

Simple-to-use Mini Rod & Table Types with Built-in Controller

# Mini EleCylinder

ECO

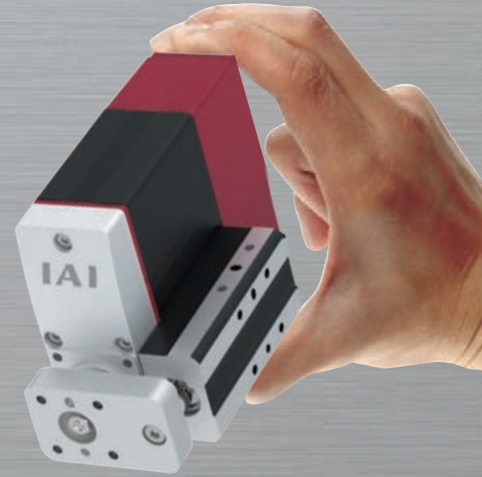
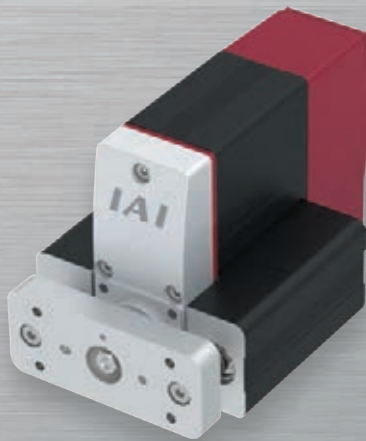


Battery-less Absolute Encoder

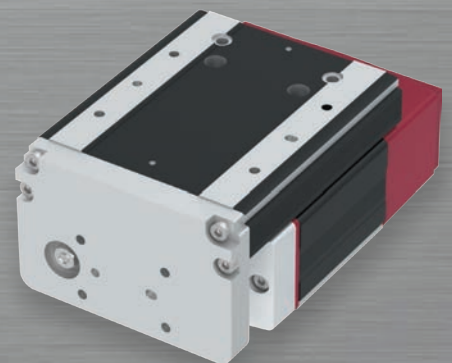
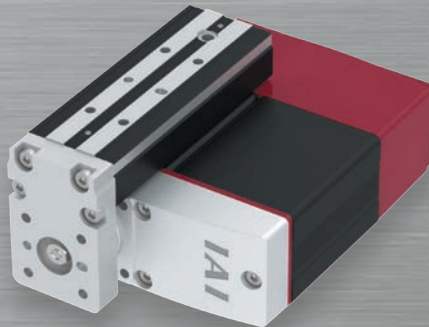
No Battery,

No Maintenance, No Homing,

No Going Back to Incremental.



**Easy** to operate,  
even with no electrical expertise.  
Working just **5** minutes after setting  
speed and acceleration!



**EC**  
ELECYLINDER

# Mini EC Models & Features

## Compact

### Mini Rod type

EC-RP4 ▶ P5



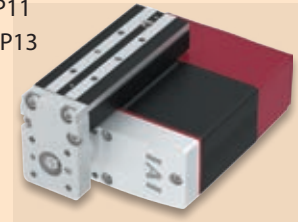
### Mini Guided Rod type

EC-GS4 ▶ P7  
EC-GD4 ▶ P9



### Mini Table type

EC-TC4 ▶ P11  
EC-TW4 ▶ P13



#### <Features>

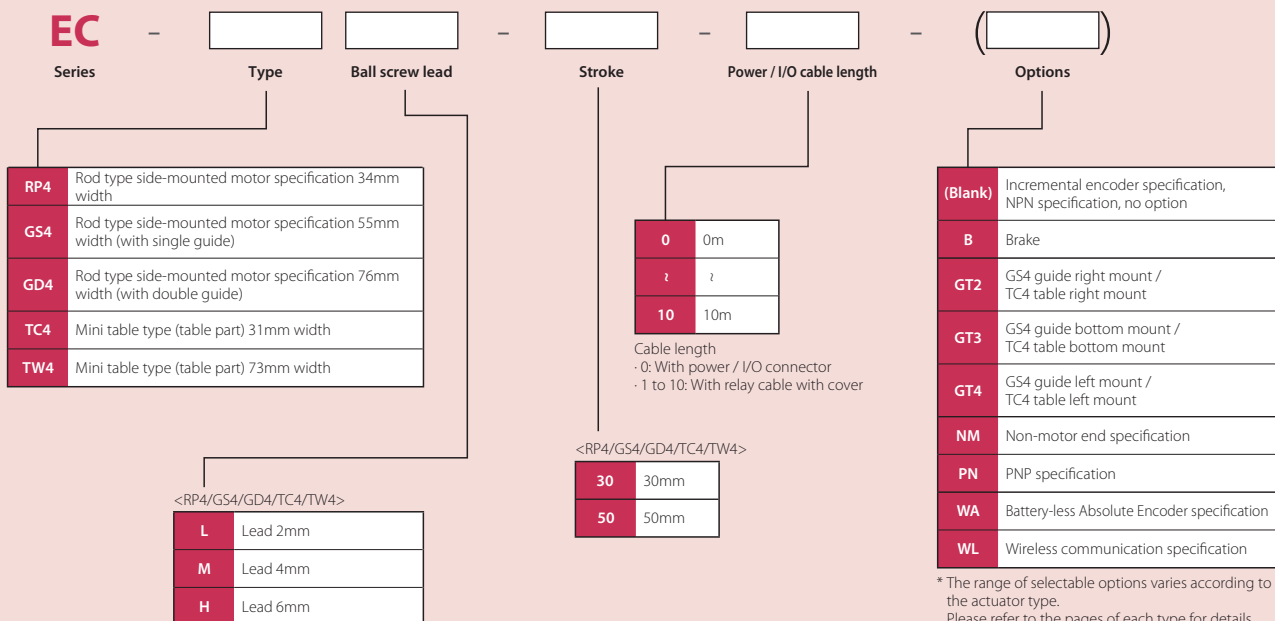
- For the mini table type, the table on the top of the body operates.
- For the mini guided rod type, the rod operates.
- The use of a nut rotation mechanism reduces the size.

#### <Applications>

Suitable for conveying and pushing workpieces in narrow spaces.

# Model Specification Items

## EleCylinder



Palm size

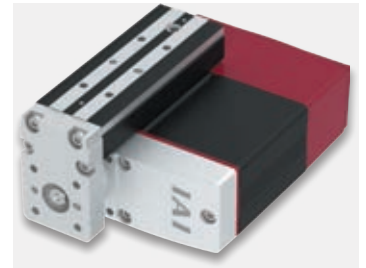
# Mini EleCylinder



Mini Rod type



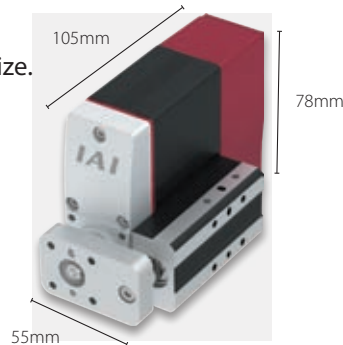
Mini Guided Rod type



Mini Table type

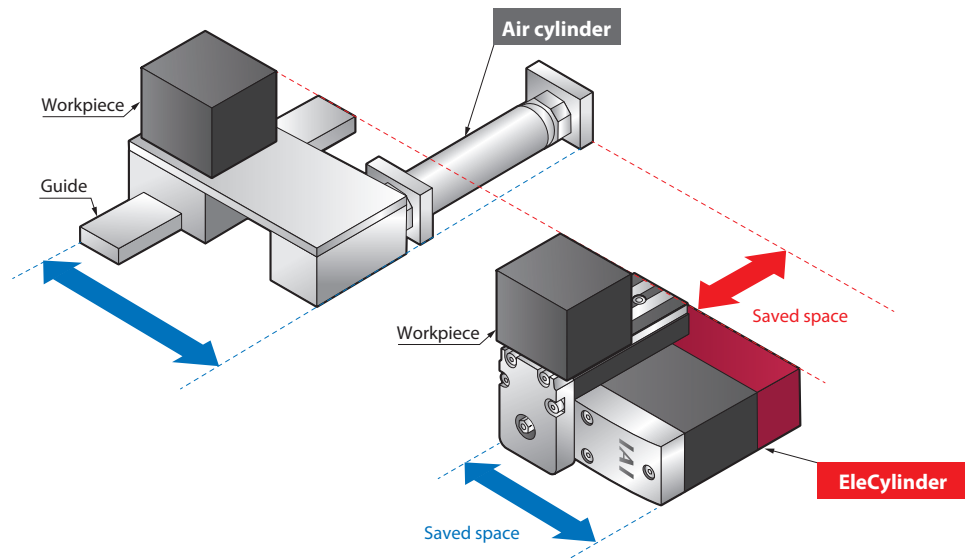
## 1. It can be used in narrow spaces.

