IAI
Quality and Innovation

EC-(D)S□CR
(D)S□AHCR
(D)WS□CR

ELECYLINDER®
Cleanroom Specification

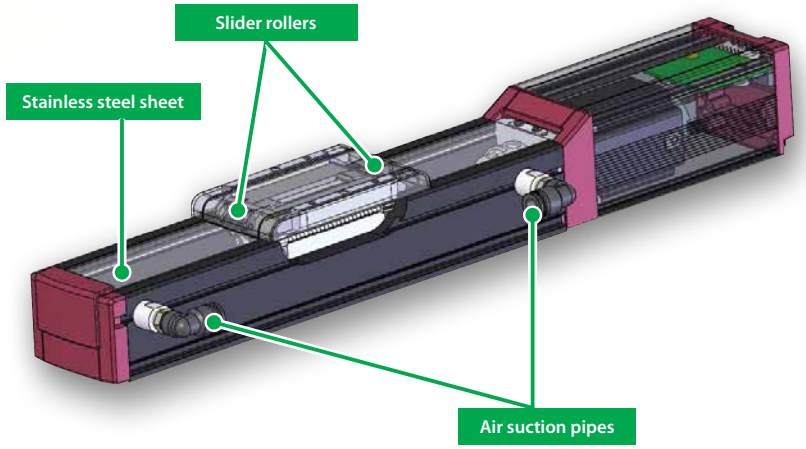
www.intelligentactuator.com

ELECYLINDER

Cleanroom Specifications

ISO Class 2.5/3 compliant (ISO 14644-1)

Most suitable for transfer tasks in the clean environment.

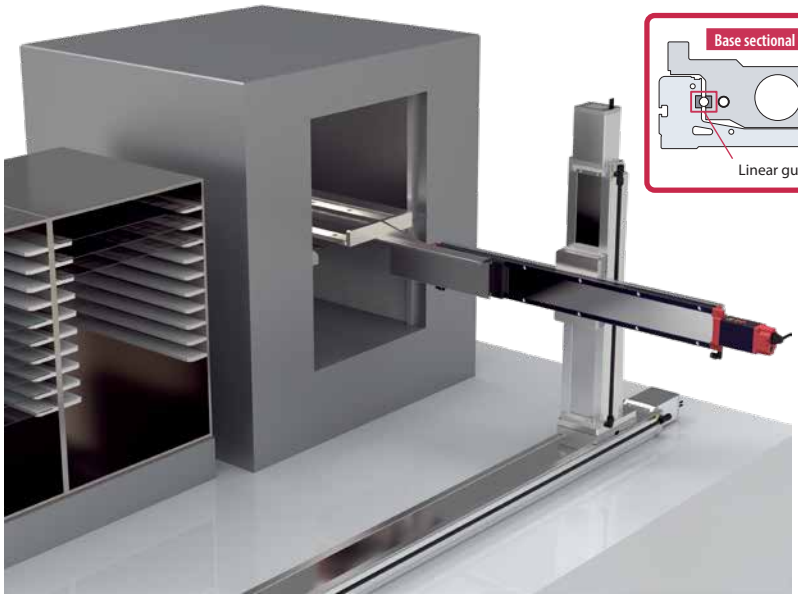


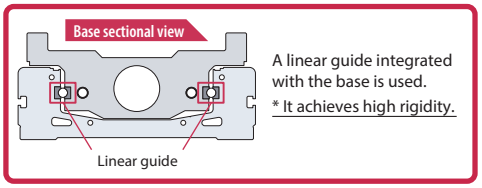
What is ISO Class 2.5?

This refers to an environment with 316 or fewer particles (0.1µm or larger) within an area of $1m^3$. (Refer to P. 45 for details on cleanliness.)

Wide Slider type

NEW The wide slider type supports high load moment and large overhang.





A linear guide integrated with the base is used.
* It achieves high rigidity.

Cleamroom ELECYLINDER product page to view the demo video:

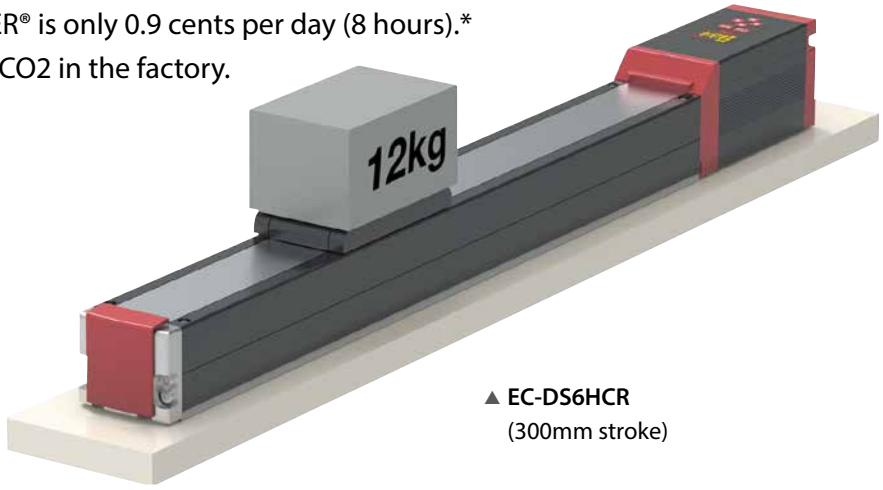
▲ **Coater device for glass substrates**
Y-axis: EC-DWS12MCR-800

2-point positioning | Built-in controller

Clean Room

Energy saving

Electric utility cost of ELECYLINDER® is only 0.9 cents per day (8 hours).*
It contributes to the reduction of CO2 in the factory.



▲ EC-DS6HCR
(300mm stroke)

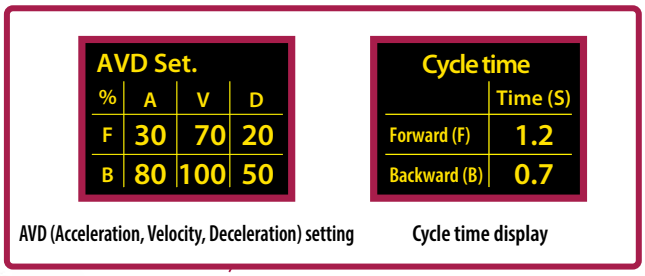
ELECYLINDER operating conditions	
Stroke	300mm
Speed	300mm/s
Acceleration/deceleration	1.0G
Payload	12kg
Duty ratio	10.0%
Cycle time	20s
Travel time	2s
Stopping time	18s
Power consumption	0.0065kWh
Unit cost for electricity	US$0.17/kWh*
Operating time	8 hours
Annual operating days	240 days

Annual Electric utility cost	US$212*
	0.065kWh/hr. x $0.17 x 8 hrs. x 240 days
CO_2 emission / year (Emission coefficient: 0.000445t-CO_2)	5.6kg-CO_2
	0.0065kwh/hr. x 0.445kg-CO_2/kWh x 8 hrs. x 240 days

*Based on our experiment data in Japan.
*Exchange Rate: 1 (USD) = 100 (Japanese Yen)

Easy set up

The keypad on the body top allows you to set the position, acceleration, speed and deceleration as well as to perform test runs.
It does not require a connection to a PC or teaching pendant, for ease-of-use on-site.



What can be done with the digital speed controller

* Basic setting (position, acceleration, speed and deceleration)
* Push setting (Ver. 1.40 or later)
* Retrieval of the present position data
* Trial operation
* Brake release
* Cycle time display
* Alarm reset
* Jogging motion
* Motor power ON/OFF
* Error display

Digital speed controller

Model Specification Items

ELECYLINDER® Slider type

EC - [ ] [ ] [ ] [ ] CR - [ ] - [ ] - [ ]

Series | Digital speed controller | Type | Lead | Specification | Stroke | Power / I/O cable length | Options

Digital speed controller	
Blank	Without digital speed controller
D	With digital speed controller

Type	
S3	Slider 35mm width
S4	Slider 44mm width
S6	Slider 63mm width
S7	Slider 73mm wide (75mm wide for high rigidity)

Specification	
Blank	Standard type
AH	High rigidity specification (6/7 size only)
CR	Cleanroom specification

Stroke	
50	50mm
↕	↕
800	800mm

(Every 50mm)

Power / I/O cable length	
0	Without cable Power I/O connector included (Note)
(S)1	1m
↕	↕
(S)10	10m

(Every 1m)

(S): 4-way connector cable
(Note) A power I/O connector is not included if RCON-EC connection specification (ACR) is selected

Options	
Left blank	Incremental encoder specification NPN specification, no options
ACR	RCON-EC connection specification*1
B	Brake
FT	Foot bracket (bolting from top)*2
MOB	Motor mounting direction change (bottom)*3
MOL	Motor mounting direction change (left)*3
MOR	Motor mounting direction change (right)*3
MOT	Motor mounting direction change (top)*3
NM	Non-motor end specification
PN	PNP specification*1
TMD2	Split motor and controller power supply specification*1
VR	Air suction joint in opposite position
WA	Battery-less Absolute Encoder specification
WL	Wireless communication specification
WL2	Wireless axis operation specification

*1 If "ACR" is selected, the "PN" and "TMD2" options cannot be selected.
*2 Cannot be selected for high-rigidity specification.
*3 Selection is possible (and required) only for (D)S3/(D)S4 types.

<(D)S3>

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

<(D)S4>

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

<(D)S6>

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

<(D)S7>

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

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

ELECYLINDER® Wide slider type

EC - [ ] [ ] [ ] CR - [ ] - [ ] - [ ]

Series | Digital speed controller | Type | Lead | Stroke | Power / I/O cable length | Options

Digital speed controller	
Blank	Without digital speed controller
D	With digital speed controller

Type	
WS10	Wide slider 100mm wide
WS12	Wide slider 120mm wide

Specification	
CR	Cleanroom specification

Power / I/O cable length	
0	Without cable Power I/O connector included (Note)
(S)1	1m
↕	↕
(S)10	10m

(Every 1m)

(S): 4-way connector cable
(Note) A power I/O connector is not included if RCON-EC connection specification (ACR) is selected

Options	
Left blank	Incremental encoder specification NPN specification, no options
ACR	RCON-EC connection specification*1
B	Brake
CS	**Air cylinder compatible mounting plate**
DL	**Digital speed controller mounting orientation (left side) *2**
DR	**Digital speed controller mounting orientation (right side) *2**
NM	Non-motor end specification
PN	PNP specification*1
TMD2	Split motor and controller power supply specification*1
VR	Air suction joint in opposite position
WA	Battery-less Absolute Encoder specification
WL	Wireless communication specification
WL2	Wireless axis operation specification

*1 If "ACR" is selected, the "PN" and "TMD2" options cannot be selected.
*2 For digital speed controller specification, make sure to select either one.

<(D)WS10>

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

<(D)WS12>

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

<(D)WS10>

Stroke	
50	50mm
↕	↕
500	500mm

<(D)WS12>

Stroke	
50	50mm
↕	↕
800	800mm

(Every 50mm)

List of specifications

Category	Type	Lead		Stroke (mm) and Max. speed (mm/s) * Band length=stroke *Numbers in band = Max. speed by stroke, Numbers in < > are when used vertically.																Max. payload		Reference page
		Model	mm	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	Horizontal	Vertical	
Slider type moment direction	(D)S3□CR	H	6	420			300	210	150											3.5	1.5	P7
		M	4	280			200	140	100											6	2.5	
		L	2	140			100	70	50											9	3.5	
	(D)S4□CR	S	16	800				760	540											7	1.5	P13
		H	10	700				470	320											12	2.5	
		M	5	350				240	160											15	5	
		L	2.5	175 <150>				120	85											18	6.5	
	(D)S6□CR	S	20	800						727	566									15	1	P19
		H	12	700					521	392	305									26	2.5	
		M	6	450				371	265	199	155									32	6	
		L	3	225				188	134	100	78									40	12.5	
	(D)S7□CR	S	24	860							774	619	506							37	3	P23
		H	16	700						631	492	395	323							46	8	
		M	8	420						322	251	200	164							51	16	
		L	4	210 <175>						163	126	101	83							51	19	
High rigidity slider type	(D)S6□AHCR	S	20	1350 <1120>									1280 <1120>	1090	940	815	715	630	560	15	1	P27
		H	12	900								845	705	585	515	445	390	345	315	26	2.5	
		M	6	450								415	350	295	255	220	190	170	140	32	6	
		L	3	225								205	170	145	125	110	95	85	70	40	16	
	(D)S7□AHCR	S	24	1230 <1080>												1080	950	840	750	37	3	P31
		H	16	980 <840>										955 <840>	820	715	625	555	495	46	8	
		M	8	420											405	350	310	275	245	51	16	
		L	4	210 <175>											195 <175>	175	150	135	120	51	25	
Wide slider type	(D)WS10□CR	S	20	900						800	700	600	480							4	—	P35
		H	12	640					560	480	400	320	280							15	—	
		M	6	400 <360>				360	270	210	180	140	120							25	4	
		L	3	160 <110>					135 <110>	110	80	70	60							44	7	
	(D)WS12□CR	S	24	900									800	700	580	500	460	400	360	10	—	P39
		H	16	720						640	580	500	420	360	320	280	240	220	200	20	—	
		M	8	420 <360>					360	280	250	220	190	170	150	130	110	90	85	40	8	
		L	4	210					180	140	125	110	95	85	75	65	55	50	45	62	13.5	

Energy saving setting

ELECYLINDER® can select enable and disable of the "Energy saving" in parameter (No. 8). * Except for the EC-(D)S3□CR.

