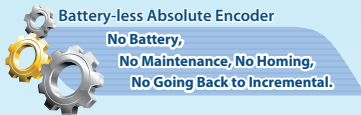


Simple-to-use ELECYLINDER with Built-in Controller
High-power Mini Rod & Mini Double-guide Rod Type

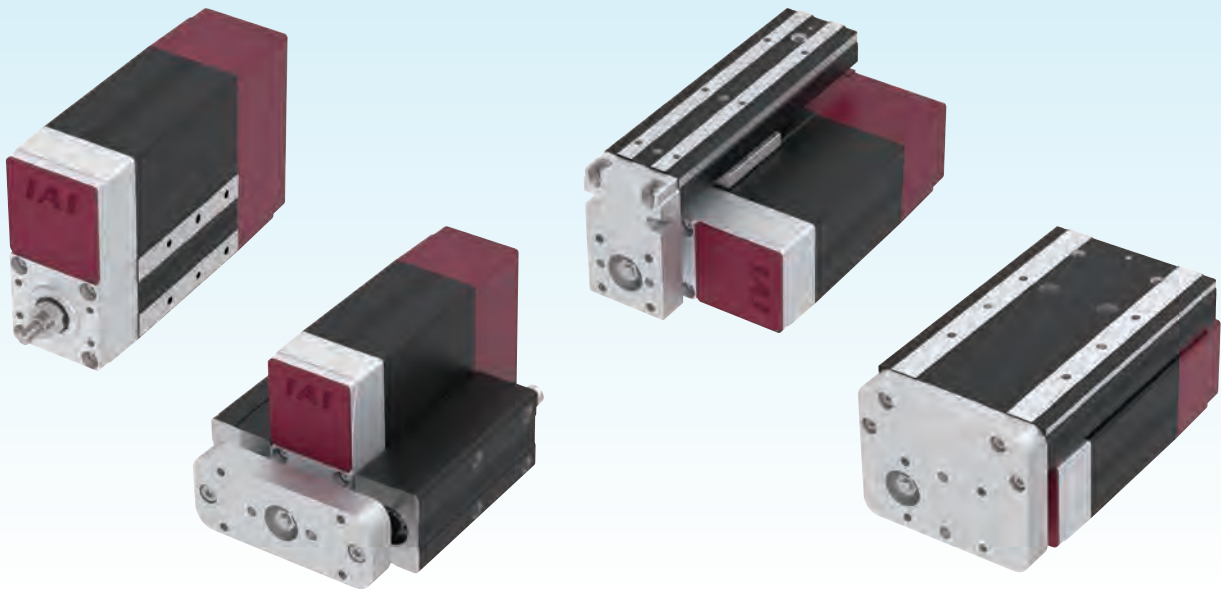
Simple-to-use ELECYLINDER with Built-in Controller
High-power Mini Table & Mini Wide Table Type

EC RP/GD5

EC TC/TW5



Additional EC Mini Types
with more Stroke, Speed, and Power



EC ELECYLINDER



Simple & Wireless
Operation

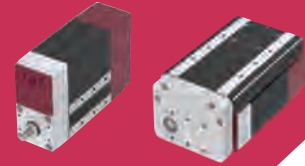
2 Position Actuator

Compact and powerful! New additions to our mini type lineup!

EC
ELECYLINDER

High-power Mini EleCylinder

EC-RP5/GD5/TC5/TW5 with more Stroke, Speed, and Power



Rod type

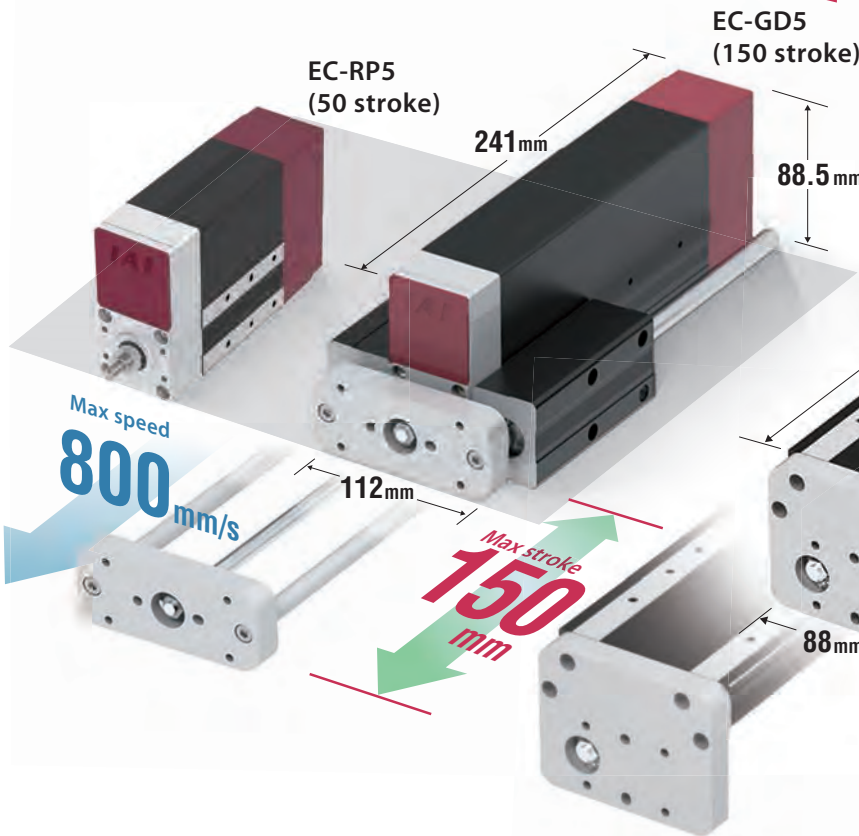
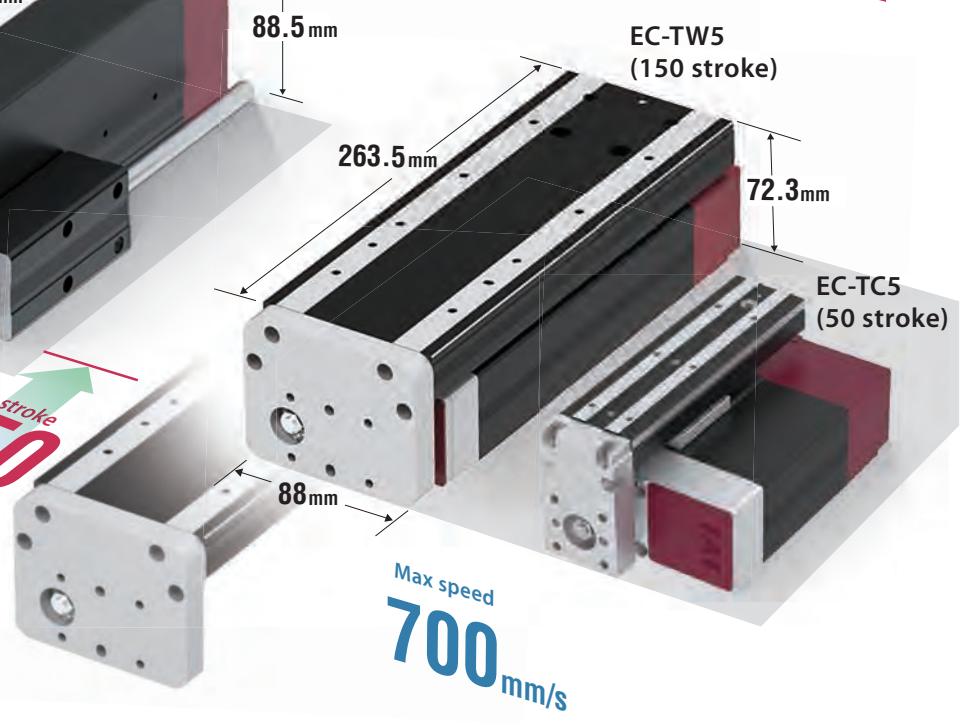
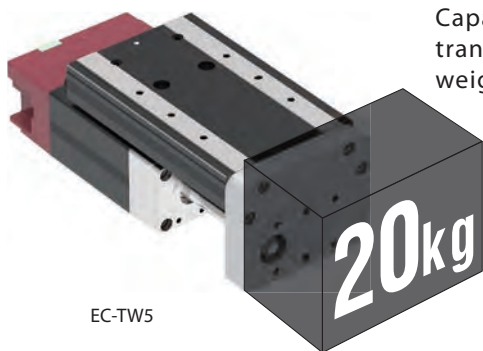


Table type

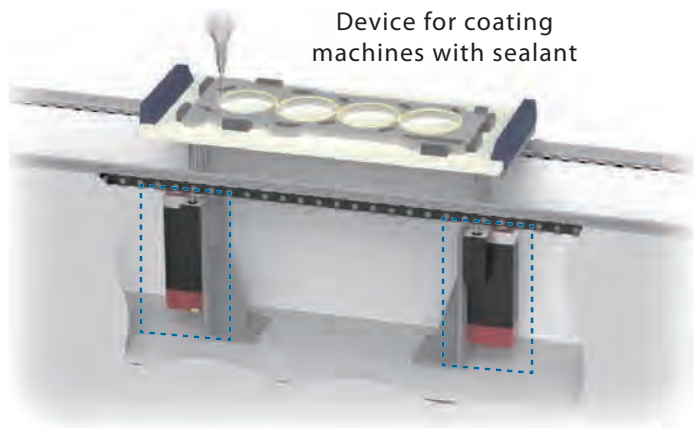


Small but powerful!

Ideal for reducing space required by devices



Capable of transporting objects weighing up to 20kg



Model Specification Items

EleCylinder

EC Series - Type - Lead - Stroke - Cable length - (Options)

RP5	Rod type Side-mounted motor specification 45mm wide	S	Lead 16mm	0	Without cable	Blank	Incremental encoder specification, NPN specification, no option
GD5	Rod type Side-mounted motor specification 112mm wide (with double guide)	H	Lead 10mm	(S)1	1m	ACR	RCON-EC connection specification
TC5	Table type Table 40mm wide	M	Lead 5mm	?	?	B	Brake
TW5	Table type Table 88mm wide	L	Lead 2.5mm	(S) 10	10m (Every 1m)	G5	Designated grease specification
				50	50mm	GT2	Table right mount
				100	100mm	GT3	Table bottom mount
				150	150mm	GT4	Table left mount
						NM	Non-motor end specification
						PN	PNP specification
						TMD2	Split motor and controller power supply specification
						WA	Battery-less absolute encoder specification
						WL	Wireless communication specification
						WL2	Wireless axis operation specification

*The range of selections varies according to the actuator type. Please refer to the pages of each type for details.

