		Standard	Rubber (NBR)	
			Option	Rubber (FKM)	
	⑪Exhaust port		Standard	NBR+resin (PBT/POM) + Brass	Nickel plating
			Option	FKM+resin (PBT/POM) + Brass	Nickel plating
	⑫Actuator pigtail cable	Pigtail seal	Standard	Rubber (NBR) + PBT resin + Nylon	
			Option	Rubber (FKM) + PBT resin + PP	
		Cable jacket	Standard	Polyvinyl chloride (PVC)	
			Option	Rubber (FKM)	
	Exterior bolts			Stainless steel	
	Sealing parts		Standard	Rubber (NBR)	
			Option	Rubber (FKM)	

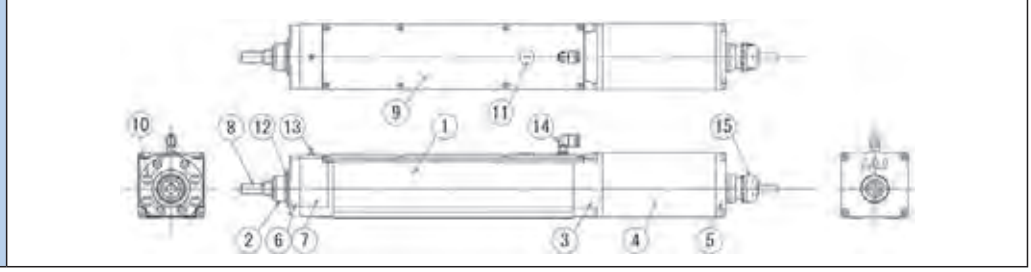
R□W



■EC-RR6□W/RR7□W

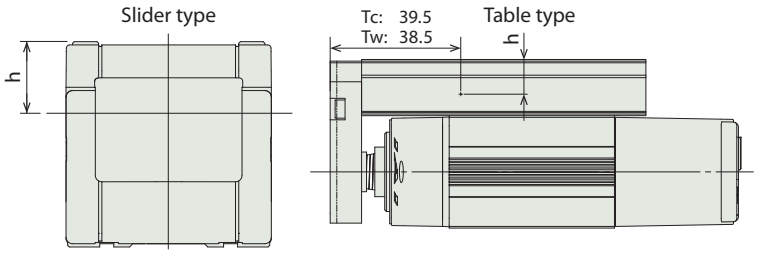
	Name			Material	Treatment
Exterior Components	①Base			Extruded aluminium	Black alumite
	②Rod			Drawn aluminium	Hard alumite
	③Bearing housing			Aluminium die cast	
	④Motor cover			Extruded aluminium	Black alumite
	⑤End cover			Aluminium die cast	
	⑥Scraper case			Aluminium die cast	
	⑦Front bracket			Aluminium die cast	
	⑧Tip metal			Stainless steel	
	⑨Frame cover			Extruded aluminium	Black alumite
	⑩Cap		Standard	Rubber (NBR)	
			Option	Rubber (FKM)	
	⑪Rubber cap (grease port)		Standard	Rubber (NBR)	
			Option	Rubber (FKM)	
	⑫Scraper		Standard	Rubber (NBR)	
			Option	Rubber (FKM)	
	⑬Grease nipple		Standard	Brass (C3604)	
			Option	Stainless steel	
	⑭Exhaust & intake port		Standard	NBR + resin (PBT/POM) + Brass	Nickel plating
			Option	FKM + resin (PBT/POM) + Brass	Nickel plating
	⑮Actuator pigtail cable	Pigtail seal	Standard	Rubber (NBR) + PBT resin + Nylon	
			Option	Rubber (FKM)+ PBT resin + PP	
		Cable jacket	Standard	Polyvinyl chloride (PVC)	
			Option	Rubber (FKM)	
	Exterior bolts			Stainless steel	
	Sealing parts		Standard	Rubber (NBR)	
			Option	Rubber (FKM)	

RR□W



Correlation of push force and current limit value

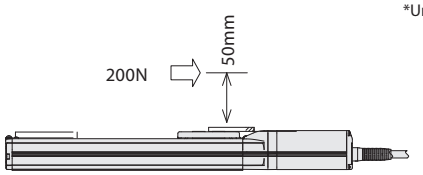
When performing the push-motion operation with the slider type, and mini table type please limit the push current in order that the reactive moment caused by the push force does not exceed the dynamic allowable moment (Ma, Mb) in the catalog. Please refer to the figures below, which show the working 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.