Enable setting reduces power capacity by up to approx. 40% compared with the disable setting.
The max. speed, max. acceleration/deceleration and payload will become smaller than that for the disable setting.
Disable setting increases max. speed, max. acceleration/deceleration and payload compared with the enabled setting.
Refer to the "Payload Table by Speed and Acceleration" and "Stroke and max. Speed" table of each product's specification page.

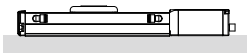
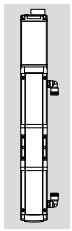
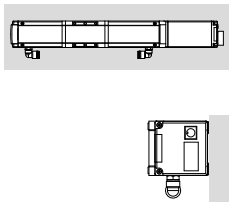
The product is set to disabled for shipment.

Setting for shipment

Mode	Parameter name/description	Features
Power mode	Energy saving disabled	High specification
Energy saving mode	Energy saving enabled	High energy saving effect

Mounting orientation

○: Can be mounted

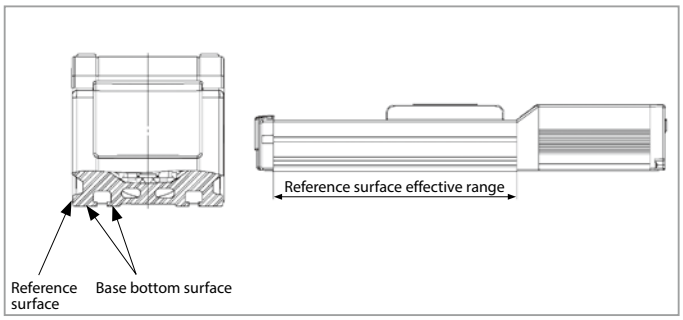
		Mounting orientation			
					
Series	Type	Horizontal mounting on flat surface	Vertical mounting	Horizontal mounting to side	Horizontal mounting suspended
EC	(D)S□CR	○	○*1 *2	○*3	○*3
	(D)S□AHCR				
	(D)WS□CR	○	○*1 *2 *4 *5	○*3 *4	○*3 *4

*1 When mounting vertically, make sure to install the motor on the top.
Installing with the motor on the bottom could cause grease to separate and base oil to leak into the motor, which could cause controller or motor encoder failure.
It is therefore not recommended to install the motor on the bottom side.
*2 If installing with the motor on the top, attach a cap to the teaching port. It could cause failure if foreign matter becomes clogged.
*3 Installing the product horizontal to side or horizontal suspended may cause slack or misalignment in the stainless steel sheet.
Continuing to use it this way could cause the stainless steel sheet to break. Please inspect it daily and adjust the sheet if any slack or misalignment is found.
*4 Cannot be selected for air cylinder compatible mounting plate (CS) option.
*5 Does not support leads S and H.

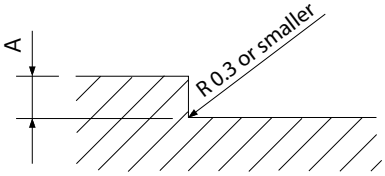
Notes on mounting

●Flatness of the main body mounting surface and workpiece mounting surface should be 0.05mm/m or smaller. Inadequate flatness increases sliding friction, causing malfunction.

●The bottom surface and the left side (when viewed from the opposite side of the motor) of the main body base are the reference surfaces for the slider travel accuracy. When travel accuracy is needed, mount the main body using each surface as a reference.



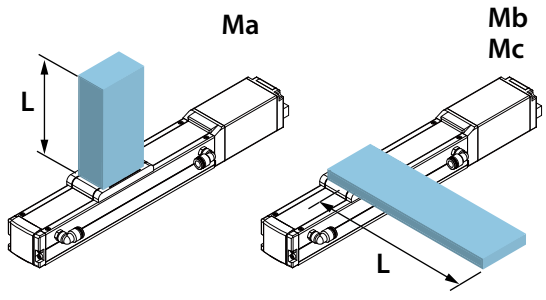
When mounting using the side surface as reference, machining of the surfaces should be done according to the drawing below.



Type	A dimension (mm)
(D)S□CR	2~4
(D)S□AHCR	
(D)WS□CR	3~5

Overhang load length

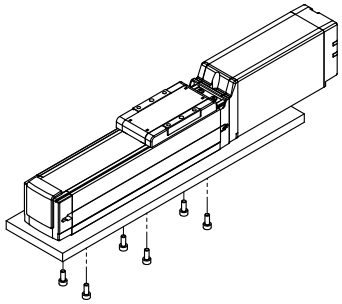
This is the guideline of offset lengths for smooth operation of the actuator, when a workpiece or a bracket is mounted offset from the actuator slider. If the offset length greatly exceeds the guideline, it may cause failure due to vibration and the like. Use the product within the offset length shown in the guideline.

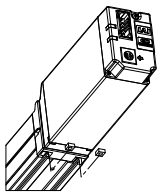


Mounting Method

Slider type: (D)S3□CR / (D)S4□CR

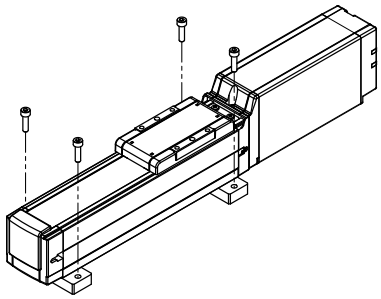
■Using T slot on the base bottom surface





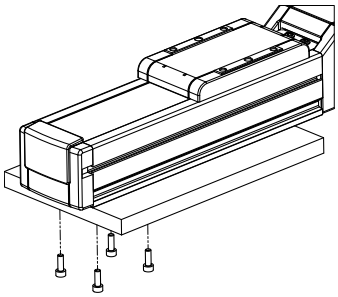
[Supplied items]
Square nut … 6 pieces
Square nut holder … 6 pieces
(for tightening the square nuts)

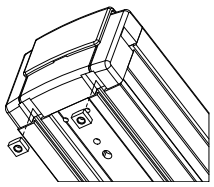
■Using foot brackets (option code: FT)



Slider type: (D)S6□CR / (D)S7□CR

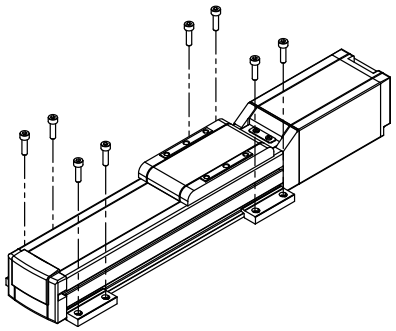
■Using T slot on the base bottom surface





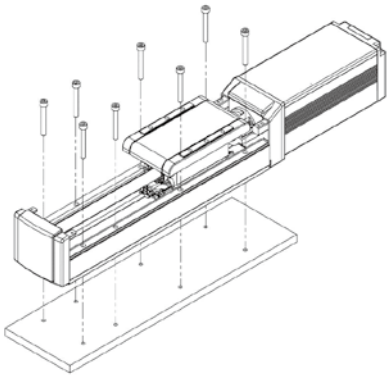
[Supplied items]
Square nut … 6 pieces
Square nut holder … 6 pieces
(for tightening the square nuts)

■Using foot brackets (option code: FT)

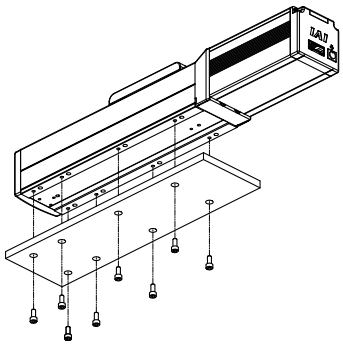


High rigid slider type: (D)S6□AHCR / (D)S7□AHCR

■Using through holes of the base

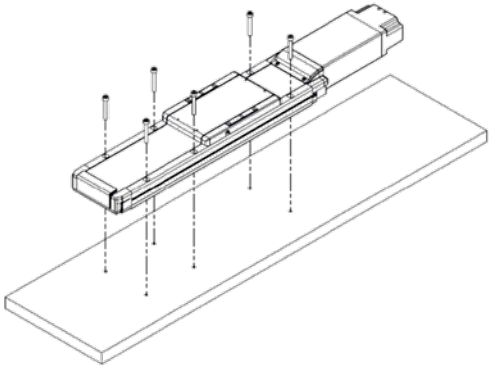


■Using screw holes of the base bottom surface



Wide slider type: (D)WS10□CR / (D)WS12□CR

■Using through holes of the base

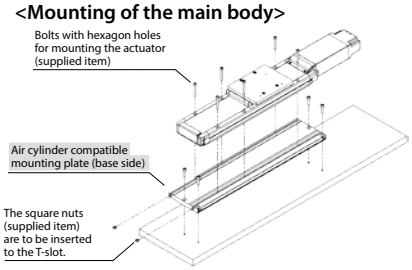


■Using the air cylinder compatible plate

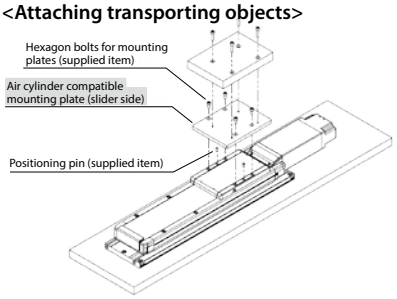
When the optional "air cylinder compatible mounting plate (type: CS)" is selected, plates to be mounted on the slider and base sides are included.
The mounting holes, positions and main body height can be aligned with some types of rod-less air cylinders (*)

* Contact IAI representatives for details.

<Mounting of the main body>



<Attaching transporting objects>



●Notes
• When optional "air cylinder compatible mounting plate (CS)" is selected, the payload will be reduced by 1 kg.
• Vertical, side and ceiling mounting are not possible.

EC-S3□CR
EC-DS3□CR

<With digital speed controller>

Cleanroom Spec | Coupled Motor | Body Width 40 mm | 24v Stepper Motor

Model Specification Items

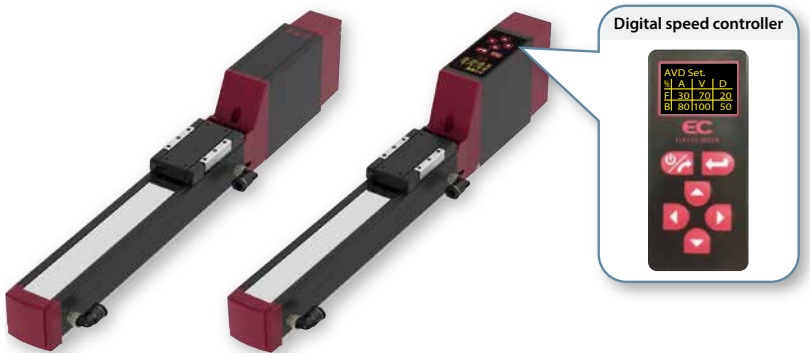
EC - [Series] - [Type] [Lead] - CR - [Specification] - [Stroke] - [Power / I/O cable length] - [Options]

Type		Lead		Specification	
S3	Standard	H	6mm	CR	Cleanroom specification
DS3	Digital speed controller	M	4mm		
		L	2mm		

Stroke	
50	50mm
↕	↕
300	300mm (Every 50mm)

Power / I/O cable length: See power / I/O cable length below

Options: See options below



Horizontal | Vertical | Side | Ceiling

EC-S3□CR EC-DS3□CR

(Note) The photos above are for motor installed on top (MOT).

Stroke

Stroke (mm)	S3□CR	DS3□CR	Stroke (mm)	S3□CR	DS3□CR
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Foot bracket	**FT**	44
Motor mounting direction change (bottom) (Note 2)	**MOB**	44
Motor mounting direction change (left) (Note 2)	**MOL**	44
Motor mounting direction change (right) (Note 2)	**MOR**	44
Motor mounting direction change (up) (Note 2)	**MOT**	44
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
split motor and controller power supply specification	**TMD2**	44
Suction joint on the opposite side	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

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

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and max. Speed" of the desired stroke.
(2) "Main Specifications" displays the payload's maximum value. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values. Please refer to P. 46 of the ELECYLINDER® General Catalog 2020 for precautions.
(4) Pay close attention to the installation orientation.
Please refer to P. 5 for details.
(5) Reference value of the overhang load length is under 100mm in the Ma, Mb, and Mc directions. Refer to P. 5 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is included. Please refer to P. 51 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	3.5	6	9
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push		Max. push force (N)	45	68	136
		Max. push speed (mm/s)	20	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 6)	40	35	35
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

(Note 6) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw □6mm rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 9.5N·m
	Mb: 13.5N·m
	Mc: 15.1N·m
Dynamic allowable moment (Note 7)	Ma: 3.8N·m
	Mb: 5.4N·m
	Mc: 6.1N·m
Cleanliness	ISO Class 3 (ISO 14644-1 standard)
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	Stepper motor (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

Slider type moment direction

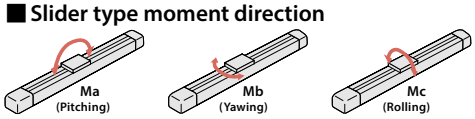


Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

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

Lead 4

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

Lead 2

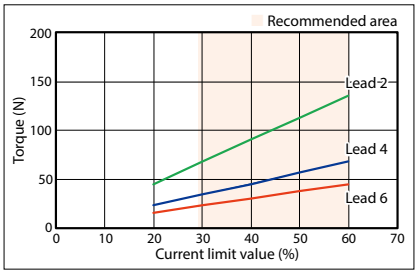
Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	9	3.5
40	9	3.5
70	9	3.5
85	9	3.5
105	9	3.5
120	9	3
140	8	2.5

Stroke and Max Speed

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

(Unit: mm/s)