Mini type specification tables

Type	Type	Lead		Stroke (mm) and max. speed (mm/s)				Max. push force (N)	Max. payload (kg)		Reference Page			
		Model	mm	*Length of band = Stroke, * Numbers in band = Max. speed by stroke, Numbers in <> are for vertical specification					Horizontal	Vertical				
				30	50	100	150							
Rod	RP4	H-	6	300				30	2.5	1	Refer to EleCylinder Catalog V10			
		M-	4	200				45	4	1.5				
		L-	2	100				90	8	2.5				
	High-power RP5	RP5	S-	16	800				46	6.5	1.5	P. 5		
			H-	10	600				73	16	2.5			
			M-	5	300				150	25	6.5			
			L-	2.5	150<135>				310	35	6.5			
	GS4	GS4	H-	6	300				30	2.5	1	Refer to EleCylinder Catalog V10		
			M-	4	200				45	4	1.5			
			L-	2	100				90	8	2.5			
	GD4	GD4	H-	6	300				30	2.5	1	Refer to EleCylinder Catalog V10		
			M-	4	200				45	4	1.5			
L-			2	100				90	8	2.5				
High-power GD5	GD5	S-	16	800				46	6.5	1.5	P. 8			
		H-	10	600				73	16	2.5				
		M-	5	300				150	25	6.5				
		L-	2.5	150<135>				310	35	6.5				
Table	TC4	H-	6	300				30	2.5	1	Refer to EleCylinder Catalog V10			
		M-	4	200				45	4	1.5				
		L-	2	100				90	8	2.5				
	High-power TC5	TC5	S-	16	420<280>		700<560>		800<700>		46	6.5	1.5	P. 11
			H-	10	435<350>		600<525>				73	12.5	2.5	
			M-	5	300<260>				150	12.5	5			
			L-	2.5	150<135>				310	12.5	6.5			
	TW4	TW4	H-	6	300				30	2.5	1	Refer to EleCylinder Catalog V10		
			M-	4	200				45	4	1.5			
			L-	2	100				90	8	2.5			
	High-power TW5	TW5	S-	16	420<280>		700<560>				46	6.5	1.5	P. 15
			H-	10	435<350>		525<435>				73	16	2.5	
M-			5	300<260>				150	20	5				
L-			2.5	135				310	20	6.5				

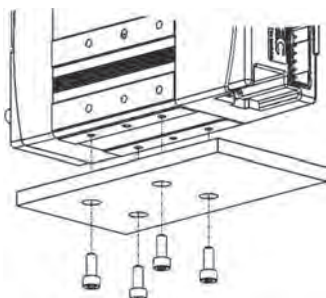
Mounting method

Mount according to the mounting method for the applicable type.

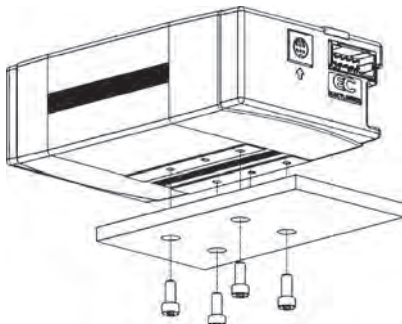
Rod type (RP/GD)

● RP

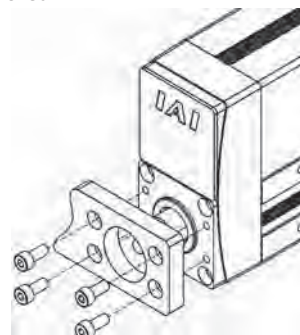
Use the mounting holes on the bottom surface of the body



Use the mounting holes on the side surface of the body



Use the mounting holes on the front bracket



● GD

Use the mounting holes on the bottom surface of the body

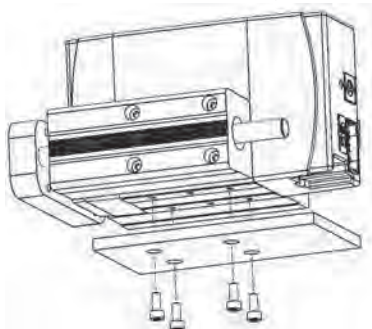
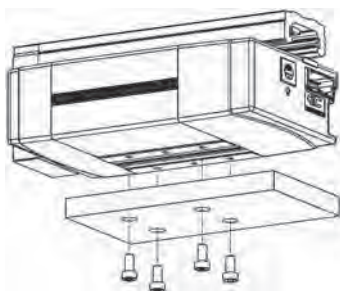


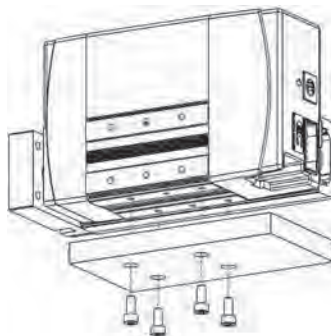
Table type (TC/TW)

● TC

Use the mounting holes on the bottom surface of the body

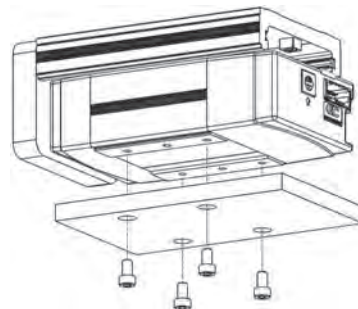


Use the mounting holes on the side surface of the body



● TW

Use the mounting holes on the bottom surface of the body



Precautions for installation

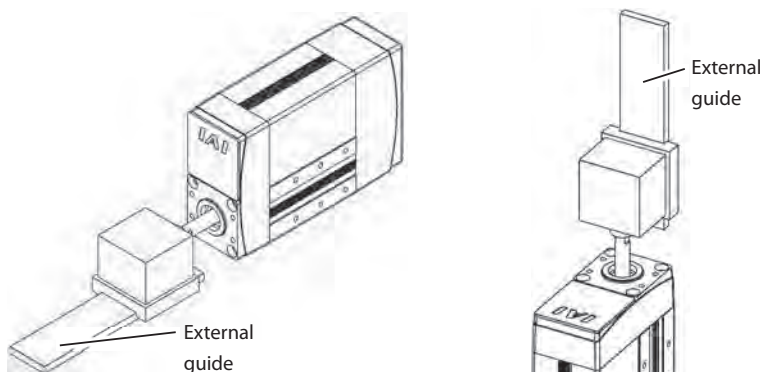
● External guide fixing method

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

Rod type (RP5)

"Rigid attachment" is recommended to secure the product to an external guide. Be sure to perform home return after external guide mounting.

Rotation stop rod type actuators cannot bear the rotational force of the rod, so the rotation direction of the rod must be restricted. A "floating joint" does not restrict rotation of the rod. This causes ball screw misalignment, which can result in premature damage to the actuator. (Floating joints with rotation direction restrictions are acceptable.)



Rod type, table type

Keep the body installation surface and part mounting surface flatness at 0.05mm/m or lower.

Uneven flatness will increase the sliding resistance of the rod/table and may cause a malfunction.

Mounting orientation

○: Can be mounted

			Mounting orientation			
Classification	Series	Type	Horizontal mounting on flat surface	Vertical mounting	Side mounting	Ceiling mounting
Rod type	EC	RP5	○	○	○	○
		GD5	○	○	○	○
Table type		TCS/TW5	○	○	○	○

EC-RP5

Mini

Rod Type

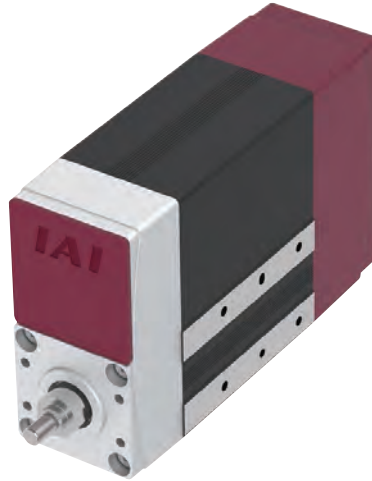
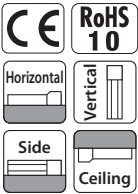
Side-mounted Motor

Body Width
50 mm

24v Pulse Motor

Model Specification Items

EC	RP5																		
Series	Type	Lead	Stroke	Power / I/O cable length	Options														
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>S</td><td>16mm</td></tr> <tr><td>H</td><td>10mm</td></tr> <tr><td>M</td><td>5mm</td></tr> <tr><td>L</td><td>2.5mm</td></tr> </table>	S	16mm	H	10mm	M	5mm	L	2.5mm	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>50</td><td>50mm</td></tr> <tr><td>100</td><td>100mm</td></tr> <tr><td>150</td><td>150mm</td></tr> </table>	50	50mm	100	100mm	150	150mm	See power / I/O cable length below	See options below
S	16mm																		
H	10mm																		
M	5mm																		
L	2.5mm																		
50	50mm																		
100	100mm																		
150	150mm																		



- POINT
Selection Notes

 - (1) The feed screw has no rotation stop mechanism. Add a rotation stop mechanism such as a guide to the tip of the feed screw when in use. (If there is no rotation stop, 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. 4 for more information on the mounting method and conditions.
 - (2) "Main Specifications" displays the payload's maximum value.
 - (3) The value of the horizontal payload assumes that there is an external guide. Do not apply external force to the rod in a direction other than the moving direction.
 - (4) If performing push-motion operations, refer to the "Correlation between Push Force and Current Limit" diagram. The push forces listed are only reference values. Please refer to P. 20 for applicable notes.
 - (5) Pay close attention to the installation orientation. Please refer to P. 4 for details.

Power / I/O cable length

Standard connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
0	No cable	Terminal block supplied (Note 2)	CB-REC-PWBIO□□□-RB supplied
1 ~ 3	1 ~ 3m	CB-EC-PWBIO□□□-RB supplied	
4 ~ 5	4 ~ 5m		
6 ~ 7	6 ~ 7m		
8 ~ 10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note 2) Only terminal block connector is included. Please refer to P. 23 for details.
 (Note) Robot cable is standard.

4-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
S1 ~ S3	1 ~ 3m	CB-EC2-PWBIO□□□-RB supplied	CB-REC2-PWBIO□□□-RB supplied
S4 ~ S5	4 ~ 5m		
S6 ~ S7	6 ~ 7m		
S8 ~ S10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note) Robot cable is standard.

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	19
Brake	B	19
Designated grease specification (Note 2)	G5	19
PNP specification	PN	19
Split motor and controller power supply specification	TMD2	19
Battery-less absolute encoder specification	WA	19
Wireless communication specification	WL	20
Wireless axis operation specification	WL2	20

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
 (Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.

Main Specifications

Item		Description				
Lead	Ball screw lead (mm)	16	10	5	2.5	
	Horizontal	Max. payload (kg) (energy-saving disabled)	6.5	16	25	35
		Max. payload (kg) (energy-saving enabled)	6.5	15	25	35
		Max. speed (mm/s)	800	600	300	150
Speed/acceleration/deceleration	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	Max. payload (kg) (energy-saving disabled)	1.5	2.5	6.5	6.5
Max. payload (kg) (energy-saving enabled)		1	2.5	5	6.5	
Max. speed (mm/s)		800	600	300	135	
Min. speed (mm/s)		40	30	7	4	
Speed/acceleration/deceleration	Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3	
	Max. acceleration/deceleration (G)	0.5	0.5	0.3	0.3	
	Push	Max. push force (N)	46	73	150	310
		Max. push speed (mm/s)	40	30	20	20
Brake	Brake specification	Non-excitation actuating solenoid brake				
	Brake holding force (kgf)	1.5	2.5	6.5	6.5	
Stroke	Min. stroke (mm)	50	50	50	50	
	Max. stroke (mm)	150	150	150	150	
	Stroke pitch (mm)	50	50	50	50	

Item	Description
Driving system	Ball screw, ø8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (not available due to two-point positioning function)
Rod non-rotation precision	-
Service life	5000km
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s ²
Overseas standards	CE marking, RoHS directive
Motor type	Pulse motor
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Table of Payload by Speed/Acceleration

Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation Speed (mm/s)	Horizontal Acceleration (G)				Vertical	
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.25
140	6.5	4	3	2	1.5	1.25
280	6.5	4	3	2	1.5	1.25
420	6.5	4	2.5	1.5	1.5	1.25
560	5	3	2	1	1	1
700	3.5	1.5	1	0.5	1	1
800		1	1	0.5		0.5

Lead 10

Orientation Speed (mm/s)	Horizontal Acceleration (G)				Vertical	
	0.3	0.5	0.7	1	0.3	0.5
0	16	11	7	4.5	2.5	2
175	16	11	7	4.5	2.5	2
350	12.5	7	4	2.5	2.5	2
435	9.5	5	3	1.5	2	2
525	5	4	2	1	1.5	1
600	4.5	2	1	0.5	0.5	