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



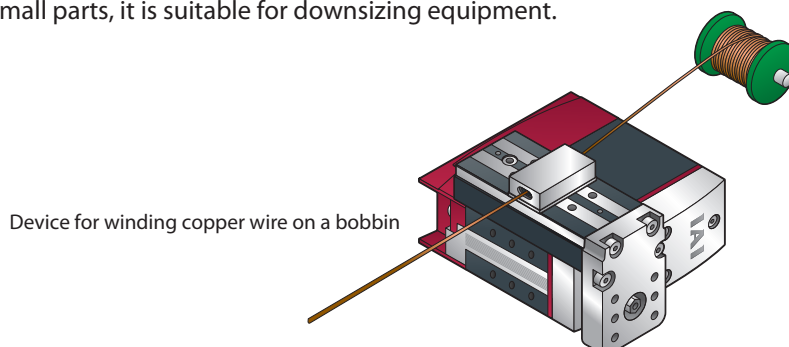
## 2. As it has a guide, no external guide is required.

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



### <Applications>


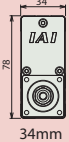

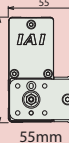


As it handles small parts, it is suitable for downsizing equipment.



# Product Lineup


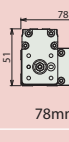


## Mini Rod Type

\*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			6	±0.05	30, 50	300	30	2.5	1	p.5
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	GS4			6	±0.05	30, 50	300	30	2.5	1	p.7
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	GD4			6	±0.05	30, 50	300	30	2.5	1	p.9
				4			200	45	4	1.5	
				2			100	90	8	2.5	

## Mini Table Type

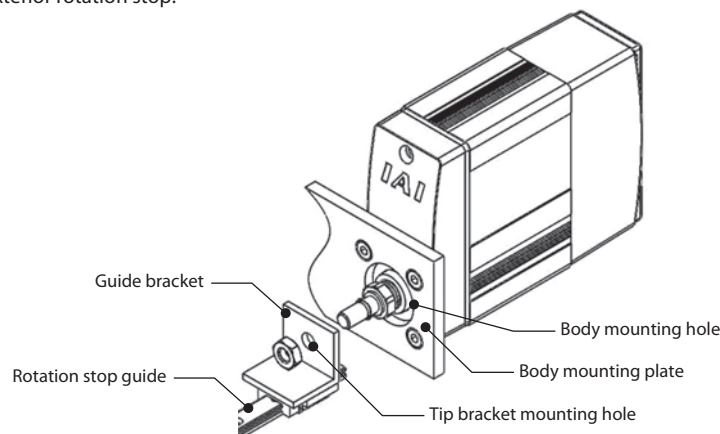
\*Speed limitation applies to push motion. See the manual or contact IAI.

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			6	±0.05	30, 50	300	30	2.5	1	p.11
				4			200	45	4	1.5	
				2			100	90	8	2.5	
	TW4			6	±0.05	30, 50	300	30	2.5	1	p.13
				4			200	45	4	1.5	
				2			100	90	8	2.5	

# Mounting method

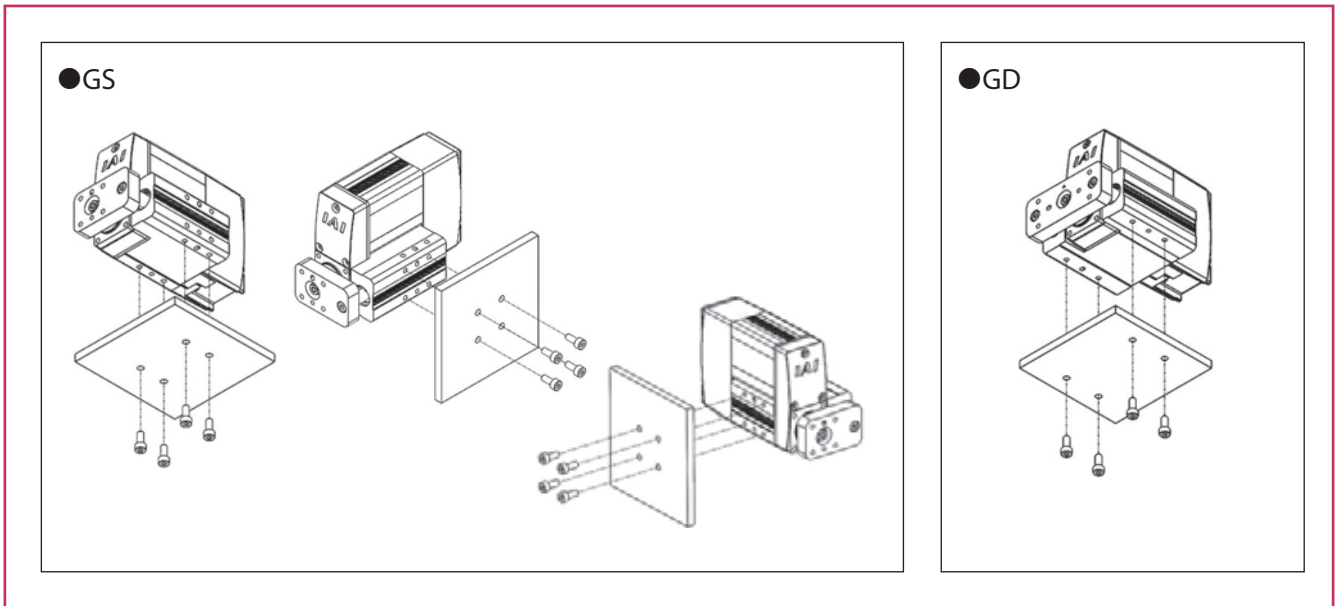
## Mini Rod type (RP)

\* Be sure to provide an exterior rotation stop.

