

Simple-to-use ELECYLINDER with Built-in Controller
Medium Dust-resistant Slider Type

EC S6/7D

Simple-to-use ELECYLINDER with Built-in Controller
Medium Dust-/Splash-proof Slider Type

EC S6/7W

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



Simple & Wireless
Operation

2 Position
Actuator



EC ELECYLINDER

Electric actuators with IP44 protection

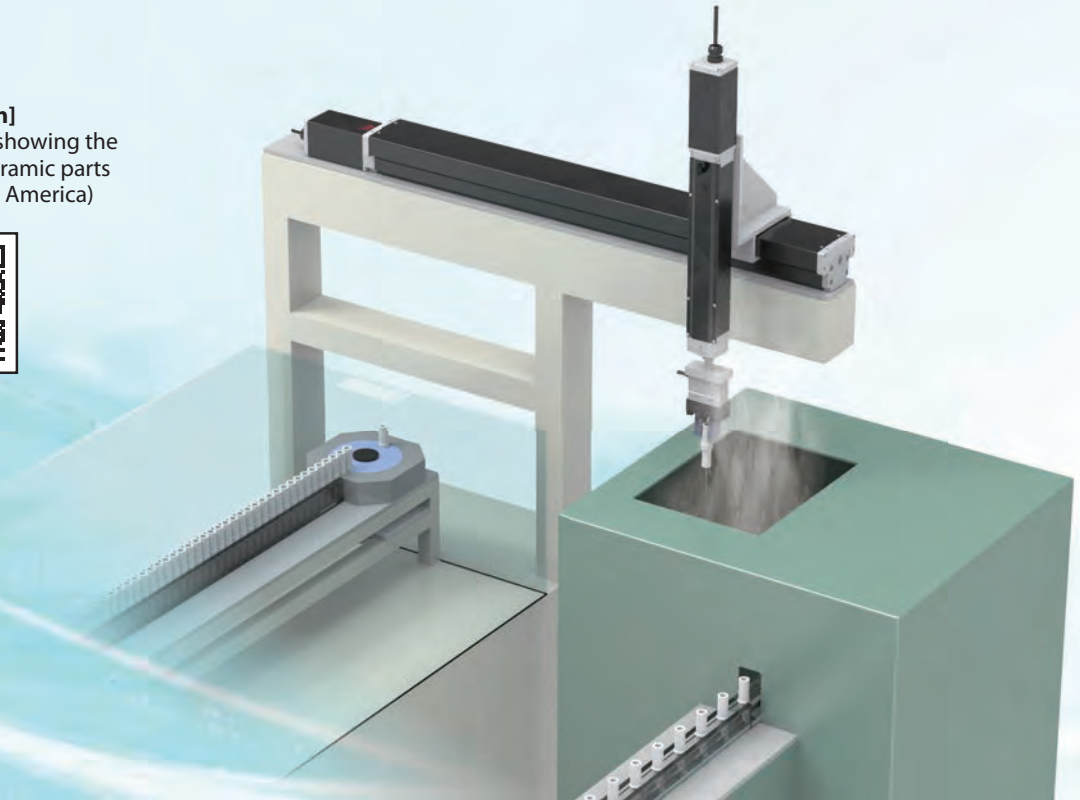
EleCylinder Slider Type

Dust-resistant Specification / Dust-proof/Splash-proof Specification


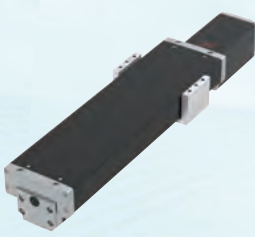

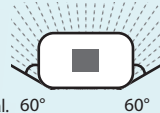

Can be used for machining processes that generate dust, etc.

[Application]

Scan below for a video showing the grinding process for ceramic parts
(Link to Website of IAI America)



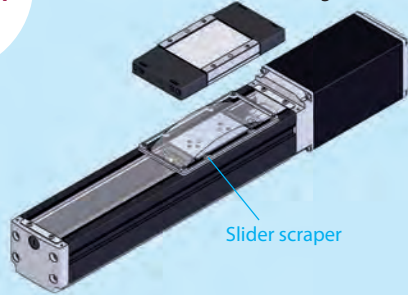
1. Select a type to suit the environment

<p>Ingress protection rating</p> <p>IP <input type="text"/> <input type="text"/></p> <p>First digit Protection against ingress from solid foreign matter</p> <p>Second digit Protection against ingress of water</p>	<p>Dust-resistant specification</p> 	<p>Dust-proof/splash-proof specification</p> 	
	EC-S□D	EC-S□W	EC-S□W (Wiper seal mounted specification)
Ingress protection	IP40	IP43	IP44
First digit protection rating	<p>Tools exceeding a diameter or width of 1.0mm, wires, and other solid objects cannot be inserted.</p> 		
Second digit protection rating	No protection	<p>Rain-proof</p> <p>No harmful effects from water drops falling within 60° from the vertical.</p> 	<p>Droplet-proof</p> <p>No harmful effects from splashing water from any direction.</p> 

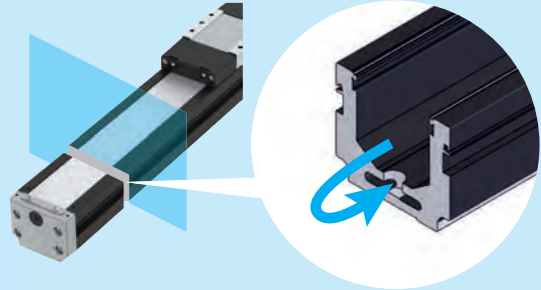
2. Proprietary internal structure for increased dust-proof/splash-proof performance

Dust-resistant specification (IP40)

The entire circumference of the slider is covered with a slider scraper, preventing dust from entering through the stainless steel sheet, as it bends to accommodate the slider carriage.

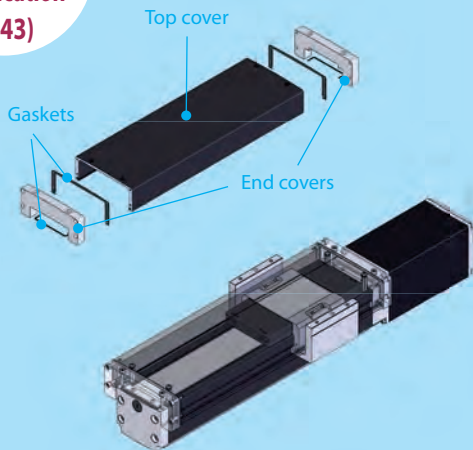


Air is circulated through a hole in the base so that the inside of the body is connected with the base hollow portion, preventing dust from entering.



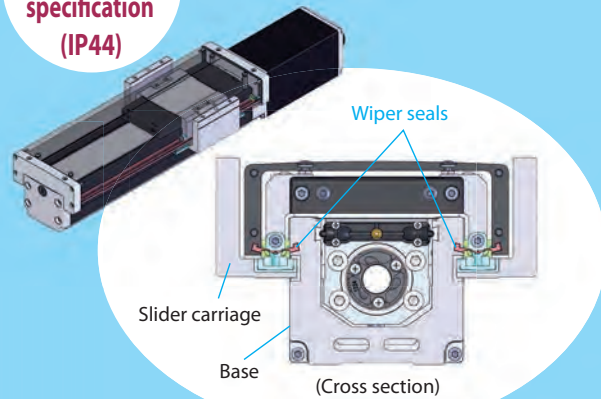
Dust-proof/splash-proof specification (IP43)

A top cover is mounted to help prevent water from entering inside.



Dust-proof/splash-proof specification (IP44)

Wiper seals can be mounted to further prevent water and other foreign matter from entering.



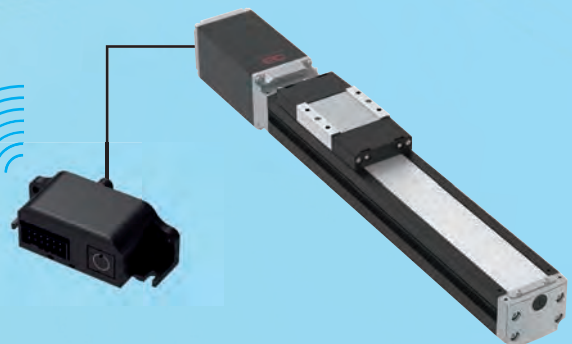
3. Simple wireless operation

No need to connect a communication cable to the actuator.

Touch Panel
Teaching Pendant
TB-03

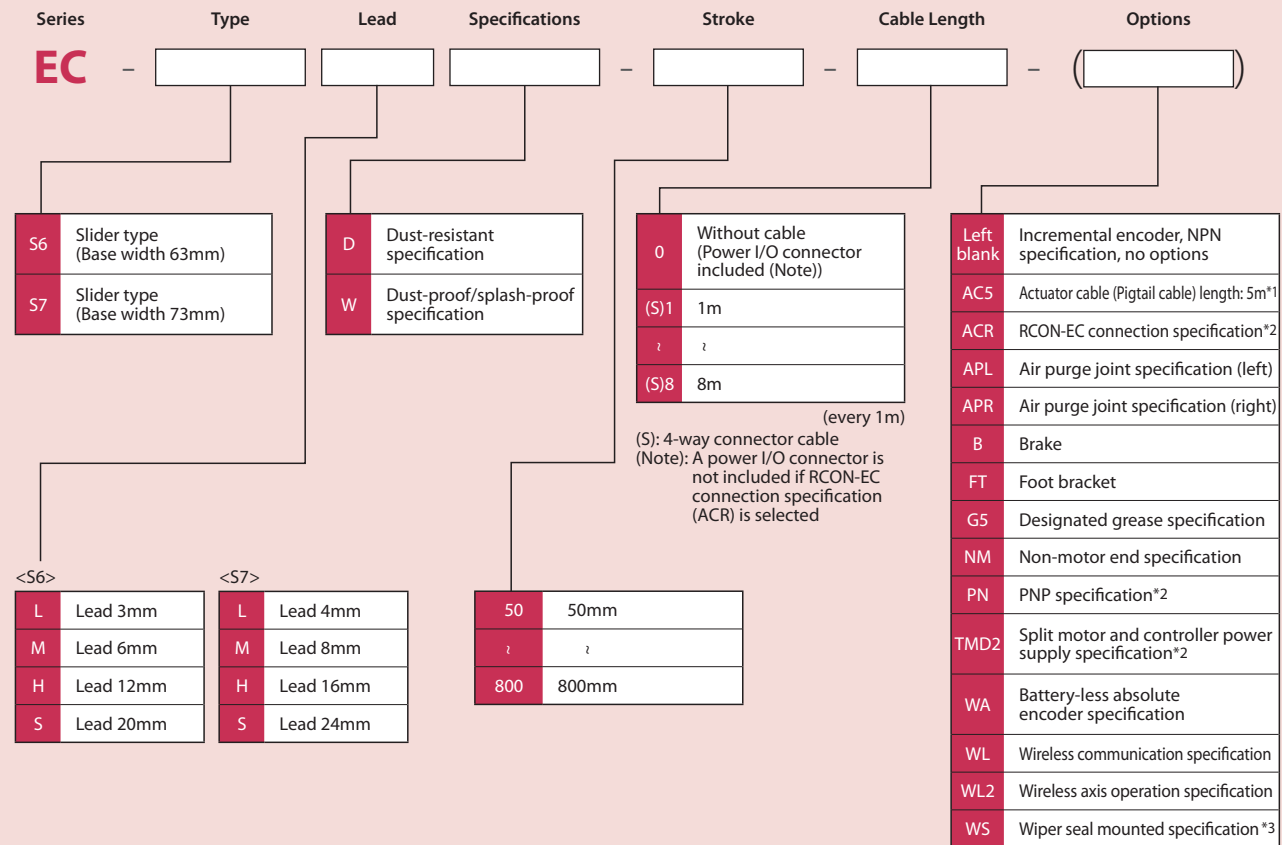


Wireless
5m (guideline)



Model Specification Items

EleCylinder



*1 If "AC5" is selected, please select a maximum Power - I/O cable length of 5m.
*2 If "ACR" is selected, the "PN" and "TMD2" options cannot be selected (I/O for the "ACR" option is NPN only; compatible with split motor and controller power supply as standard)
*3 Only compatible with the dust-proof/splash-proof specification.

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


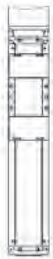


Specification Tables

Type	Lead	Stroke (mm) and max speed (mm/s)																Max. payload (kg)								
		Model	mm	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	Horizontal	Vertical					
Coupled motor	S6□D S6□W	S-	20	800														790	695	615	15	1				
		H-	12	700														665	560	490	425	375	330	26	2.5	
		M-	6	450														400	335	285	245	210	180	160	32	6
		L-	3	225														165	140	120	105	90	80	40	12.5	
Coupled motor	S7□D S7□W	S-	24	860														840		37	3					
		H-	16	700														685	605	535	46	8				
		M-	8	420														390	345	305	270	51	16			
		L-	4	210														190	170	145	125	51	19			

*With power-saver mode disabled and no options.