Lead 5

Orientation Speed (mm/s)	Horizontal Acceleration (G)		Vertical	
	0.3	0.5	0.3	0.5
0	25	22	6.5	4.5
85	25	22	6.5	4.5
130	25	20	5	4.5
215	15	15	4	4
260	10	10	2	2
300	5	5	1.5	1.5

Lead 2.5

Orientation Speed (mm/s)	Horizontal Acceleration (G)		Vertical Acceleration (G)
	0.3	0.3	
0		35	6.5
40		35	6.5
85		35	6.5
105		35	6.5
135		30	2
150		10	

Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation Speed (mm/s)	Horizontal Acceleration (G)			Vertical Acceleration (G)
	0.3	0.7	0.3	
0	6.5	2.5	1	
140	6.5	2.5	1	
280	5	2	1	
420	4	1	0.5	
560	2.5	0.5	0.5	

Lead 10

Orientation Speed (mm/s)	Horizontal Acceleration (G)			Vertical Acceleration (G)
	0.3	0.7	0.3	
0	15	5.5	2.5	
175	15	5.5	2.5	
350	6	2	1.5	
435	4.5	1.5	0.5	
525	0.5			

Lead 5

Orientation Speed (mm/s)	Horizontal Acceleration (G)		Vertical Acceleration (G)
	0.3	0.3	
0	25	5	
85	25	5	
130	25	5	
215	8	2	

Lead 2.5

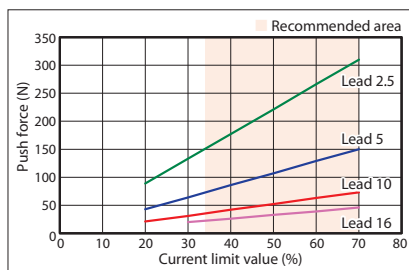
Orientation Speed (mm/s)	Horizontal Acceleration (G)		Vertical Acceleration (G)
	0.3	0.3	
0	35	6.5	
40	35	6.5	
85	34	6.5	
105	25	1	

Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 ~ 150 (Every 50mm)
16	Disabled	800
	Enabled	560
10	Disabled	600
	Enabled	525 <435>
5	Disabled	300
	Enabled	215
2.5	Disabled	150 <135>
	Enabled	105

(Unit: mm/s)

Correlation between Push Force and Current Limit



(Note) Values in <> are for vertical use.

EC-GD5

Mini

Rod Type

Double Guide

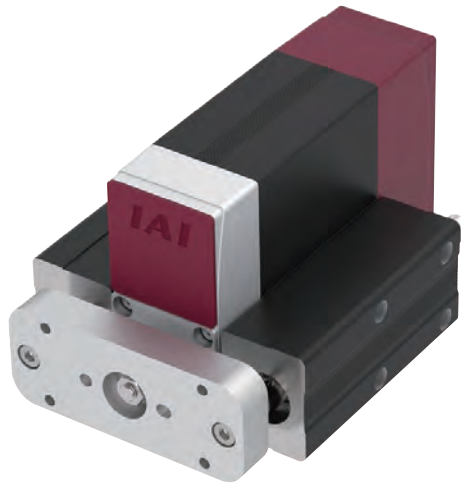
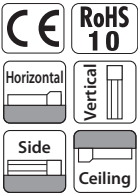
Side-mounted Motor

Body Width
110 mm

24v
Pulse Motor

■ Model Specification Items

EC	GD5				
Series	Type	Lead	Stroke	Power / I/O cable length	Options
		S 16mm H 10mm M 5mm L 2.5mm	50 50mm 100 100mm 150 150mm	See power / I/O cable length below	See options below



- POINT**
Selection Notes

(1) "Main Specifications" displays the payload's maximum value.

(2) 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 "Radial Load and Service Life."

(3) If performing push-motion operations, refer to the "Correlation between Push Force and Current Limit" diagram. The push forces listed are only reference values. Please refer to P. 20 for applicable notes.

(4) Pay close attention to the installation orientation. Please refer to P. 4 for details.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
0	No cable	Terminal block supplied (Note 2)	CB-REC-PWBIO□□□-RB supplied
1 ~ 3	1 ~ 3m	CB-EC-PWBIO□□□-RB supplied	
4 ~ 5	4 ~ 5m		
6 ~ 7	6 ~ 7m		
8 ~ 10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note 2) Only terminal block connector is included. Please refer to P. 23 for details.
 (Note) Robot cable is standard.

■ 4-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
S1 ~ S3	1 ~ 3m	CB-EC2-PWBIO□□□-RB supplied	CB-REC2-PWBIO□□□-RB supplied
S4 ~ S5	4 ~ 5m		
S6 ~ S7	6 ~ 7m		
S8 ~ S10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note) Robot cable is standard.

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	19
Brake	B	19
Designated grease specification (Note 2)	G5	19
PNP specification	PN	19
Split motor and controller power supply specification	TMD2	19
Battery-less absolute encoder specification	WA	19
Wireless communication specification	WL	20
Wireless axis operation specification	WL2	20

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
 (Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.

Main Specifications

Item		Description				
Lead	Ball screw lead (mm)	16	10	5	2.5	
	Horizontal Payload	Max. payload (kg) (energy-saving disabled)	6.5	16	25	35
		Max. payload (kg) (energy-saving enabled)	6.5	15	25	35
Speed/acceleration/deceleration	Max. speed (mm/s)	800	600	300	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)	1	1	0.5	0.3	
	Max. speed (mm/s)	800	600	300	135	
Vertical Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	6.5	6.5	
	Max. payload (kg) (energy-saving enabled)	1	2.5	5	6.5	
	Max. speed (mm/s)	800	600	300	135	
Speed/acceleration/deceleration	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	0.3	0.3	
Push	Max. push force (N)	46	73	150	310	
	Max. push speed (mm/s)	40	30	20	20	
Brake	Brake specification	Non-excitation actuating solenoid brake				
	Brake holding force (kgf)	1.5	2.5	6.5	6.5	
Stroke	Min. stroke (mm)	50	50	50	50	
	Max. stroke (mm)	150	150	150	150	
	Stroke pitch (mm)	50	50	50	50	

Item	Description
Driving system	Ball screw, ø8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (not available due to two-point positioning function)
Rod non-rotation precision	-
Service life	5000km
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s ²
Overseas standards	CE marking, RoHS directive
Motor type	Pulse motor
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Table of Payload by Speed/Acceleration

Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal				Vertical	
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.25
140	6.5	4	3	2	1.5	1.25
280	6.5	4	3	2	1.5	1.25
420	6.5	4	2.5	1.5	1.5	1.25
560	5	3	2	1	1	1
700	3.5	1.5	1	0.5	1	1
800		1	1	0.5		0.5

Lead 10

Orientation	Horizontal				Vertical	
	Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	16	11	7	4.5	2.5	2
175	16	11	7	4.5	2.5	2
350	12.5	7	4	2.5	2.5	2
435	9.5	5	3	1.5	2	2
525	5	4	2	1	1.5	1
600	4.5	2	1	0.5	0.5	

Lead 5

Orientation	Horizontal		Vertical	
	Acceleration (G)			
Speed (mm/s)	0.3	0.5	0.3	0.5
0	25	22	6.5	4.5
85	25	22	6.5	4.5
130	25	20	5	4.5
215	15	15	4	4
260	10	10	2	2
300	5	5	1.5	1.5

Lead 2.5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	0.3
0		35	6.5
40		35	6.5
85		35	6.5
105		35	6.5
135		30	2
150		10	

Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal			Vertical
	Acceleration (G)			
Speed (mm/s)	0.3	0.7	0.3	0.3
0	6.5	2.5	1	
140	6.5	2.5	1	
280	5	2	1	
420	4	1	0.5	
560	2.5	0.5	0.5	

Lead 10

Orientation	Horizontal			Vertical
	Acceleration (G)			
Speed (mm/s)	0.3	0.7	0.3	0.3
0	15	5.5	2.5	
175	15	5.5	2.5	
350	6	2	1.5	
435	4.5	1.5	0.5	
525	0.5			

Lead 5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	0.3
0	25	5	
85	25	5	
130	25	5	
215	8	2	

Lead 2.5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	0.3
0	35		6.5
40	35		6.5
85	34		6.5
105	25		1

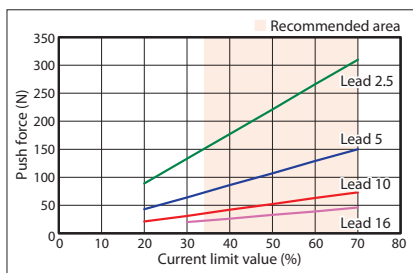
Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 ~ 150 (Every 50mm)
		50 ~ 150 (Every 50mm)
16	Disabled	800
	Enabled	560
10	Disabled	600
	Enabled	525 <435>
5	Disabled	300
	Enabled	215
2.5	Disabled	150 <135>
	Enabled	105

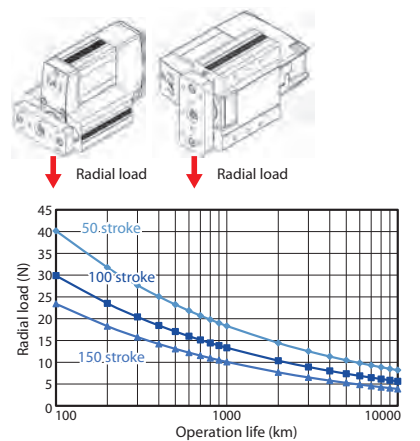
(Note) Values in <> are for vertical use.

(Unit: mm/s)

Correlation between Push Force and Current Limit



Radial Load and Operational Service Life



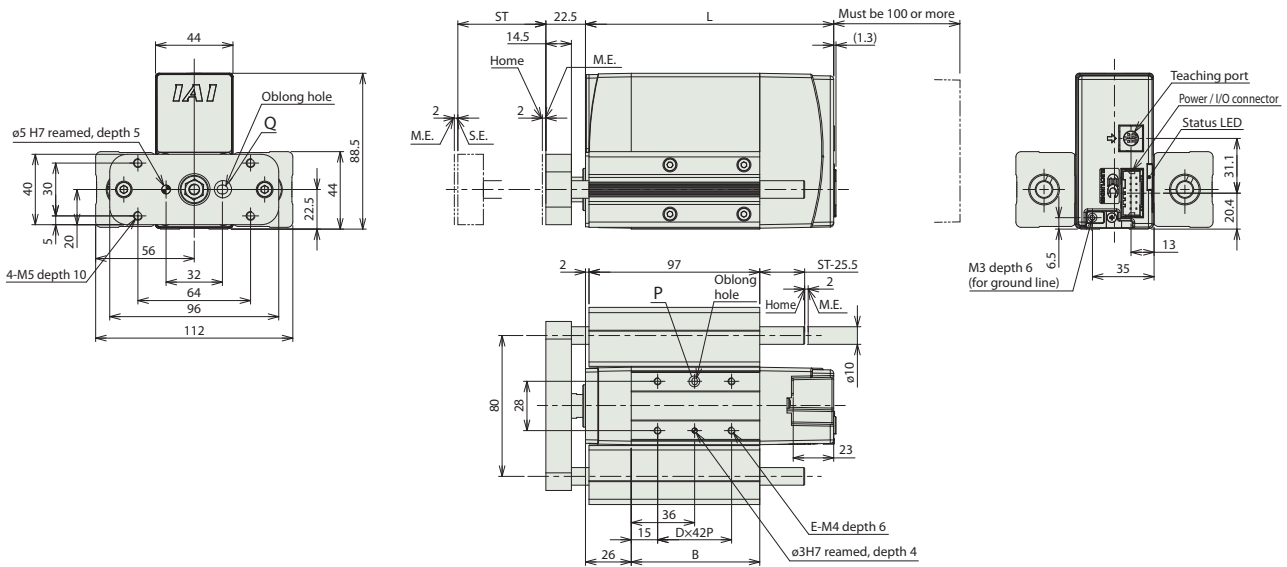
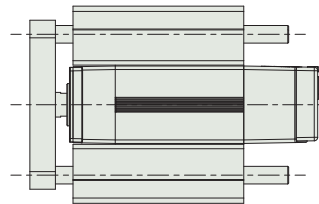
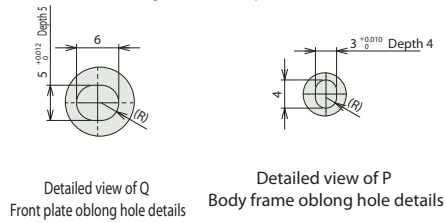
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com



(Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.