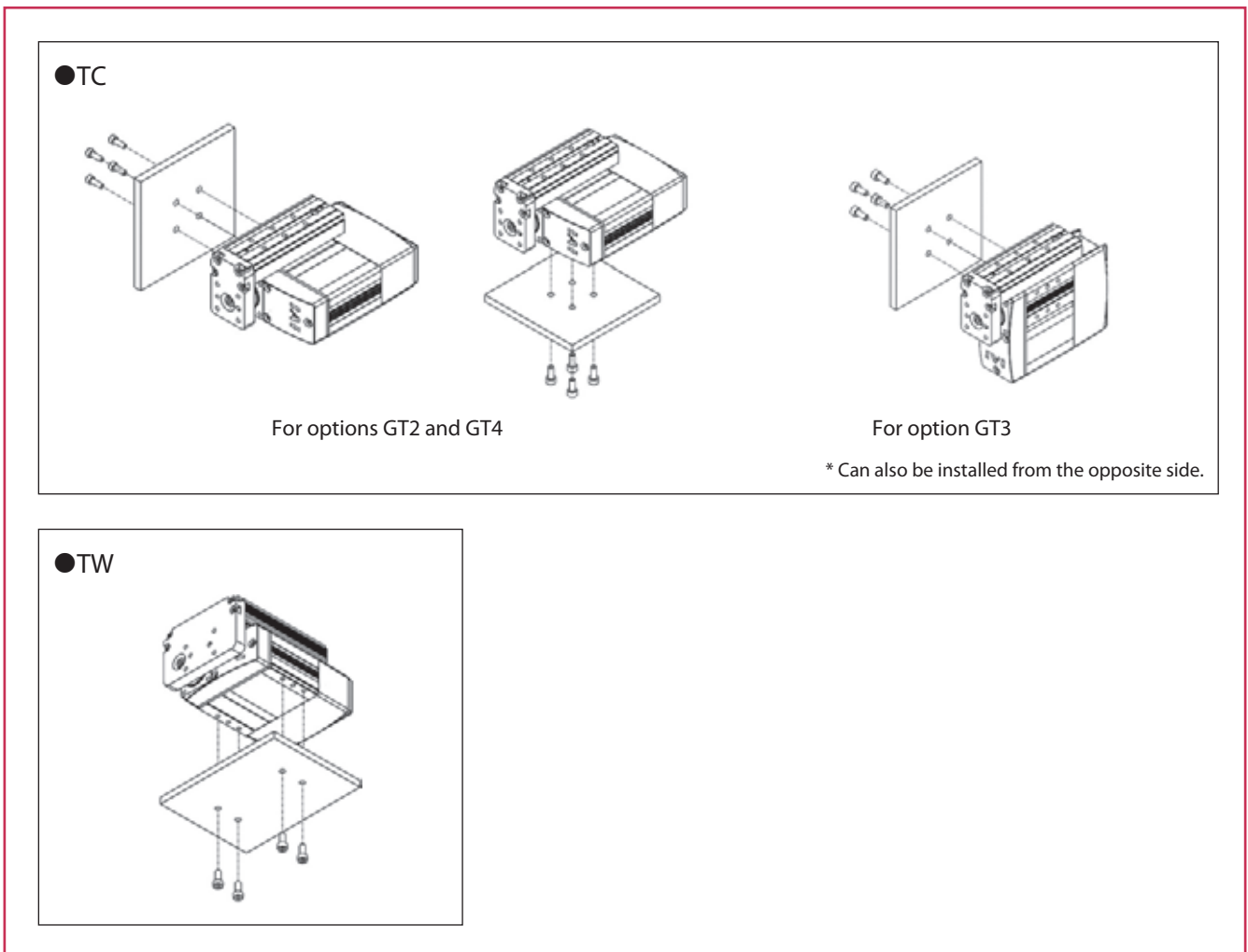


# Mounting method

## Mini Rod type (GS/GD)



## Mini Table type (TC/TW)



# EC-RP4

Mini

Rod Type

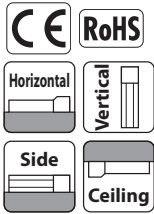
Motor Unit Coupled

Side-mounted Motor

Body Width  
**34 mm**

**24v**  
Pulse Motor

<b>Model Specification Items</b>	<b>EC</b>	—	<b>RP4</b>	[ ]	—	[ ]	—	[ ]	—	( [ ] )
	Series		Type	Lead		Stroke		Cable Length		Options
				H : 6mm M : 4mm L : 2mm		30:30mm 50:50mm		0: With terminal block type connector 1: 1m 2: 2m 3: 10:10m		Refer to Options below.
	* Please refer to P.2 for more information about the model specification items.									



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



### Table of Payload by Speed/Acceleration

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

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



- (1) Since the feed screw has no rotation stopper, add a rotation stop mechanism such as a guide to the tip of the feed screw when in use. (If there is no rotation stopper, the feed screw will rotate instead of traveling back and forth.) Also, do not use floating joints when connecting the rotation stop mechanism to the rod. Please refer to P.3 for mounting methods.
- (2) The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4 and 6.
- (3) The value of the payload assumes that there is an external guide.
- (4) When performing push-motion operation, refer to P.16.

### Actuator Specifications

#### Lead and Payload

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-RP4H-①-②(-③)	6	2.5	1	30
EC-RP4M-①-②(-③)	4	4	1.5	45
EC-RP4L-①-②(-③)	2	8	2.5	90

Legend: ① Stroke ② Cable Length ③ Option

#### Stroke and Max Speed

(Unit: mm/s)

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

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

### Cable Length

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

### Options

Name	Option code	Reference page
Brake	<b>B</b>	See P.15
PNP specification	<b>PN</b>	See P.15
Battery-less Absolute Encoder specification	<b>WA</b>	See P.15
Wireless communication specification	<b>WL</b>	See P.15

### Actuator Specifications

Item	Description
Drive system	Ball screw ø6mm, rolled C10
Positioning repeatability	±0.05mm
Frame	Material: Aluminum, black alumite treatment
Rod non-rotation precision (*1)	1.5 degrees
Static allowable radial load on rod tip	—
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5000km or 50 million cycles

(\*1) Rod's angular displacement in rotational direction with no load applied to the rod.

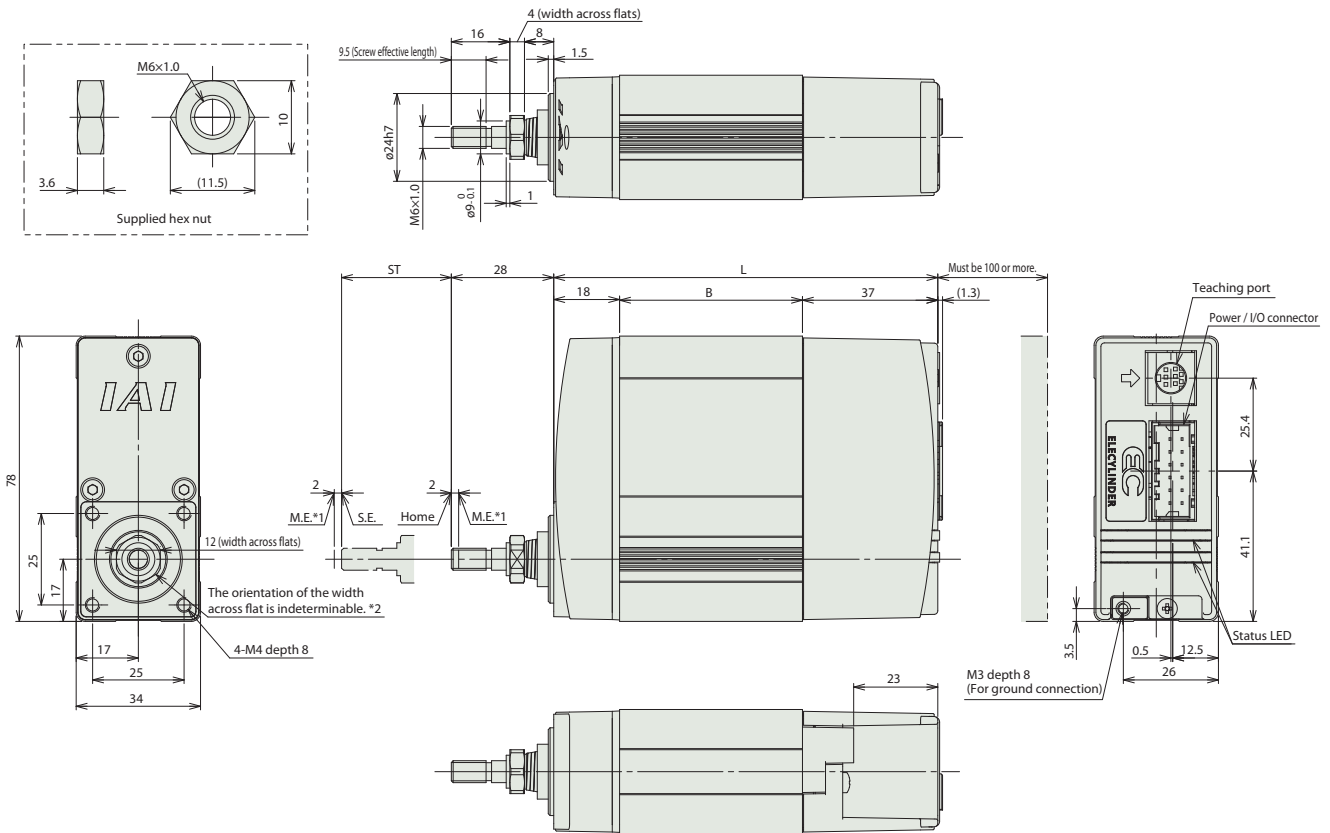


**Dimensions**

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



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



■ Dimensions and Mass by Stroke

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

**Controller side Options/Accessories**

Name	Wireless Link Data Setter	Touch Panel Teaching Pendant	PC Software
External view			
Model	<input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> TB-02 (for wired connection only)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)
Overview	A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection.	A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring.	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.

\* For system configurations using the above tools, refer to P.17.

# EC-GS4

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

**Model Specification Items**  
**EC** — **GS4** ( )  
 Series — Type — Lead — Stroke — Cable Length — Options

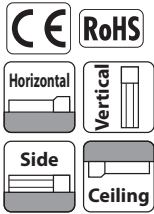
H : 6mm  
 M : 4mm  
 L : 2mm

30:30mm  
 50:50mm

0: With terminal block type connector  
 1: 1m  
 2: 2m  
 10:10m

Refer to Options below.

\* Please refer to P.2 for more information about the model specification items.



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



### Table of Payload by Speed/Acceleration

#### Lead 6

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

#### Lead 4

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

#### Lead 2

Orientation	Horizontal		Vertical	
	Acceleration (G)			
Speed (mm/s)	0.3	0.5	0.3	0.5
	0	8	8	2.5
100	8	8	2.5	2.5



- Horizontal payload is the value when also using a guide so that radial and moment loads are not applied to the rod. If not installing a guide, refer to the correlation diagram of radial load and service life (P.16). Use the double guide type if force will be applied in the direction of rotation.
- The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4 and 6.
- When performing push-motion operation, refer to P.16.
- Be sure to select an option code for the guide mounting direction from the options table below.