Mounting Orientation

○: Can be mounted —: Cannot be mounted

		Mounting orientation			
					
Series	Type	Horizontal mounting on flat surface	Vertical mounting	Horizontal mounting to side	Horizontal mounting suspended
EC	S6□D/S7□D	○	○	○	○
	S6□W/S7□W	○	—	—	—

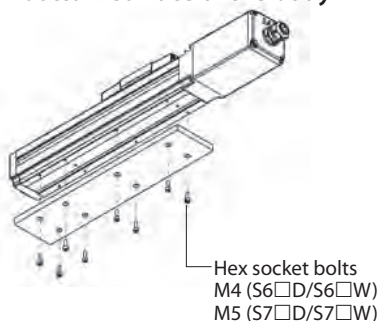
*1 When mounting vertically, make sure to install the motor on the top.

Mounting the motor on the bottom could cause the grease to separate and base oil to leak into the motor, which could cause the controller, motor, or encoder to fail.

- Keep the body installation surface and workpiece mounting surface flatness within 0.05mm/m. Uneven flatness will increase the resistance of the slider and may cause malfunctions.

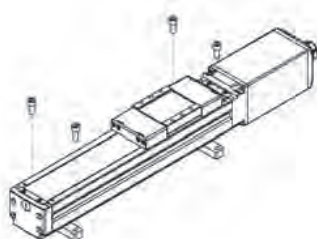
Mounting Method

- Use the mounting holes on the bottom surface of the body

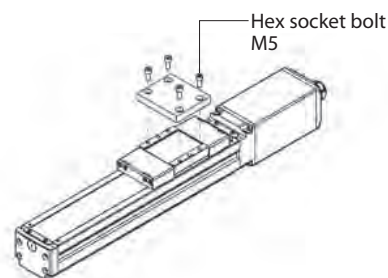


- Use the foot bracket option (FT)

*Please refer to P. 19 for details on options



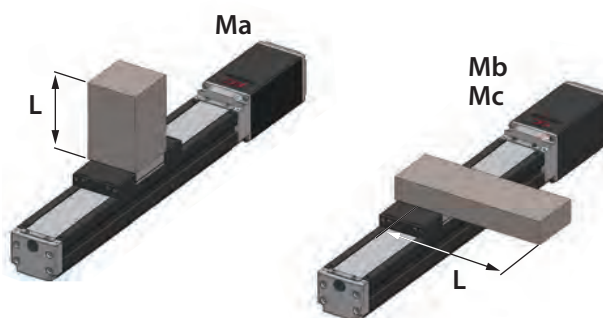
- Mounting the payload



Overhang Load Length

This is the approximate offset at which the actuator can operate smoothly even when the workpiece or bracket is offset from the slider. Vibration or other factors could cause operation failures if the overhang is exceeded.

The product should therefore be used within the approximate length.



EC-S6□D

Dust-resistant

Coupled Motor

Body Width
60 mm

24v
Pulse Motor

Model Specification Items

EC	S6		D			
Series	Type	Lead	Specifications	Stroke	Power / I/O cable length	Options
		S 20mm H 12mm M 6mm L 3mm	D Dust-resistant	50 ? 800 50mm ? 800mm (every 50mm)	See power / I/O cable length table below	Refer to Options below

RoHS
10

Horizontal

Vertical

Side

Ceiling



- POINT
Selection Notes

 - (1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."
 - (2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
 - (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.
 - (4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 24 for details.
 - (5) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.
 - (6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
 - (7) Pay close attention to the mounting orientation. Please refer to P. 4 for details.

Power / I/O cable length

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

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)	
1 ~ 3	1 ~ 3m	CB-EC-PWBIO□□□-RB supplied	CB-REC-PWBIO□□□-RB supplied
4 ~ 5	4 ~ 5m		
6 ~ 7	6 ~ 7m		
8	8m		

(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. 27 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	8m		

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

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	AC5	19
RCON-EC connection specification (Note 1)	ACR	19
Air purge joint specification (left)	APL	19
Air purge joint specification (right)	APR	19
Brake	B	19
Foot bracket	FT	19
Designated grease specification	G5	20
Non-motor end homing specification	NM	20
PNP specification	PN	20
Split motor and controller power supply specification	TMD2	20
Battery-less absolute encoder specification	WA	20
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.

Main Specifications

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

Item		Description
Drive system	Ball screw ø10mm, rolled C10	
Positioning repeatability	±0.05mm	
Lost motion	- (not available due to 2-point positioning function)	
Linear guide	Linear motion infinite circulating type	
Allowable static moment	Ma:	11.6N·m
	Mb:	16.6N·m
	Mc:	23.3N·m
Allowable dynamic moment (Note 1)	Ma:	11.6N·m
	Mb:	16.6N·m
	Mc:	23.3N·m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity	0~40°C, 85% RH or less (no condensation)	
Ingress protection	IP40	
Vibration & shock resistance	4.9m/s ²	
Overseas standards	CE marking, RoHS directive	
Motor type	Pulse motor (□42)	
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 service life on P. 33 of the EleCylinder Catalog V10.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 24 for details.

■ **Energy-Saving Setting Disabled** The unit for payload is kg. If blank, operation is not possible.

Lead 20

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

Lead 12

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

Lead 6

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

Lead 3

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

■ **Energy-Saving Setting Enabled (energy-saving mode)** The unit for payload is kg.

Lead 20

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

Lead 12

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

Lead 6

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

Lead 3

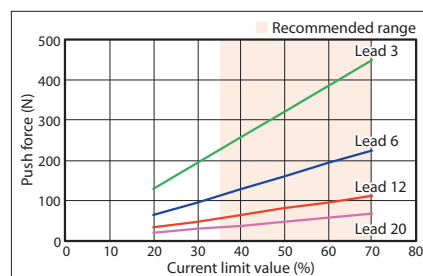
Orientation	Horizontal			Vertical
	Acceleration (G)			
Speed (mm/s)	0.3	0.7	0.3	
0	25	22	10	
20	25	22	10	
50	25	22	10	
80	25	22	10	
110	20	14	8	
140	15	11	5	
170	11	9	2	

Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 to 450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled		800				790	695	615
	Enabled		800				790	695	615
12	Disabled	700	665	560	490	425	375	330	
	Enabled	680	665	560	490	425	375	330	
6	Disabled	450	400	335	285	245	210	180	160
	Enabled	340	335	285	245	210	180	160	
3	Disabled	225	200	165	140	120	105	90	80
	Enabled	170	165	140	120	105	90	80	

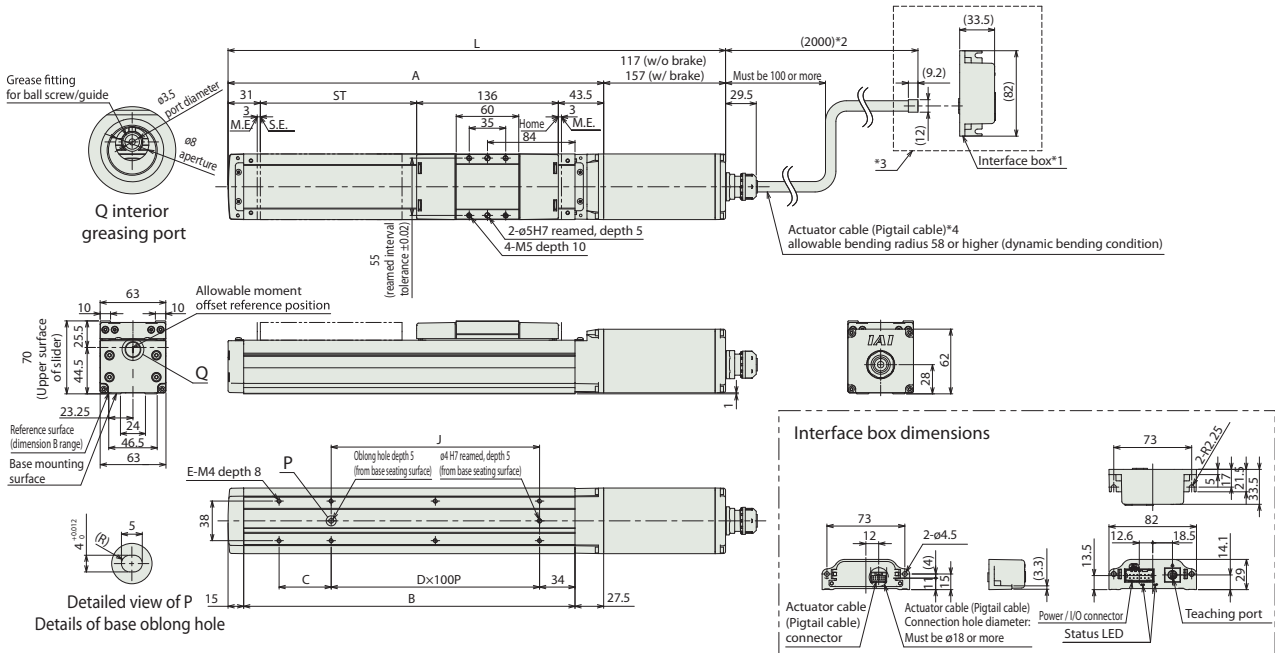
(Unit: mm/s)

Correlation between Push Force and Current Limit



- *1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
 - *2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
 - *3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
 - *4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power / I/O cable is 10m or less.
- (Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
L	Without brake	377.5	427.5	477.5	527.5	577.5	627.5	677.5	727.5	777.5	827.5	877.5	927.5	977.5	1027.5	1077.5	1127.5
	With brake	417.5	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5	1117.5	1167.5
A	260.5	310.5	360.5	410.5	460.5	510.5	560.5	610.5	660.5	710.5	760.5	810.5	860.5	910.5	960.5	1010.5	
B	218	268	318	368	418	468	518	568	618	668	718	768	818	868	918	968	
C	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	
D	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	
E	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	
J	100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900	

■ Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
Mass (kg)	Without brake	2.7	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6	4.8	5.1	5.3	5.5	5.8	6.0	6.2
	With brake	3.0	3.3	3.5	3.7	4.0	4.2	4.4	4.7	4.9	5.1	5.4	5.6	5.8	6.1	6.3	6.5

Applicable Controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 26 for details on built-in controllers.

EC-S7□D

Dust-resistant	Coupled Motor	Body Width 70 mm	24v Pulse Motor
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Model Specification Items

EC	S7		D			
Series	Type	Lead	Specifications	Stroke	Power / I/O cable length	Options
		S 24mm H 16mm M 8mm L 4mm	D Dust-resistant	50 ? 50mm 800 ? 800mm (every 50mm)	See power / I/O cable length table below	Refer to Options below

CE RoHS 10

Horizontal Vertical

Side Ceiling



POINT Selection Notes

- (1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."
- (2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
- (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.
- (4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 24 for details.
- (5) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.
- (6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
- (7) Pay close attention to the mounting orientation. Please refer to P. 4 for details.

Power / I/O cable length

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

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	8m		

(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. 27 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	8m		

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

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	AC5	19
RCON-EC connection specification (Note 1)	ACR	19
Air purge joint specification (left)	APL	19
Air purge joint specification (right)	APR	19
Brake	B	19
Foot bracket	FT	19
Designated grease specification	G5	20
Non-motor end homing specification	NM	20
PNP specification	PN	20
Split motor and controller power supply specification	TMD2	20
Battery-less absolute encoder specification	WA	20
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.

Main Specifications

Item		Description				
Lead	Ball screw lead (mm)	24	16	8	4	
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
Vertical	Payload	Max. acceleration/deceleration (G)	1	1	1	1
		Max. payload (kg) (energy-saving disabled)	3	8	16	19
	Speed / acceleration/ deceleration	Max. payload (kg) (energy-saving enabled)	2	5	10	15
		Max. speed (mm/s)	860	700	420	175
		Min. speed (mm/s)	30	20	10	5
Push	Max. push force (N)	Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
		Max. push speed (mm/s)	139	209	418	836
Brake	Brake specification	Non-excitation actuating solenoid brake				
	Brake holding force (kgf)	3	8	16	19	
Stroke	Min. stroke (mm)	50	50	50	50	
	Max. stroke (mm)	800	800	800	800	
	Stroke pitch (mm)	50	50	50	50	

Item		Description
Drive system		Ball screw ø12mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (not available due to 2-point positioning function)
Linear guide		Linear motion infinite circulating type
Allowable static moment		Ma: 17.7N·m
		Mb: 25.3N·m
		Mc: 34.9N·m
Allowable dynamic moment (Note 1)		Ma: 17.7N·m
		Mb: 25.3N·m
		Mc: 34.9N·m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity		0~40°C, 85% RH or less (no condensation)
Ingress protection		IP40
Vibration & shock resistance		4.9m/s ²
Overseas standards		CE marking, RoHS directive
Motor type		Pulse motor (□56)
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 service life on P. 33 of the EleCylinder Catalog V10.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 24 for details.