Guide moment effective position

h dimension			
Slider type		Table type	
S3	16	TC4	10.5
S4	18	TW4	10.5
S6/S6□R	22		
S7/S7□R	22		
S6□H/S6□AHR	50.5		
S7□H/S7□AHR	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)×200 = 14400 (N•mm)
= 14.4 (N•m).

The dynamic allowable moment for EC-S7 is Ma = 17.7 (N•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.

Duty cycle

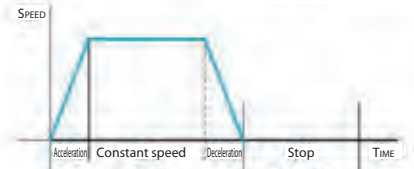
Duty cycle is the percentage of the actuator's active operation time in each cycle.

EleCylinder types have limits on the duty ratio as shown below. The below graph also applies to usage at the maximum speed and maximum acceleration/deceleration.
(Note) The duty ratio for S3, S4, RR3, RR4, RP, GS, TC and TW is 100% at the ambient temperature 0 to 40°C.

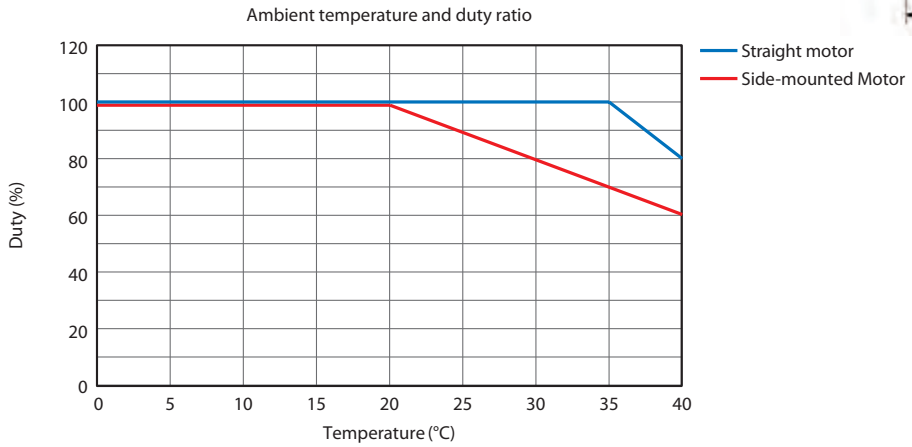
[Duty Cycle]
The duty ratio is the operating rate shown as the actuator's operating time during one cycle in %.