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



■ Dimensions by stroke

Encoder type		Incremental				Battery-less absolute	
Stroke		50	100	150	50	100	150
L	Without brake	141	191	241	166	191	241
	With brake	191	191	241	204	204	241
B	Without brake	73	123	173	98	123	173
	With brake	123	123	173	136	136	173
D	Without brake	1	2	3	1	2	3
	With brake	2	2	3	2	2	3
E	Without brake	4	6	8	4	6	8
	With brake	6	6	8	6	6	8

■ Mass by stroke

Encoder type		Incremental				Battery-less absolute	
Stroke		50	100	150	50	100	150
Mass (kg)	Without brake	2.1	2.4	2.7	2.2	2.4	2.7
	With brake	2.5	2.5	2.8	2.5	2.6	2.8

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P.22 for details on built-in controllers.

EC-TC5

Mini

Table Type

Side-mounted Motor

Body Width
40 mm

24v
Pulse Motor

Model Specification Items

EC	TC5																						
Series	Type	Lead	Stroke	Power / I/O cable length	Options																		
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>S</td><td>16mm</td></tr> <tr><td>H</td><td>10mm</td></tr> <tr><td>M</td><td>5mm</td></tr> <tr><td>L</td><td>2.5mm</td></tr> </table>	S	16mm	H	10mm	M	5mm	L	2.5mm	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>50</td><td>50mm</td></tr> <tr><td>100</td><td>100mm</td></tr> <tr><td>150</td><td>150mm</td></tr> </table>	50	50mm	100	100mm	150	150mm	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2">See power / I/O cable length below</td></tr> </table>	See power / I/O cable length below		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2">See options below</td></tr> </table>	See options below	
S	16mm																						
H	10mm																						
M	5mm																						
L	2.5mm																						
50	50mm																						
100	100mm																						
150	150mm																						
See power / I/O cable length below																							
See options below																							

CE

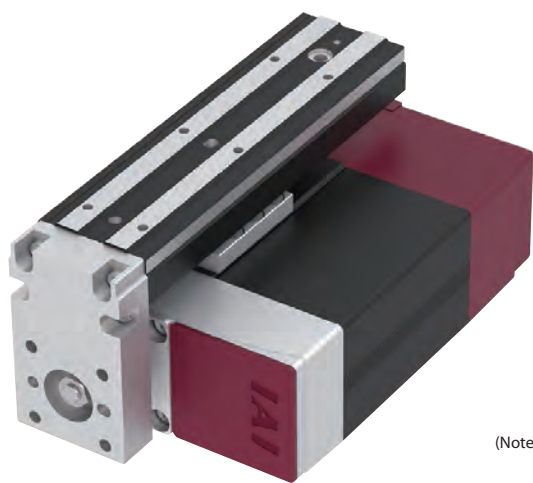
RoHS
10

Horizontal

Vertical

Side

Ceiling



(Note) The photo shows table left mounting (GT4).

POINT
Selection Notes

(1) "Main Specifications" displays the payload's maximum value at 50mm stroke.

(2) If performing push-motion operations, refer to the "Correlation between Push Force and Current Limit" diagram. The push forces listed are only reference values. Please refer to P. 20 for applicable notes.

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

(4) The reference values of the overhang load length are 100m or less in the table top direction, 150mm or less in the table tip direction for the Ma direction, and 120mm or less in the Mb/Mc directions.

(5) Pay close attention to the installation orientation. Please refer to P. 4 for details.

Power / I/O cable length

Standard connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
0	No cable	Terminal block supplied (Note 2)	CB-REC-PWBIO□□□-RB supplied
1 ~ 3	1 ~ 3m	CB-EC-PWBIO□□□-RB supplied	
4 ~ 5	4 ~ 5m		
6 ~ 7	6 ~ 7m		
8 ~ 10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note 2) Only terminal block connector is included. Please refer to P. 23 for details.
 (Note) Robot cable is standard.

4-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
S1 ~ S3	1 ~ 3m	CB-EC2-PWBIO□□□-RB supplied	CB-REC2-PWBIO□□□-RB supplied
S4 ~ S5	4 ~ 5m		
S6 ~ S7	6 ~ 7m		
S8 ~ S10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note) Robot cable is standard.

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	19
Brake	B	19
Designated grease specification (Note 2)	G5	19
Table right mount (Note 3)	GT2	19
Table bottom mount (Note 3)	GT3	19
Table left mount (Note 3)	GT4	19
Non-motor end specification	NM	19
PNP specification	PN	19
Split motor and controller power supply specification	TMD2	19
Battery-less absolute encoder specification	WA	19
Wireless communication specification	WL	20
Wireless axis operation specification	WL2	20

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

(Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.

(Note 3) Be sure to enter a code in the option column for Model Specification Items.

Main Specifications

Item		Description				
Lead	Ball screw lead (mm)	16	10	5	2.5	
	Horizontal Payload	Max. payload (kg) (energy-saving disabled)	6.5	12.5	12.5	12.5
		Max. payload (kg) (energy-saving enabled)	6.5	12.5	12.5	12.5
		Max. speed (mm/s)	800	600	300	150
Speed/acceleration/deceleration	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	
	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5	
Vertical Payload	Max. payload (kg) (energy-saving enabled)	1	2.5	5	6.5	
	Max. speed (mm/s)	700	525	260	135	
	Min. speed (mm/s)	40	30	7	4	
	Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3	
Speed/acceleration/deceleration	Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3	
	Max. push force (N)	46	73	150	310	
	Max. push speed (mm/s)	40	30	20	20	
	Brake specification	Non-excitation actuating solenoid brake				
Brake	Brake holding force (kgf)	1.5	2.5	5	6.5	
	Min. stroke (mm)	50	50	50	50	
Stroke	Max. stroke (mm)	150	150	150	150	
	Stroke pitch (mm)	50	50	50	50	

Item	Description
Driving system	Ball screw, ø8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (not available due to two-point positioning function)
Static allowable moment	Ma: 13.0Nm
	Mb: 18.6Nm
	Mc: 25.3Nm
Dynamic allowable moment (Note 1)	Ma: 4.98Nm
	Mb: 7.11Nm
Service life	5000km
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s ²
Overseas standards	CE marking, RoHS directive
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 5000km. Operation life varies according to operating and mounting conditions. Please refer to EC Catalog V10 P. 33 for details on service life.

Table type moment direction

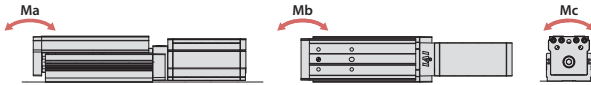


Table of Payload by Speed/Acceleration

Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

[50mm stroke]

Lead 16

Orientation	Horizontal Acceleration (G)						Vertical	
	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	6.5	4	3	2	1.5	1.5		
140	6.5	4	3	2	1.5	1.5		
280	6.5	4	3	2	1.5	1.5		
420					1.5			

Lead 10

Orientation	Horizontal Acceleration (G)						Vertical	
	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	12.5	11	7	4.5	2.5	2		
175	12.5	11	7	4.5	2.5	2		
350	9.5	7	4	2.5	2.5	2		
435					1.5			

Lead 5

Orientation	Horizontal Acceleration (G)				Vertical	
	Speed (mm/s)	0.3	0.5	0.3	0.5	
0	12.5	12.5	5	4.5		
85	12.5	12.5	5	4.5		
130	12.5	12.5	5	4.5		
215	12	12	4	4		
260	9	7	1	1		
300	2	0.5				

Lead 2.5

Orientation	Horizontal Acceleration (G)		Vertical	
	Speed (mm/s)	0.3	0.3	
0	12.5	6.5		
40	12.5	6.5		
85	12.5	6.5		
105	12.5	6.5		
135	12.5	3		
150	1			

[100mm stroke]

Lead 16

Orientation	Horizontal Acceleration (G)						Vertical	
	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	6.5	4	3	2	1.5	1.5		
140	6.5	4	3	2	1.5	1.5		
280	6.5	4	3	2	1.5	1.5		
420	6.5	4	2.5	1.5	1.5	1.5		
560	3	2	1			1		
700				0.5				

Lead 10

Orientation	Horizontal Acceleration (G)						Vertical	
	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	6.5	6.5	6.5	4.5	2.5	2		
175	6.5	6.5	6.5	4.5	2.5	2		
350	6.5	6.5	4	2.5	2.5	2		
435	6.5	5	3	1.5	1.5	1		
525		2	1.5	1		0.5		
600		0.5						

Lead 5

Orientation	Horizontal Acceleration (G)				Vertical	
	Speed (mm/s)	0.3	0.5	0.3	0.5	
0	6.5	6.5	5	4.5		
85	6.5	6.5	5	4.5		
130	6.5	6.5	5	4.5		
215	6.5	6.5	4	4		
260	6.5	6.5	1	1		
300	2	0.5				

Lead 2.5

Orientation	Horizontal Acceleration (G)		Vertical	
	Speed (mm/s)	0.3	0.3	
0	6.5	6.5		
40	6.5	6.5		
85	6.5	6.5		
105	6.5	6.5		
135	6.5	3		
150	1			

[150mm stroke]

Lead 16

Orientation	Horizontal Acceleration (G)						Vertical	
	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	4	4	3	2	1.5	1.5		
140	4	4	3	2	1.5	1.5		
280	4	4	3	2	1.5	1.5		
420	4	4	2.5	1.5	1.5	1.5		
560	4	3	2	1	1	1		
700		1.5	1	0.5		0.5		
800			1	0.5				

Lead 10

Orientation	Horizontal Acceleration (G)						Vertical	
	Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	
0	4	4	4	4	2.5	2		
175	4	4	4	4	2.5	2		
350	4	4	4	2.5	2.5	2		
435	4	4	3	1.5	1.5	1		
525	3	2	1.5	1	0.5	0.5		
600		0.5						

Lead 5

Orientation	Horizontal Acceleration (G)				Vertical	
	Speed (mm/s)	0.3	0.5	0.3	0.5	
0	4	4	5	4.5		
85	4	4	5	4.5		
130	4	4	5	4.5		
215	4	4	4	4		
260	4	4	1	1		
300	2	0.5				

Lead 2.5

Orientation	Horizontal Acceleration (G)		Vertical	
	Speed (mm/s)	0.3	0.3	
0	6.5	6.5		
40	6.5	6.5		
85	6.5	6.5		
105	6.5	6.5		
135	6.5	3		
150	1			

■ **Energy-saving setting enabled** The unit for payload is kg. If blank, operation is not possible.