■ **Energy-Saving Setting Disabled** The unit for payload is kg. If blank, operation is not possible.

Lead 24

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

Lead 16

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

Lead 8

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

Lead 4

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

■ **Energy-Saving Setting Enabled (energy-saving mode)** The unit for payload is kg.

Lead 24

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

Lead 16

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

Lead 8

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

Lead 4

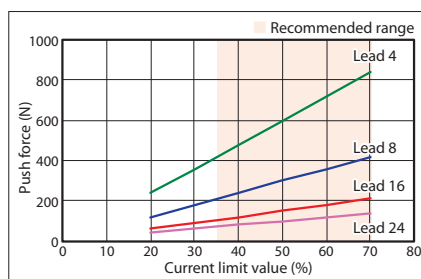
Orientation	Horizontal			Vertical
	Acceleration (G)			
Speed (mm/s)	0.3	0.7	0.3	
0	40	30	15	
35	40	30	15	
70	40	30	15	
105	40	30	8	
140	15	6	2	

Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 to 600 (every 50mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	860				
	Enabled	800				
16	Disabled	700	685	605	535	
	Enabled	560				
8	Disabled	420	390	345	305	270
	Enabled	280				
4	Disabled	210	190	170	145	125
	Enabled	140				

(Unit: mm/s)

Correlation between Push Force and Current Limit



Dimensions

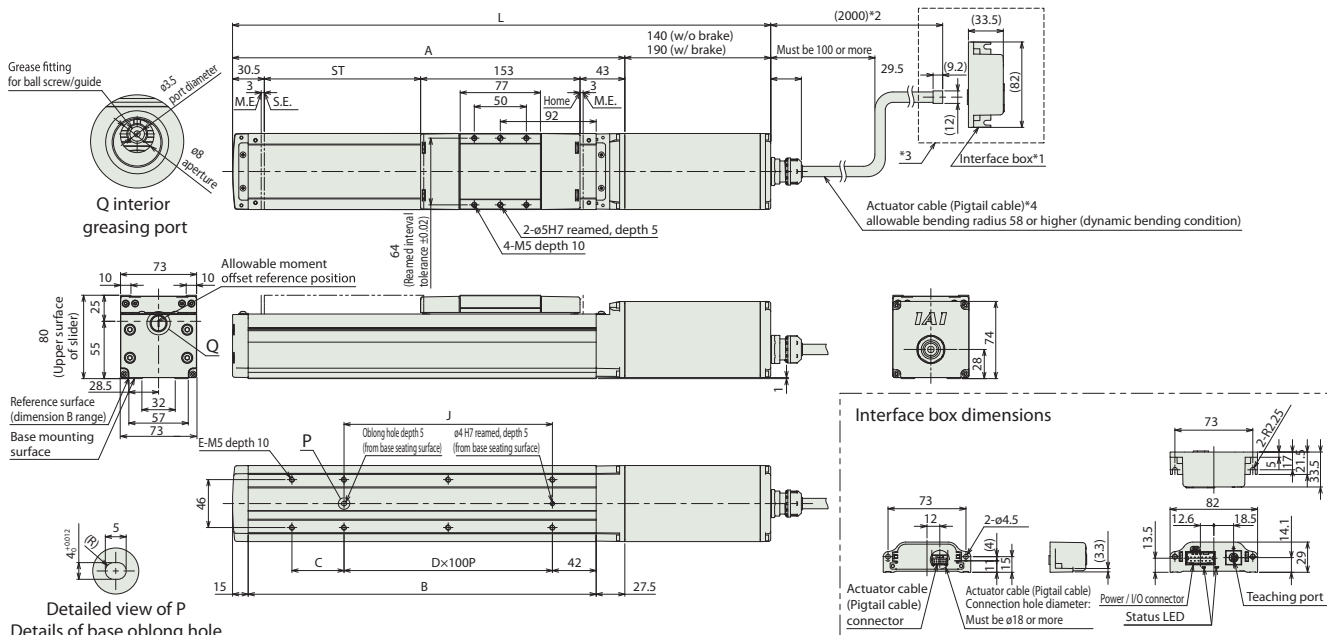
CAD drawings can be downloaded from our website.

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- *1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
 - *2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
 - *3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
 - *4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power / I/O cable is 10m or less.
- (Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
L	Without brake	416.5	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5
	With brake	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5	1216.5
A	276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5	776.5	826.5	876.5	926.5	976.5	1026.5	
B	234	284	334	384	434	484	534	584	634	684	734	784	834	884	934	984	
C	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	
D	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	
E	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	
J	100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900	

■ Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	4.4	4.8	5.1	5.4	5.7	6.1	6.4	6.7	7.0	7.4	7.7	8.0	8.3	8.7	9.0
	With brake	5.0	5.4	5.7	6.0	6.3	6.7	7.0	7.3	7.6	8.0	8.3	8.6	8.9	9.3	9.6

Applicable Controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 26 for details on built-in controllers.

EC-S6□W

Dust/Splash-proof Spec

Coupled Motor

Body Width
60 mm

24v Pulse Motor

Model Specification Items

EC	S6		W			
Series	Type	Lead	Specifications	Stroke	Power / I/O cable length	Options
		S 20mm H 12mm M 6mm L 3mm	W Dust-proof/splash-proof	50 50mm ? ? 800 800mm (every 50mm)	See power / I/O cable length table below	Refer to Options below

RoHS
10

Horizontal

Vertical

Side

Ceiling



POINT
Selection
Notes

- (1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."
- (2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
- (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.
- (4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 24 for details.
- (5) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.
- (6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.

Power / I/O cable length
(Note) Make sure that the total length of the actuator cable (pigtail cable) and power / I/O cable is 10m or less.

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	8m		

(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. 27 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	8m		

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

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	AC5	19
RCON-EC connection specification (Note 1)	ACR	19
Air purge joint specification (left)	APL	19
Air purge joint specification (right)	APR	19
Brake	B	19
Foot bracket	FT	19
Designated grease specification	G5	20
Non-motor end homing specification	NM	20
PNP specification	PN	20
Split motor and controller power supply specification	TMD2	20
Battery-less absolute encoder specification	WA	20
Wireless communication specification	WL	20
Wireless axis operation specification	WL2	20
Wiper seal mounted specification (Note 2)	WS	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) If the wiper seal specification (WS) is selected, the "Payload by Speed/Acceleration," "Stroke and Maximum Speed," and "Correlation between Push Force and Current Limit" will differ. Please refer to P. 13 for details.

Main Specifications

Item		Description				
Lead	Ball screw lead (mm)	20	12	6	3	
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
Speed / acceleration / deceleration	Speed / acceleration / deceleration	Max. speed (mm/s) (Note 1)	800 [640]	700 [560]	450 [400]	225 [200]
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Push	Push	Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake	Brake specification	Non-excitation actuating solenoid brake				
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke	Stroke	Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50
		Stroke pitch (mm)	50	50	50	50

(Note 1) Values in brackets [] are for the wiper seal mounted specification (WS) option.

Item		Description
Drive system		Ball screw ø10mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (not available due to 2-point positioning function)
Linear guide		Linear motion infinite circulating type
Allowable static moment	Allowable static moment	Ma: 11.6N-m
		Mb: 16.6N-m
		Mc: 23.3N-m
Allowable dynamic moment (Note 2)	Allowable dynamic moment (Note 2)	Ma: 11.6N-m
		Mb: 16.6N-m
		Mc: 23.3N-m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Top cover	Material: Aluminum, black alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity		0~40°C, 85% RH or less (no condensation)
Ingress protection (Note 3)		IP43 [IP44]
Vibration & shock resistance		4.9m/s ²
Overseas standards		CE marking, RoHS directive
Motor type		Pulse motor (□42)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 2) Based on the standard rated operation life of 5000km. Operation life varies according to operating and mounting conditions. Please refer to service life on P. 33 of the EleCylinder Catalog V10.

(Note 3) Values in brackets [] are for the wiper seal mounted specification (WS) option.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 24 for details.

Energy-Saving Setting Disabled The unit for payload is kg.

Lead 20

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

Lead 12

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

Lead 6

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

Lead 3

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

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 20

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

Lead 12

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

Lead 6

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

Lead 3

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

Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 to 450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	800			790		695	615	
	Enabled	800			790		695	615	
12	Disabled	700	665	560	490	425	375	330	
	Enabled	680	665	560	490	425	375	330	
6	Disabled	450	400	335	285	245	210	180	160
	Enabled	340	335	285	245	210	180	160	
3	Disabled	225	200	165	140	120	105	90	80
	Enabled	170	165	140	120	105	90	80	

(Unit: mm/s)

Correlation between Push Force and Current Limit

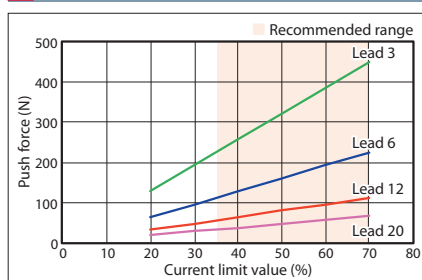


Table of Payload by Speed/Acceleration (Wiper Seal Mounted Specification) *Energy-saving setting disabled at shipping. Please refer to P. 24 for details.

Energy-Saving Setting Disabled The unit for payload is kg.

Lead 20

Orientation	Horizontal				
	Speed (mm/s)	Acceleration (G)			
		0.3	0.5	0.7	1
0	15	9.5	8	7	7
160	15	9.5	8	7	7
320	12	9	8	6	6
480	12	6.5	5	5	5
640	10	5	4.5	2.5	2.5

Lead 12

Orientation	Horizontal				
	Speed (mm/s)	Acceleration (G)			
		0.3	0.5	0.7	1
0	26	18	16	14	14
80	26	18	16	14	14
200	26	18	16	14	14
320	26	18	14	12	12
440	26	18	12	10	10
560	20	12	8	7	7

Lead 6

Orientation	Horizontal				
	Speed (mm/s)	Acceleration (G)			
		0.3	0.5	0.7	1
0	32	26	24	20	20
40	32	26	24	20	20
100	32	26	24	20	20
160	32	26	24	20	20
220	32	26	24	20	20
280	32	26	24	15	15
340	32	20	18	12	12
400	22	12	9.5	8	8

Lead 3

Orientation	Horizontal				
	Speed (mm/s)	Acceleration (G)			
		0.3	0.5	0.7	1
0	40	35	35	35	35
50	40	35	35	35	35
80	40	35	35	30	30
110	40	35	35	30	30
140	40	35	35	28	28
170	40	32	32	24	24
200	35	28	23	20	20

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 20

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

Lead 12

Orientation	Horizontal		
	Speed (mm/s)	Acceleration (G)	
		0.3	0.7
0	14	10	10
80	14	10	10
200	14	10	10
320	14	10	10
440	11	7	7

Lead 6

Orientation	Horizontal		
	Speed (mm/s)	Acceleration (G)	
		0.3	0.7
0	20	14	14
40	20	14	14
100	20	14	14
160	20	14	14
220	16	14	14
280	13	7	7

Lead 3

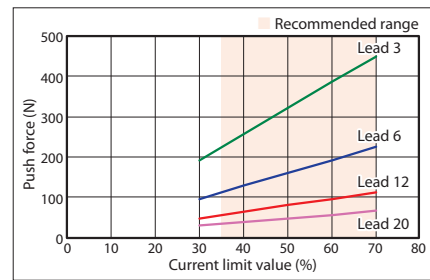
Orientation	Horizontal		
	Speed (mm/s)	Acceleration (G)	
		0.3	0.7
0	25	22	22
20	25	22	22
50	25	22	22
80	25	22	22
110	20	14	14
140	15	11	11

Stroke and Maximum Speed (Wiper Seal Mounted Specification)

Lead (mm)	Energy-saving setting	50 to 450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	640							615
	Enabled	640							615
12	Disabled	560			490	425	375	330	330
	Enabled	440			425	375	330	330	330
6	Disabled	400	335	285	245	210	180	160	160
	Enabled	280		245	210	180	160	160	160
3	Disabled	200	165	140	120	105	90	80	80
	Enabled	140		120	105	90	80	80	80

(Unit: mm/s)

Correlation between Push Force and Current Limit (Wiper Seal Mounted Specific.)



Dimensions

CAD drawings can be downloaded from our website.