Correlation between Torque and Current Limit



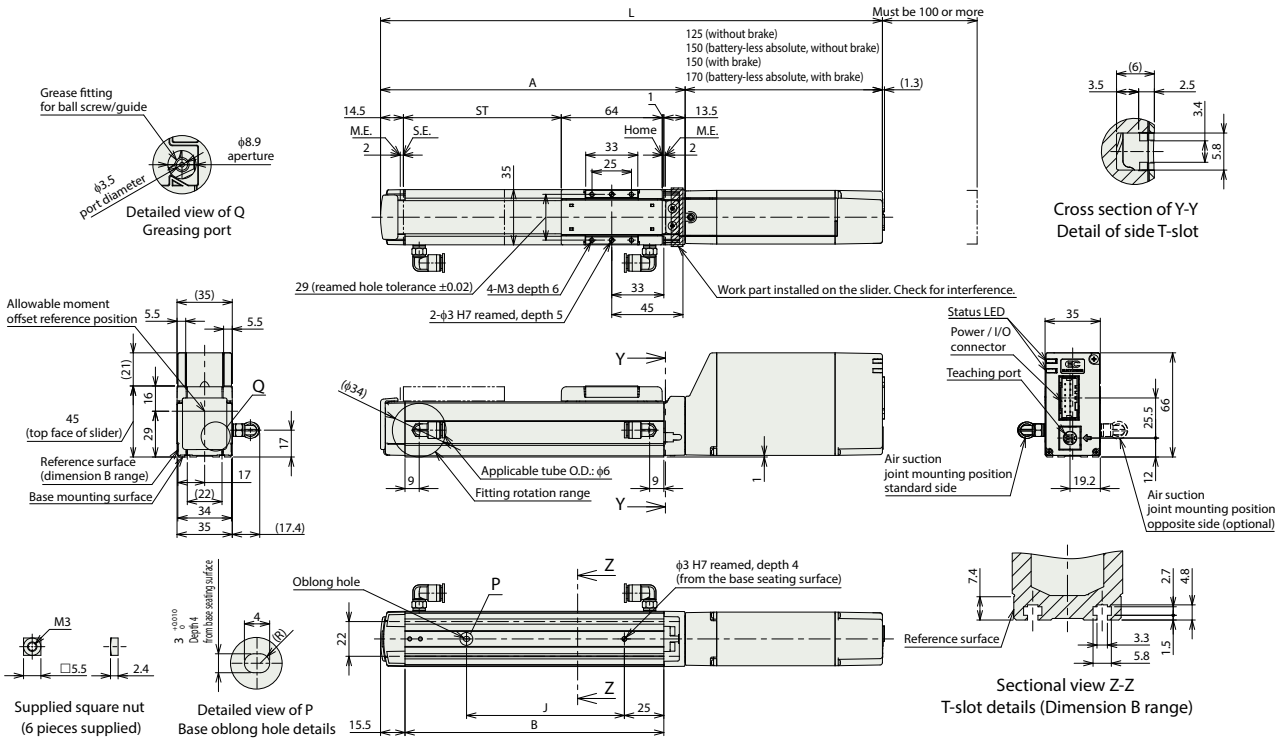
Dimensions

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

■EC-S3□CR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).
(Note) The figures below are for motor installed on top (MOT).

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



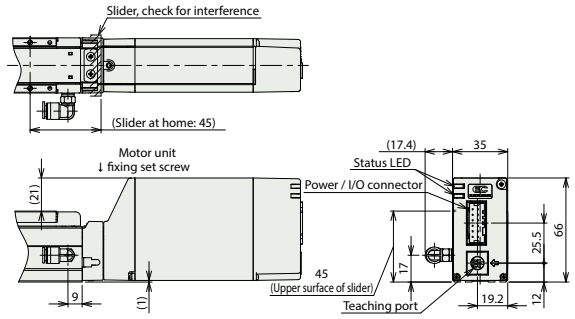
■Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	268	318	368	418	468	518
		With brake	293	343	393	443	493	543
	Battery-less absolute	Without brake	293	343	393	443	493	543
		With brake	313	363	413	463	513	563
A			143	193	243	293	343	393
B			114	164	214	264	314	364
J			50	100	150	200	250	300

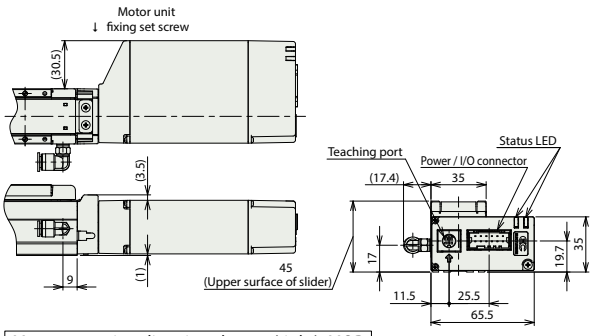
■Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.7	0.8	0.9	1.0	1.1	1.2
	With brake	0.8	0.9	1.0	1.1	1.2	1.3

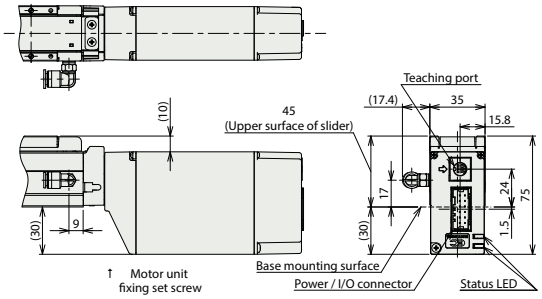
■ Motor mounting direction change (option)



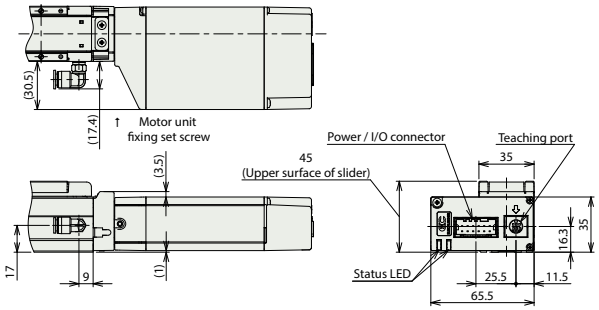
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB

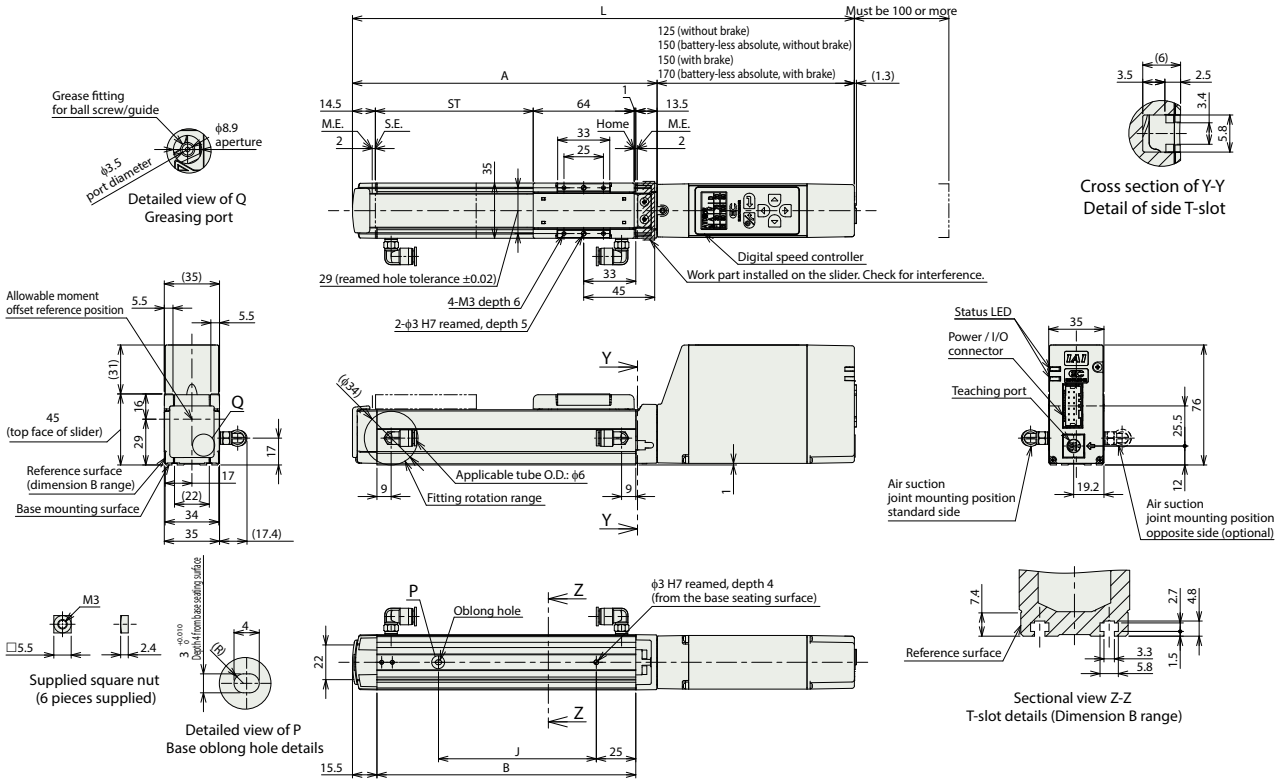


Motor mounting direction change (left): MOL

■ EC-DS3□CR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).
(Note) The figures below are for motor installed on top (MOT).

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



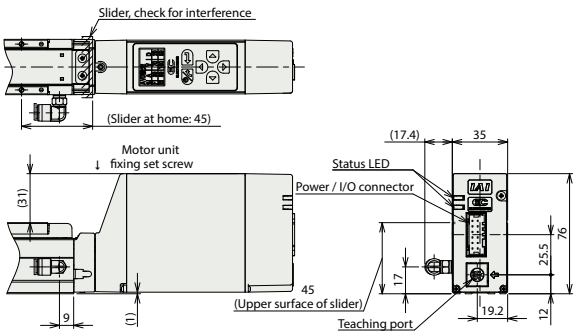
■ Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	268	318	368	418	468	518
		With brake	293	343	393	443	493	543
	Battery-less absolute	Without brake	293	343	393	443	493	543
		With brake	313	363	413	463	513	563
A			143	193	243	293	343	393
B			114	164	214	264	314	364
J			50	100	150	200	250	300

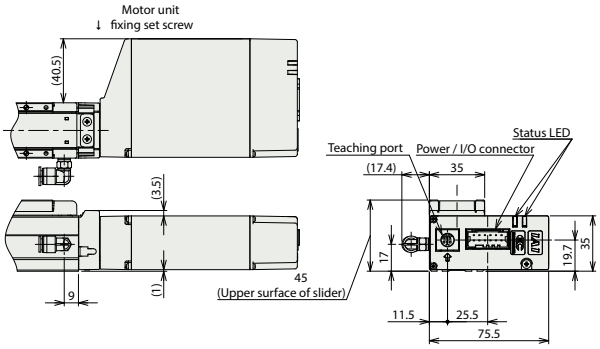
■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.8	0.9	1.0	1.1	1.2	1.3
	With brake	0.9	1.0	1.1	1.2	1.3	1.4

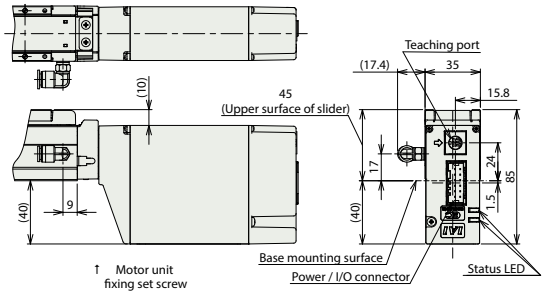
■ Motor mounting direction change (option)



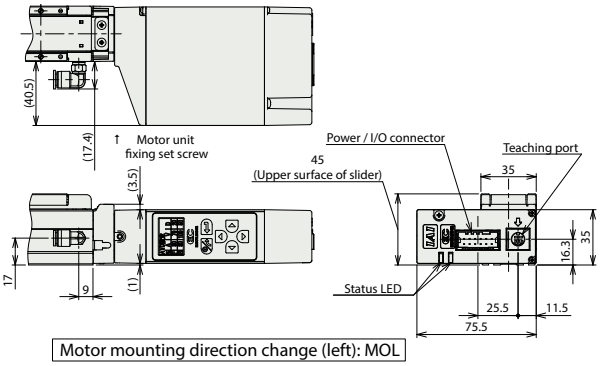
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB



Motor mounting direction change (left): MOL

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

EC-S4□CR
EC-DS4□CR

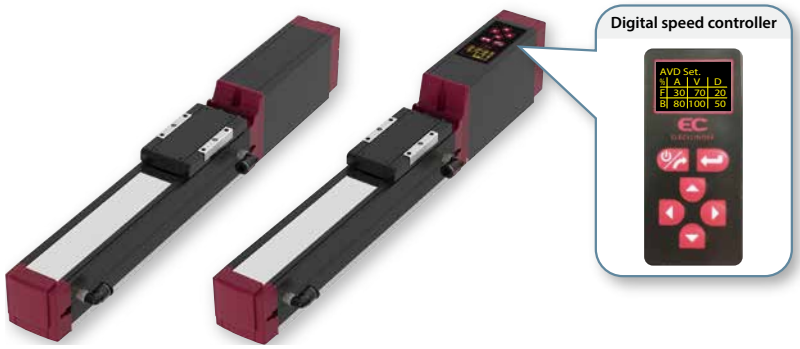
<With digital speed controller>

Cleanroom Spec | Coupled Motor | Body Width 40 mm | 24v Stepper Motor

Model Specification Items

EC - [Series] - [Type] [Lead] - CR - [Specification] - [Stroke] - [Power / I/O cable length] - [Options]

Series	Type		Lead		Specification		Stroke		Power / I/O cable length	Options
	S4	Standard	S	16mm	CR	Cleanroom specification	50	50mm	See power / I/O cable length below	See options below
	DS4	Digital speed controller	H	10mm			↕	↕		
			M	5mm			300	300mm (Every 50mm)		
			L	2.5mm						



EC-S4□CR EC-DS4□CR

Horizontal | Vertical | Side | Ceiling

(Note) The photos above are for motor installed on top (MOT).