### Actuator Specifications

#### Lead and Payload

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-GS4H-①-②-(③)	6	2.5	1	30
EC-GS4M-①-②-(③)	4	4	1.5	45
EC-GS4L-①-②-(③)	2	8	2.5	90

Legend: ① Stroke ② Cable Length ③ Option

#### Stroke and Max Speed

(Unit: mm/s)

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

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

### Cable Length

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

### Options

Name	Option code	Reference page
Brake	B	See P.15
Guide right mount	GT2	See P.15
Guide bottom mount	GT3	See P.15
Guide left mount	GT4	See P.15
PNP specification	PN	See P.15
Battery-less Absolute Encoder specification	WA	See P.15
Wireless communication specification	WL	See P.15

### Actuator Specifications

Item	Description
Drive system	Ball screw ø6mm, rolled C10
Positioning repeatability	±0.05mm
Frame	Material: Aluminum, black alumite treatment
Rod non-rotation precision (*1)	1.5 degrees
Static allowable radial load on rod tip	See P. 16
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5000km or 50 million cycles

(\*1) Rod's angular displacement in rotational direction with no load applied to the rod.

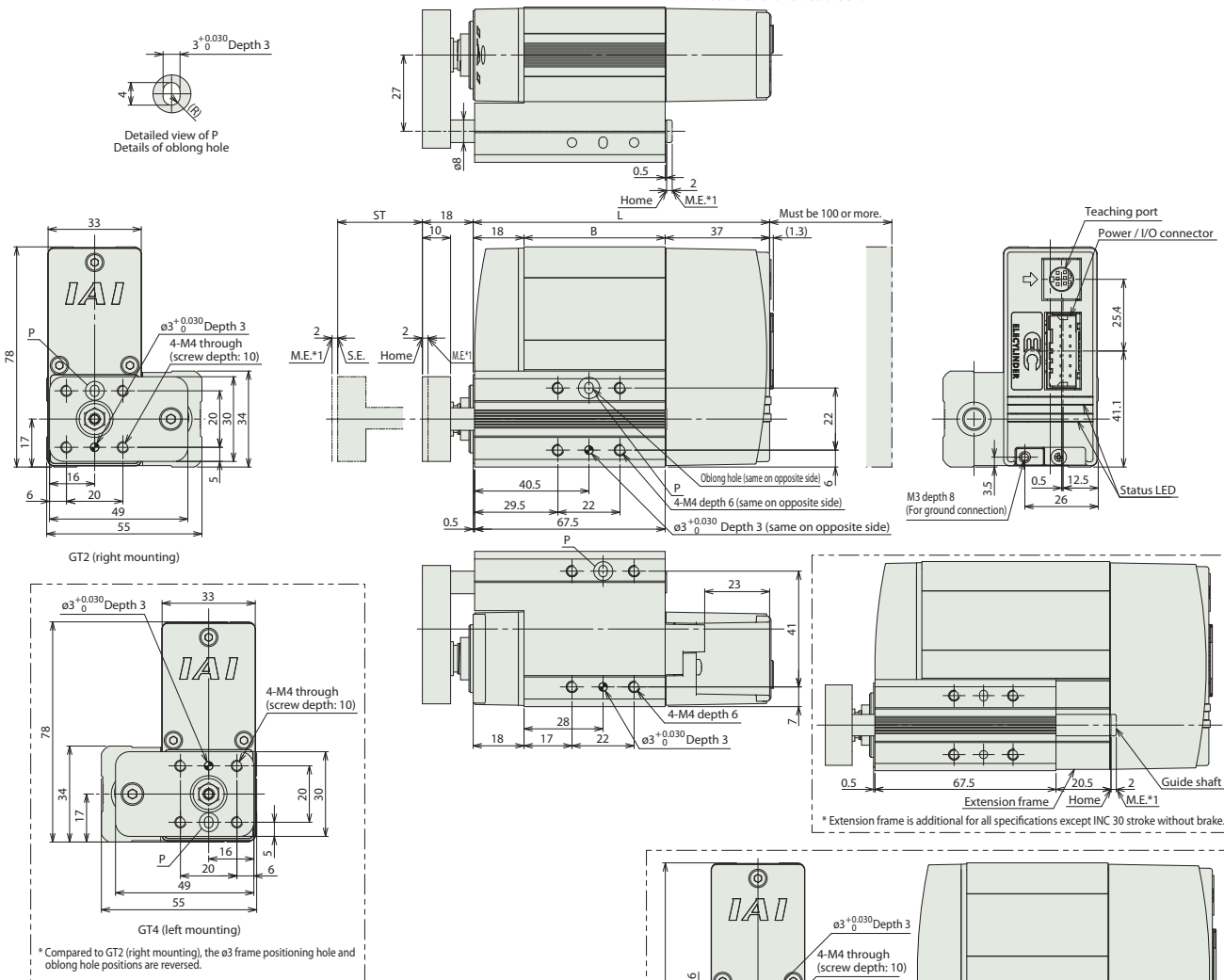


Dimensions

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www.elecylinder.de



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



■ Dimensions and Mass by Stroke

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

Controller side Options/Accessories

Name	Wireless Link Data Setter	Touch Panel Teaching Pendant	PC Software
External view			
Model	<input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> TB-02 (for wired connection only)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)
Overview	A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection.	A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring.	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.

\* For system configurations using the above tools, refer to P.17.

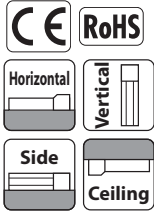
# EC-GD4

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

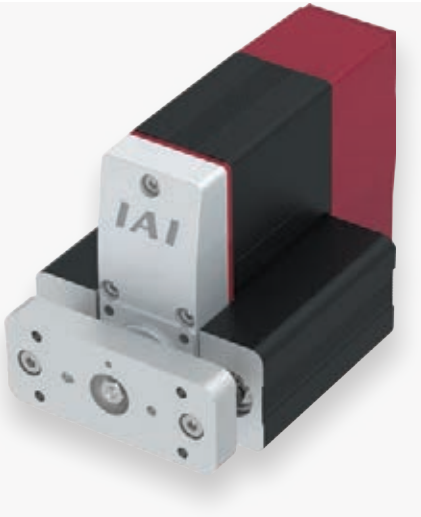
**Model Specification Items**

Series	EC	Type	GD4	Lead		Stroke		Cable Length		Options	
				H : 6mm M : 4mm L : 2mm		30:30mm 50:50mm		0: With terminal block type connector 1: 1m 2: 2m 10:10m		Refer to Options below.	

\* Please refer to P.2 for more information about the model specification items.



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



### Table of Payload by Speed/Acceleration

#### Lead 6

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

#### Lead 4

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

#### Lead 2

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



- (1) Horizontal payload is the value when also using a guide so that radial and moment loads are not applied to the rod. If not installing a guide, refer to the correlation diagram of radial load and service life (P.16).
- (2) The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4 and 6.
- (3) When performing push-motion operation, refer to P.16.

### Actuator Specifications

#### Lead and Payload

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-GD4H-①-②(-③)	6	2.5	1	30
EC-GD4M-①-②(-③)	4	4	1.5	45
EC-GD4L-①-②(-③)	2	8	2.5	90

Legend: ① Stroke ② Cable Length ③ Option

#### Stroke and Max Speed

(Unit: mm/s)

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

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

### Cable Length

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

### Options

Name	Option code	Reference page
Brake	B	See P.15
PNP specification	PN	See P.15
Battery-less Absolute Encoder specification	WA	See P.15
Wireless communication specification	WL	See P.15

### Actuator Specifications

Item	Description
Drive system	Ball screw ø6mm, rolled C10
Positioning repeatability	±0.05mm
Frame	Material: Aluminum, black alumite treatment
Rod non-rotation precision (*1)	1.5 degrees
Static allowable radial load on rod tip	See P. 16
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5000km or 50 million cycles