[50mm stroke]

Lead 16

Orientation	Acceleration (G)		
	Horizontal	Vertical	Vertical
Speed (mm/s)	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1

Lead 10

Orientation	Acceleration (G)		
	Horizontal	Vertical	Vertical
Speed (mm/s)	0.3	0.7	0.3
0	12.5	5.5	2.5
175	12.5	5.5	2.5
350	5.5	2	0.5

Lead 5

Orientation	Acceleration (G)	
	Horizontal	Vertical
Speed (mm/s)	0.3	0.3
0	12.5	5
85	12.5	5
130	12.5	5
215	6	0.5

Lead 2.5

Orientation	Acceleration (G)	
	Horizontal	Vertical
Speed (mm/s)	0.3	0.3
0	12.5	6.5
40	12.5	6.5
85	12.5	6.5
105	12.5	1

[100mm stroke]

Lead 16

Orientation	Acceleration (G)		
	Horizontal	Vertical	Vertical
Speed (mm/s)	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1
420	4	1	0.5

Lead 10

Orientation	Acceleration (G)		
	Horizontal	Vertical	Vertical
Speed (mm/s)	0.3	0.7	0.3
0	6.5	5.5	2.5
175	6.5	5.5	2.5
350	5.5	2	0.5
435	0.5		

Lead 5

Orientation	Acceleration (G)	
	Horizontal	Vertical
Speed (mm/s)	0.3	0.3
0	6.5	5
85	6.5	5
130	6.5	5
215	6	0.5

Lead 2.5

Orientation	Acceleration (G)	
	Horizontal	Vertical
Speed (mm/s)	0.3	0.3
0	6	6.5
40	6	6.5
85	6	6.5
105	6	1

[150mm stroke]

Lead 16

Orientation	Acceleration (G)		
	Horizontal	Vertical	Vertical
Speed (mm/s)	0.3	0.7	0.3
0	4	2.5	1
140	4	2.5	1
280	4	2	1
420	4	1	0.5
560	2.5	0.5	0.5

Lead 10

Orientation	Acceleration (G)		
	Horizontal	Vertical	Vertical
Speed (mm/s)	0.3	0.7	0.3
0	4	4	2.5
175	4	4	2.5
350	4	2	0.5
435	0.5		

Lead 5

Orientation	Acceleration (G)	
	Horizontal	Vertical
Speed (mm/s)	0.3	0.3
0	4	5
85	4	5
130	4	5
215	4	0.5

Lead 2.5

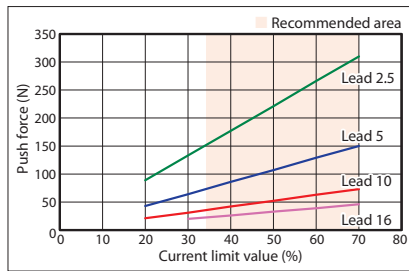
Orientation	Acceleration (G)	
	Horizontal	Vertical
Speed (mm/s)	0.3	0.3
0	4	6.5
40	4	6.5
85	4	6.5
105	4	1

Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 (mm)	100 (mm)	150 (mm)
		16	Disabled: 420 <280> Enabled: 280	700 <560> 420
10	Disabled: 435 <350> Enabled: 350	600 <525> 435 <350>		
5	Disabled: 300 <260> Enabled: 215			
2.5	Disabled: 150 <135> Enabled: 105			

(Unit: mm/s)

Correlation between Push Force and Current Limit



(Note) Values in < > are for vertical use.

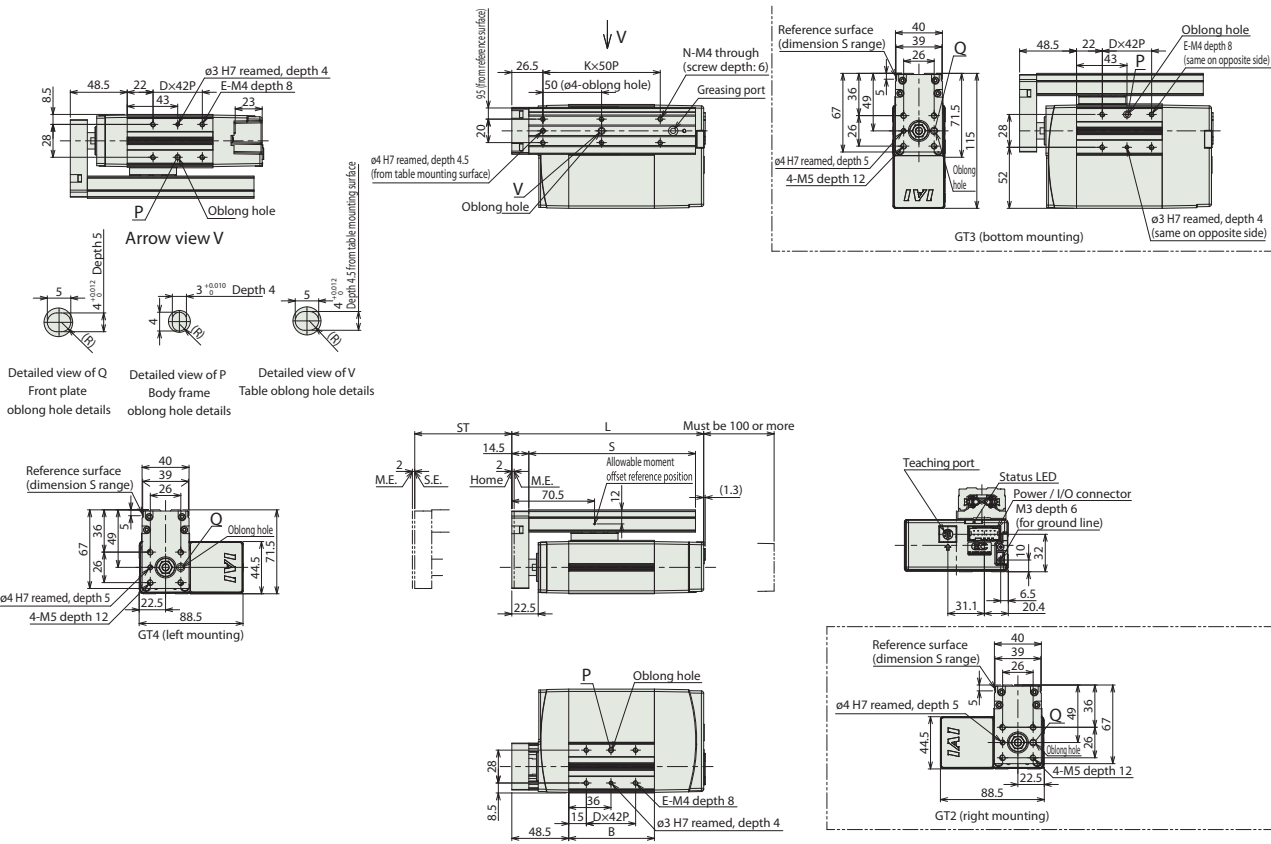
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com



(Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.

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



■ Dimensions by stroke

Encoder type		Incremental			Battery-less absolute		
	Stroke	50	100	150	50	100	150
L	Without brake	163.5	213.5	263.5	188.5	213.5	263.5
	With brake	213.5	213.5	263.5	226.5	226.5	263.5
B	Without brake	73	123	173	98	123	173
	With brake	123	123	173	136	136	173
D	Without brake	1	2	3	1	2	3
	With brake	2	2	3	2	2	3
E	Without brake	4	6	8	4	6	8
	With brake	6	6	8	6	6	8
K	Without brake	2	3	4	2	3	4
	With brake	2	3	4	2	3	4
N	Without brake	6	8	10	6	8	10
	With brake	6	8	10	6	8	10
S	Without brake	142	192	242	142	192	242
	With brake	142	192	242	142	192	242

■ Mass by stroke

Encoder type		Incremental			Battery-less absolute		
	Stroke	50	100	150	50	100	150
Mass (kg)	Without brake	1.3	1.6	1.9	1.5	1.6	1.9
	With brake	1.7	1.8	2.1	1.8	1.9	2.1

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P.22 for details on built-in controllers.

EC-TW5

Mini

Table Type

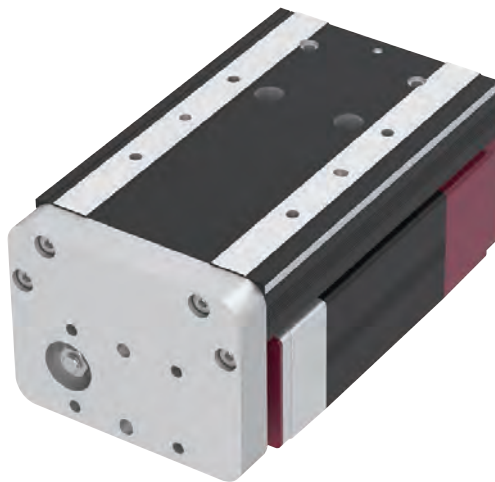
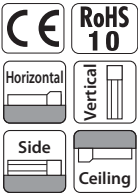
Side-mounted Motor

Body Width
90 mm

24v
Pulse Motor

■ Model Specification Items

EC	TW5																						
Series	Type	Lead	Stroke	Power / I/O cable length	Options																		
		<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr><td>S</td><td>16mm</td></tr> <tr><td>H</td><td>10mm</td></tr> <tr><td>M</td><td>5mm</td></tr> <tr><td>L</td><td>2.5mm</td></tr> </table>	S	16mm	H	10mm	M	5mm	L	2.5mm	<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr><td>50</td><td>50mm</td></tr> <tr><td>100</td><td>100mm</td></tr> <tr><td>150</td><td>150mm</td></tr> </table>	50	50mm	100	100mm	150	150mm	<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr><td colspan="2">See power / I/O cable length below</td></tr> </table>	See power / I/O cable length below		<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr><td colspan="2">See options below</td></tr> </table>	See options below	
S	16mm																						
H	10mm																						
M	5mm																						
L	2.5mm																						
50	50mm																						
100	100mm																						
150	150mm																						
See power / I/O cable length below																							
See options below																							



POINT
Selection Notes

(1) "Main Specifications" displays the payload's maximum value at 50mm stroke.

(2) If performing push-motion operations, refer to the "Correlation between Push Force and Current Limit" diagram. The push forces listed are only reference values. Please refer to P. 20 for applicable notes.

(3) The reference values of the overhang load length are 100m or less in the table top direction, 150mm or less in the table tip direction for the Ma direction, and 120mm or less in the Mb/Mc directions.

(4) Pay close attention to the installation orientation. Please refer to P. 4 for details.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
0	No cable	Terminal block supplied (Note 2)	CB-REC-PWBIO□□□-RB supplied
1 ~ 3	1 ~ 3m	CB-EC-PWBIO□□□-RB supplied	
4 ~ 5	4 ~ 5m		
6 ~ 7	6 ~ 7m		
8 ~ 10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note 2) Only terminal block connector is included. Please refer to P. 23 for details.
 (Note) Robot cable is standard.

■ 4-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 1) (with connectors on both edges)
S1 ~ S3	1 ~ 3m	CB-EC2-PWBIO□□□-RB supplied	CB-REC2-PWBIO□□□-RB supplied
S4 ~ S5	4 ~ 5m		
S6 ~ S7	6 ~ 7m		
S8 ~ S10	8 ~ 10m		

(Note 1) If RCON-EC connection specification (ACR) is selected as an option.
 (Note) Robot cable is standard.

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	19
Brake	B	19
Designated grease specification (Note 2)	G5	19
Non-motor end specification	NM	19
PNP specification	PN	19
Split motor and controller power supply specification	TMD2	19
Battery-less absolute encoder specification	WA	19
Wireless communication specification	WL	20
Wireless axis operation specification	WL2	20

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

(Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.

■ **Energy-saving setting enabled** The unit for payload is kg. If blank, operation is not possible.