Stroke

Stroke (mm)	S4□CR	DS4□CR	Stroke (mm)	S4□CR	DS4□CR
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Foot bracket	**FT**	44
Motor mounting direction change (bottom) (Note 2)	**MOB**	44
Motor mounting direction change (left) (Note 2)	**MOL**	44
Motor mounting direction change (right) (Note 2)	**MOR**	44
Motor mounting direction change (up) (Note 2)	**MOT**	44
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
split motor and controller power supply specification	**TMD2**	44
Suction joint /suction tube joint on the opposite side	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

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

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.
(2) "Main Specifications" displays the payload's maximum value. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values. Please refer to P. 46 of the ELECYLINDER® General Catalog 2020 for precautions.
(4) Pay close attention to the installation orientation.
Please refer to P. 5 for details.
(5) Reference value of the overhang load length is under 150mm in the Ma, Mb, and Mc directions. Refer to P. 5 for the overhang load length.
(6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 51 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	12	15	18
		Max. payload (kg) (energy-saving enabled)	4	10	12	14
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	41	66	132	263
		Max. push speed (mm/s)	40	30	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 6)	40	30	25	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

(Note 6) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw □8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 13.0N·m
	Mb: 18.6N·m
	Mc: 25.3N·m
Dynamic allowable moment (Note 7)	Ma: 5.0N·m
	Mb: 7.1N·m
	Mc: 9.7N·m
Cleanliness	ISO Class 3 (ISO 14644-1 standard)
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	Stepper motor (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

Slider type moment direction

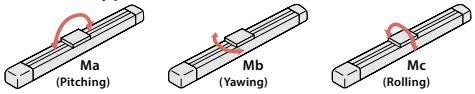


Table of Payload by Speed/Acceleration *The product is set to disabled for shipment. Refer to P. 4 for details.

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

Lead 16

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

Lead 10

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

Lead 5

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

Lead 2.5

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

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

Lead 16

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

Lead 10

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

Lead 5

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

Lead 2.5

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

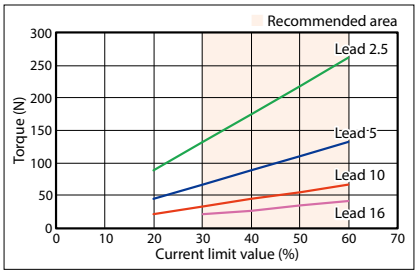
Stroke and Max Speed

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

(Unit: mm/s)

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

Correlation between Torque and Current Limit



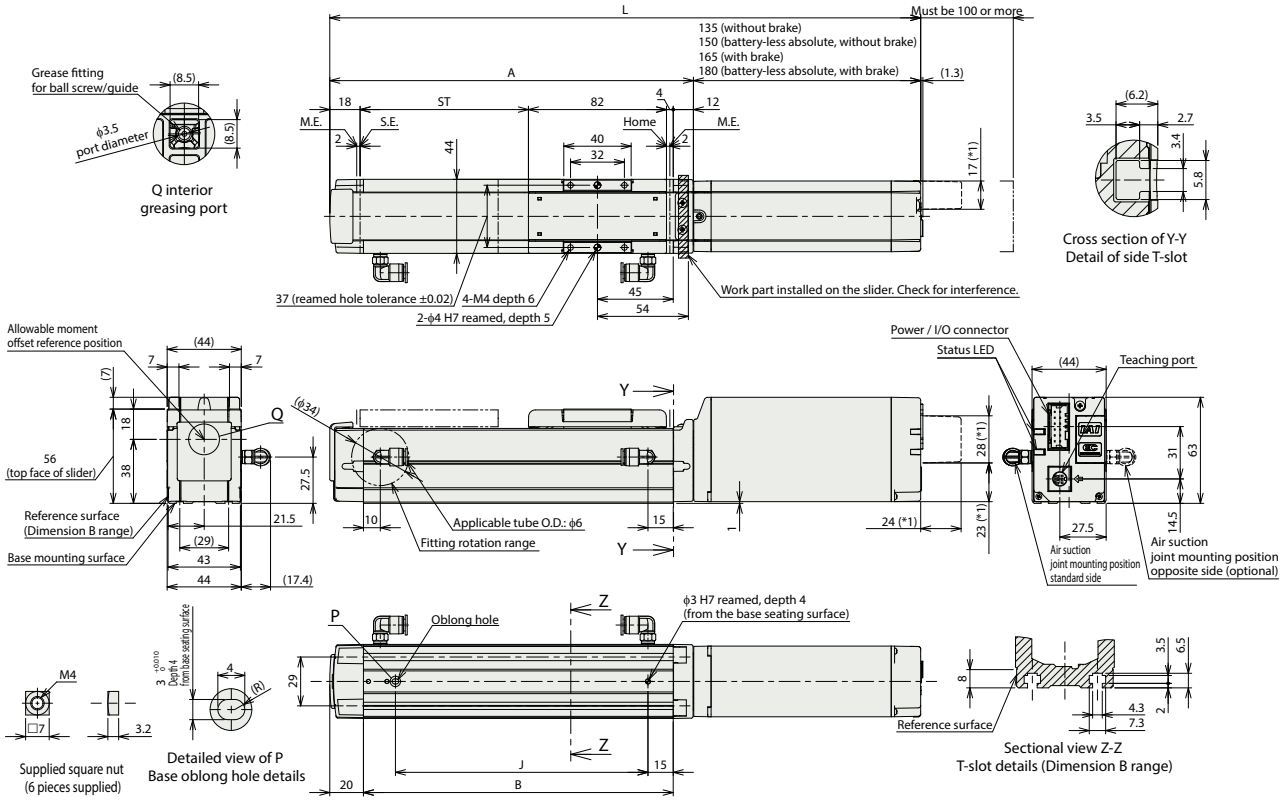
Dimensions

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

■ EC-S4□CR

*1 The dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).
(Note) The figures below are for motor installed on top (MOT).

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



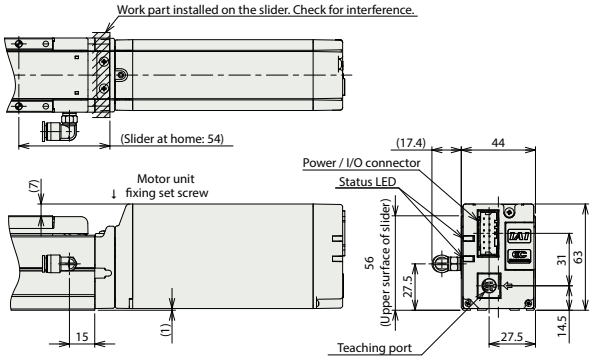
■ Dimensions by stroke

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

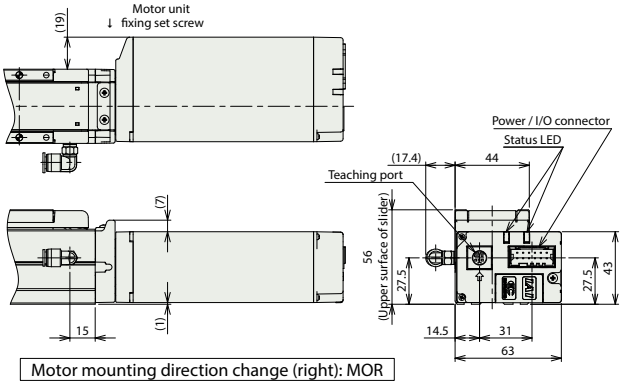
■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.2	1.3	1.5	1.6	1.8	1.9
	With brake	1.3	1.5	1.6	1.8	1.9	2.1

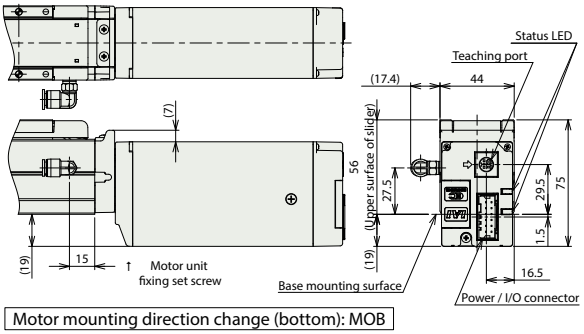
■ Motor mounting direction change (option)



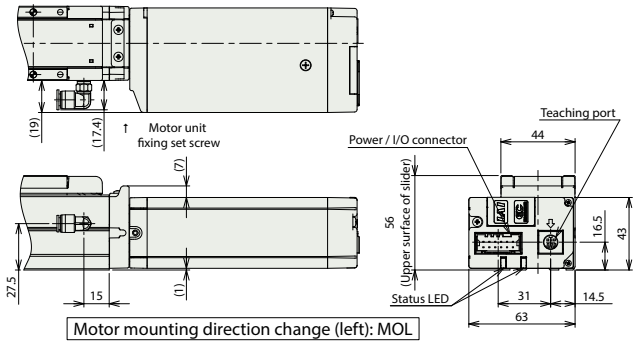
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB

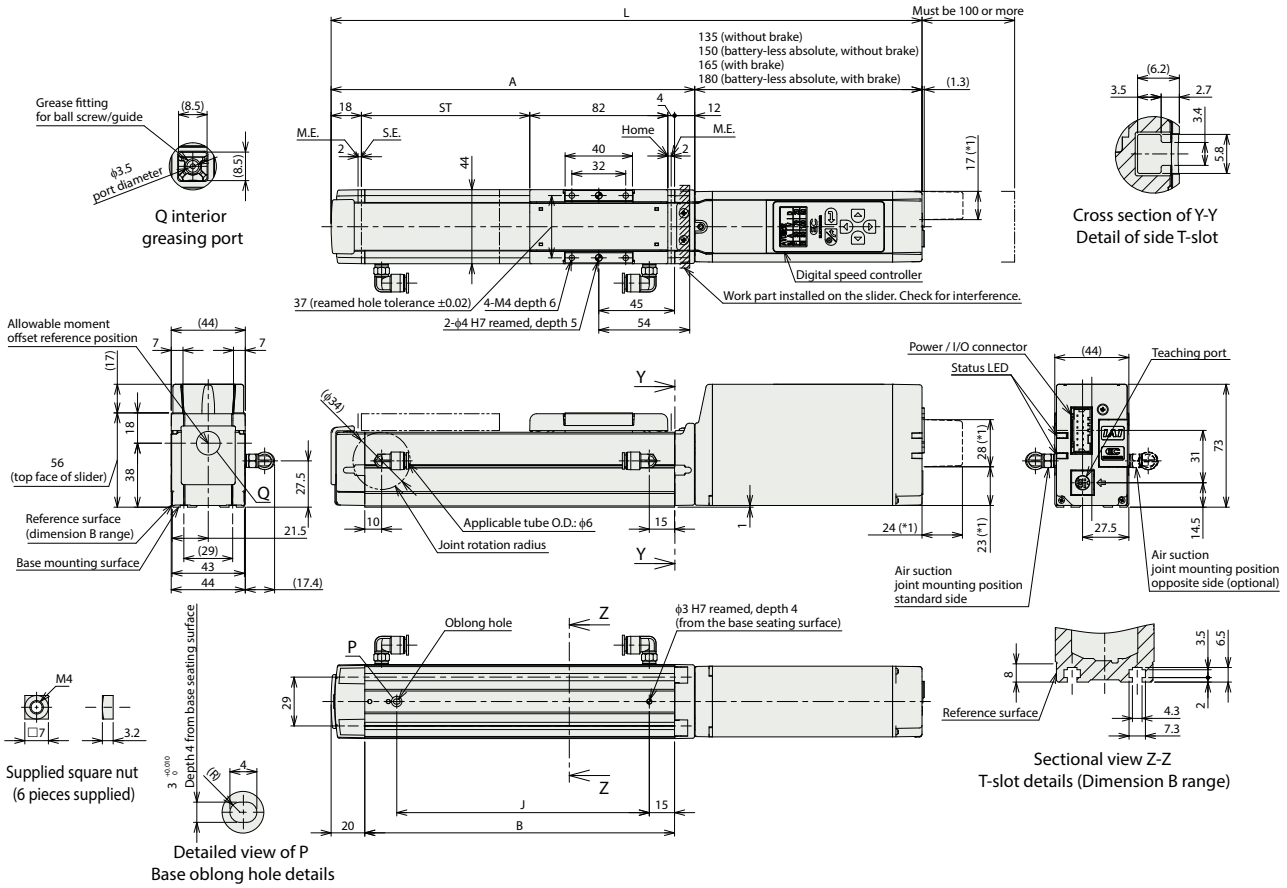


Motor mounting direction change (left): MOL

■ EC-DS4□CR <with digital speed controller>

*1 The dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).
(Note) The figures below are for motor installed on top (MOT).