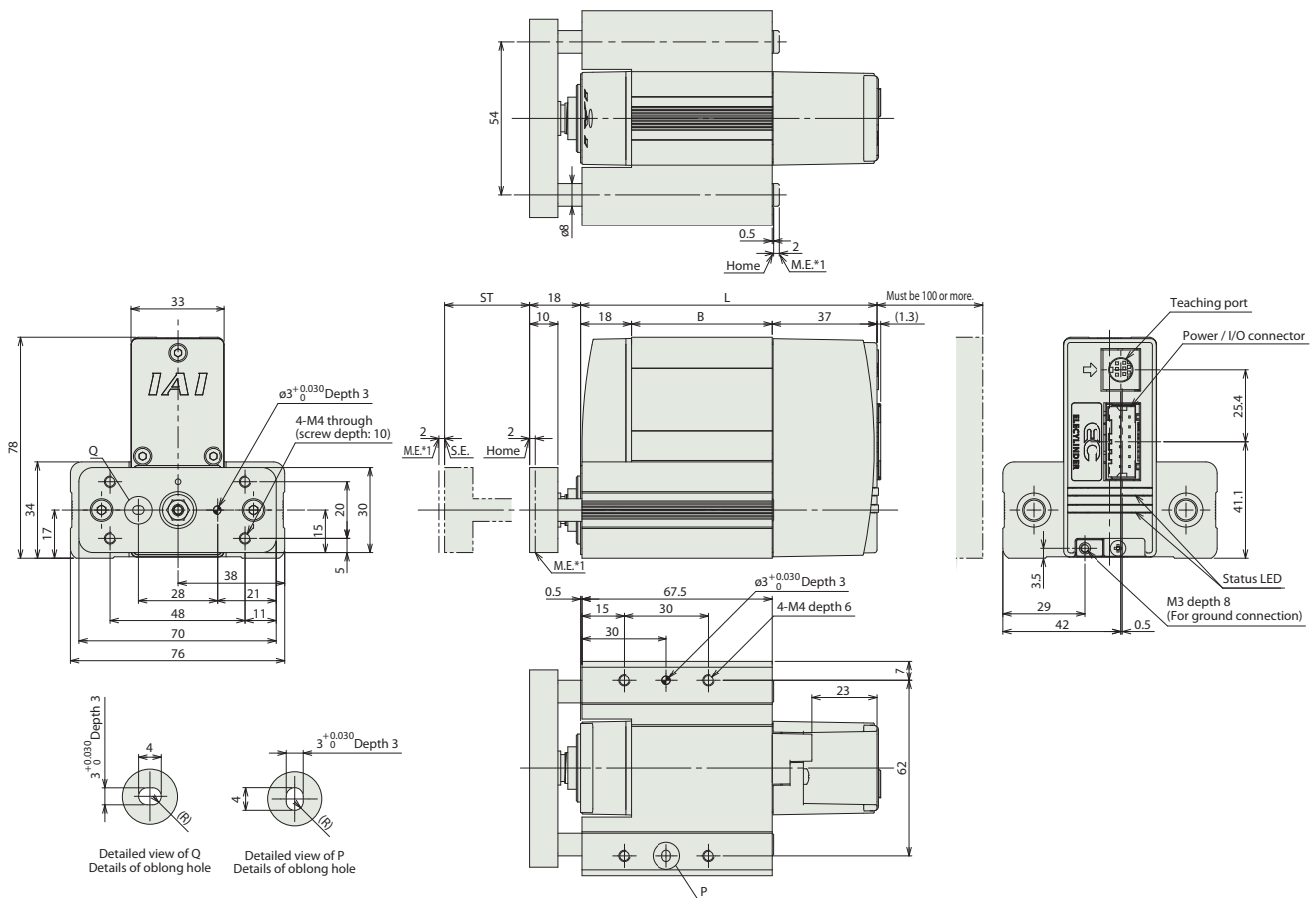
(\*1) Rod's angular displacement in rotational direction with no load applied to the rod.

Dimensions

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www.elecylinder.de

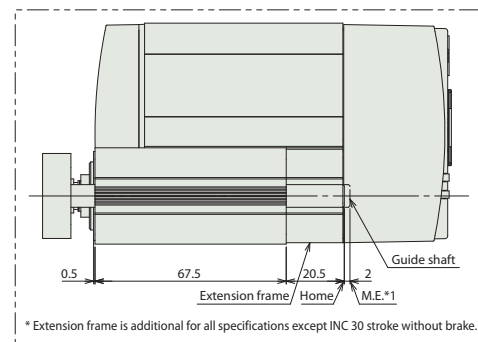


\*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.  
M.E: Mechanical end S.E: Stroke end



■ Dimensions and Mass by Stroke

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



Controller side Options/Accessories

Name	Wireless Link Data Setter	Touch Panel Teaching Pendant	PC Software
External view			
Model	<input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> TB-02 (for wired connection only)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)
Overview	A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection.	A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring.	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.

\* For system configurations using the above tools, refer to P.17.

# EC-TC4

Mini

Table Type

Motor Unit Coupled

Side-mounted Motor

Body Width  
**78 mm**

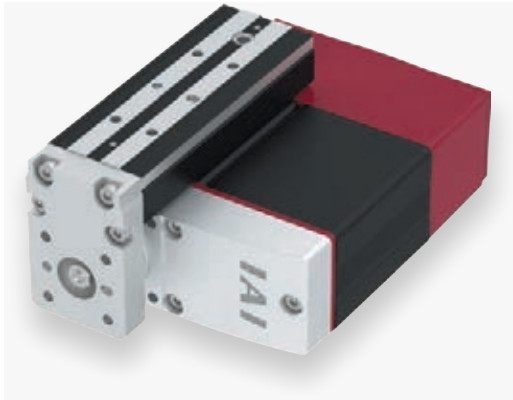
24V Pulse Motor

**Model Specification Items**

<p><b>EC</b> — <b>TC4</b></p> <p>Series — Type</p>	<div style="border: 1px solid gray; width: 40px; height: 15px; margin-bottom: 5px;"></div> <p>Lead</p> <p>H : 6mm M : 4mm L : 2mm</p>	<div style="border: 1px solid gray; width: 40px; height: 15px; margin-bottom: 5px;"></div> <p>Stroke</p> <p>30:30mm 50:50mm</p>	<div style="border: 1px solid gray; width: 40px; height: 15px; margin-bottom: 5px;"></div> <p>Cable Length</p> <p>0: With terminal block type connector 1: 1m 2: 2m 3: 10:10m</p>	<div style="border: 1px solid gray; width: 40px; height: 15px; margin-bottom: 5px;"></div> <p>Options</p> <p>Refer to Options below.</p>
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\* Please refer to P.2 for more information about the model specification items.

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



### Table of Payload by Speed/Acceleration

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

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

**POINT Selection Notes**

- The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4 and 6.
- When performing push-motion operation, refer to P.16.
- Be sure to select an option code for the table mounting direction from the options table below.

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

Legend: ① Stroke ② Cable Length ③ Option

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

### Cable Length

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

### Options

Name	Option code	Reference page
Brake	<b>B</b>	See P.15
Table right mount	<b>GT2</b>	See P.15
Table bottom mount	<b>GT3</b>	See P.15
Table left mount	<b>GT4</b>	See P.15
Non-motor end specification	<b>NM</b>	See P.15
PNP specification	<b>PN</b>	See P.15
Battery-less Absolute Encoder specification	<b>WA</b>	See P.15
Wireless communication specification	<b>WL</b>	See P.15

### Actuator Specifications

Item	Description
Drive system	Ball screw ø6mm, rolled C10
Positioning repeatability	±0.05mm
Table/frame	Material: Aluminum, black alumite treatment
Allowable static moment	Ma direction: 5.9N-m, Mb direction: 5.9N-m, Mc direction: 9.3N-m
Allowable dynamic moment (*)	Ma direction: 3.77N-m, Mb direction: 3.77N-m, Mc direction: 6.01N-m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5000km or 50 million cycles

(\*) Assumes a standard rated life of 5000km. The service life will vary depending on operation and installation conditions.

• Reference for overhang load length:  
Ma: 100mm or less in the table top direction, 50mm or less in the table tip direction  
Mb, Mc: 120mm or less