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

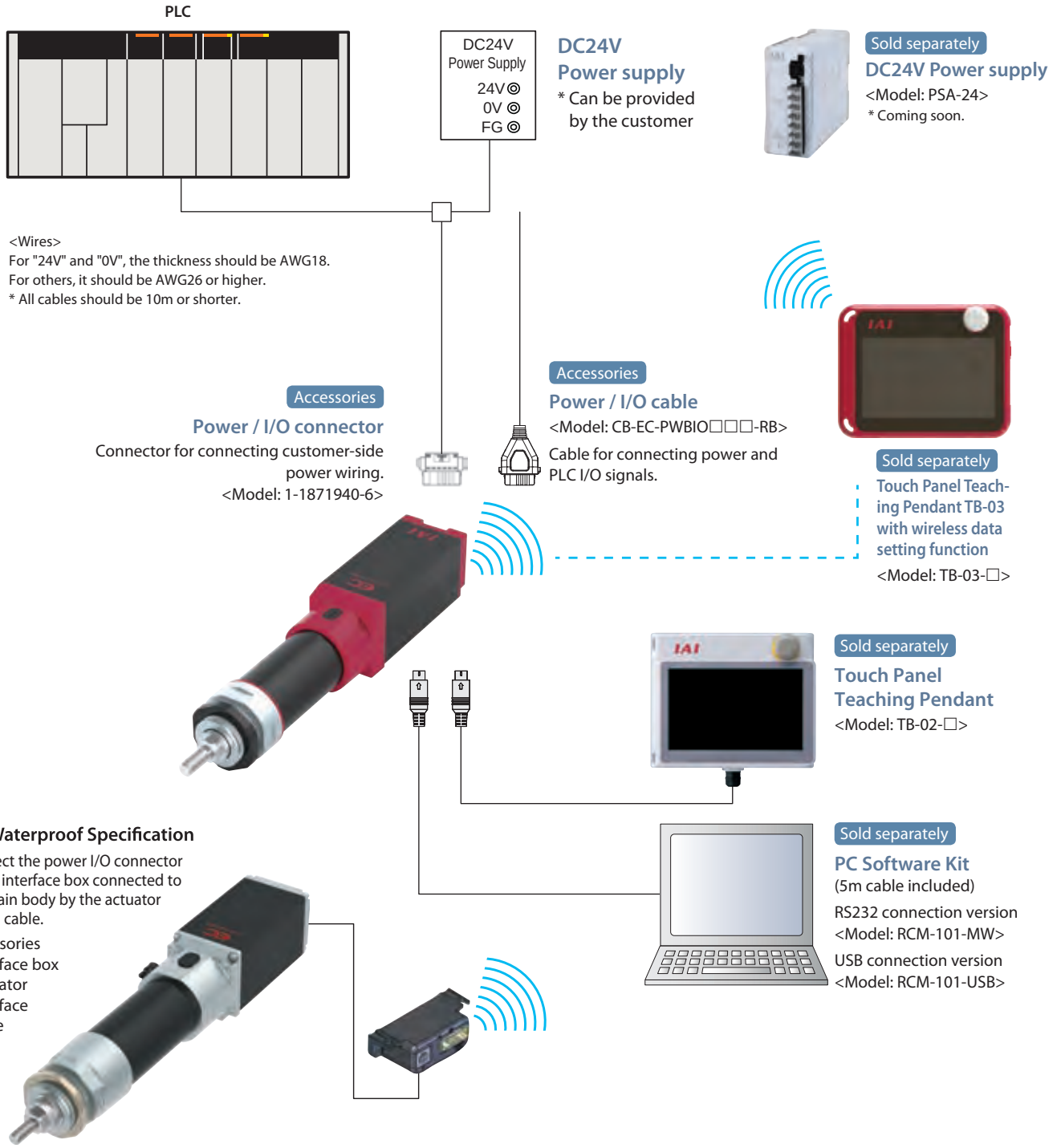
D: Duty
T_M: Operating time (including push-motion operation)
T_R: Stop time



■ Ambient temperature and duty ratio



System Configuration



List of Accessories

Product category	Accessories
Without EC power / I/O cable (When cable length "0" is selected for actuator type)	Power / I/O connector (1-1871940-6)
With EC power / I/O cable (When cable length "1" to "10" is selected for actuator type)	Power / I/O cable (CB-EC-PWBIO□□□-RB)
Interface box	
Actuator interface cable (Waterproof specification)	

Basic Controller Specifications

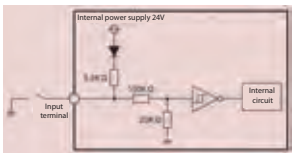
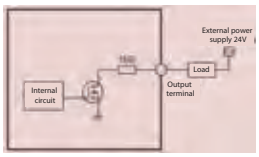
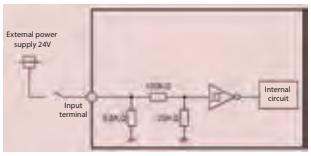
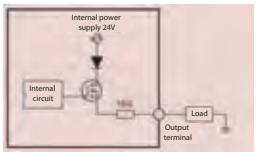
Specification item			Specification content
Number of controlled axes			1 axis
Power supply voltage			24VDC ±10%
Power capacity		Standard Waterproof High rigidity	With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Rated 2.2A (Energy-saving can only be enabled for the S3/RR3 with the maximum current of 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 Waterproof High rigidity	8.3A (with inrush current limit circuit)
		Mini type	10A
Momentary power failure resistance			Max 500μs
Motor size			□28, □35, □42, □56
Motor rated current			1.2A
Motor control system			Weak field-magnet vector control
Supported encoders			Incremental (800pulse/rev), Battery-less absolute encoder (800 pulses/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 point
		Residual voltage	2V or less
		Isolation method	Non-isolated
Data setting and input methods			PC software kit / Touch panel teaching pendant
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