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



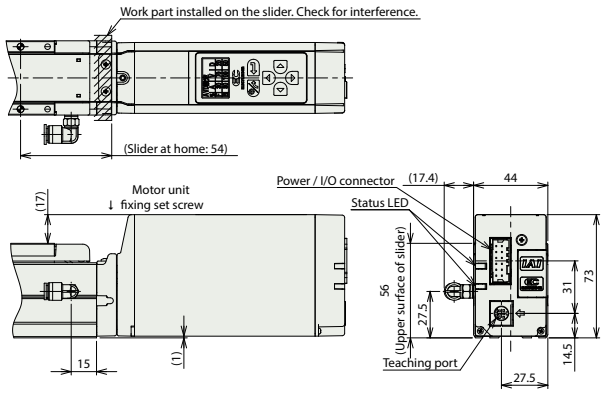
■ Dimensions by stroke

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

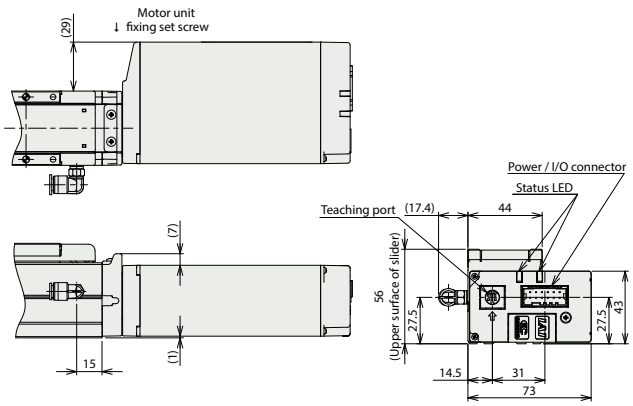
■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.2	1.3	1.5	1.6	1.8	1.9
	With brake	1.4	1.5	1.7	1.8	2.0	2.1

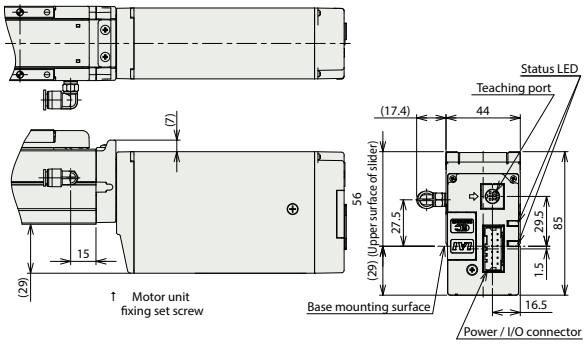
■ Motor mounting direction change (option)



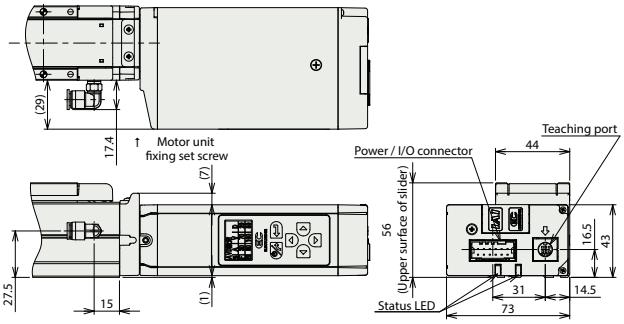
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB



Motor mounting direction change (left): MOL

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

EC-S6□CR
EC-DS6□CR

<With digital speed controller>

Cleanroom Spec | Coupled Motor | Body Width 60 mm | 24v Stepper Motor

Model Specification Items

EC - [ ] [ ] CR - [ ] - [ ] - [ ]

Series	Type		Lead		Specification		Stroke		Power / I/O cable length	Options
	S6	Standard	S	20mm	CR	Cleanroom specification	50 ~ 400	50mm ~ 400mm (Every 50mm)	See power / I/O cable length below	See options below
	DS6	Digital speed controller	H	12mm						
			M	6mm						
			L	3mm						

EC-S6□CR EC-DS6□CR

CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	S6□CR	DS6□CR	Stroke (mm)	S6□CR	DS6□CR
50	○	○	**250**	○	○
100	○	○	**300**	○	○
150	○	○	**350**	○	○
200	○	○	**400**	○	○

Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Foot bracket	**FT**	44
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
split motor and controller power supply specification	**TMD2**	44
Suction joint /suction tube joint on the opposite side	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

(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.

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.

(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 Torque and Current Limit" diagram. The torques listed are only reference values. Please refer to P. 46 of the ELECYLINDER® General Catalog 2020 for precautions.

(4) Duty restriction is required, depending on the ambient operating temperature.
Please refer to P. 46 for details.

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

(6) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions Refer to P. 5 for the overhang load length.

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

Power / I/O cable length

Standard connector cable

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

(Note 2) Only terminal block connector is supplied. Please refer to P. 51 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	12.5
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 5)	60	60	40	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, □10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48.5N·m
	Mb: 69.3N·m
	Mc: 97.1N·m
Dynamic allowable moment (Note 6)	Ma: 11.6N·m
	Mb: 16.6N·m
	Mc: 23.3N·m
Cleanliness	ISO Class 3 (ISO 14644-1 standard)
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	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

Slider type moment direction

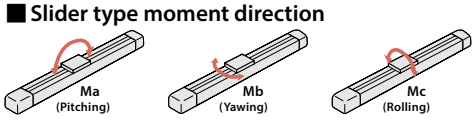


Table of Payload by Speed/Acceleration *The product is set to disabled for shipment. Refer to P. 4 for details.

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

Lead 20

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

Lead 12

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

Lead 6

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

Lead 3

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

Energy-saving setting enabled (Energy saving mode) The unit for payload is kg.

Lead 20

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

Lead 12

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

Lead 6

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

Lead 3

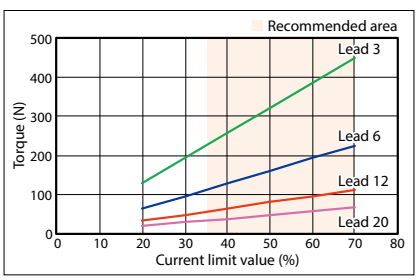
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

Stroke and Max Speed

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

(Unit: mm/s)

Correlation between Torque and Current Limit



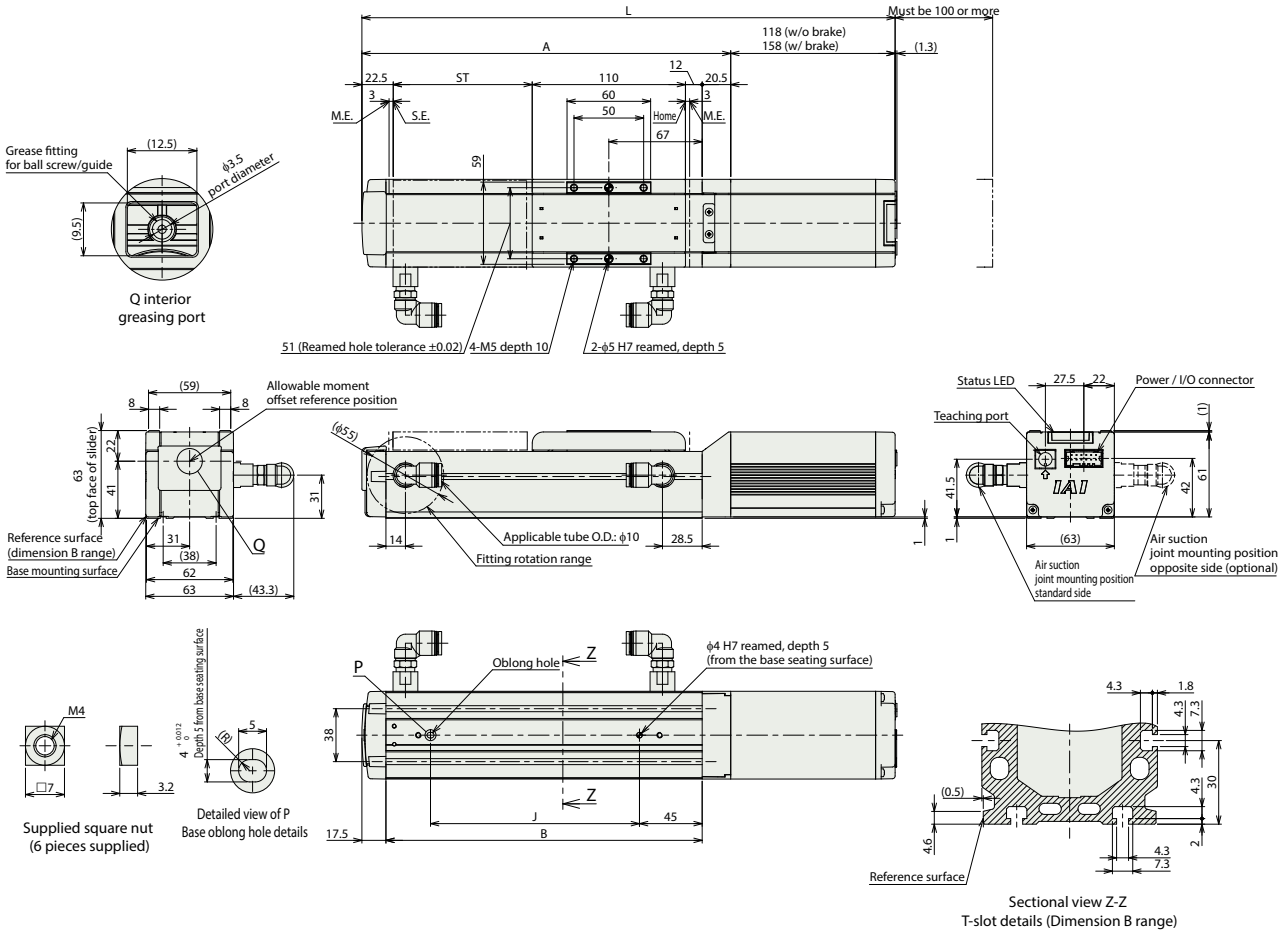
Dimensions

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

■EC-S6□CR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).

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



■Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400
L	Without brake	333	383	433	483	533	583	633	683
	With brake	373	423	473	523	573	623	673	723
A		215	265	315	365	415	465	515	565
B		177	227	277	327	377	427	477	527
J		100	150	200	250	300	350	400	450

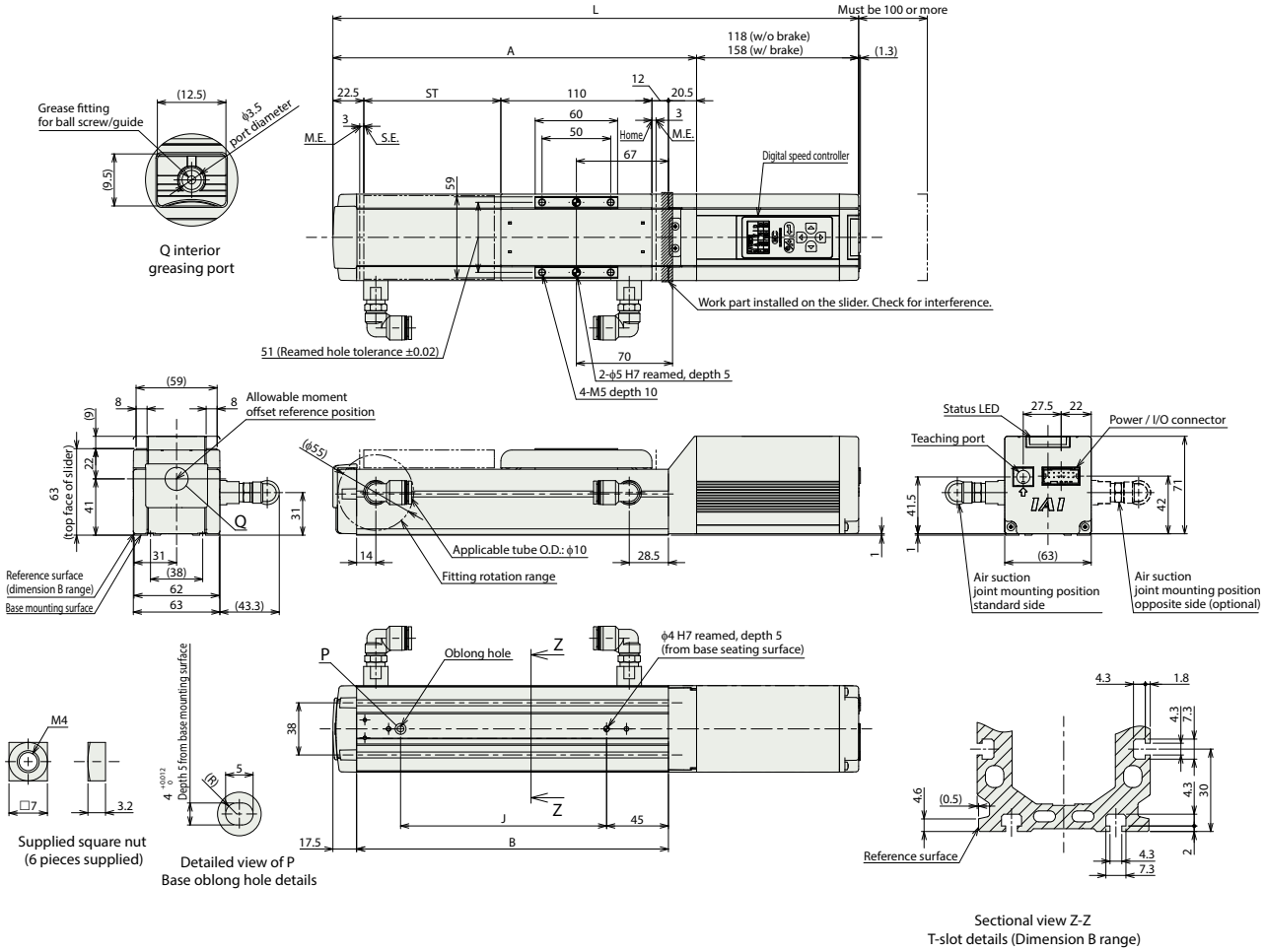
■Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	With brake	2.0	2.2	2.4	2.6	2.8	3.0	3.3	3.4

■ EC-DS6□CR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400
L	Without brake	333	383	433	483	533	583	633	683
	With brake	373	423	473	523	573	623	673	723
A		215	265	315	365	415	465	515	565
B		177	227	277	327	377	427	477	527
J		100	150	200	250	300	350	400	450

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	With brake	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

EC-S7□CR
EC-DS7□CR

<With digital speed controller>

Cleanroom Spec | Coupled Motor | Body Width 70 mm | 24v Stepper Motor

Model Specification Items

EC - [ ] [ ] CR - [ ] - [ ] - [ ]

Series	Type		Lead		Specification		Stroke		Power / I/O cable length	Options
	S7	Standard	S	24mm	CR	Cleanroom specification	50	50mm	See power / I/O cable length below	See options below
	DS7	Digital speed controller	H	16mm			~	~		
			M	8mm			500	500mm (Every 50mm)		
			L	4mm						

CE RoHS 10

Horizontal | Vertical | Side | Ceiling

EC-S7□CR **EC-DS7□CR**

Stroke

Stroke (mm)	S7□CR	DS7□CR	Stroke (mm)	S7□CR	DS7□CR
50	○	○	**300**	○	○
100	○	○	**350**	○	○
150	○	○	**400**	○	○
200	○	○	**450**	○	○
250	○	○	**500**	○	○

Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Foot bracket	**FT**	44
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
split motor and controller power supply specification	**TMD2**	44
Air suction joint in opposite position	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

(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.