Allowable load moment directions

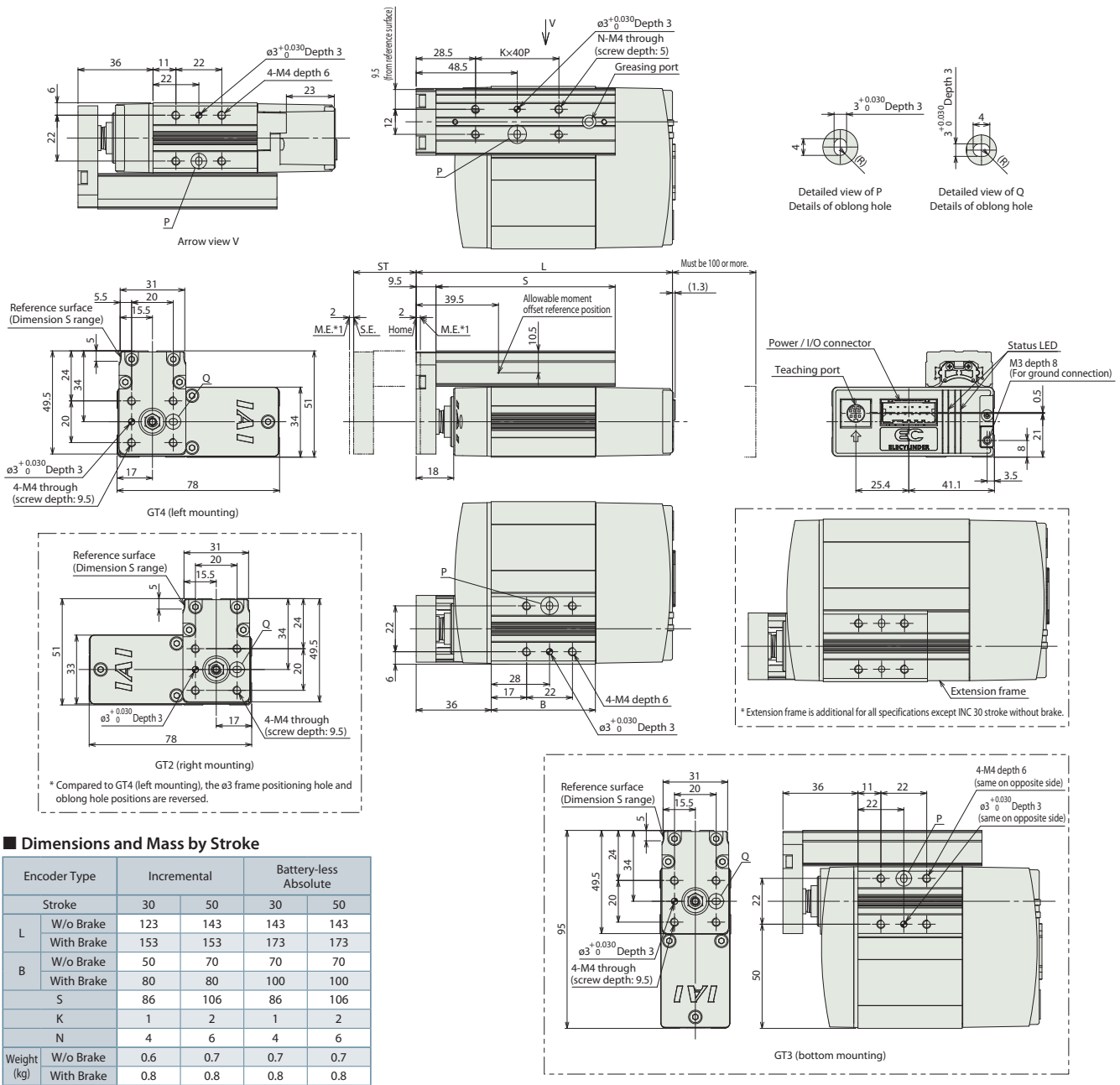
Please refer to the RoboCylinder General Catalog for more information regarding the directions of the allowable moment and overhang load length.  
Please refer to the EC manual regarding the displacement of the table.

Dimensions

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



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



■ Dimensions and Mass by Stroke

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

Controller side Options/Accessories

Name	Wireless Link Data Setter	Touch Panel Teaching Pendant	PC Software
External view			
Model	<input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> TB-02 (for wired connection only)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)
Overview	A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection.	A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring.	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.

\* For system configurations using the above tools, refer to P.17.

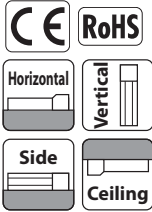
# EC-TW4

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

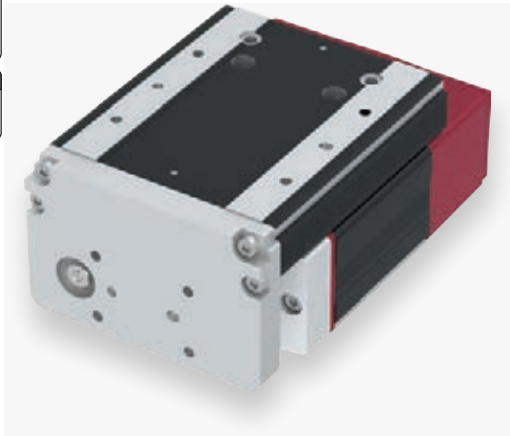
**Model Specification Items**

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

\* Please refer to P.2 for more information about the model specification items.



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



### Table of Payload by Speed/Acceleration

#### Lead 6

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

#### Lead 4

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

#### Lead 2

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



- (1) The maximum acceleration/deceleration is 0.3G for lead 2 and 0.5G for leads 4 and 6.
- (2) When performing push-motion operation, refer to P.16.

### Actuator Specifications

#### Lead and Payload

Model number	Lead (mm)	Max. payload		Max. push force (N)*
		Horizontal (kg)	Vertical (kg)	
EC-TW4H-①-②(-③)	6	2.5	1	30
EC-TW4M-①-②(-③)	4	4	1.5	45
EC-TW4L-①-②(-③)	2	8	2.5	90

Legend: ① Stroke ② Cable Length ③ Option

#### Stroke and Max Speed

(Unit: mm/s)

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

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

### Cable Length

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

### Options

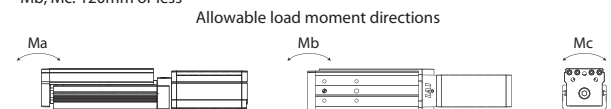
Name	Option code	Reference page
Brake	B	See P.15
Non-motor end specification	NM	See P.15
PNP specification	PN	See P.15
Battery-less Absolute Encoder specification	WA	See P.15
Wireless communication specification	WL	See P.15

### Actuator Specifications

Item	Description
Drive system	Ball screw ø6mm, rolled C10
Positioning repeatability	±0.05mm
Table/frame	Material: Aluminum, black alumite treatment
Allowable static moment	Ma direction: 8.3N·m, Mb direction: 8.3N·m, Mc direction: 26.3N·m
Allowable dynamic moment (*)	Ma direction: 5.4N·m, Mb direction: 5.4N·m, Mc direction: 17.2N·m
Ambient operating temperature/humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	5000km or 50 million cycles

(\*) Assumes a standard rated life of 5000km. The service life will vary depending on operation and installation conditions.

- Reference for overhang load length:  
Ma: 100mm or less in the table top direction, 50mm or less in the table tip direction  
Mb, Mc: 120mm or less



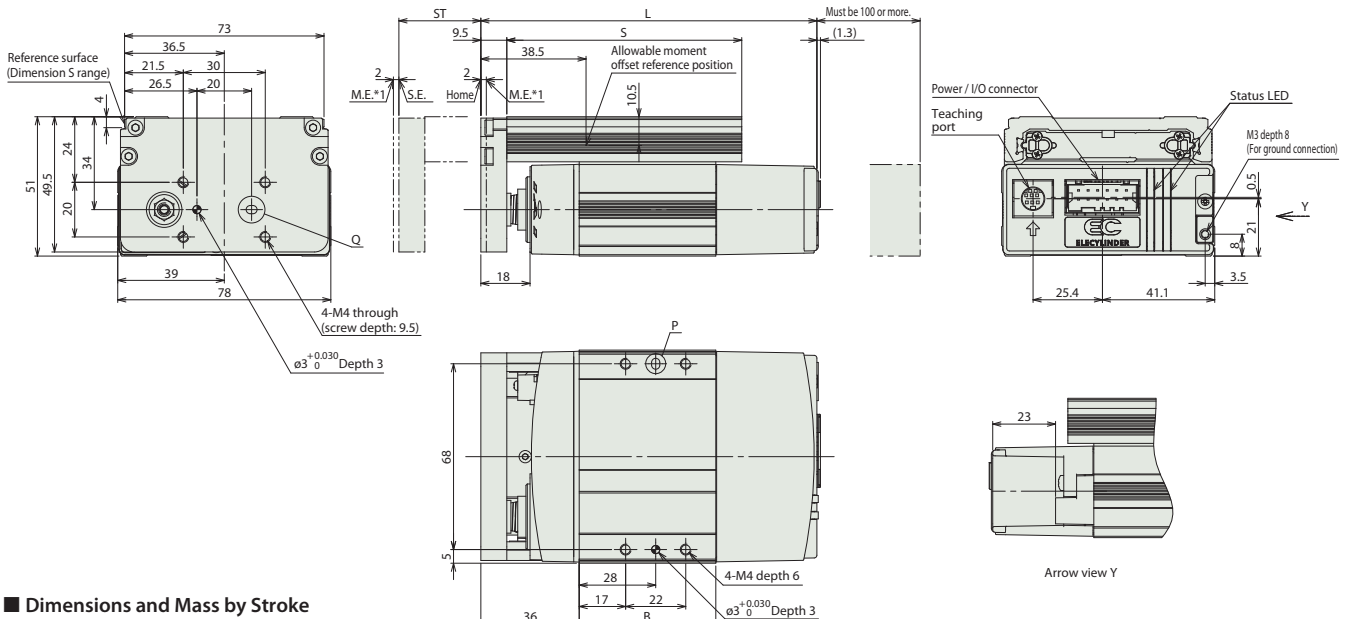
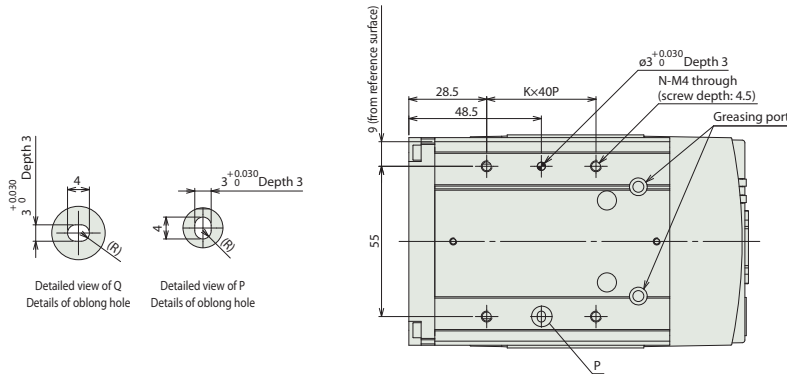
Please refer to the RoboCylinder General Catalog for more information regarding the directions of the allowable moment and overhang load length.  
Please refer to the EC manual regarding the displacement of the table.