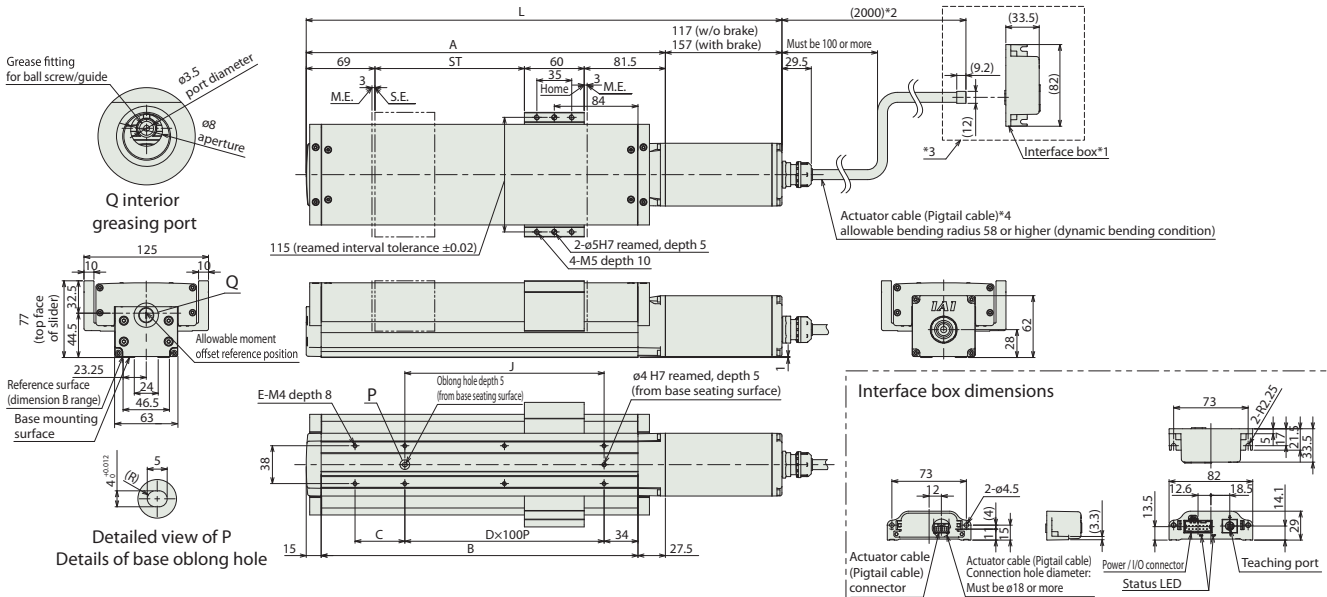
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■ EC-S6□W

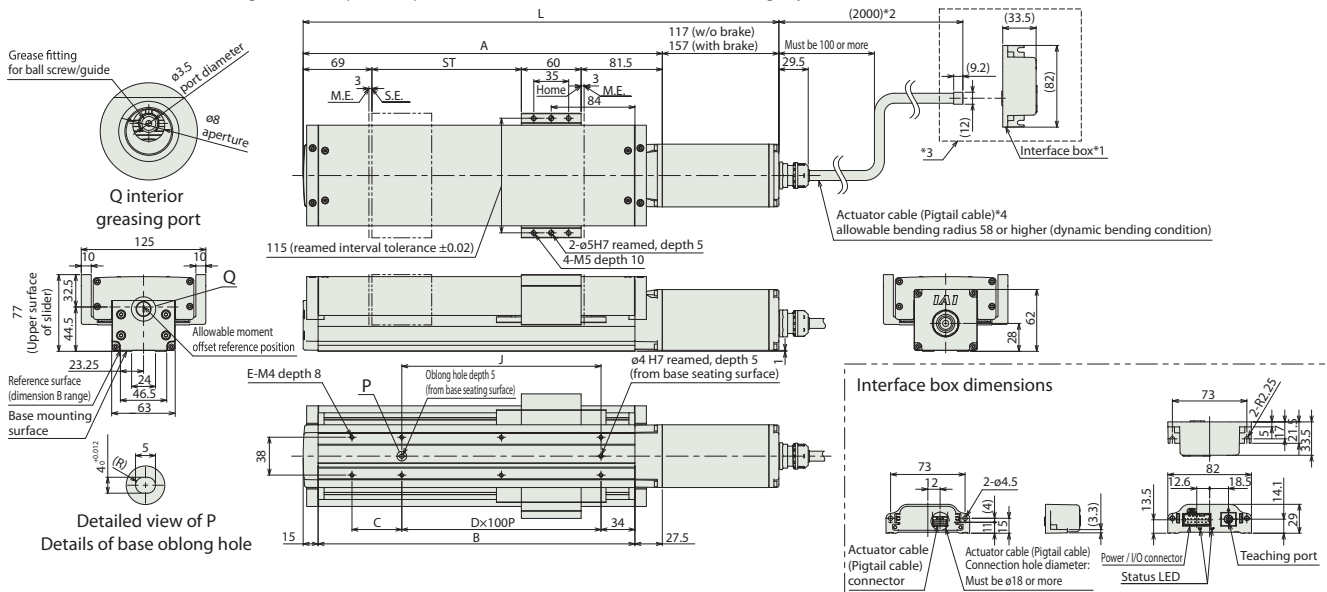
- *1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
 - *2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
 - *3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
 - *4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power / I/O cable is 10m or less.
- (Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ EC-S6□W (wiper seal mounted specification)

- *1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
 - *2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
 - *3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
 - *4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power / I/O cable connector is 10m or less.
- (Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



■ Dimensions by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
L	Without brake	377.5	427.5	477.5	527.5	577.5	627.5	677.5	727.5	777.5	827.5	877.5	927.5	977.5	1027.5	1077.5	1127.5
	With brake	417.5	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5	1117.5	1167.5
A	260.5	310.5	360.5	410.5	460.5	510.5	560.5	610.5	660.5	710.5	760.5	810.5	860.5	910.5	960.5	1010.5	
B	218	268	318	368	418	468	518	568	618	668	718	768	818	868	918	968	
C	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	
D	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	
E	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	
J	100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900	

■ Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
Mass (kg)	Without brake	3.7	4.1	4.4	4.8	5.1	5.5	5.8	6.2	6.5	6.9	7.2	7.5	7.9	8.2	8.6	8.9
	With brake	4.0	4.4	4.7	5.1	5.4	5.8	6.1	6.5	6.8	7.2	7.5	7.8	8.2	8.5	8.9	9.2

Applicable Controllers

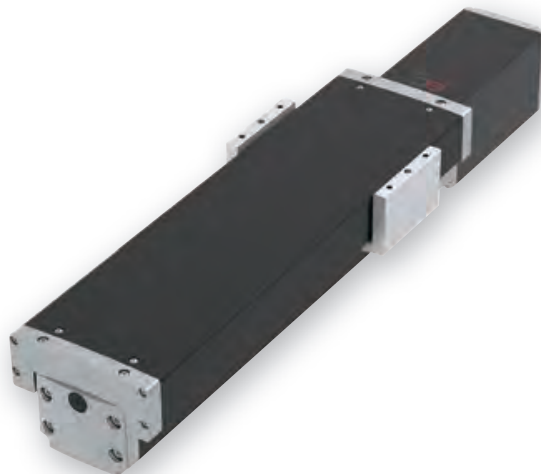
(Note) EC Series products are equipped with a built-in controller. Please refer to P.26 for details on built-in controllers.

EC-S7□W

Dust/Splash-proof Spec	Coupled Motor	Body Width 70 mm	24v Pulse Motor
------------------------	---------------	-------------------------	------------------------

Model Specification Items

EC	-	S7	<input type="text"/>	W	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>
Series	-	Type	Lead	Specifications	-	Stroke	-	Power / I/O cable length	-	Options
		S	24mm	W Dust-proof/splash-proof		50	50mm	See power / I/O cable length table below		Refer to Options below
		H	16mm			800	800mm (every 50mm)			
		M	8mm							
		L	4mm							



POINT Selection Notes

- (1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."
- (2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
- (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.
- (4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 24 for details.
- (5) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.
- (6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.

Power / I/O cable length

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

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)	
1 ~ 3	1 ~ 3m	CB-EC-PWBIO□□□-RB supplied	CB-REC-PWBIO□□□-RB supplied
4 ~ 5	4 ~ 5m		
6 ~ 7	6 ~ 7m		
8	8m		

(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. 27 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	8m		

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

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	AC5	19
RCON-EC connection specification (Note 1)	ACR	19
Air purge joint specification (left)	APL	19
Air purge joint specification (right)	APR	19
Brake	B	19
Foot bracket	FT	19
Designated grease specification	G5	20
Non-motor end homing specification	NM	20
PNP specification	PN	20
Split motor and controller power supply specification	TMD2	20
Battery-less absolute encoder specification	WA	20
Wireless communication specification	WL	20
Wireless axis operation specification	WL2	20
Wiper seal mounted specification (Note 2)	WS	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) If the wiper seal specification (WS) is selected, the "Payload by Speed/Acceleration," "Stroke and Maximum Speed," and "Correlation between Push Force and Current Limit" will differ. Please refer to P. 17 for details.

Main Specifications

Item		Description				
Lead	Ball screw lead (mm)	24	16	8	4	
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s) (Note 1)	860 [640]	700 [560]	420 [350]	210 [175]
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
Push	Max. acceleration/deceleration (G)	1	1	1	1	
	Max. push force (N)	139	209	418	836	
Brake	Max. push speed (mm/s)	20	20	20	20	
	Brake specification	Non-excitation actuating solenoid brake				
Stroke	Brake holding force (kgf)	3	8	16	19	
	Min. stroke (mm)	50	50	50	50	
	Max. stroke (mm)	800	800	800	800	
	Stroke pitch (mm)	50	50	50	50	

(Note 1) Values in brackets [] are for the wiper seal mounted specification (WS) option.

Item		Description
Drive system		Ball screw ø12mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (not available due to 2-point positioning function)
Linear guide		Linear motion infinite circulating type
Allowable static moment		Ma: 17.7N-m
		Mb: 25.3N-m
		Mc: 34.9N-m
Allowable dynamic moment (Note 2)		Ma: 17.7N-m
		Mb: 25.3N-m
		Mc: 34.9N-m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Top cover	Material: Aluminum, black alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity		0~40°C, 85% RH or less (no condensation)
Ingress protection (Note 3)		IP43 [IP44]
Vibration & shock resistance		4.9m/s ²
Overseas standards		CE marking, RoHS directive
Motor type		Pulse motor (□56)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 2) Based on the standard rated operation life of 5000km. Operation life varies according to operating and mounting conditions. Please refer to service life on P. 33 of the EleCylinder Catalog V10.

(Note 3) Values in brackets [] are for the wiper seal mounted specification (WS) option.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 24 for details.

■ Energy-Saving Setting Disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

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

Lead 16

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

Lead 8

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

Lead 4

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

■ Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 24

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

Lead 16

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

Lead 8

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

Lead 4

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

Stroke and Maximum Speed

Lead (mm)	Energy-saving setting	50 to 600 (every 50mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	860				
	Enabled	800				
16	Disabled	700	685	605	535	
	Enabled	535				
8	Disabled	420	390	345	305	270
	Enabled	270				
4	Disabled	210	190	170	145	125
	Enabled	125				

(Unit: mm/s)

Correlation between Push Force and Current Limit

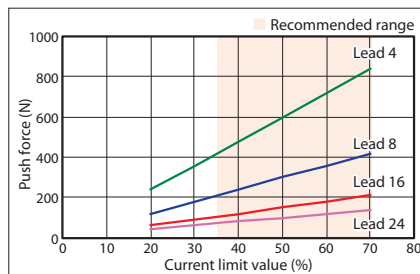


Table of Payload by Speed/Acceleration (Wiper Seal Mounted Specification) *Energy-saving setting disabled at shipping. Please refer to P. 24 for details.

■ **Energy-Saving Setting Disabled** The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal			
	Speed (mm/s)			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	37	22	16	14
200	37	22	16	14
420	34	20	16	14
640	20	15	10	9

Lead 16

Orientation	Horizontal			
	Speed (mm/s)			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	46	35	28	27
140	46	35	28	27
280	46	35	25	24
420	34	25	15	10
560	20	15	10	6

Lead 8

Orientation	Horizontal			
	Speed (mm/s)			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	51	45	40	40
70	51	45	40	40
140	51	40	38	35
210	51	35	30	24
280	40	28	20	15
350	30	9	4	

Lead 4

Orientation	Horizontal			
	Speed (mm/s)			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	51	45	40	40
35	51	45	40	40
70	51	45	40	40
105	51	45	40	35
140	45	35	30	25
175	30	18		

■ **Energy-Saving Setting Enabled (energy-saving mode)** The unit for payload is kg.