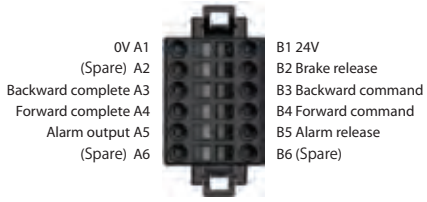
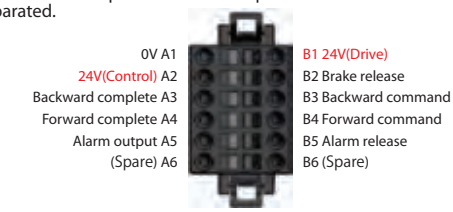
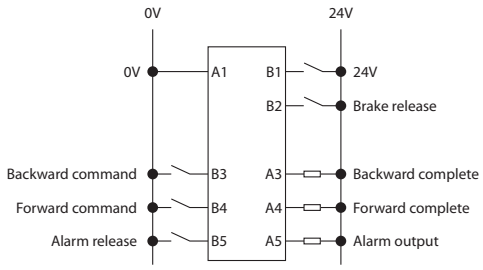
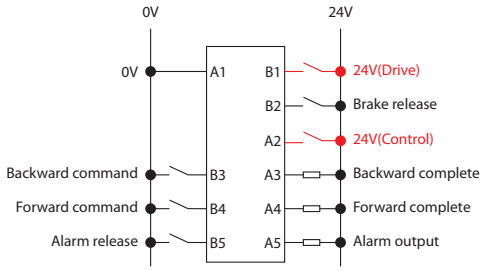
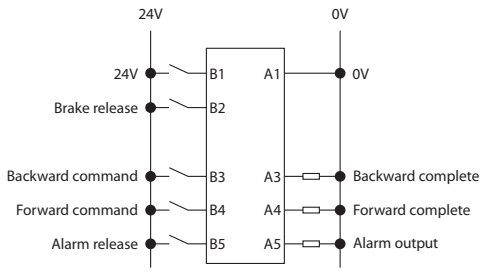
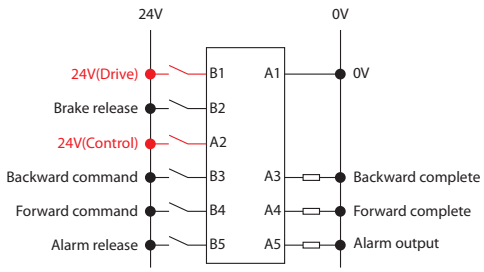
Pin assignment for power I/O connector			
Pin No.	Connector tag plate name	Signal abbreviation	Description of command
B3	Backward	ST0	Backward command
B4	Forward	ST1	Forward command
B5	Alarm release	RES	Alarm reset
A3	Backward complete	LS0/PE0	Backward complete/Pushing complete
A4	Forward complete	LS1/PE1	Forward complete/Pushing complete
A5	Alarm	*ALM	Alarm detected (contact point b)
B2	Brake release	BKRLS	Forced release of brake (for "with brake" specification)
B1 (Note)	24V	24V	24V input
A1	0V	0V	0V input
A2 (Note)	(24V)	(24V)	24V input

(Note) In the case of dual power supply specificatios (TMD2), B1 is 24V (drive) and A2 is 24V (control).