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.

(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 Torque and Current Limit" diagram. The torques listed are only reference values. Please refer to P. 46 of the ELECYLINDER® General Catalog 2020 for precautions.

(4) Duty restriction is required, depending on the ambient operating temperature.
Please refer to P. 46 for details.

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

(6) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions. Refer to P. 5 for the overhang load length.

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

Power / I/O cable length

Standard connector cable

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

(Note 2) Only terminal block connector is supplied. Please refer to P. 51 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	19
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 5)	90	80	50	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, □12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 79.7N·m
	Mb: 114N·m
	Mc: 157N·m
Dynamic allowable moment (Note 5)	Ma: 17.7N·m
	Mb: 25.3N·m
	Mc: 34.9N·m
Cleanliness	ISO Class 3 (ISO 14644-1 standard)
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	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

Slider type moment direction

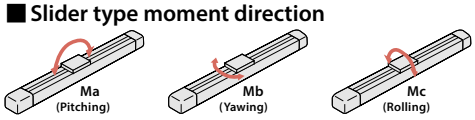


Table of Payload by Speed/Acceleration *The product is set to disabled for shipment. Refer to P. 4 for details.

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

Lead 24

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

Lead 16

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

Lead 8

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

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	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
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	5	0.5	0.5

Lead 16

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

Lead 8

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

Lead 4

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

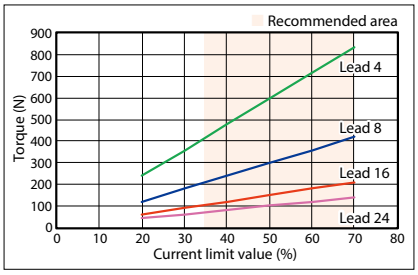
Stroke and Max Speed

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

(Unit: mm/s)

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

Correlation between Torque and Current Limit



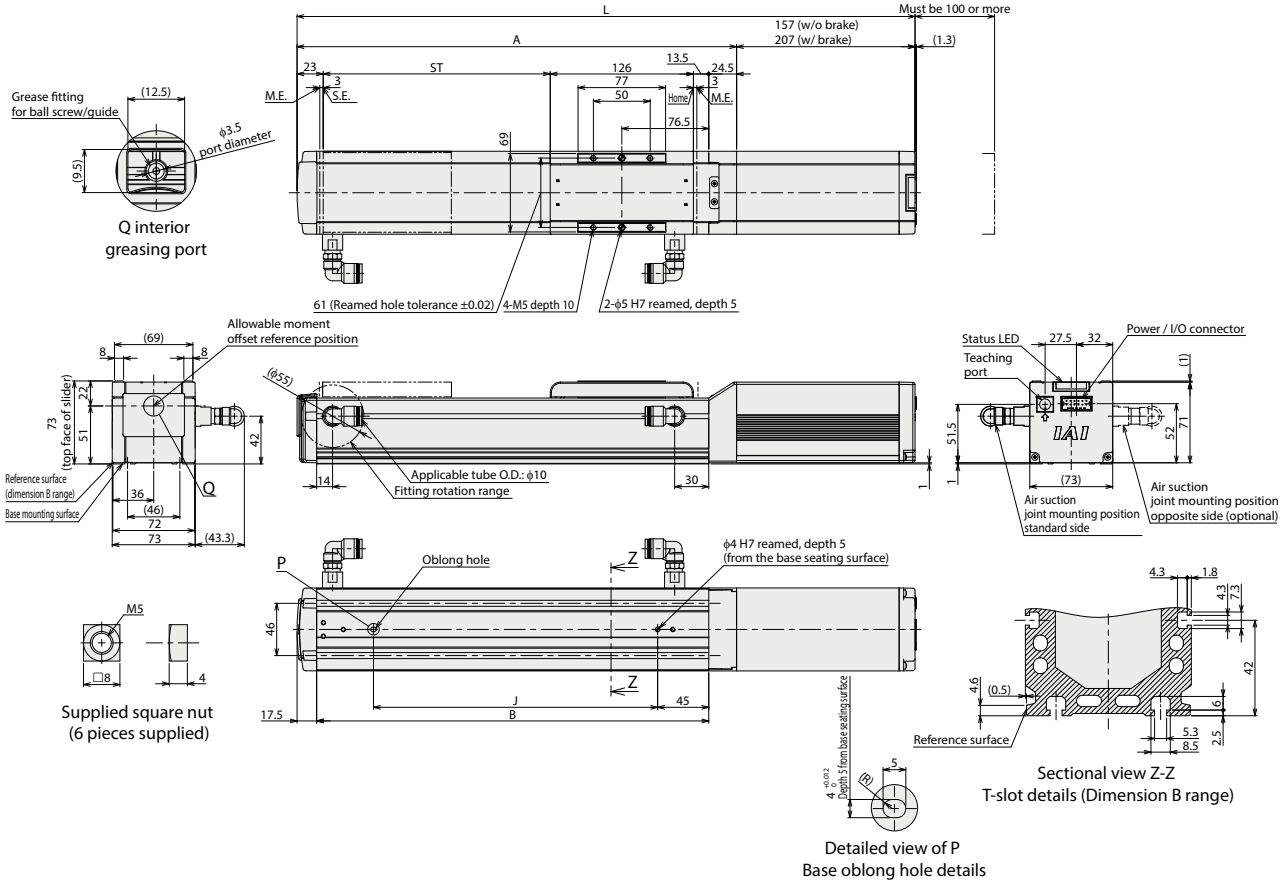
Dimensions

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

■ EC-S7□CR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	394	444	494	544	594	644	694	744	794	844
	With brake	444	494	544	594	644	694	744	794	844	894
A		237	287	337	387	437	487	537	587	637	687
B		195	245	295	345	395	445	495	545	595	645
J		100	150	200	250	300	350	400	450	500	550

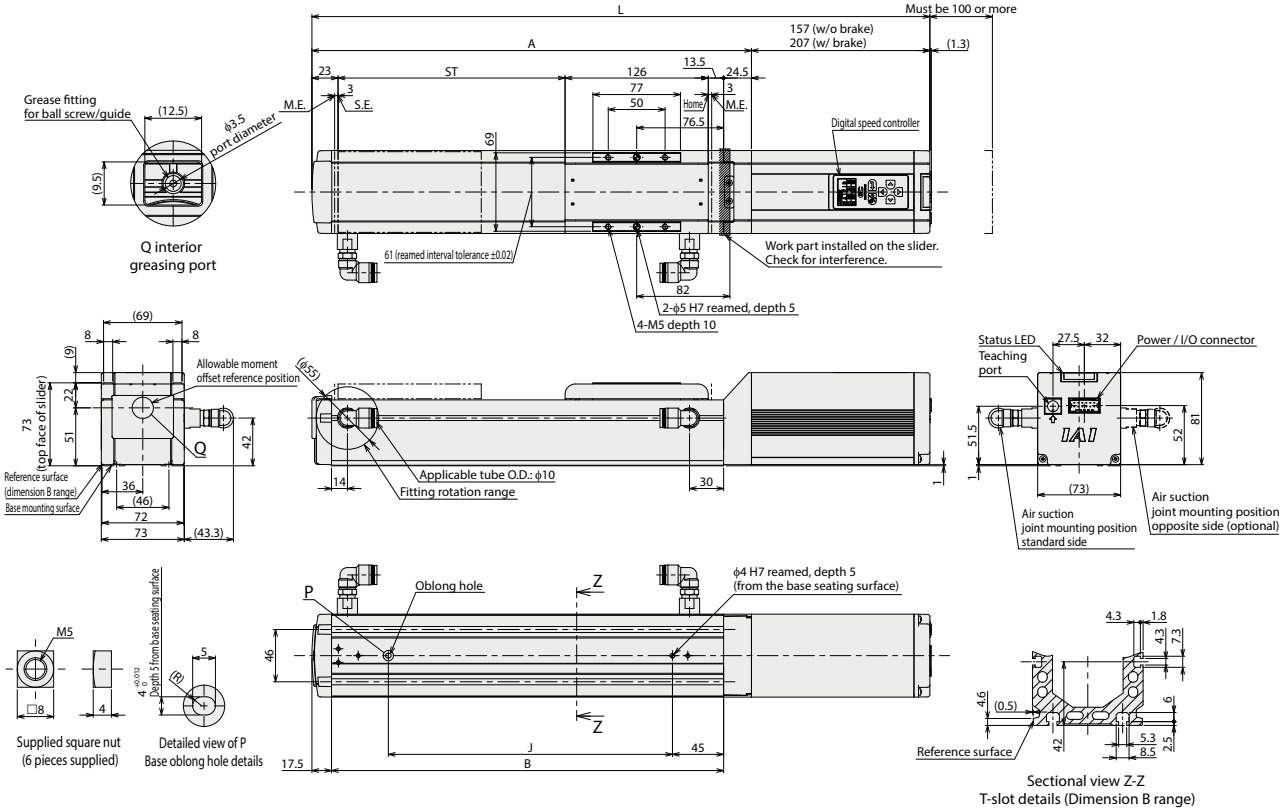
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	3.4	3.6	3.9	4.2	4.4	4.7	5.0	5.2	5.5	5.8
	With brake	3.8	4.1	4.4	4.6	4.9	5.2	5.4	5.7	6.0	6.2

■ EC-DS7□CR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The square nuts come with nut holders (6 pieces).

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	394	444	494	544	594	644	694	744	794	844
	With brake	444	494	544	594	644	694	744	794	844	894
A		237	287	337	387	437	487	537	587	637	687
B		195	245	295	345	395	445	495	545	595	645
J		100	150	200	250	300	350	400	450	500	550

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	3.5	3.7	4.0	4.3	4.5	4.8	5.1	5.3	5.6	5.9
	With brake	4.1	4.3	4.6	4.9	5.1	5.4	5.7	5.9	6.2	6.5

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

EC-S6□AHCR
EC-DS6□AHCR

<With digital speed controller>

Cleanroom Spec | High Rigidity | Coupled Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] AH CR - [ ] - [ ] - [ ]

Series	Type		Lead		Specification		Specifications		Stroke		Power / I/O cable length	Options
	S6	Standard	S	20mm	AH	High rigidity	CR	Cleanroom specification	50	50mm	See power / I/O cable length below	See options below
	DS6	Digital speed controller	H	12mm					≀	≀		
			M	6mm					800	800mm (Every 50mm)		
			L	3mm								

Horizontal | Vertical | Side | Ceiling

EC-S6□AHCR EC-DS6□AHCR

■ Stroke

Stroke (mm)	S6□AHCR	DS6□AHCR	Stroke (mm)	S6□AHCR	DS6□AHCR
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

■ Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
split motor and controller power supply specification	**TMD2**	44
Suction joint /suction tube joint on the opposite side	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

(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.

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.

(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 Torque and Current Limit" diagram. The torques listed are only reference values. Please refer to P. 46 of the ELECYLINDER® General Catalog 2020 for precautions.

(4) Duty restriction is required, depending on the ambient operating temperature.
Please refer to P. 46 for details.

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

(6) Reference value of the overhang load length is under 300mm in the Ma, Mb, and Mc directions. Refer to P. 5 for the overhang load length.

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

■ Power / I/O cable length

■ Standard connector cable

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

(Note 2) Only terminal block connector is supplied. Please refer to P. 51 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1350	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	16
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1120	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 5)	100	70	40	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	16
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, □10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48.5N·m
	Mb: 69.3N·m
	Mc: 103N·m
Dynamic allowable moment (Note 6)	Ma: 33.7N·m
	Mb: 40.2N·m
	Mc: 55.3N·m
Cleanliness	ISO Class 2.5 (ISO 14644-1 standard)
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	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

Slider type moment direction

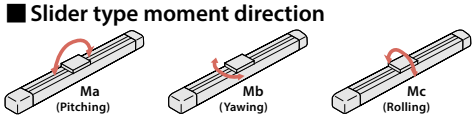


Table of Payload by Speed/Acceleration *The product is set to disabled for shipment. Refer to P. 4 for details.