Lead 24

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

Lead 16

Orientation	Horizontal	
	Speed (mm/s)	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	35	20
140	35	20
280	25	12
420	15	6

Lead 8

Orientation	Horizontal	
	Speed (mm/s)	
Speed (mm/s)	Acceleration (G)	
	0.3	1
0	40	25
70	40	25
140	40	25
210	25	14

Lead 4

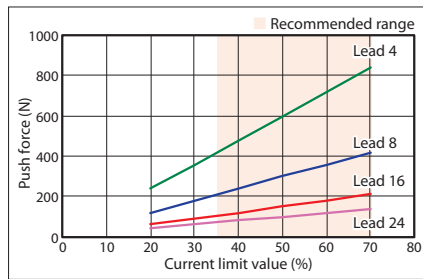
Orientation	Horizontal	
	Speed (mm/s)	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	40	30
35	40	30
70	40	30
105	40	30

Stroke and Maximum Speed (Wiper Seal Mounted Specific.)

Lead (mm)	Energy-saving setting	50 to 600 (every 50mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	640				
	Enabled	640				
16	Disabled	560				535
	Enabled	420				
8	Disabled	350	345	305	270	
	Enabled	210				
4	Disabled	175	170	145	125	
	Enabled	105				

(Unit: mm/s)

Correlation between Push Force and Current Limit (Wiper Seal Mounted Specific.)



Dimensions

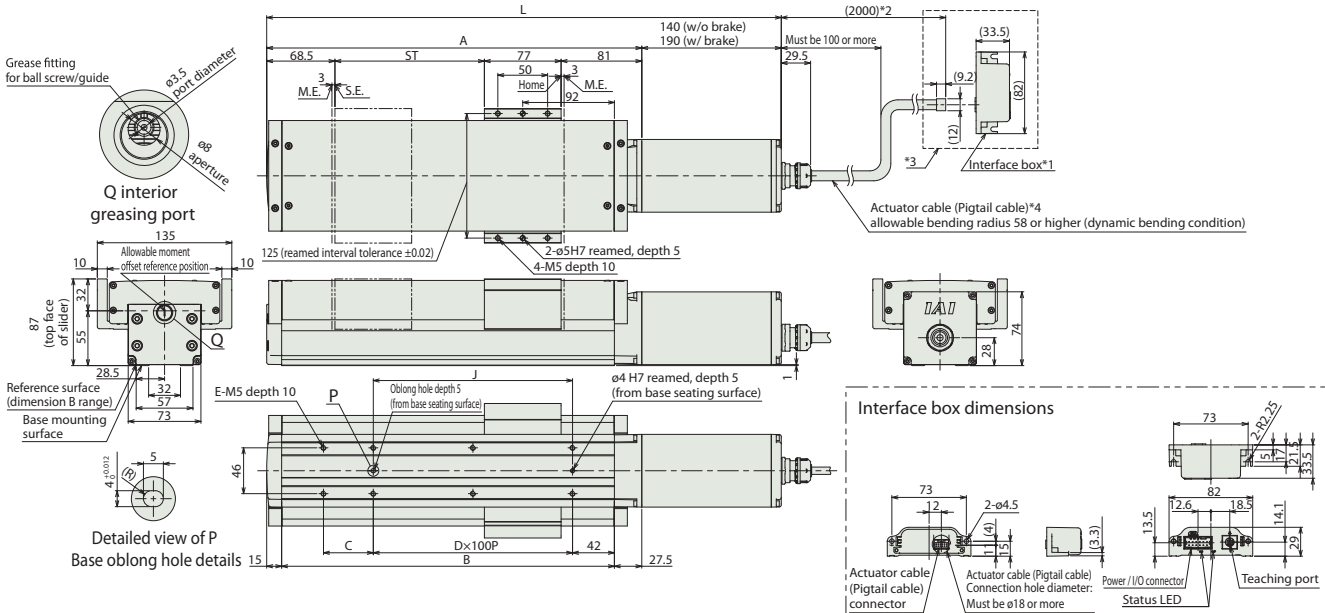
CAD drawings can be downloaded from our website.
www.elecylinder.de



■ EC-S7□W

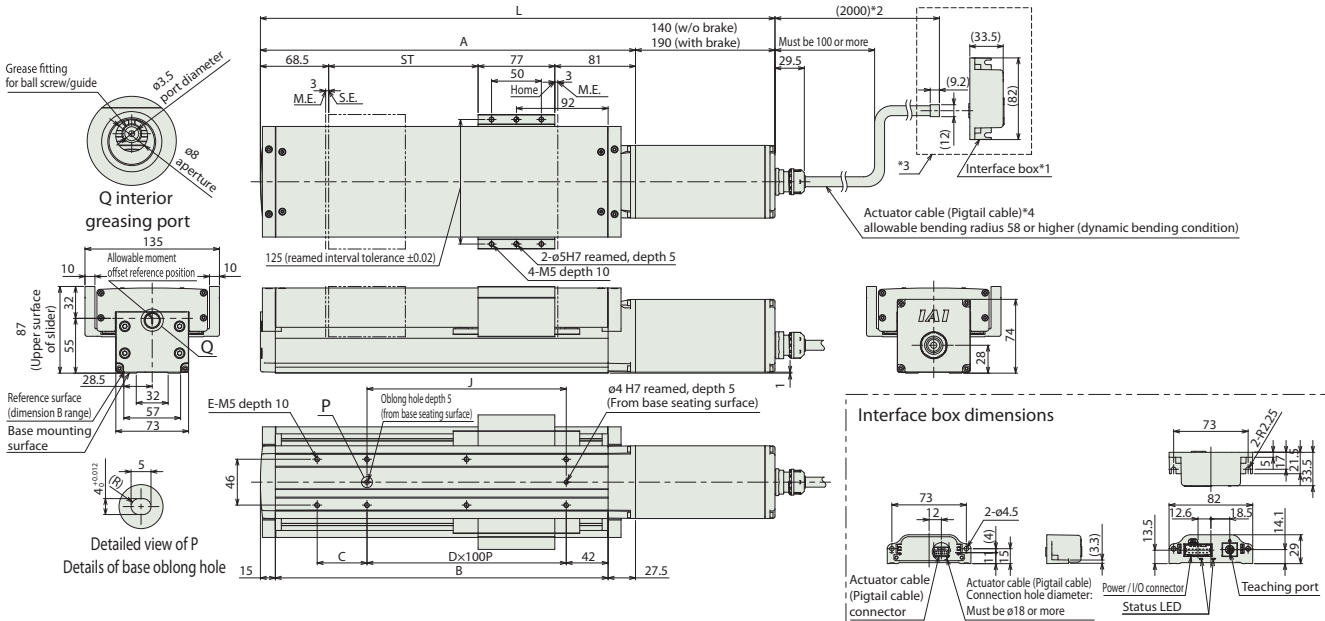
- *1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
 - *2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
 - *3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
 - *4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power / I/O cable is 10m or less.
- (Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ EC-S7□W (wiper seal mounted specification)

- *1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
 - *2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
 - *3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
 - *4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power / I/O cable is 10m or less.
- (Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



■ Dimensions by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
L	Without brake	416.5	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5
	With brake	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5	1216.5
A	276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5	776.5	826.5	876.5	926.5	976.5	1026.5	
B	234	284	334	384	434	484	534	584	634	684	734	784	834	884	934	984	
C	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	
D	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	
E	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	
J	100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900	

■ Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
Mass (kg)	Without brake	5.5	6.0	6.4	6.8	7.3	7.7	8.2	8.6	9.0	9.5	9.9	10.4	10.8	11.3	11.7	12.1
	With brake	6.1	6.6	7.0	7.4	7.9	8.3	8.8	9.2	9.6	10.1	10.5	11.0	11.4	11.9	12.3	12.7

Applicable Controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 26 for details on built-in controllers.

Options

Actuator cable (Pigtail cable) length: 5m

Model AC5 **Applicable models** All models

Description Although the standard length of the actuator cable (pigtail cable) is 2m, it can be changed to 5m as an option.
 * Make sure that the total length of the actuator cable (pigtail cable) and power · I/O cable is 10m or less.
 (If the 5m actuator cable (pigtail cable) option (AC5) is selected, the length of the power · I/O cable cannot exceed 5m.)

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)

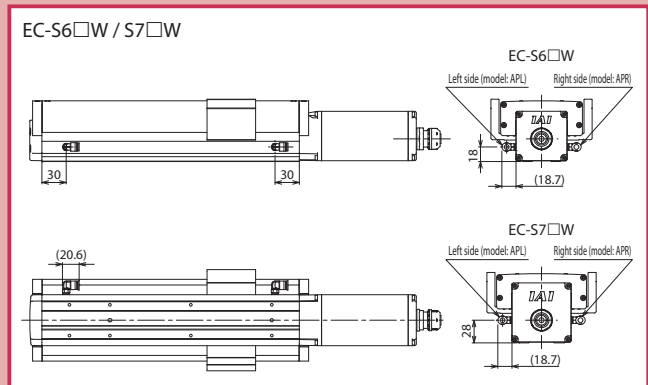
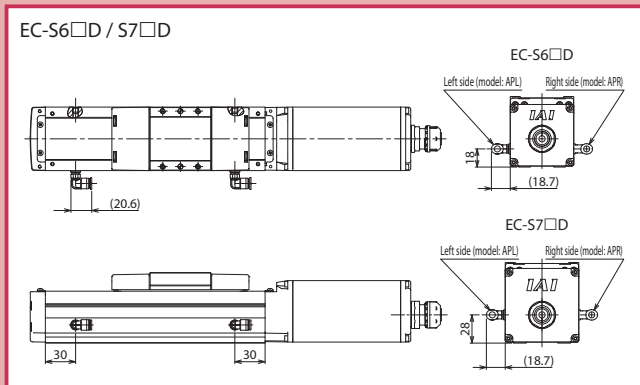
Model ACR **Applicable models** All models

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 a split motor and controller power supply and the input/output specification must be NPN.
 Therefore, it cannot be selected with the TMD2 or PN options.

Air purge joint specification

Model APL (left)/APR (right) **Applicable models** All models

Description The air purge joint is mounted to the side of the base.
 Purging air increases the internal pressure inside the actuator, which can help prevent foreign matter from entering.
 However, the IP rating will be the same.



Brake

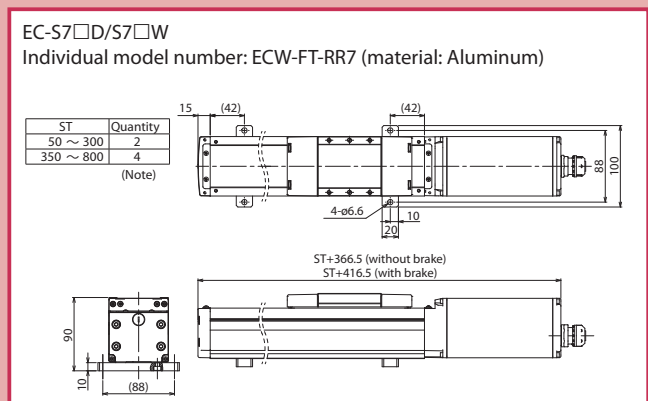
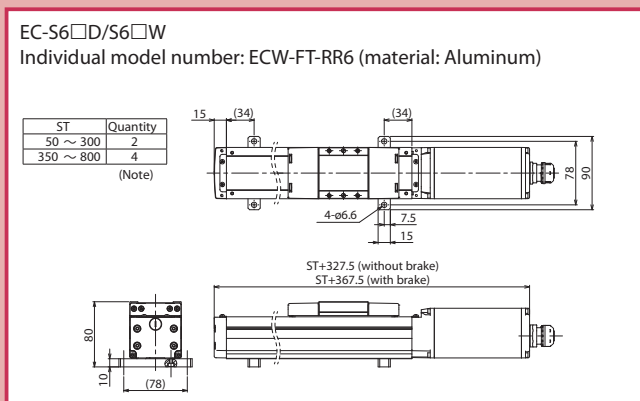
Model B **Applicable models** All models

Description This mechanism stops the slider from moving when the power or servo is turned off. This option is required when using the actuator vertically.

Foot bracket

Model FT **Applicable models** All models

Description This bracket is used for mounting the actuator body from the top with bolts.
 *Not assembled before shipment. Refer to the drawings for mounting instructions.



(Note) When mounting 4 items, be sure to mount them at intervals that are as equal as possible.

Designated grease specification

Model **G5** **Applicable models** All models

Description Replaces the standard grease applied to the actuator ball screw and linear guide with food grade grease (White Alcom Grease).

Non-motor end specification

Model **NM** **Applicable models** All models

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

PNP specification *Cannot be ordered with the ACR option, which is NPN specification.

Model **PN** **Applicable models** All models

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 specification is a split motor and controller power supply specification)

Model **TMD2** **Applicable models** All models

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. 27 for more information on wiring.