Dimensions

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



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



■ Dimensions and Mass by Stroke

Encoder Type	Incremental		Battery-less Absolute		
	Stroke	30	50	30	50
L	W/o Brake	123	143	143	143
	With Brake	153	153	173	173
B	W/o Brake	50	70	70	70
	With Brake	80	80	100	100
S		86	106	86	106
K		1	2	1	2
N		4	6	4	6
Weight (kg)	W/o Brake	0.8	0.9	0.8	0.9
	With Brake	0.9	1.0	1.0	1.0

Controller side Options/Accessories

Name	Wireless Link Data Setter	Touch Panel Teaching Pendant	PC Software
External view			
Model	<input type="checkbox"/> TB-03 (for wired/wireless connection)	<input type="checkbox"/> TB-02 (for wired connection only)	<input type="checkbox"/> RCM-101-MW (RS232 connection version) <input type="checkbox"/> RCM-101-USB (USB connection version)
Overview	A data setter that supports wireless connection. The start point, end point and AVD can be input with wireless connection.	A teaching pendant equipped with functions such as start point, end point, and AVD input, trial operation, and monitoring.	Software for start point input, end point input and AVD input, trial operation, and monitoring using a PC. Both the RS232C version and USB version are available for PC connection.

\* For system configurations using the above tools, refer to P.17.



# EleCylinder Series Options

## Brake

**Model** **B** **Applicable Models** All Models

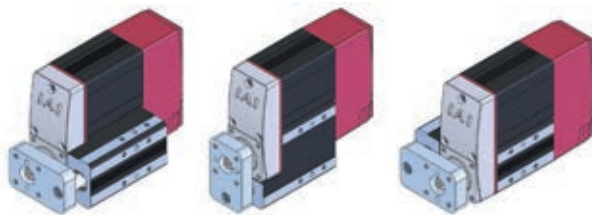
**Description** When the actuator is mounted vertically, this works as a holding mechanism that prevents the rod or table from falling and damaging any attachments when the power or servo is turned off.

## Guide mounting direction / Table mounting direction

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

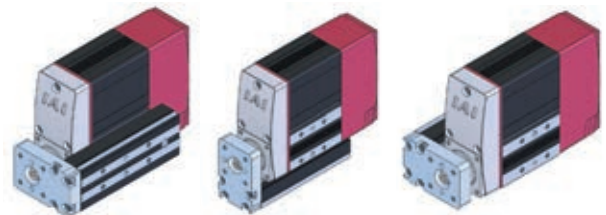
**Description** Select the guide shaft position of EC-GS4 and the table position of EC-TC4.

EC-GS4



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

EC-TC4



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

## Non-motor end specification

**Model** **NM** **Applicable Models** EC-TC4/TW4

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

## PNP specification

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

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

## Battery-less Absolute Encoder specification

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

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

## Wireless communication specification

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

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

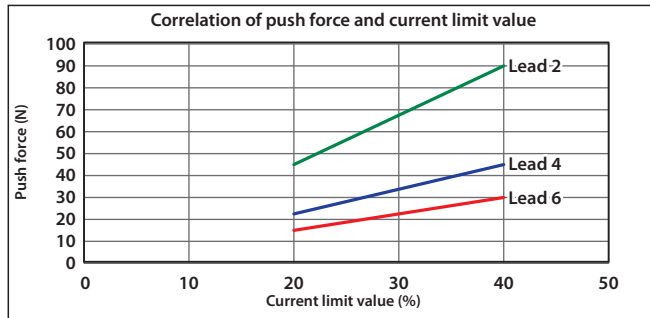
# Correlation of push force and current limit value

In push-motion operation, the push force can be changed by setting the current limit value of the controller between 20% and 40%.

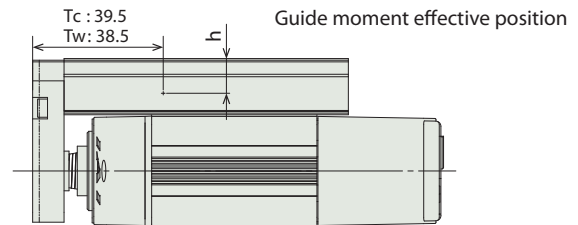
The maximum push force will vary depending on the model, so please refer to the graph below, and select a type based on the needed push force for your intended use.

## Correlation of Push Force and Current Limit Value

### EC-RP4/GS4/GD4/TC4/TW4



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



h dimension	
Mini table type	
TC4	10.5
TW4	10.5

\*Unit: mm

### Notes for Mini Table Types

When performing the push-motion operation with the 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).

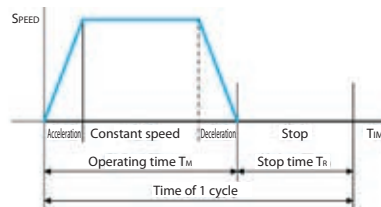
Please refer to the figure above, which show the working point of the guide moment, for help with calculating the moment. This can be done by considering the offset of the push force application position.

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.

## Duty cycle

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

The duty ratio for each Mini EleCylinder type is 100% at ambient temperatures of 0 to 40°C even during operation at maximum velocity/acceleration/deceleration.



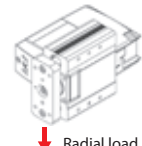
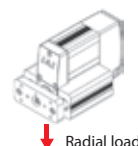
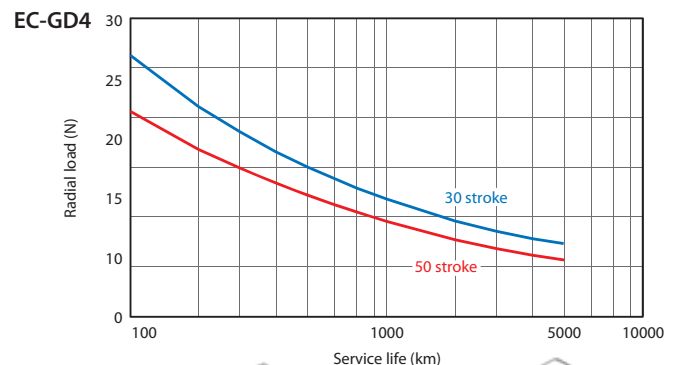
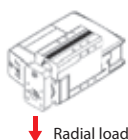
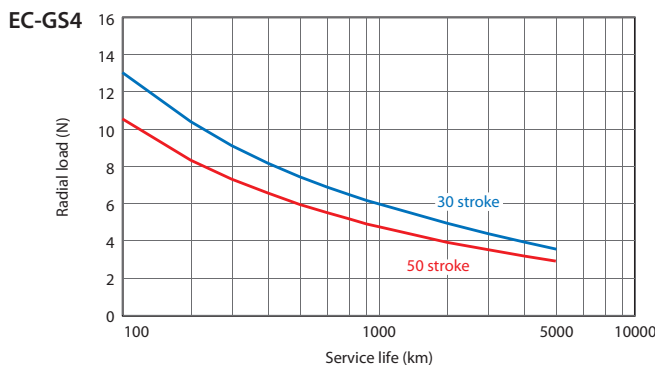
[Duty Cycle]