[50mm stroke]

Lead 16

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1

Lead 10

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	15	5.5	2.5
175	15	5.5	2.5
350	5	2	0.5

Lead 5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	
0	20		5
85	20		5
130	20		5
215	4.5		

Lead 2.5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	
0	20		6.5
40	20		6.5
85	20		4.5
105	18		1

[100mm stroke]

Lead 16

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1
420	4	1	0.5

Lead 10

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	15	5.5	2.5
175	15	5.5	2.5
350	5	2	0.5
435	0.5		

Lead 5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	
0	15.5		5
85	15.5		5
130	15.5		5
215	4.5		

Lead 2.5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	
0	15.5		6.5
40	15.5		6.5
85	15.5		4.5
105	15.5		1

[150mm stroke]

Lead 16

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1
420	4	1	0.5
560	2	0.5	

Lead 10

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.7	0.3
0	10	5.5	2.5
175	10	5.5	2.5
350	5	2	0.5
435	0.5		

Lead 5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	
0	10		5
85	10		5
130	10		5
215	4.5		

Lead 2.5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.3	
0	10		6.5
40	10		6.5
85	10		4.5
105	10		1

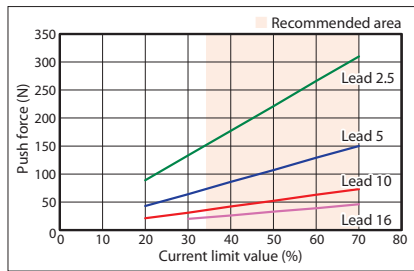
Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 (mm)	100 (mm)	150 (mm)
16	Disabled	420 <280>	700 <560>	
	Enabled	280	420	560 <420>
10	Disabled	435 <350>	525 <435>	
	Enabled	350	435 <350>	
5	Disabled	300 <260>		
	Enabled	215 <130>		
2.5	Disabled	135		
	Enabled	105		

(Unit: mm/s)

(Note) Values in <> are for vertical use.

Correlation between Push Force and Current Limit

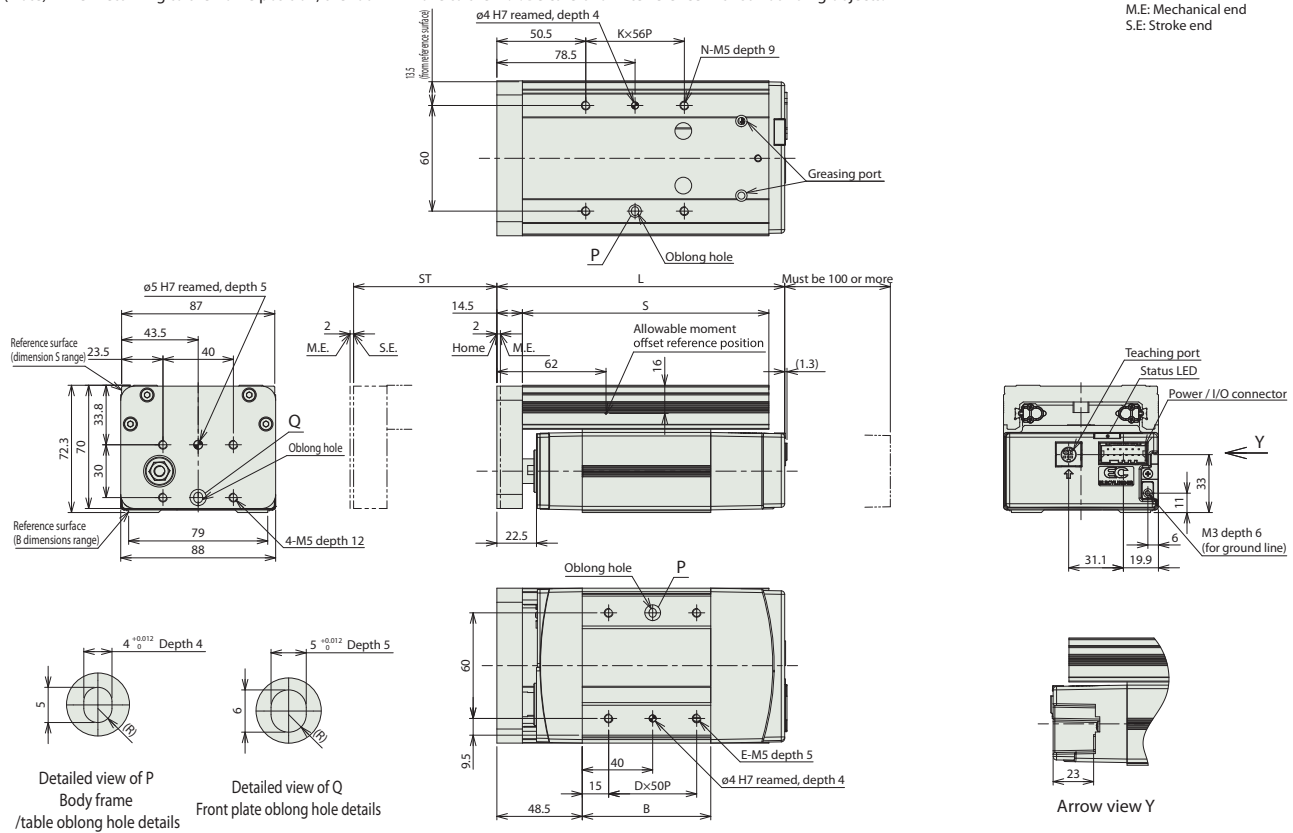


Dimensions

CAD drawings can be downloaded from our website. www.iai-automation.com **2D CAD** **3D CAD**

(Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.

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



■ Dimensions by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
L	Without brake	163.5	213.5	263.5	188.5	213.5	263.5
	With brake	213.5	213.5	263.5	226.5	226.5	263.5
B	Without brake	73	123	173	98	123	173
	With brake	123	123	173	136	136	173
D	Without brake	1	2	3	1	2	3
	With brake	2	2	3	2	2	3
E	Without brake	4	6	8	4	6	8
	With brake	6	6	8	6	6	8
K	Without brake	1	2	3	1	2	3
	With brake	1	2	3	1	2	3
N	Without brake	4	6	8	4	6	8
	With brake	4	6	8	4	6	8
S	Without brake	140	190	240	140	190	240
	With brake	140	190	240	140	190	240

■ Mass by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
Mass (kg)	Without brake	1.7	2.2	2.6	1.9	2.2	2.6
	With brake	2.2	2.4	2.8	2.3	2.5	2.8

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P.22 for details on built-in controllers.

EleCylinder Series Options

RCON-EC connection specification *Cannot be selected with the TMD2 and PN options (the ACR option includes the split motor and controller power supply specification)

Model **ACR**

Description This option should be selected to connect over an R-unit to a field network.
*If this option is selected, the power supply must be split motor and controller power supply specification and the input/output specification must be NPN. Therefore, it cannot be selected with the TMD2 or PN options.

Brake

Model **B**

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

Designated grease specification

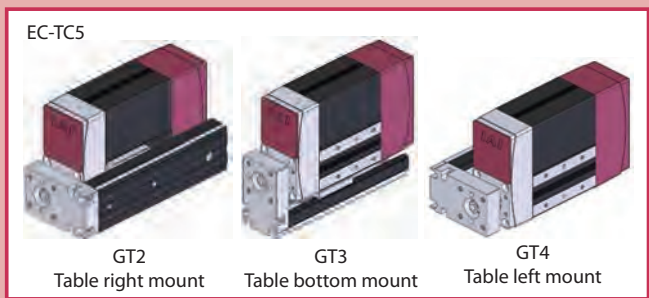
Model **G5**

Description Replaces the grease applied to the actuator ball screw, linear guide, and sliding surface of the rod with food machine grease (White Alcom Grease).

Table mounting direction

Model **GT2 / GT3 / GT4** **Applicable models** EC-TC5

Description Select the table position of EC-TC5. Be sure to enter a code in the model number.



Non-motor end specification

Model **NM** **Applicable models** EC-TC5/TW5

Description The home position is normally set to the motor side. This option is for setting the home position on the other side in order to accommodate variations in equipment layout, etc.

PNP specification * Cannot be selected with ACR option, which uses the NPN specification.

Model **PN**

Description EC Series products provide NPN specification input/output for connecting external devices as standard. Specifying this option changes input/output to the PNP specification.

Split motor and controller power supply specification * Cannot be selected with the ACR option (the RCON-EC connection spec. is a split motor and controller power supply spec.)

Model **TMD2**

Description This option includes an actuator operation stop input. Select this option to allow shutting down the actuator drive power only. Please refer to P. 23 for more information on wiring.

Battery-less absolute encoder specification

Model **WA**

Description EC Series products use the incremental encoder specification as standard. Specify this option to have a built-in battery-less absolute encoder installed.

Wireless communication specification

Model WL

Description This option enables support for wireless communication. Specifying this option enables wireless communication with the TB-03 teaching pendant. The start point, end point, and AVD can be adjusted via wireless communication.

Wireless axis operation specification

Model WL2

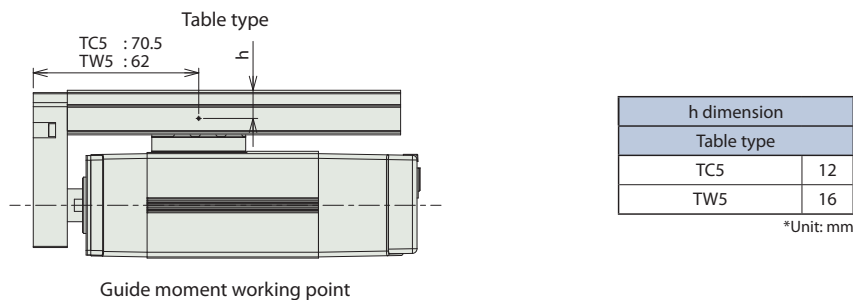
Description Specifying WL2 allows for the product to operate wirelessly as with WL (start point, end point, and AVD adjustment), and to also perform axis travel operation tests (forward end/backward end movement, jog, and inching). However, this function is not meant to perform automatic operation. Please refer to P. 118 of the EC Catalog V10 for precautions on axis operations using a wireless connection.
(Note) Customers cannot change WL to WL2, or WL2 to WL. Please contact IAI for this.

Notes on use of table type actuators for push-motion operation

When performing a push-motion operation using a table type actuator, be sure to limit the push current so that the reactive moment caused by the push force does not exceed the dynamic allowable moment (Ma, Mb) listed in the catalogue.

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.

Note that applying excessive force that exceeds the dynamic allowable moment may damage the guide and reduce its service life. Select a push current that is safely within its limits.



Push-motion operation

Push-motion operation is a function that keeps the rod or slider pushed up against a part, as with an air cylinder. Please check the usage instructions and precautions below prior to use.

[Push force adjustment]

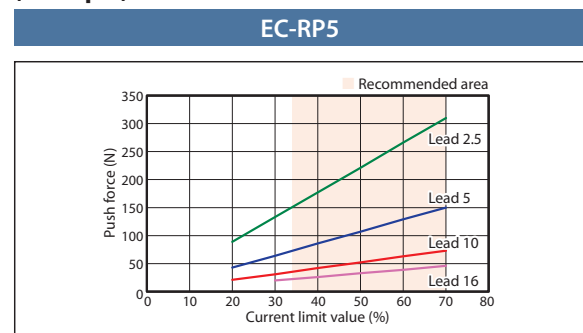
- The push force during a push-motion operation can be adjusted by changing the "Push force (%)" on EleCylinder.
- Please check the push force for the applicable model in the diagram "Correlation between push force and current limit" on the production specification page, and select a model that matches your conditions.

[Lead selection method]

Select a lead with the desired push force in the recommended current limit value range (the colored area in the graph).