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 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** **Applicable models** All models

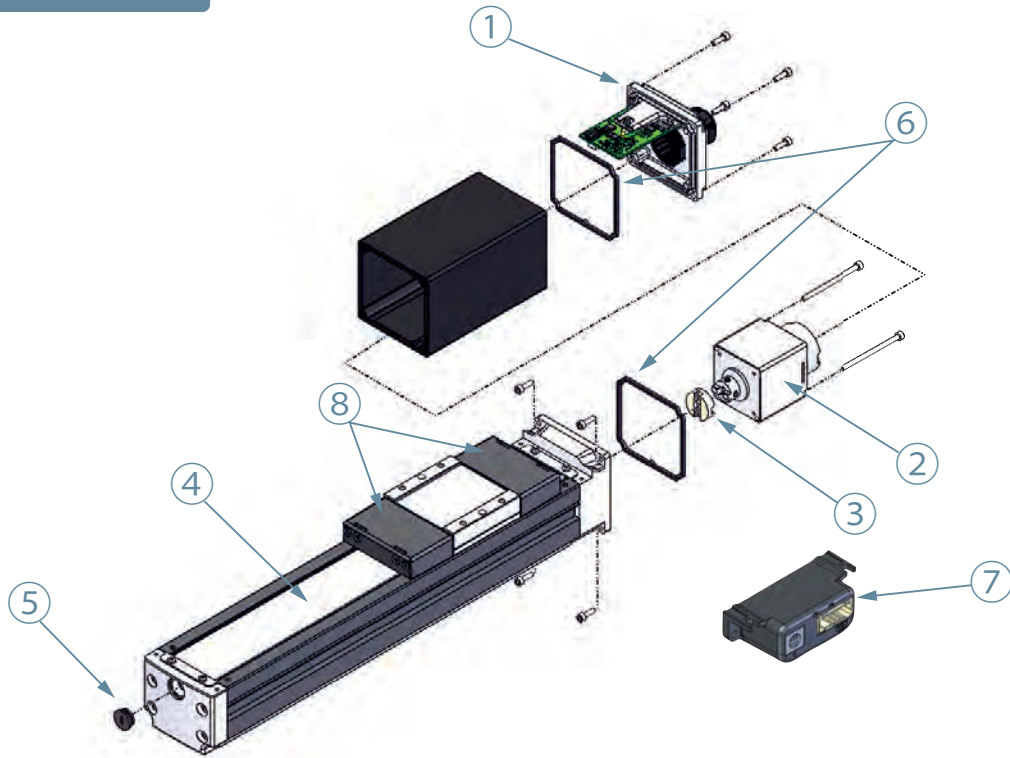
Description Specifying WL2 allows the product to operate wirelessly as with WL (start point, end point, and AVD adjustment), and also to perform axis travel operation tests (forward end/backward end movement, jog, and inching). However, this function is not meant to perform automatic operation. Refer to P. 118 of the of the EC main catalogue 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 more details.

Wiper seal mounted specification

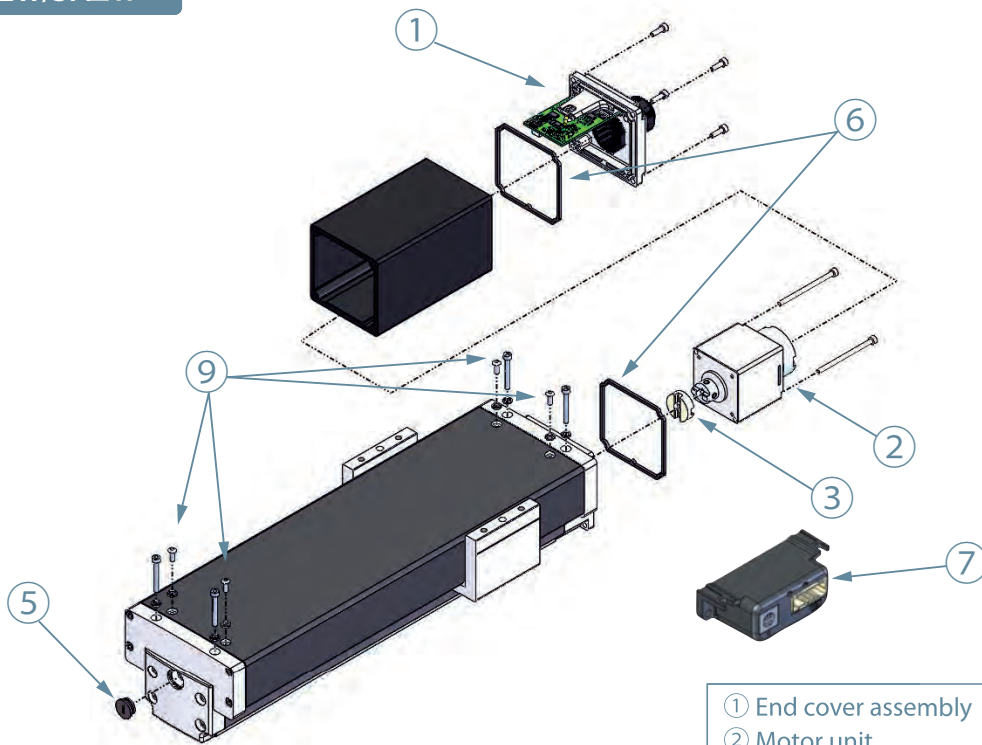
Model **WS** **Applicable models** EC-S6□W/S7□W

Description Wiper seals are mounted between the base and top cover. Wiper seals increase dust-proof and splash-proof performance, and can help prevent foreign matter from entering. Ingress protection will be IP44.

S6□D/S7□D



S6□W/S7□W



- ① End cover assembly
- ② Motor unit
- ③ Coupling spacer
- ④ Stainless steel sheet
- ⑤ Cap
- ⑥ Gasket (1 set of 2)
- ⑦ Interface box
- ⑧ Slider cover assembly (1 set of 2)
- ⑨ Seal washer

The numbers in the table correspond to the numbers in the schematics.
 (Note) Mounting screws are not included with maintenance parts. Please contact our sales department for modification purposes.

① -1 End cover assembly (same for WL specification*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D	2m (standard)	EWB-ECW-R6
S6□W	5m (AC5 option)	EWB-ECW-R6-AC5
S7□D	2m (standard)	EWB-ECW-R7
S7□W	5m (AC5 option)	EWB-ECW-R7-AC5

*Wireless communication circuit board is not included.

① -2 End cover assembly (wireless axis operation specification WL2*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D	2m (standard)	EWB-ECW-R6-WL2
S6□W	5m (AC5 option)	EWB-ECW-R6-AC5-WL2
S7□D	2m (standard)	EWB-ECW-R7-WL2
S7□W	5m (AC5 option)	EWB-ECW-R7-AC5-WL2

*Wireless communication circuit board is not included.

① -3 Split motor and controller power supply end cover assembly (same for WL specification*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D	2m (standard)	EWB-ECW-R6-TMD2
S6□W	5m (AC5 option)	EWB-ECW-R6-AC5-TMD2
S7□D	2m (standard)	EWB-ECW-R7-TMD2
S7□W	5m (AC5 option)	EWB-ECW-R7-AC5-TMD2

*Wireless communication circuit board is not included.

① -4 Split motor and controller power supply end cover assembly (wireless axis operation specification WL2*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D	2m (standard)	EWB-ECW-R6-TMD2-WL2
S6□W	5m (AC5 option)	EWB-ECW-R6-AC5-TMD2-WL2
S7□D	2m (standard)	EWB-ECW-R7-TMD2-WL2
S7□W	5m (AC5 option)	EWB-ECW-R7-AC5-TMD2-WL2

*Wireless communication circuit board is not included.

⑦ -1 Interface box

Type	Wireless	I/O	Model
S6□D	No	NPN	ECW-CVN-CB
S6□W		PNP	ECW-CVP-CB
S7□D	WL	NPN	ECW-CVNWL-CB
S7□W		PNP	ECW-CVPWL-CB

⑦ -2 Split motor and controller power supply interface box

Type	Wireless	I/O	Model
S6□D	No	NPN	ECW-CVN-CB-TMD2
S6□W		PNP	ECW-CVP-CB-TMD2
S7□D	WL	NPN	ECW-CVNWL-CB-TMD2
S7□W		PNP	ECW-CVPWL-CB-TMD2

⑦ -3 Split motor and controller power supply interface box

Type	Wireless	I/O	Model
S6□D	No	NPN_ REC	ECW-CVN-CB-ACR
S6□W			
S7□D			
S7□W	WL2		ECW-CVNWL-CB-ACR

② Motor unit

Type	Encoder	Brake	Model
S6□D S6□W	Incremental	No	EC-MUSR6
		Yes	EC-MUSR6-B
	Battery-less absolute	No	EC-MUSR6-WA
		Yes	EC-MUSR6-WA-B
S7□D S7□W	Incremental	No	EC-MUS7
		Yes	EC-MUS7-B
	Battery-less absolute	No	EC-MUS7-WA
		Yes	EC-MUS7-WA-B

③ Coupling spacer

Type	Model
S6□D S6□W	CPG-EC-SR6
S7□D S7□W	CPG-EC-SR7

④ Stainless steel sheet

Type	Model
S6□D	ST-EC-S6□W-○○○
S7□D	ST-EC-S7□W-○○○

*○○○ indicates the stroke

⑤ Cap

Type	Model
S6□D S6□W S7□D S7□W	RCP5W-CS-RA

⑥ Gasket (1 set of 2)

Type	Model
S6□D S6□W	ECW-GK-R6
S7□D S7□W	ECW-GK-R7

⑧ Slider cover assembly (1 set of 2)

Type	Model
S6□D	SC-ECW-S6
S7□D	SC-ECW-S7

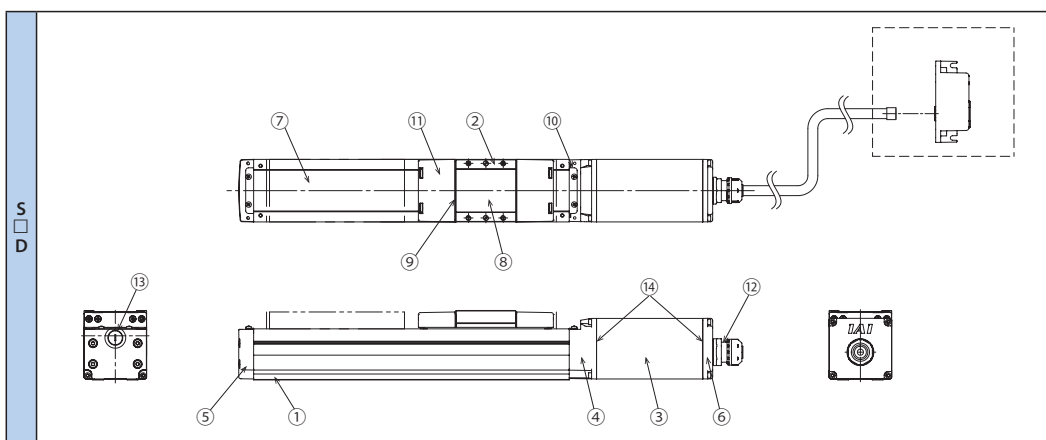
⑨ Seal washer

Type	Model
S6□W S7□W	RCP6W-SLW-RA4

Exterior Component Materials

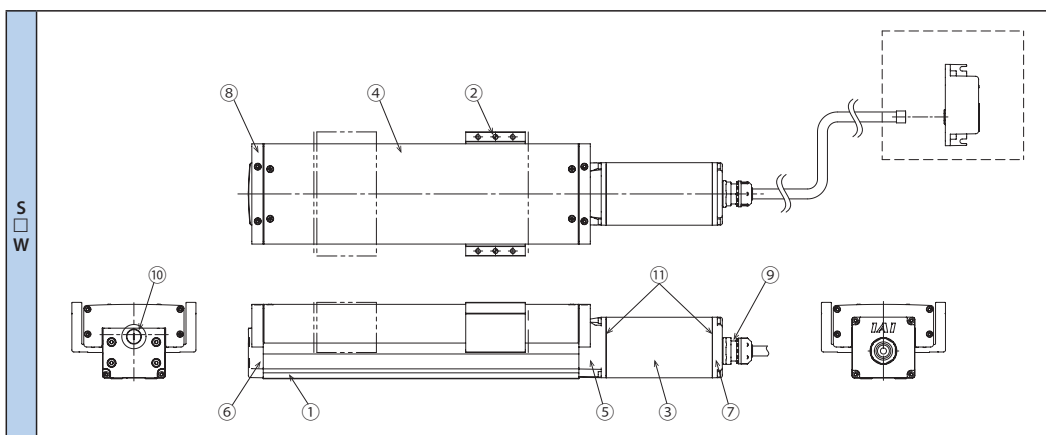
■ EC-S6□D/S7□D

	Item	Material	Treatment
Exterior components	① Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	② Slider	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	White alumite
	③ Motor cover	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	④ Bare housing	Aluminum die cast (ADC12)	
	⑤ Front bracket	Aluminum die cast (ADC12)	
	⑥ Motor end cover	Aluminum die cast (ADC12)	
	⑦ Stainless steel sheet	Special stainless steel	
	⑧ Sheet cover	Stainless steel (SUS304)	
	⑨ Gasket	NBR	
	⑩ Sheet retainer	Stainless steel (SUS304)	
	⑪ Slider cover	Resin (POM)	
	⑫ Cable clamp	Body: Resin (PA66), Seal: NBR	
	⑬ Cap	NBR	
	⑭ Gasket	NBR	



■ EC-S6□W/S7□W

	Item	Description	Treatment
Exterior components	① Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	② Slider	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	White alumite
	③ Motor cover	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	④ Top cover	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	⑤ Bare housing	Aluminum die cast (ADC12)	
	⑥ Front bracket	Aluminum die cast (ADC12)	
	⑦ Motor end cover	Aluminum die cast (ADC12)	
	⑧ End cover	Aluminum (A5052)	White alumite
	⑨ Cable clamp	Body: Resin (PA66), Seal: NBR	
	⑩ Cap	NBR	
	⑪ Gasket	NBR	

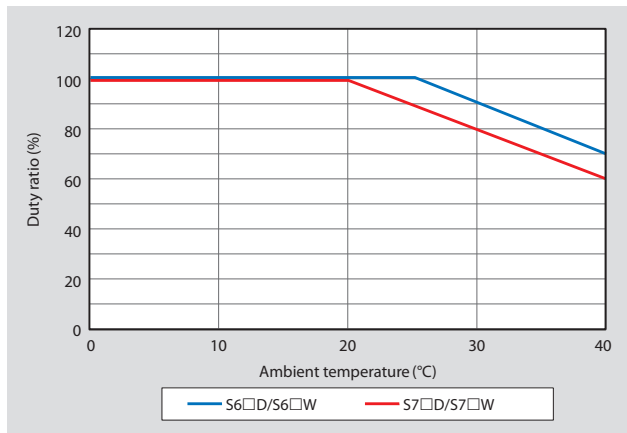


Duty Ratio

The duty cycle will be limited depending on operating conditions.