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

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1
960	8	5	3.5	1.5	1	1
1120	5	3	2	1	0.5	0.5
1280		1	1	0.5		
1350		0.5				

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	14	7	5	4	2	1
800	8	4	2	1	1.5	1
900	5	2	0.5		0.5	

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	10	7	3.5	3.5
450	14.5	7	4.5	2	2	1.5

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	16	16
50	40	35	35	35	16	16
80	40	35	35	30	16	16
110	40	35	35	30	16	16
140	40	35	35	28	15	15
170	40	32	32	24	12.5	12
200	35	28	23	19	9	8
225	28	20	10	7	5	

Energy-saving setting enabled (Energy saving mode) The unit for payload is kg.

Lead 20

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

Lead 12

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

Lead 6

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

Lead 3

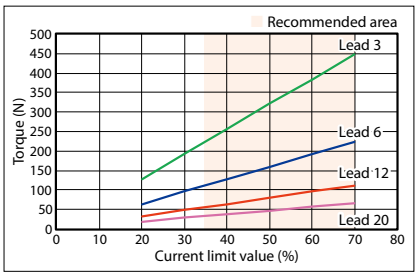
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 400 (Every 50mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	1350 <1120>		1280 <1120>	1090	940	815	715	630	560
	Enabled	800						715	630	560
12	Disabled	900	845	705	585	515	445	390	345	315
	Enabled	680			585	515	445	390	345	315
6	Disabled	450	415	350	295	255	220	190	170	140
	Enabled	340			295	255	220	190	170	140
3	Disabled	225	205	170	145	125	110	95	85	70
	Enabled	170			145	125	110	95	85	70

(Unit: mm/s)

Correlation between Torque and Current Limit



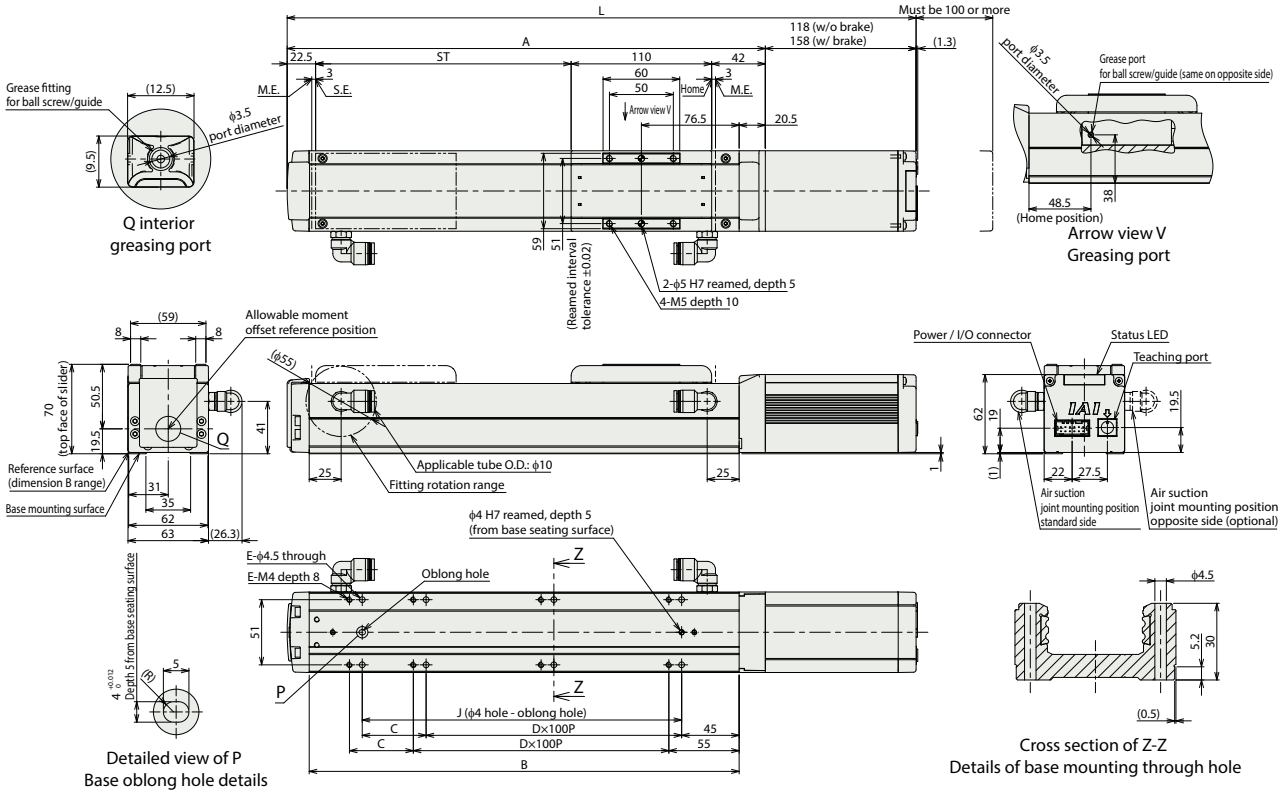
Dimensions

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

■EC-S6□AHCR

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

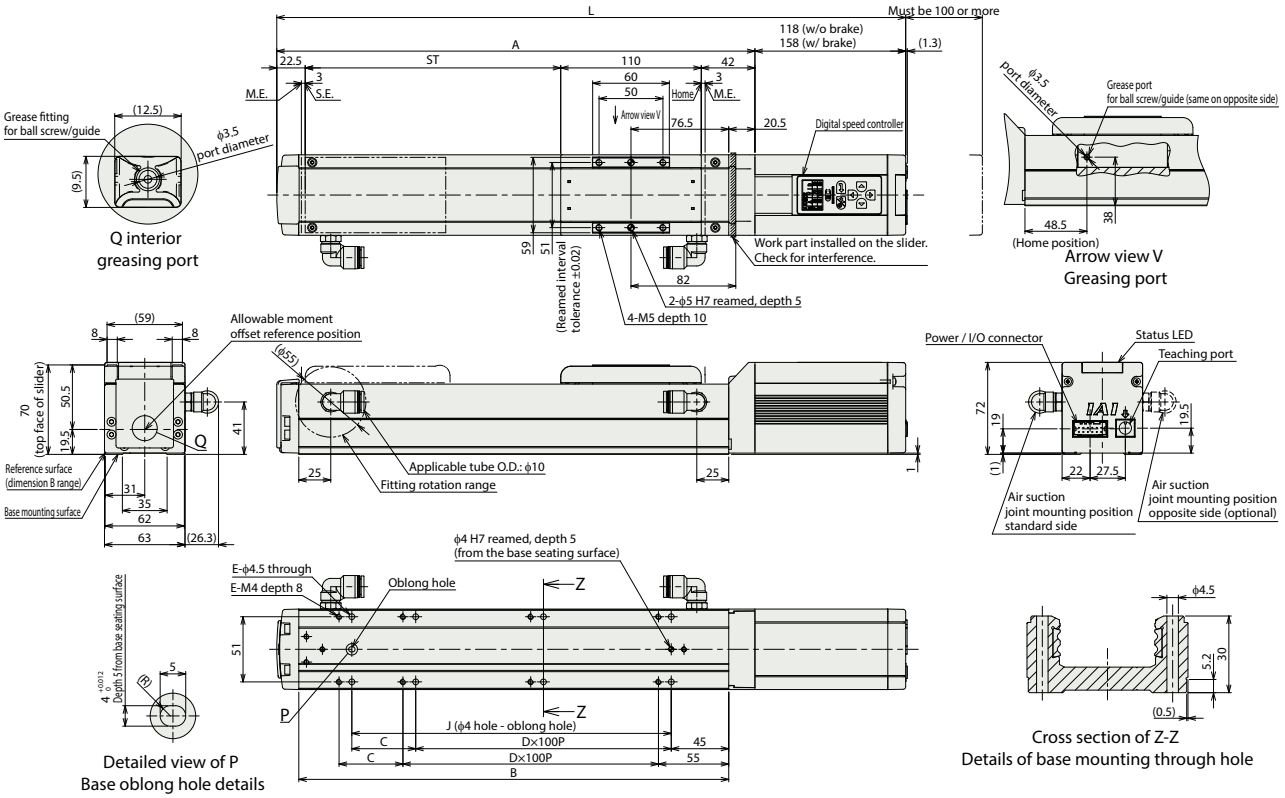
■Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.0	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.3
	With brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0	5.2	5.4	5.6

■ EC-DS6□AHCR <with digital speed controller>

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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.0	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.3
	With brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0	5.2	5.4	5.6

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

EC-S7□AHCR
EC-DS7□AHCR

<With digital speed controller>

Cleanroom Spec | High Rigidity | Coupled Motor | Body Width 80 mm | 24v Stepper Motor

Model Specification Items

EC - [ ] [ ] AH CR - [ ] - [ ] - [ ]

Series	Type		Lead		Specification		Specifications		Stroke		Power / I/O cable length	Options
	S7	Standard	S	24mm	AH	High rigidity	CR	Cleanroom specification	50	50mm	See power / I/O cable length below	See options below
	DS7	Digital speed controller	H	16mm					≀	≀		
			M	8mm					800	800mm (Every 50mm)		
			L	4mm								

Horizontal | Vertical | Side | Ceiling

EC-S7□AHCR **EC-DS7□AHCR**

Stroke

Stroke (mm)	S7□AHCR	DS7□AHCR	Stroke (mm)	S7□AHCR	DS7□AHCR
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
split motor and controller power supply specification	**TMD2**	44
Suction joint /suction tube joint on the opposite side	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

(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.

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.

(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 Torque and Current Limit" diagram. The torques listed are only reference values. Please refer to P. 46 of the ELECYLINDER® General Catalog 2020 for precautions.

(4) Duty restriction is required, depending on the ambient operating temperature.
Please refer to P. 46 for details.

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

(6) Reference value of the overhang load length is under 300mm in the Ma, Mb, and Mc directions. Refer to P. 5 for the overhang load length.

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

Power / I/O cable length

Standard connector cable

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

(Note 2) Only terminal block connector is supplied. Please refer to P. 51 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1230	980	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	25
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1080	840	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 5)	140	120	50	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	25
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, □12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 115N·m
	Mb: 115N·m
	Mc: 229N·m
Dynamic allowable moment (Note 6)	Ma: 75.5N·m
	Mb: 90.0N·m
	Mc: 134N·m
Cleanliness	ISO Class 2.5 (ISO 14644-1 standard)
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	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

Slider type moment direction

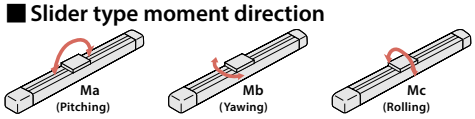


Table of Payload by Speed/Acceleration *The product is set to disabled for shipment. Refer to P. 4 for details.

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

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	9	6	4	2	2
1080	7	3	2	1	0.5	0.5
1230	3	1	0.5			

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	8	5	2.5	2.5	2
840	7	3	1		0.5	
980	1					

Lead 8

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

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	25	25
35	51	45	40	40	25	25
70	51	45	40	40	25	25
105	51	45	40	35	20	19
140	45	35	30	25	14	12
175	30	18			9	6
210	5					

Energy-saving setting enabled (Energy saving mode) The unit for payload is kg.

Lead 24

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

Lead 16

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

Lead 8

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

Lead 4

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

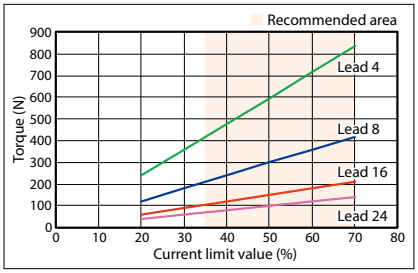
Stroke and Max Speed

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

(Unit: mm/s)