I/O Specification (Input/Output specifications)

I/O		Input		Output	
Specifications		Input voltage	DC24V±10%	Load voltage	DC24V±10%
		Input current	5mA/circuit	Max. load current	50mA/point
		ON/OFF Voltage	ON voltage MIN DC18V OFF voltage MAX DC6V	Residual voltage	2V or less
		Leak current	MAX 1mA/point	Leak current	MAX 0.1mA/point
Insulation method		Not isolated from external circuit		Not isolated from external circuit	
I/O logic	NPN				
	PNP				

I/O Specification Wiring Diagram

I/O		Standard Specification	TMD2 Specification (Option)
Power• I/O connector			The TMD2 specification is a specification in which the motor power and control power are separated. 
I/O logic	NPN		
	PNP		

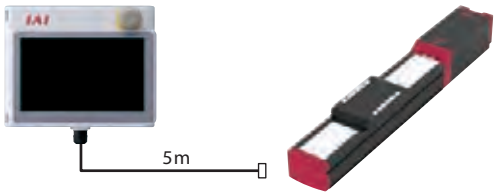
Options

Touch Panel Teaching Pendant

■ **Features** A teaching device equipped with functions such as position teaching, trial operation, and monitoring.

■ **Model** **TB-02-□** Please contact IAI for the current supported versions.

■ **Configuration**



■ **Specifications**

Rated voltage	24V DC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 to 40°C
Ambient operating humidity	20~ 85% RH (Non-condensing)
Environmental resistance	IP20
Mass	470g (TB-02 unit only)

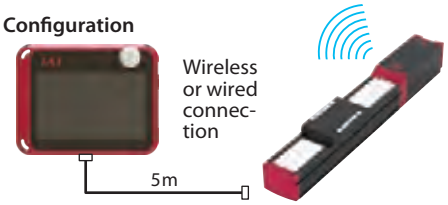
Touch Panel Teaching Pendant with wireless function

■ **Features** Teaching device for wireless connection. Start/End positions and AVD data can be input wirelessly.

■ **Model** **TB-03-□** Please contact IAI for the current supported versions.

■ **Specifications & more details** -> See from P115

■ **Configuration**



PC software (Windows only)

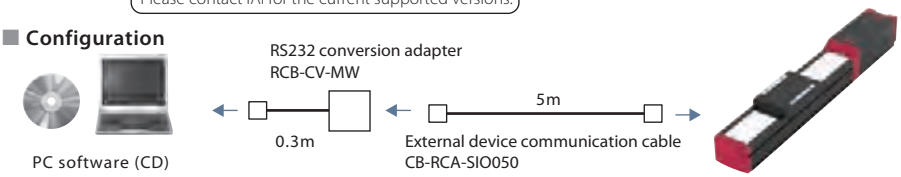
■ **Features** The start-up support software which comes equipped with functions such as position teaching, trial operation, and monitoring.
A complete range of functions needed for making adjustments contributes to shortened start-up time.

Supported Windows versions: 7/8/10

■ **Model** **RCM-101-MW (with an external device communication cable + RS232 conversion unit)**

Please contact IAI for the current supported versions.

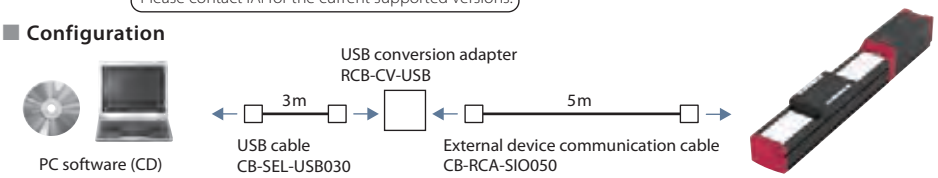
■ **Configuration**



■ **Model** **RCM-101-USB (with an external device communication cable +USB conversion adapter + USB cable)**

Please contact IAI for the current supported versions.

■ **Configuration**



Maintenance Parts

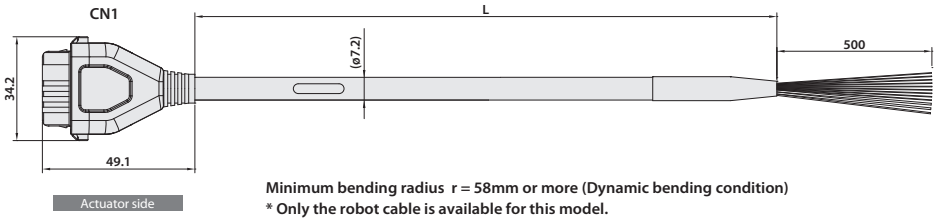
When placing an order for a replacement cable, please use the model name shown below.