- EC-S6□D/S6□W: Duty ratio restricted to 70% in 40°C environments
- EC-S7□D/S7□W: Duty ratio restricted to 60% in 40°C environments

Ambient temperature and duty ratio



[Duty ratio]

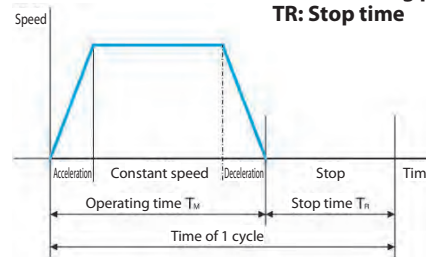
The duty ratio is the operating rate shown as the operating time of EleCylinder during one cycle, expressed as a percentage (%).

$$D = \frac{TM}{TM + TR} \times 100 (\%)$$

D: Duty ratio

TM: Operating time (including push-motion operation)

TR: Stop time



Push-motion Operation

Push-motion operation is a function that keeps the slider pressed up against a workpiece, 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.
- Check the push force for the applicable model in the "Correlation Diagrams between Push Force and Current Limit" on the product specification page, and select a model that matches your conditions.

[Lead selection method]

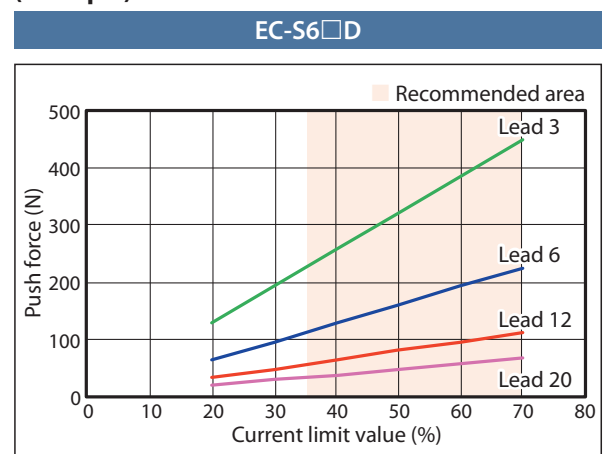
Select a lead with the desired push force in the recommended current limit value range (the colored area in the graph).

The 6mm lead would be appropriate for the EC-S6□D type shown in the figure to the right if a push force of 150N is desired. Selecting the 3mm lead would limit the adjustment range.

[Precautions]

If pushing with a slider type, the allowable dynamic moment of the guide will need to be taken into consideration. Be sure to limit the push current so that the reactive moment caused by the push force does not exceed the allowable dynamic moment (Ma, Mb) listed in the catalog.

(Example)



<Correlation Diagrams between Push Force and Current Limit>



Caution

- The "Correlation Diagrams between Push Force and Current Limit" shows lower guidelines for push force for each current limit value.
- Individual differences in the motor and variations in machine operation 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.

Energy-saving Setting

The "Energy-saving setting" of EleCylinder can be enabled/disabled using Parameter No. 8.

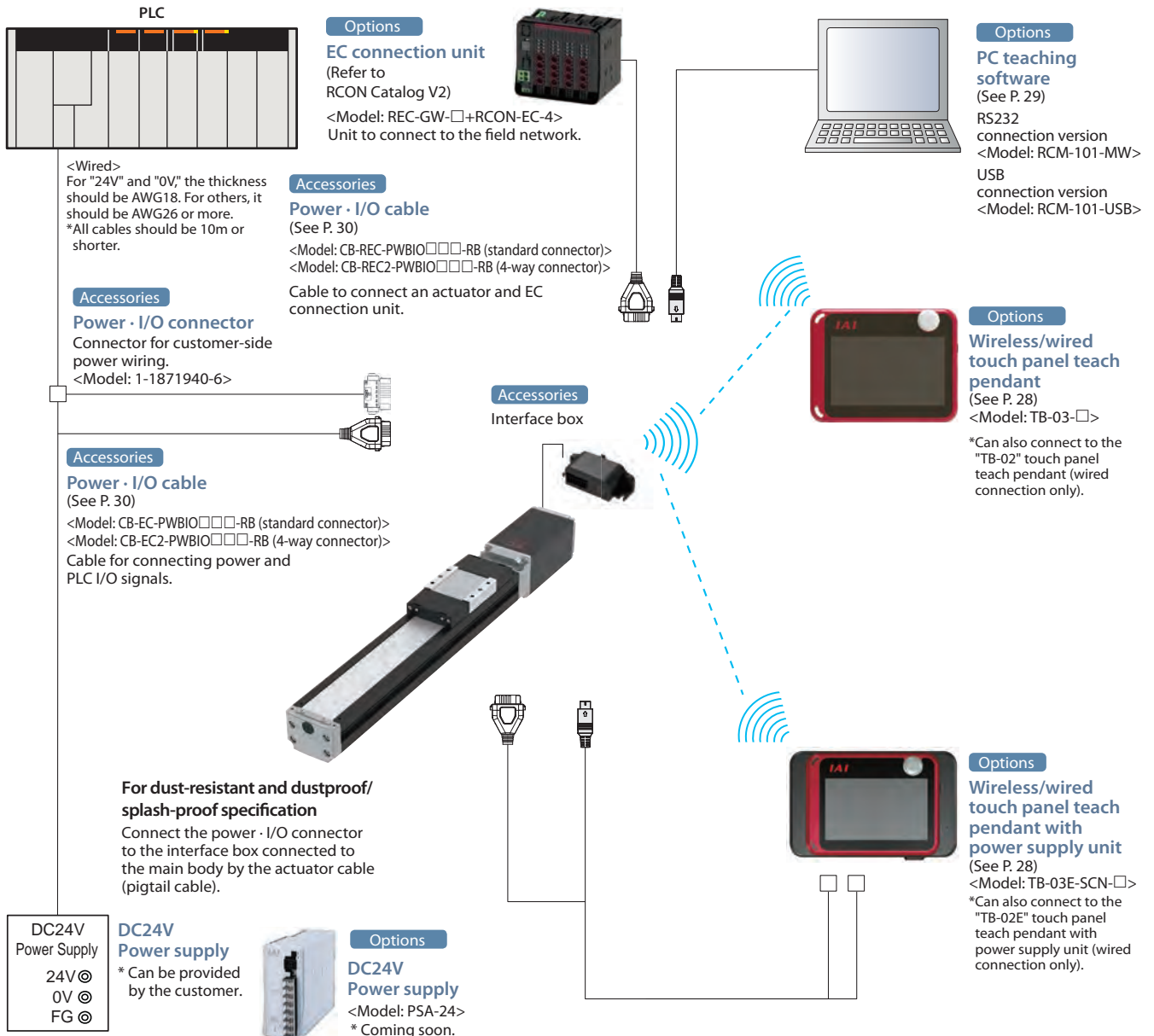
When enabled, the power consumption can be reduced by around 40% compared with normal operation.

However, the maximum speed, maximum acceleration/deceleration, and payload will be lower compared to standard operation.

Setting when shipped

Mode	Parameter status	Features
Standard mode	Energy-saving setting disabled	Higher performance
Energy-saving mode	Energy-saving setting enabled	Higher energy-saving

System Configuration



List of Accessories

■ Power · I/O Cables, Connectors

[Standard connector]

Product category		Accessories
Power · I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
0	None	power · I/O connector (1-1871940-6)
	Yes	—
1 to 8	None	Power · I/O cable (CB-EC-PWBIO□□□-RB)
	Yes	Power · I/O cable (CB-REC-PWBIO□□□-RB)

[Four-way connector]

Product category		Accessories
Power · I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
S1 ~ S8	None	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 (includes 0.3A controller power)	With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Max. 2.2A		
Brake release power supply	24VDC \pm 10%, 200mA (only for external brake release)		
Generated heat (at a 100% duty ratio)	8W		
Inrush current (Note 1)	8.3A (with inrush current limit circuit)		
Momentary power failure resistance	Max 500 μ s		
Motor size	□42, □56		
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/1 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/1 point
		Residual voltage	2V or less
Isolation method	Non-isolated		
Data setting, input method	PC teaching software, touch panel teaching pendant		
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 an overload warning occurs, the LED (right side) blinks alternately green and red. *Only when configured in advance		
Ambient operating temperature	0 ~ 40°C		
Ambient operating humidity	85% RH or less (no condensation or freezing)		
Operating atmosphere	Free from corrosive gases		
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 resistance of the power line.

Solenoid Logic

EleCylinder products normally use double solenoid programming logic.
Change parameter No. 9 ("solenoid valve type selection") to use single solenoid programming logic.

<Caution>

Single solenoid logic cannot be used when connecting to the 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/point
	ON/OFF voltage	ON voltage: MIN. 18VDC OFF voltage: MAX. 6VDC		Residual voltage	2V or less
	Leakage current	MAX. 1mA/point		Leakage current	Max. 0.1mA/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 the 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 Backward complete A3 Forward complete A4 Alarm output A5 (Reserved) A6</p> <p>B1 24V B2 Brake release B3 Backward command (Note 1) B4 Forward command (Note 1) B5 Alarm clear B6 (reserved)</p>	<p>Drive power and control power are separate for the TMD2 specification.</p> <p>0V A1 24V (control) A2 Backward complete A3 Forward complete A4 Alarm output A5 (Reserved) A6</p> <p>B1 24V (drive) B2 Brake release B3 Backward command (Note 1) B4 Forward command (Note 1) B5 Alarm clear B6 (reserved)</p>
I/O logic	NPN	<p>0V 24V</p> <p>(Note 1) Backward command B3 A3 Backward complete (Note 1) Forward command B4 A4 Forward complete Alarm clear B5 A5 Alarm output</p>	<p>0V 24V</p> <p>(Note 1) Backward command B3 A3 Backward complete (Note 1) Forward command B4 A4 Forward complete Alarm clear B5 A5 Alarm output</p> <p>B1 24V (drive) A2 24V (control)</p>
	PNP	<p>24V 0V</p> <p>(Note 1) Backward command B3 A3 Backward complete (Note 1) Forward command B4 A4 Forward complete Alarm clear B5 A5 Alarm output</p>	<p>24V 0V</p> <p>(Note 1) Backward command B3 A3 Backward complete (Note 1) Forward command B4 A4 Forward complete Alarm clear B5 A5 Alarm output</p> <p>B1 24V (drive) A2 24V (control)</p>

(Note 1) Switching to single solenoid logic 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 clear	RES	Clears the alarm
A3	Backward complete	LS0/PE0	Backward complete/pull 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 single solenoid logic 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 power, and A2 is 24V controller power for the split motor and controller power supply specification (TMD2).