Lead 10 would be appropriate for the EC-RP5 type shown in the figure to the right if a push force of 50N is desired. Selecting lead 5 would limit the adjustment range.

(Example)

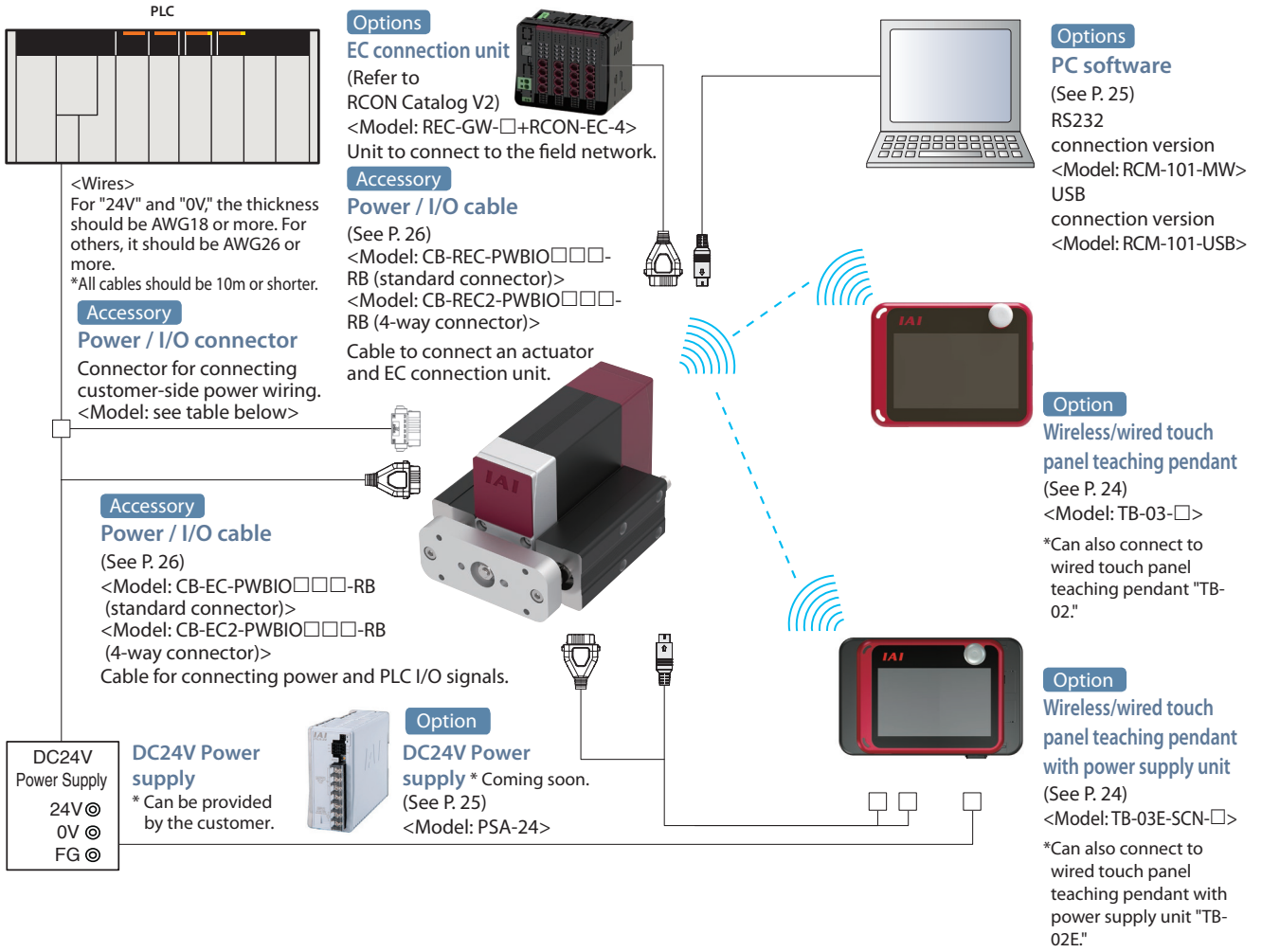


<Correlation between push force and current limit>



- The diagram "Correlation between push force and current limit" show lower guidelines for push force for each current limit value.
- Individual differences in the motor and variations in mechanical efficiency may cause the push force lower limit to be exceeded by around 40%, even if the current limit value is the same.
This is especially true when the current limit value is 30% or lower, and the push force lower limit could be exceeded by 40% or more.

System Configuration



List of accessories

■ Power / I/O cables, connectors

[Standard connector]

Product category		Accessory
Power / I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
0	No	Power / I/O connector *
	Yes	—
1 ~ 10	No	Power / I/O cable (CB-EC-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC-PWBIO□□□-RB)

* Model code: 81702010-03-000-00 in case of TMD2 selection; otherwise 1-1871940-6-ENG

[Four-way connector]

Product category		Accessory
Power / I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
S1 ~ S10	No	Power / I/O cable (CB-EC2-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC2-PWBIO□□□-RB)

Basic Controller Specifications

Specification item		Specification content	
Number of controlled axes		1 axis	
Power supply voltage		24VDC $\pm 10\%$	
Power capacity	RP5, GD5, TC5, TW5	Energy-saving disabled: Rated 3.5A, max. 4.2A Energy-saving enabled: Max. 2.2A	
Brake release power supply		24VDC $\pm 10\%$, 200mA (only for external brake release)	
Generated heat		8W (at 100% duty)	
Inrush current (Note 1)	RP5, GD5, TC5, TW5	8.3A (with inrush current limit circuit)	
Momentary power failure resistance		Max 500 μ s	
Motor size		$\square 35$	
Motor rated current		1.2A	
Motor control system		Weak field-magnet vector control	
Supported encoders		Incremental (800 pulse/rev), battery-less absolute encoder (800 pulse/rev)	
SIO		RS485 1ch (Modbus protocol compliant)	
PIO	Input specification	No. of inputs	3 points (forward, backward, alarm clear)
		Input voltage	24VDC $\pm 10\%$
		Input current	5mA per circuit
		Leakage current	Max. 1mA per point
		Isolation method	Non-isolated
	Output specification	No. of outputs	3 points (forward complete, backward complete, alarm)
		Output voltage	24VDC $\pm 10\%$
		Output current	50mA per point
		Residual voltage	2V or less
		Isolation method	Non-isolated
Data setting, input method		PC software, touch panel teaching pendant, digital speed controller	
Data retention memory		Position and parameters are saved in non-volatile memory (no limit to number of rewrites)	
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 or in case of overload warning, the LED (right side) blinks alternately green and red. *Only when configured in advance	
Ambient operating temperature		0 ~ 40°C	
Ambient operating humidity		5%RH ~ 85%RH (Non-condensing or freezing)	
Operating environment		No corrosive gas and excessive dust	
Insulation resistance		500VDC 10M Ω	
Electric shock protection mechanism		Class 1 basic insulation	
Cooling method		Natural air cooling	

(Note 1) Inrush current flows for approximately 5ms after the power is input. (At 40°C.) Inrush current value differs depending on the impedance on the power line.

Solenoid valve method

EleCylinder products normally use a double solenoid method.

Change parameter No. 9 ("Solenoid valve type selection") to use the single solenoid method.

<Caution>

Operation cannot be performed using the single solenoid method when operating connected to RCON-EC.

I/O (Input/Output) Specifications

I/O		Input		Output	
Specifications		Input voltage	24VDC ±10%	Load voltage	24VDC ±10%
		Input current	5mA per circuit	Maximum load current	50mA per point
		ON/OFF voltage	ON voltage: Min. 18VDC OFF voltage: Max. 6VDC	Residual voltage	2V or less
		Leakage current	Max. 1mA per point	Leakage current	Max. 0.1mA per point
Isolation method		Non-isolated from external circuit		Non-isolated from external circuit	
I/O logic	NPN				
	PNP				

(Note) Isolation method is non-isolated. When grounding an external device (such as a PLC) connected to EleCylinder, use the same ground as EleCylinder.

I/O Signal Wiring Diagram

I/O		Standard specification	Split motor and controller power supply specification (option model: TMD2)
Power / I/O connector		<p>0V A1 (Reserved) A2 (Note 1) Backward complete A3 (Note 1) Forward complete A4 Alarm output A5 (Reserved) A6</p> <p>B1 24V B2 Brake release B3 Backward command B4 Forward command B5 Alarm cancel B6 (Reserved)</p>	<p>Drive power and control power are separate for the TMD2 specification.</p> <p>0V A1 24V (Control) A2 (Note 1) Backward complete A3 (Note 1) Forward complete A4 Alarm output A5 (Reserved) A6</p> <p>B1 24V (Drive) B2 Brake release B3 Backward command B4 Forward command B5 Alarm cancel B6 (Reserved)</p>
I/O logic	NPN	<p>0V 24V</p> <p>(Note 1) Backward command (Note 1) Forward command Alarm cancel</p>	<p>0V 24V</p> <p>(Note 1) Backward command (Note 1) Forward command Alarm cancel</p>
	PNP	<p>24V 0V</p> <p>(Note 1) Backward command (Note 1) Forward command Alarm cancel</p>	<p>24V 0V</p> <p>(Note 1) Backward command (Note 1) Forward command Alarm cancel</p>

(Note 1) Switching to the single solenoid method will change B3 to "Forward/Backward command" and B4 to "Unused."

I/O Signal Table

Power / I/O connector pin assignment			
Pin No.	Connector nameplate name	Signal abbreviation	Function overview
B3 (Note 1)	Backward	ST0	Backward command
B4 (Note 1)	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)
B2	Brake release	BKRLS	Brake forced release (for brake equipped specification)
B1 (Note 2)	24V	24V	24V input
A1	0V	0V	0V input
A2 (Note 2)	(24V)	(24V)	24V input

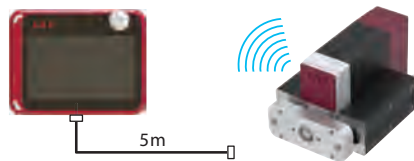
(Note 1) Switching to the single solenoid method will change B3 to "Forward/Backward" and B4 to "Unused." However, the power / I/O connector display will still read "B3: Backward" and "B4: Forward."

(Note 2) B1 is 24V (Drive) and A2 is 24V (Control) for the split motor and controller power supply specification (TMD2).