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

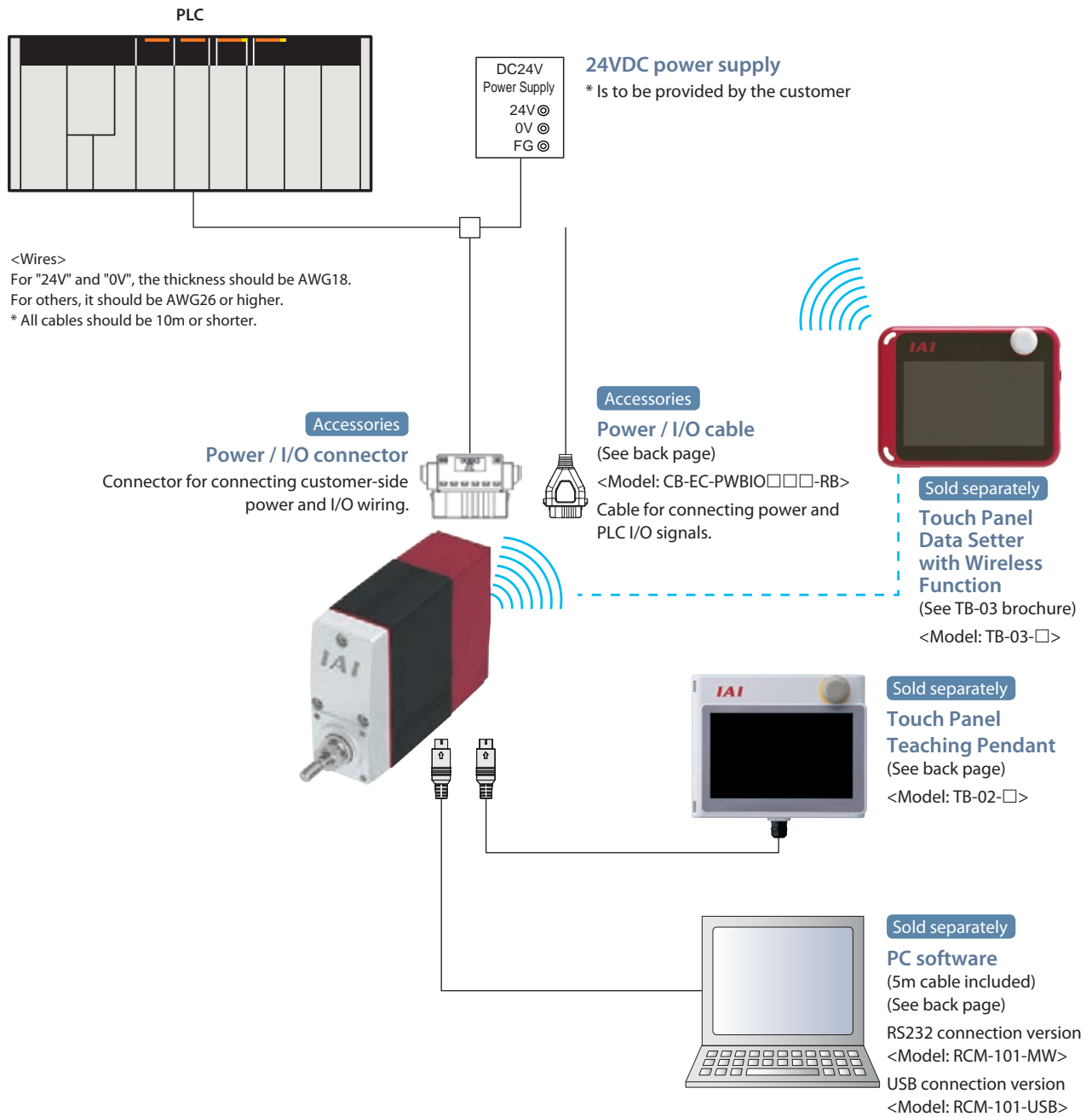
$$D = \frac{T_M}{T_M + T_R} \times 100 (\%)$$

D: Duty  
T<sub>M</sub>: Operating time (incl. push-motion operation)  
T<sub>R</sub>: Stop time

## Correlation of Allowable Radial Load and Service Life



## System Configuration



## List of Accessories

Product category	Accessories
Connector for EC 24VDC power supply / PLC I/O wiring	Power / I/O connector (1-1871940-6)
Connector cable for EC 24VDC power supply / PLC I/O signals	Power / I/O cable (CB-EC-PWBIO□□□-RB)

## Basic Controller Specifications

Specification item		Specification content	
Number of controlled axes		1 axis	
Power supply voltage		24VDC $\pm$ 10%	
Power capacity	Mini type	With energy-saving setting disabled: Max. 4.0A With energy-saving setting enabled: Max. 2.0A	
Brake release power supply		24VDC $\pm$ 10%, 200mA (only for external brake release)	
Generated heat		8W (at 100% duty)	
Inrush current	Mini type	10A	
Momentary power failure resistance		Max 500 $\mu$ s	
Motor size		□28	
Motor rated current		1.2A	
Motor control system		Weak field-magnet vector control	
Supported encoders		Incremental (800pulse/rev), battery-less absolute encoder (800pulse/rev)	
SIO		RS485 1ch (Modbus protocol compliant)	
PIO	Input specification	Number of input	3 points (forward, backward, alarm clear)
		Input voltage	24VDC $\pm$ 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 $\pm$ 10%
		Output current	50mA/1 circuit
		Residual voltage	2V or less
Isolation method	Non-isolated		
Data setting and input methods		PC software, touch panel teaching pendant, data setter	
Data retention memory		Position and parameters are saved in non-volatile memory. (No limit to rewrite)	
LED display	Controller status display	Servo ON (green light ON) / Alarm (red light ON) / Initializing when power comes ON (orange light ON) / Minor failure alarm (green/red alternately blinking) / Operation from teaching: Stop from teaching (red light ON) / Servo OFF (light OFF)	
	Wireless status display	Initializing wireless hardware, without wireless connection, or connecting from TP board (light OFF) Connecting through wireless (green blinking) / Wireless hardware error (red blinking) / Initializing when power comes ON (orange light ON)	
Predictive maintenance/ Preventative maintenance		When the number of movements or operation distance has exceeded the set value and when the LED (right side) blinks alternately green and red at overload warning * Only when configured in advance	
Ambient operating temperature		0 to 40°C	
Ambient operating humidity		85% RH or less (no condensation or freezing)	
Operating ambience		Avoid corrosive gas and excessive dust	
Insulation resistance		DC500V 10M $\Omega$	
Electric shock protection mechanism		Class 1 basic insulation	
Cooling method		Natural air cooling	

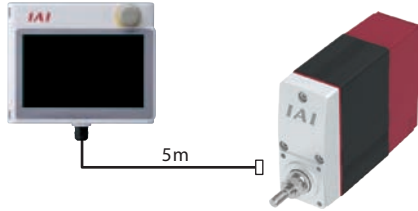
## I/O Signal Table

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

**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**



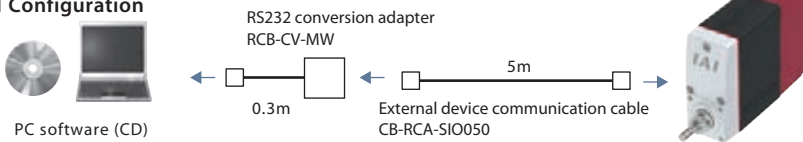
■ **Specifications**

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)

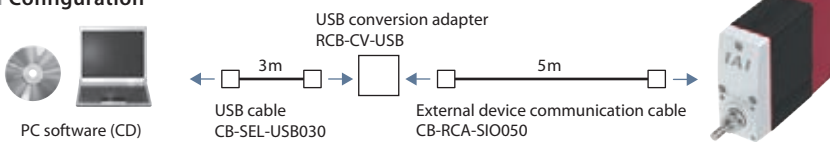
**PC software (Windows only)**

- **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.
- **Model** **RCM-101-MW (with an external device communication cable + RS232 conversion unit)** Please contact IAI for the current supported versions.
- **Configuration**

Supported Windows versions: 7/8/10



- **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**

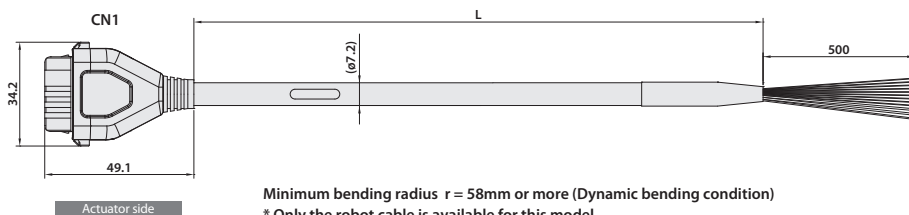
When placing an order for a replacement cable, please use the model name shown below.

■ **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  $r = 58\text{mm}$  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