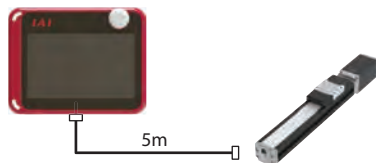
Options

Wireless/wired touch panel teach pendant

■ **Features** This teaching device supports wireless connection. 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



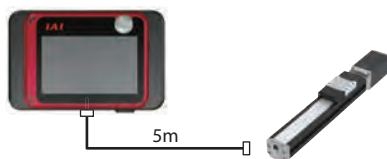
TB-03 Specifications

Power input voltage range	24VDC ±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 (no condensation or freezing)
Ambient operating humidity	5%RH ~ 85%RH (no condensation or freezing)
Ambient storage temperature	-20 ~ 40°C
Ingress protection	IPX0 (Not waterproof)
Mass	670g (body) + approx. 285g (dedicated cable)
Charging method	Wired connection with dedicated AC adapter/controller

Wireless/wired touch panel teach 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

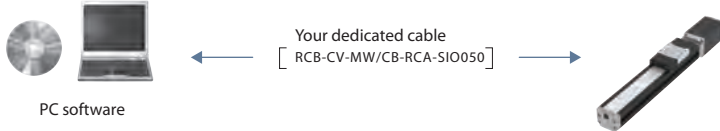
Rated input voltage	Single-phase 230VAC ±10%
Input current (Under rated I/O conditions in ambient temperature of 25°C)	0.6A typ. (230VAC)
Frequency range	50Hz ±5%
Power capacity (Under rated I/O conditions in ambient temperature of 25°C)	145VA (230VAC)
Output voltage	24VDC ±10%
Load current	With energy-saving 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 (no condensation or freezing)
Ambient operating humidity	5%RH ~ 85%RH (no condensation or freezing)
Ambient storage temperature	-20 ~ 70°C
Operating atmosphere	No corrosive gas or 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
Ingress protection	IP30
Mass	Approx. 740g
Cooling method	Natural air cooling

PC teaching software (Windows only)

- Features** This 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)

Configuration

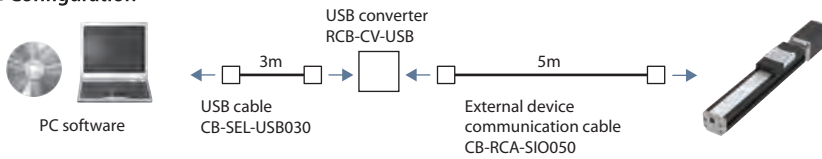


Supported Windows versions: 7/10



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

Configuration



24V power supply

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

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



Specifications Table

Item	Specifications
	230VAC input
Power input voltage range	230VAC ±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	33W (204W continuous rated) 54W (330W continuous rated)
Output voltage range*2	24V ±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.

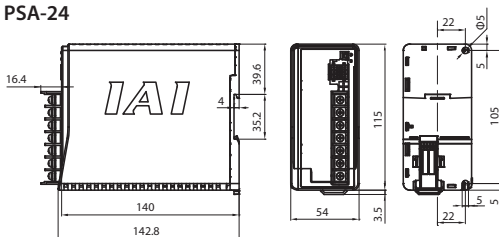
*2 In order to enable parallel operation, this power supply can vary the output voltage according to the load. The power supply unit is therefore for use with IAI controllers only.

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

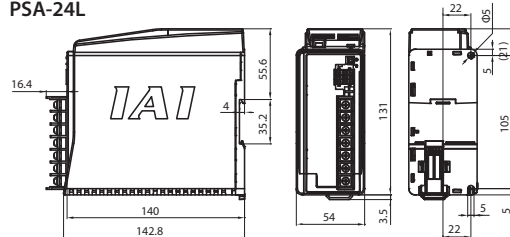
- Parallel connection of PSA-24 (specification without fan) and PSA-24L (specification with fan)
- Parallel connection with a power supply unit other than this power supply

External Dimensions

PSA-24



PSA-24L



Maintenance Parts

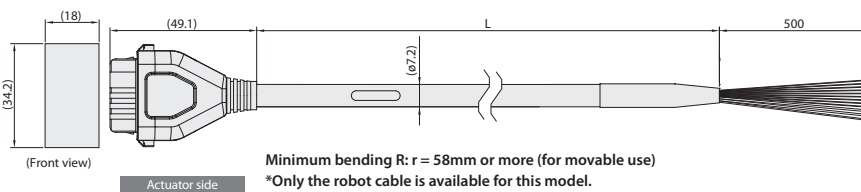
Please refer to the model numbers below when preparing a separate cable or replacing an existing cable.

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 □□□, maximum 9m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use)
*Only the robot cable is available for this model.

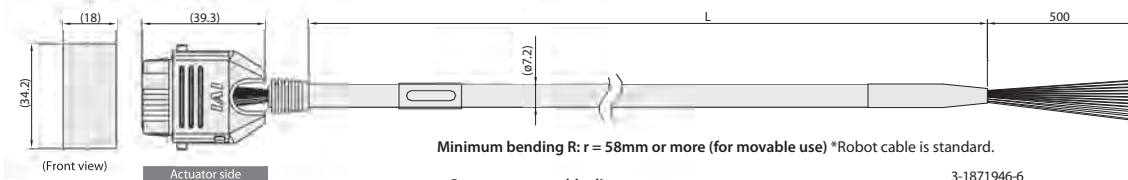
3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22) (Reserved) (Note 1)		A2
Orange (AWG26)	INO	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

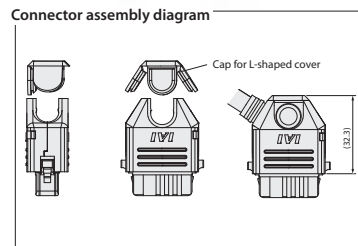
(Note 1) 24V (control) when split motor and controller power supply specification (TMD2) is selected.

Model **CB-EC2-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□, maximum 9m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use) *Robot cable is standard.



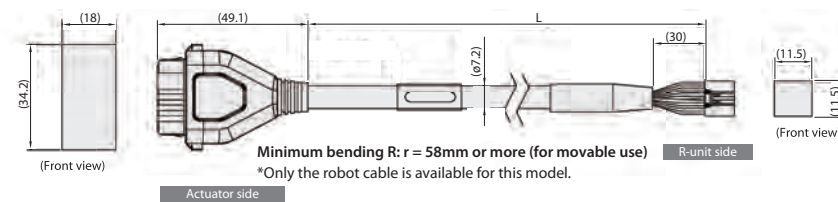
3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22) (Reserved) (Note 1)		A2
Orange (AWG26)	INO	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) is selected.

Model **CB-REC-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□, maximum 9m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use)
*Only the robot cable is available for this model.

3-1871946-6

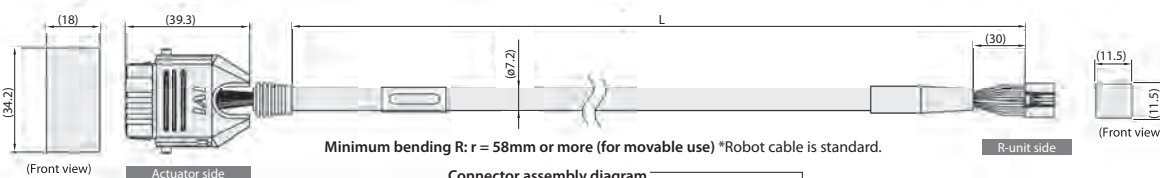
Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V (MP)	B1
Light blue (AWG22)	24V (CP)	A2
Orange (AWG26)	INO	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Yellow (AWG26)	SD+	B6
Light gray (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-135-2.2C(18)

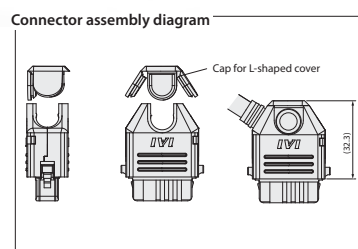
Pin No.	Signal name	Color
2	0V	Black (AWG18)
1	24V (MP)	Red (AWG18)
12	24V (CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Yellow (AWG26)
10	SD-	Light gray (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green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

Model **CB-REC2-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□, maximum 9m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use) *Robot cable is standard.



1-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V (MP)	B1
Light blue (AWG22)	24V (CP)	A2
Orange (AWG26)	INO	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Yellow (AWG26)	SD+	B6
Light gray (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-135-2C(18)

Pin No.	Signal name	Color
2	0V	Black (AWG22)
1	24V (MP)	Red (AWG22)
12	24V (CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Yellow (AWG26)
10	SD-	Light gray (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

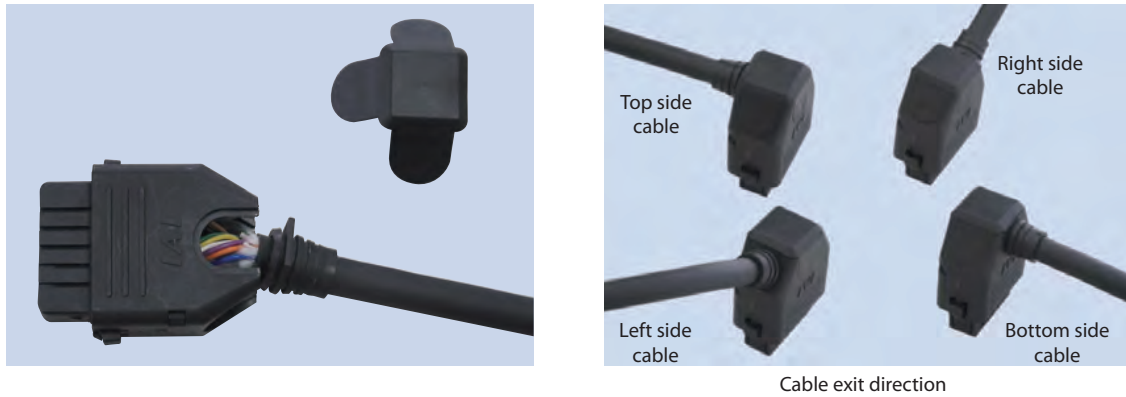
■ Four-way Connector Cable

This cable allows the cable exit direction from the connector to be set to any of 4 directions.

The cable management for the connector is the same as that of power · I/O cable CB-EC-PWBIO□□□-RB/CB-REC-PWBIO□□□-RB.

Model number: CB-EC2-PWBIO□□□-RB

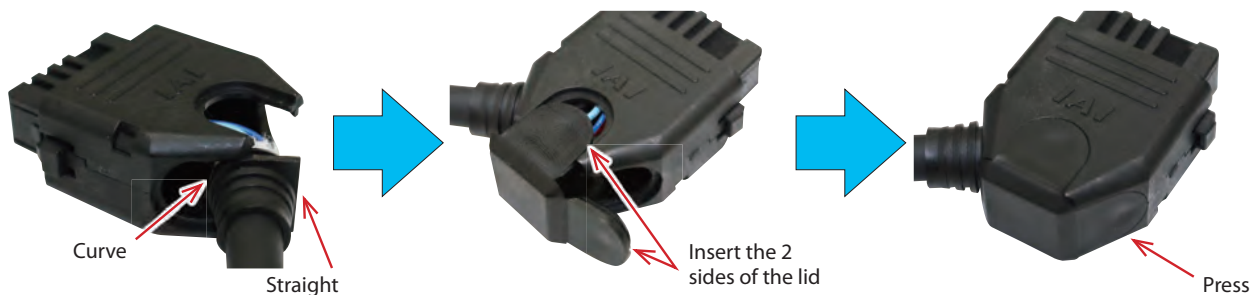
CB-REC2-PWBIO□□□-RB (RCON-EC connection specification)



- The wiring on the side opposite the connector is left unprepared (CB-EC2-PWBIO□□□-RB).
- The cable length may be from 1m to 8m long.
The length can be specified in 1m units.
- Example models are listed below.
 - Cable length 1m → CB-EC2-PWBIO010-RB
 - Cable length 3m → CB-EC2-PWBIO030-RB
 - Cable length 8m → CB-EC2-PWBIO080-RB

Follow the procedure below to assemble the connector in the desired direction.

- (1) Insert while sliding along the groove in the desired direction from the semi-cylindrical curved portion.
- (2) Confirm that the cable has been firmly inserted, and then insert the 2 sides of the lid along the groove.
- (3) Finally, press the remaining side of the lid.



REC Introducing REC

Connect EleCylinder to a field network (*)

This field network connection unit is specifically for use with EleCylinder.

It allows up to 16 axes of EleCylinder to be connected.

It is ideal for saving wiring and space inside the control panel.

*Select the RCON-EC connection specification (ACR) option to connect to a field network.

Max. **16 axes**

Compatible networks

- CC-Link
- CC-Link IE Field
- DeviceNet
- EtherNet/IP
- EtherCAT
- PROFIBUS
- PROFINET

REC

RCON-EC
(EC connection unit) =
4-axis specification x
4 units

Field network
communication cable



RCON-EC power / I/O cable



EleCylinder (built-in controller)

EC connection unit can also be connected to the RCON gateway

Connecting to the RCON allows the EleCylinders to be run alongside RoboCylinders and single axis robots.



➔ Refer to **R-unit** Catalog for details

**EC EleCylinder Series
Dust/Splash-proof Slider Type
Catalogue No. 1222-E**



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



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