Option

Wireless/wired touch panel teaching pendant

- Features** This teaching device supports wireless connections. Start point/end point/AVD input and axis operation can be performed wirelessly.
- Model TB-03-** Please contact IAI for the current supported versions.
- Configuration** Wireless or wired connection

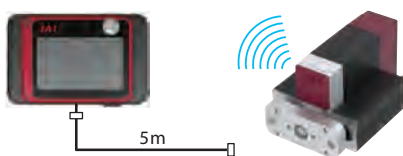


TB-03 body specifications

Power input voltage range	24VDC \pm 10% [supplied from controller] 5.9VDC (5.7 ~ 6.3V) [supplied from AC adapter]
Power consumption	3.6W or less
Consumption current	150mA (supplied from controller)
Ambient operating temperature	0 ~ 40°C (Non-condensing or freezing)
Ambient operating humidity	5%RH ~ 85%RH (Non-condensing or freezing)
Ambient storage temperature	-20 ~ 40°C
Degree of protection	IPX0
Mass	670g (body) + approx. 285g (dedicated cable)
Charging method	Wired connection with dedicated AC adapter/controller

Wired/wireless touch panel teaching pendant with power supply unit

- Model TB-03E-** Please contact IAI for the current supported versions.
- Configuration** Wireless or wired connection



Power supply unit specifications

Rated input voltage	Single-phase 230VAC \pm 10%
Input current (Under rated I/O conditions in ambient temperature of 25°C)	0.6A typ. (230VAC)
Frequency range	50Hz \pm 5%
Power capacity (Under rated I/O conditions in ambient temperature of 25°C)	145VA (230VAC)
Output voltage	24VDC \pm 10%
Load current	With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Rated 2.2A
Output capacity	With energy-saving setting disabled: Rated 84W, max. 98.4W With energy-saving setting enabled: Rated 52.8W
Ambient operating temperature	0 ~ 40°C (Non-condensing or freezing)
Ambient operating humidity	5%RH ~ 85%RH (Non-condensing or freezing)
Ambient storage temperature	-20 ~ 70°C
Atmosphere	No corrosive gas and excessive dust
Altitude	1000m or less above sea level
Vibration resistance	Frequency: 10 ~ 57Hz / Amplitude: 0.075mm Frequency: 57 ~ 150Hz / Acceleration: 9.8m/s ² [XYZ directions] Sweep time: 10 minutes, Number of sweeps: 10
Degree of protection	IP30
Mass	Approx. 740g
Cooling method	Natural air cooling

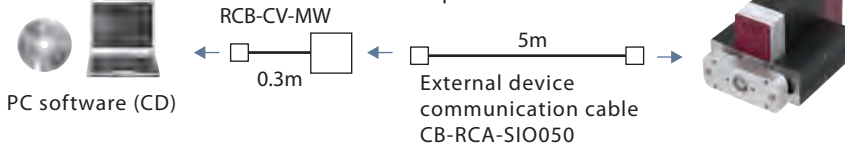
PC software (Windows only)

■ **Features** This start-up support software provides functions such as position teaching, trial operation, and monitoring. It provides a complete range of functions required to make adjustments, to help reduce start-up time.

■ **Model RCM-101-MW** (with an external device communication cable + RS232 conversion unit)

Please contact IAI for the current supported versions.

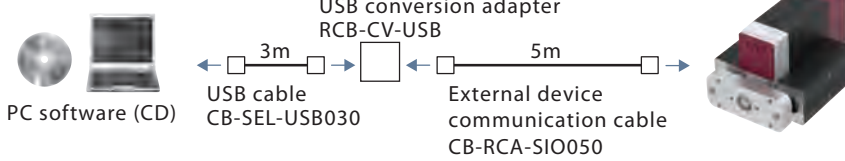
■ **Configuration**



■ **Model RCM-101-USB** (with an external device communication cable + USB conversion adapter + USB cable)

Please contact IAI for the current supported versions.

■ **Configuration**



24V power supply

■ **Model PSA-24 (without fan)** *Coming soon*

■ **Model PSA-24L (with fan)** *Coming soon*



Specifications Table

Item	Specification
	230VAC input
Power input voltage range	230 VAC \pm 10%
Input power supply current	1.9A or less
Power capacity	Without fan: 280VA With fan: 380VA
Inrush current ¹	Without fan: 34A (typ.) With fan: 54.8A (typ.)
Generated heat	20.4W
Output voltage range ²	24V \pm 10%
Continuous rated output	Without fan: 8.5A (204W), with fan: 13.8A (330W)
Peak output	17A (408W)
Efficiency	90% or more
Parallel connection ³	Up to 5 units

*1 The pulse width of flowing inrush current is less than 5ms

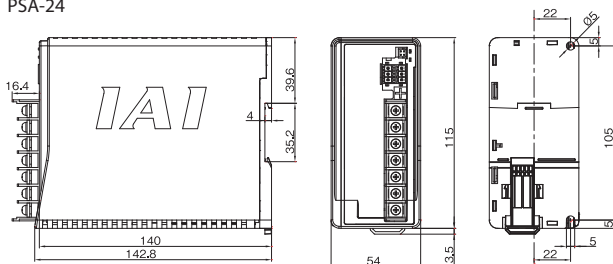
*2 This power supply can vary the output voltage according to the load in order to enable parallel operation. The power supply unit is therefore for use with IAI controllers only.

*3 Parallel connection cannot be used under the following conditions.

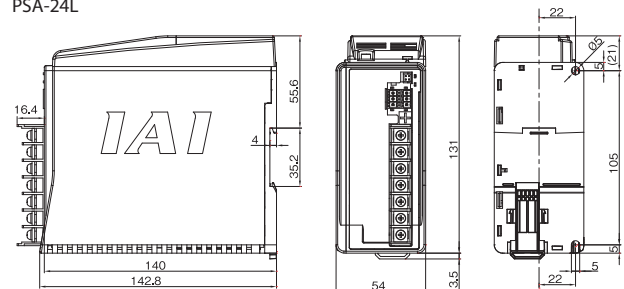
- Parallel connection of PSA-24 (specification without fan) and PSA-24L (specification with fan)
- Parallel connection with a power supply unit other than this power supply

External Dimensions

PSA-24



PSA-24L



Maintenance Parts

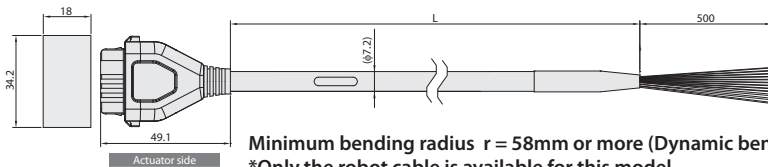
When placing an order for a replacement cable after purchasing a product, please use the model name shown below.

Table of compatible cables

Cable type	Cable model
Power / I/O cable (user-wired specification)	CB-EC-PWBIO□□□-RB
Power / I/O cable (user-wired specification, four-way connector)	CB-EC2-PWBIO□□□-RB
Power / I/O cable (RCON-EC connection specification)	CB-REC-PWBIO□□□-RB
Power / I/O cable (RCON-EC connection specification, four-way connector)	CB-REC2-PWBIO□□□-RB

Model **CB-EC-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□ (for example, 030 = 3m)



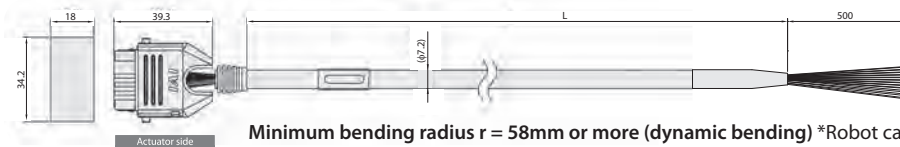
Minimum bending radius $r = 58\text{mm}$ or more (Dynamic bending condition)
*Only the robot cable is available for this model.

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22) (Reserved) (Note 1)		A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26) (Reserved)		B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26) (Reserved)		A6
Brown (AWG26)	BKRLS	B2

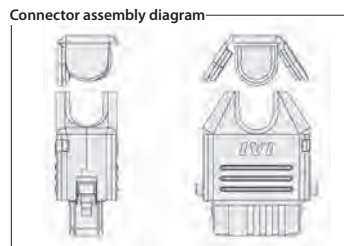
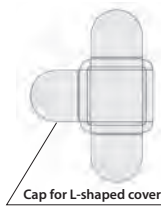
(Note 1) 24V (Control) when split motor and controller power supply specification (TMD2) selected.

Model **CB-EC2-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□ (for example, 030 = 3m)



Minimum bending radius $r = 58\text{mm}$ or more (dynamic bending) *Robot cable is standard.

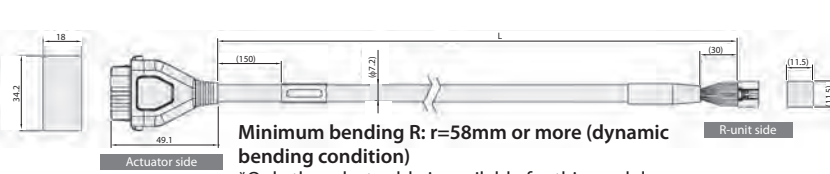


Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22) (Reserved) (Note 1)		A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26) (Reserved)		B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26) (Reserved)		A6
Brown (AWG26)	BKRLS	B2

(Note 1) 24V (Control) when split motor and controller power supply specification (TMD2) selected.

Model **CB-REC-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□, maximum 10m (for example, 030 = 3m)

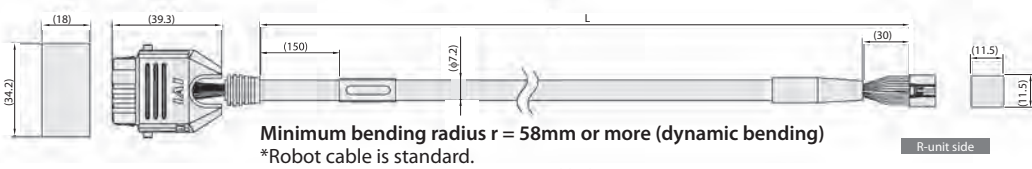


Minimum bending $R: r = 58\text{mm}$ or more (dynamic bending condition)
*Only the robot cable is available for this model.

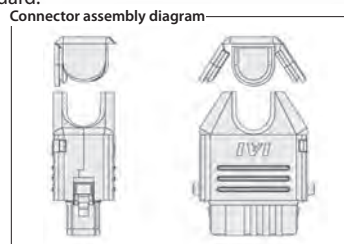
Color	Signal name	Pin No.	Pin No.	Signal name	Color
Black (AWG18)	0V	A1	1	24V(MP)	Red (AWG18)
Red (AWG18)	24V(MP)	B1	12	24V(CP)	Light blue (AWG22)
Light blue (AWG22)	24V(CP)	A2	7	OUT0	Orange (AWG26)
Orange (AWG26)	IN0	B3	8	OUT1	Yellow (AWG26)
Yellow (AWG26)	IN1	B4	9	OUT2	Green (AWG26)
Green (AWG26)	IN2	B5	6	SD+	Pink (AWG26)
Pink (AWG26)	SD+	B6	10	SD-	White (AWG26)
White (AWG26)	SD-	A6	3	INO	Blue (AWG26)
Blue (AWG26)	OUT0	A3	4	IN1	Purple (AWG26)
Purple (AWG26)	OUT1	A4	5	IN2	Gray (AWG26)
Gray (AWG26)	OUT2	A5	11	BKRLS	Brown (AWG26)
Brown (AWG26)	BKRLS	B2	13	FG	Green (AWG26)

Model **CB-REC2-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□, maximum 10m (for example, 030 = 3m)



Minimum bending radius $r = 58\text{mm}$ or more (dynamic bending)
*Robot cable is standard.



Color	Signal name	Pin No.	Pin No.	Signal name	Color
Black (AWG18)	0V	A1	2	0V	Black (AWG22)
Red (AWG18)	24V(MP)	B1	1	24V(MP)	Red (AWG22)
Light blue (AWG22)	24V(CP)	A2	12	24V(CP)	Light blue (AWG22)
Orange (AWG26)	IN0	B3	7	OUT0	Orange (AWG26)
Yellow (AWG26)	IN1	B4	8	OUT1	Yellow (AWG26)
Green (AWG26)	IN2	B5	9	OUT2	Green (AWG26)
Yellow (AWG26)	SD+	B6	6	SD+	Yellow (AWG26)
Light gray (AWG26)	SD-	A6	10	SD-	Light gray (AWG26)
Blue (AWG26)	OUT0	A3	3	INO	Blue (AWG26)
Purple (AWG26)	OUT1	A4	4	IN1	Purple (AWG26)
Gray (AWG26)	OUT2	A5	5	IN2	Gray (AWG26)
Brown (AWG26)	BKRLS	B2	11	BKRLS	Brown (AWG26)
			13	FG	Green (AWG26)

**EC EleCylinder Series
High-power Miniature Type
Catalogue No. 0621-E**

The information contained in this catalog
is subject to change without notice for the
purpose of product improvement



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