■ **Table of compatible cables**

Model name	Power / I/O cable
EC	CB-EC-PWBIO□□□-RB

Model CB-EC-PWBIO□□□-RB

* Please indicate the cable length (L) in □□□, E.g.) 030 = 3m



Minimum bending radius r = 58mm or more (Dynamic bending condition)
*** Only the robot cable is available for this model.**
(Standard non robot cable unavailable)

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(reserve)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(reserve)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(reserve)	A6
Brown (AWG26)	BKRLS	B2

TB-03

Touch Panel Teaching Pendant TB-03 with wireless or wired 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.

As for EleCylinder that can be operated by wireless, the wireless function differs depending on the description of EleCylinder model type option.
"-WL" for Edit only "-WL2" for Edit and Operation

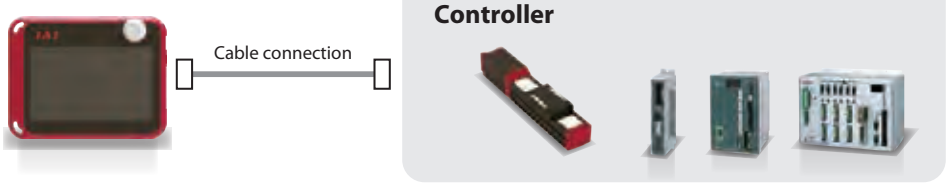
2. Status monitoring makes daily maintenance easier and shortens trouble recovery time

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.

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.



For the EleCylinder, wired or wireless specification can be selected from the EleCylinder model selection.

Model Number

One unit is compatible with all the controllers though the right cable should be selected in order to connect with each controller type.
In addition, an AC adapter for recharging the main unit should be selected according to the operating environment.

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

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

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

*1 No cable *2 No AC adapter *3 Use with the ② cable when connecting to ASEL, PSEL, SSEL, or MSEL

● **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) *1

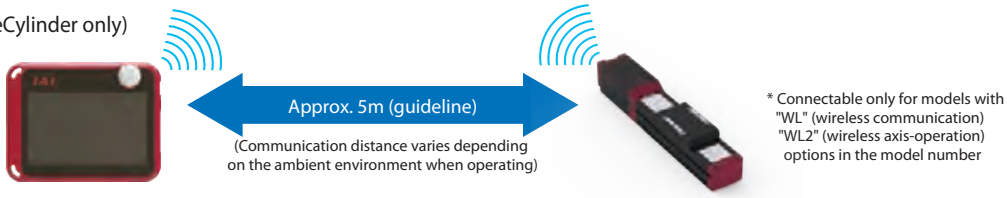
*1 Use with the ② cable when connecting to ASEL, PSEL, SSEL, or MSEL

● **AC adapter single product model number**

Connected controller	Model	Specification	Single product model number
EleCylinder Position Controller Program Controller	E	For Europe	UNE318-5928

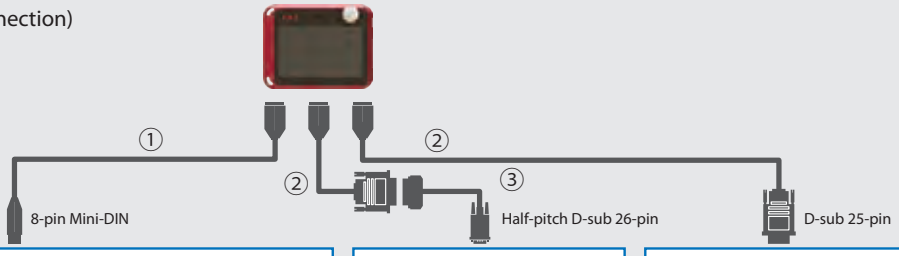
Connection

● Wireless connection (EleCylinder only)



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

● Wired connection (cable connection)



[EleCylinder]
EC

[Position Controller]

PCON-CB/CFB/CGB/CGFB	PCON-CYB/PLB/POB *2
ACON-CB/CGB	ACON-CYB/PLB/POB *2
DCON-CB/CGB	DCON-CYB/PLB/POB *2
SCON-CB/CGB	SCON-CAL/CGAL
MCON-C/CG/LC/LCG	MSCON
RCP6S *1	RCM-P6PC/P6AC/P6DC*1

[Program Controller]
MSEL-PC/PG/PCF/PGF/PCX/PGX
ASEL-CS PSEL-CS
SSEL-CS

[Program Controller]
XSEL-RA/SA/RAX/SAX/RAXD/SAXD
XSEL-P/Q/PX/QX
TTA

*1 To operate RCP6S and RCM-P6, a gateway unit or a PLC connection unit is necessary. *2 Coming soon.

Body Specifications

Power input voltage range	24VDC ±10% [supplied from controller]
	5.9VDC (5.7 to 6.3V) [supplied from AC adapter]
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)

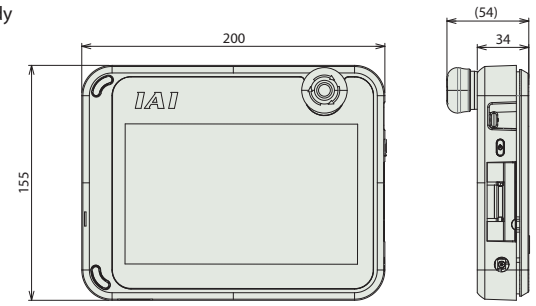
Wireless connection	Bluetooth 4.2 Class 2
Wireless function	Data setting/Monitor function/Axis-operation
Operation command/stop command	No
Max. number of connectable axes	16 axes
Operation	Battery (AB-7) operation
Wireless operating time	Max. 4 hours (battery driven)
Battery life	Cycle durability 300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

AC Adapter Common Specifications

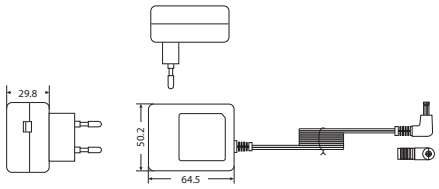
Power input voltage range	Single-phase 100 to 240VAC ±10%
Power supply current	0.4A max.
Consumption current	2.8A max.
Output voltage	5.9VDC (5.7 to 6.3V)
Charging time	Approx. 3 hours
Cable length	1500 ±100mm

External Dimensions

●Body



●AC adapter
(for Europe:
UNE318-5928)

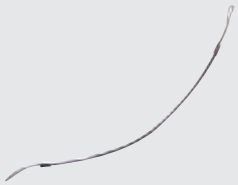


Name of Each Component

Options

●Strap: STR-1

●Spiral cable: SIC-1



●Grip belt: GRP-2

■Maintenance Parts
Battery unit: AB-7

Cautions on Axis Operations via Wireless Connection

This device (V2.30 or later) can operate the EleCylinder whose option model number is: WL2 via wireless connection.
When performing a wireless operation, make sure to check safety according to the following instructions:

- During a wireless operation, **the stop switch on this device does NOT function**. Make sure to prepare a device or circuit for emergency stops.

- Although the operation of EleCylinder via wireless connection allows test operations (moving to forward/backward ends, jogging and inching), **it is not a function to perform an automated operation**. Make sure to build a mechanical system according to the risk of the operating environment.

- **Carry out a risk assesment according to the requirements specified by the standard for the machinery built in the system.**
  It is not allowed to perform dangerous operations such that the system must stop automatically when the control signals are not received due to communication interruptions.

- The stop operation by axis operation using wireless cannot be used as the safety function specified in EN ISO 13849-1: 2015. Neither does it conform to the safety categories B and 1 to 4 of the EN ISO 13849-1: 2015

Cautions on Wireless Operations

- This product uses a 2.4GHz electrical wave called the ISM band (wireless frequency 2400 to 2483.5MHz, wireless output +5 dBm).

- Since this spectrum is used by many devices including microwaves and wireless LANs, communications may be interrupted due to radio disturbances.

- The use of this product is permitted only in the countries (regions) specified below:
  In other countries (regions), it is necessary to obtain an certification according to the regulations in the country (region).

  Japan, USA, Canada, EU countries, China, Korea and Thailand

EC EleCylinder Series V10b
Slider / Rod / Table Type
Catalogue No. 1019-E

ELECYLINDER

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