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

Correlation between Torque and Current Limit



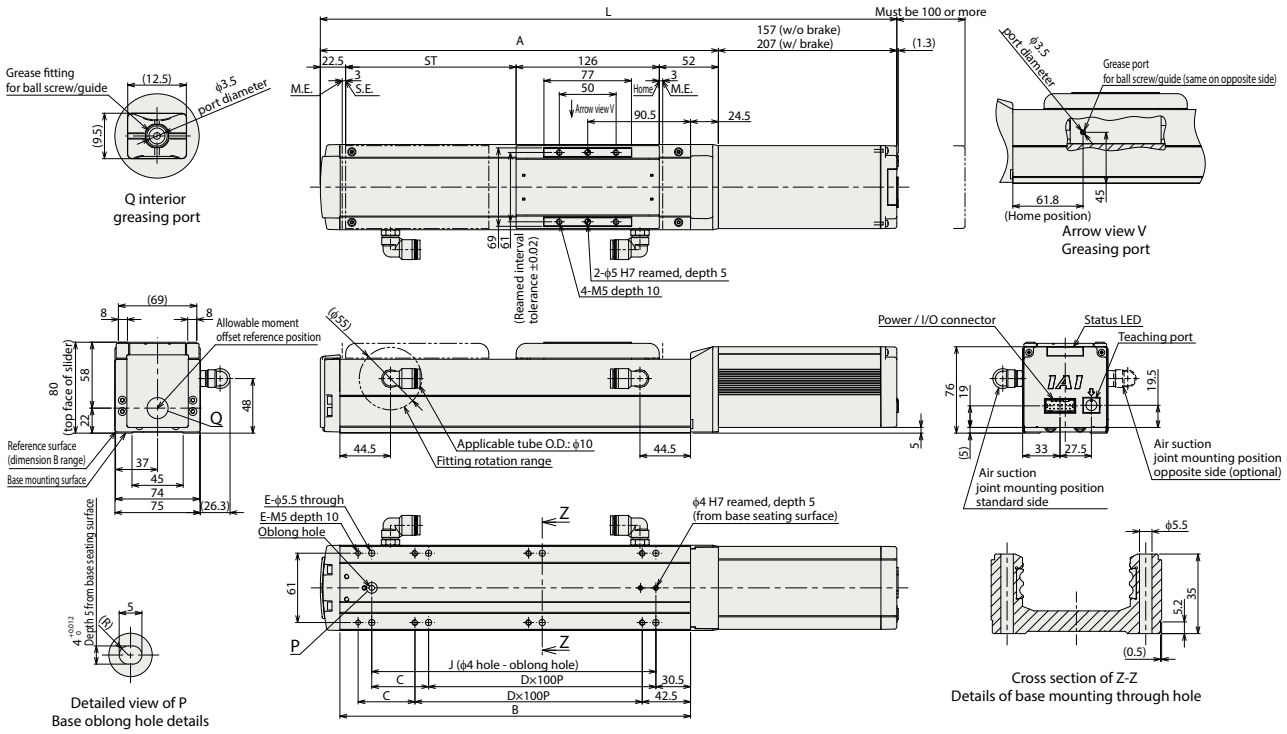
Dimensions

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

■ EC-S7□AHCR

(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

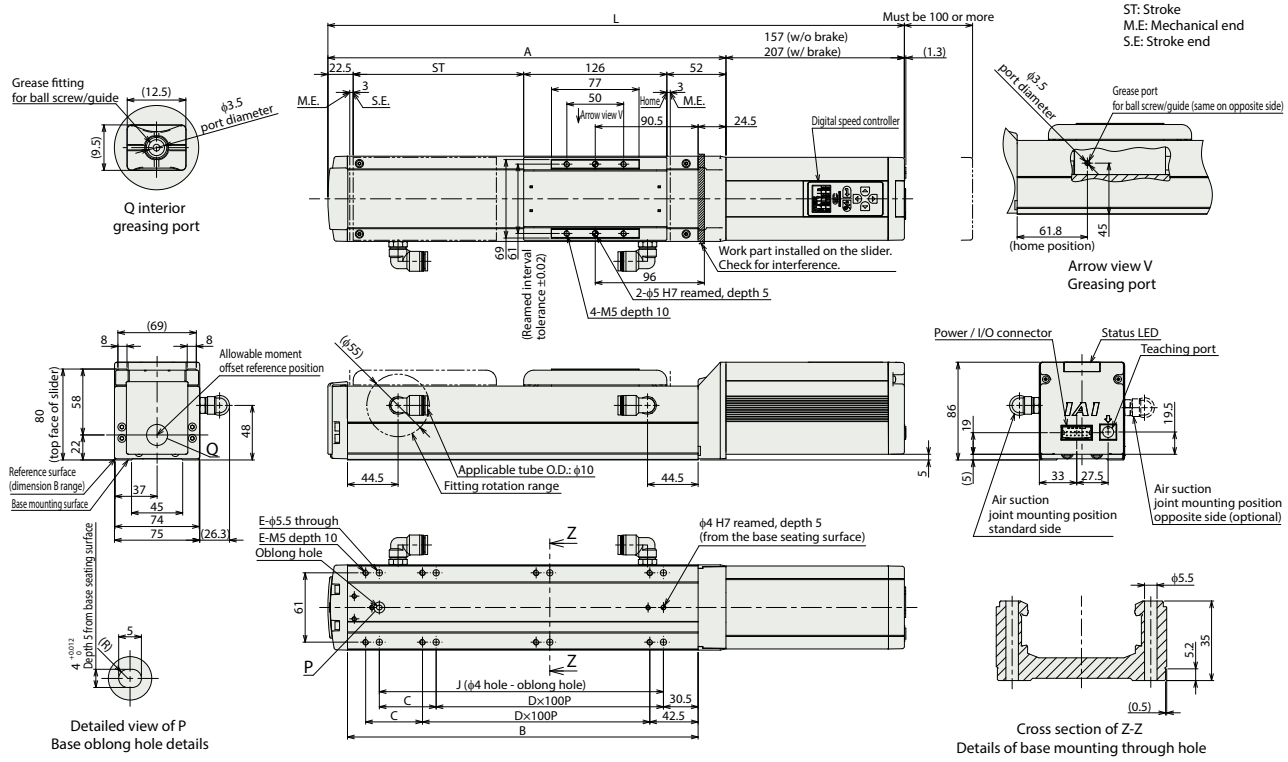
Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5
	With brake	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5
A		250.5	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.9	4.1	4.4	4.7	4.9	5.2	5.5	5.7	6.0	6.3	6.5	6.8	7.1	7.3	7.6	7.9
	With brake	4.4	4.6	4.9	5.2	5.4	5.7	6.0	6.2	6.5	6.8	7.0	7.3	7.6	7.8	8.1	8.4

■ EC-DS7□AHCR <with digital speed controller>

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

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	4.0	4.2	4.5	4.8	5.0	5.3	5.6	5.8	6.1	6.4	6.6	6.9	7.2	7.4	7.7	8.0
	With brake	4.6	4.8	5.1	5.4	5.6	5.9	6.2	6.4	6.7	7.0	7.2	7.5	7.8	8.0	8.3	8.6

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

EC-WS10□CR
EC-DWS10□CR <With digital speed controller>

Cleanroom Spec | Coupled Motor | Body Width 100 mm | 24v Stepper Motor

Model Specification Items

EC - [ ] [ ] CR - [ ] - [ ] - [ ]

Series	Type		Lead		Specification		Stroke		Power / I/O cable length	Options
	WS10	Standard	S	20mm	CR	Cleanroom specification	50	50mm	See power / I/O cable length below	See options below
	DWS10	Digital speed controller	H	12mm			~	~		
			M	6mm			500	500mm (Every 50mm)		
			L	3mm						

CE RoHS 10

Horizontal | Vertical | Side | Ceiling

EC-WS10□CR EC-DWS10□CR

Stroke

Stroke (mm)	WS10□CR	DWS10□CR	Stroke (mm)	WS10□CR	DWS10□CR
50	○	○	**300**	○	○
100	○	○	**350**	○	○
150	○	○	**400**	○	○
200	○	○	**450**	○	○
250	○	○	**500**	○	○

Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Air cylinder compatible mounting plate	**CS**	43
Digital speed controller mounting orientation (left side) (Note 2)	**DL**	43
Digital speed controller mounting orientation (right side) (Note 2)	**DR**	43
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
Twin power supply specification	**TMD2**	44
Suction joint /suction tube joint on the opposite side	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) and twin power supply specification (TMD2) cannot be selected.
(Note 2) Only the DWS1□CR can be selected. Make sure to specify either model in the Model Specification Items.

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.
(2) "Main Specifications" displays the payload's maximum value. Refer to the "Table of Payload by Speed and Acceleration" for details.
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The push force is a reference value. Refer to P. 46 for precautions.
(4) Reference value of the overhang load length is under 100mm in the Ma, Mb, and Mc directions.
Refer to P. 5 for the overhang load length.
(5) Leads S and H cannot be mounted vertically.
(6) Reference value of the overhang load length is under 400mm in the Ma, Mb, and Mc directions. Refer to P. 5 for the overhang load length.
(7) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 51 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	4	15	25	44
		Max. payload (kg) (energy-saving enabled)	4	15	25	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	900	640	400	160
		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	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	-	4	7
		Max. payload (kg) (energy-saving enabled)	-	-	4	7
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	-	-	360	110
		Min. speed (mm/s)	-	-	8	4
		Rated acceleration/deceleration (G)	-	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	-	0.5	0.3
Push		Max. push force (N)	34	57	114	228
		Max. push speed (mm/s)	25	20	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 6)	75	65	50	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	-	-	4	7
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

(Note 6) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, □10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 172N·m
	Mb: 172N·m
	Mc: 436N·m
Dynamic allowable moment (Note 7)	Ma: 44.7N·m
	Mb: 44.7N·m
	Mc: 113N·m
Cleanliness	ISO Class 3 (ISO 14644-1 standard)
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	Stepper motor (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

■ Slider type moment direction

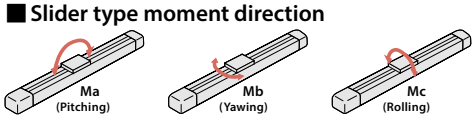


Table of Payload by Speed/Acceleration *The product is set to disabled for shipment. Refer to P. 4 for details.

■ Energy-saving setting disabled (Power mode) The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	4	3.5	3	2
320	4	3.5	3	2
480	4	3.5	3	2
600	4	3.5	3	2
700	4	2.5	2	1.5
800	3	2	1.5	1
900		1	1	

Lead 12

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	15	11	9	6
160	15	11	9	6
280	15	11	9	6
320	15	10	8	5
400	12	8	6	4
480	10	6.5	5	3
560	8	5	4	2
640	6	4	2	

Lead 4

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	25	20	4	3.5
140	25	20	4	3.5
180	25	20	4	3.5
220	25	20	4	3.5
270	20	15	4	3
320	15	9	3	2
360	11	6	2	1
400	7	3		

Lead 3

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	44	7
60	44	7
80	44	7
110	40	7
135	37	
160	30	

■ 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	4	3
320	4	3
480	4	3
600	4	2
700	2.5	1
800	1	

Lead 12

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	15	7
160	15	7
280	13	6
320	11	5
400	8	3.5
480	5	2
560	3	

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	25	4
140	25	4
180	20	4
220	15	3
270	10	1.5
320	4	

Lead 3

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	40	7
60	40	7
80	40	7
110	35	4.5
135	25	

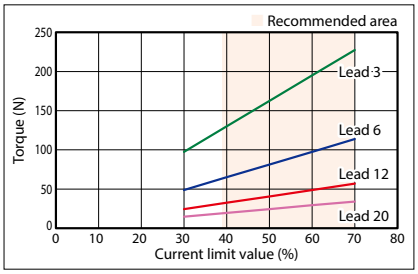
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
20	Disabled	900			800	700	600	480
	Enabled	800				700	600	480
12	Disabled	640		560	480	400	320	280
	Enabled	560			480	400	320	280
6	Disabled	400 <360>	360	270	210	180	140	120
	Enabled	320 <270>		270	210	180	140	120
3	Disabled	160 <110>		135 <110>	110	80	70	60
	Enabled	135 <110>			110	80	70	60

(Unit: mm/s)

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

Correlation between Torque and Current Limit



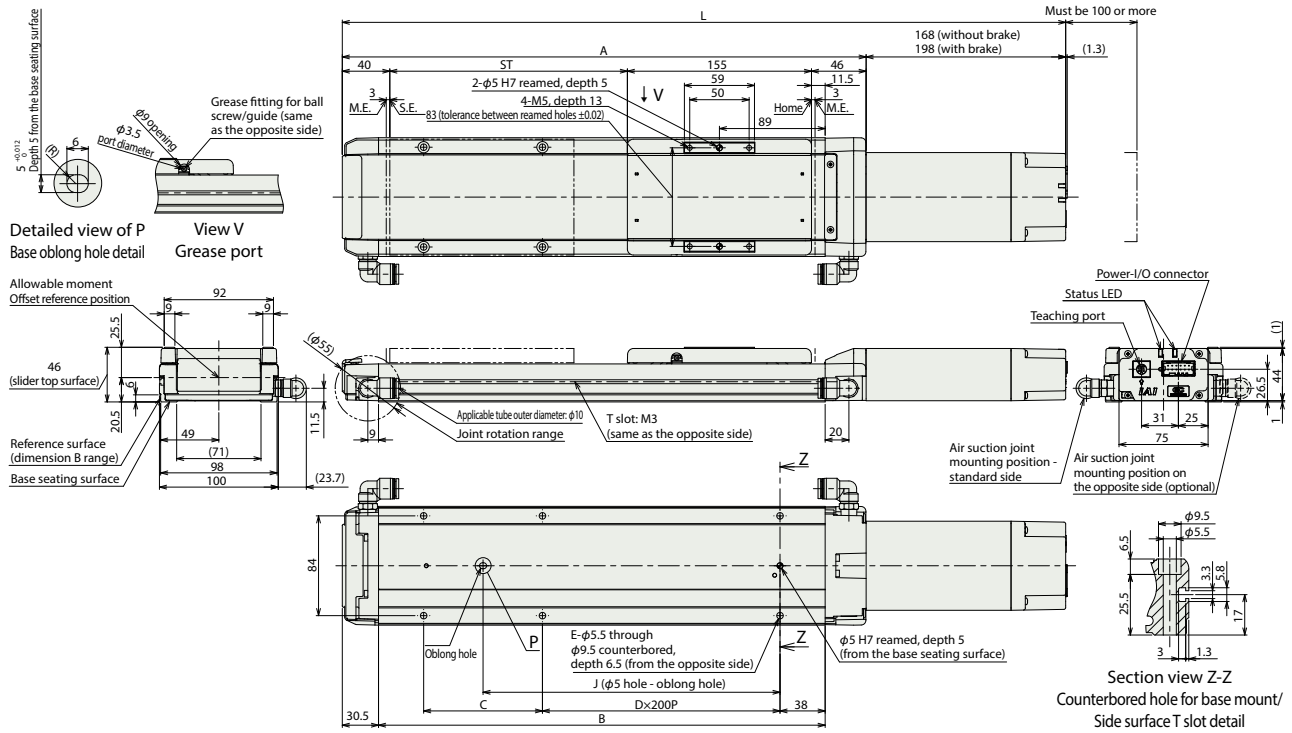
Dimensions

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

■ EC-WS10□CR

(Note) When the slider is returning to its home position, 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
L	Without brake	459	509	559	609	659	709	759	809	859	909
	With brake	489	539	589	639	689	739	789	839	889	939
A		291	341	391	441	491	541	591	641	691	741
B		226	276	326	376	426	476	526	576	626	676
C		150	200	50	100	150	200	50	100	150	200
D		0	0	1	1	1	1	2	2	2	2
E		4	4	6	6	6	6	8	8	8	8
J		100	150	200	250	300	350	400	450	500	550

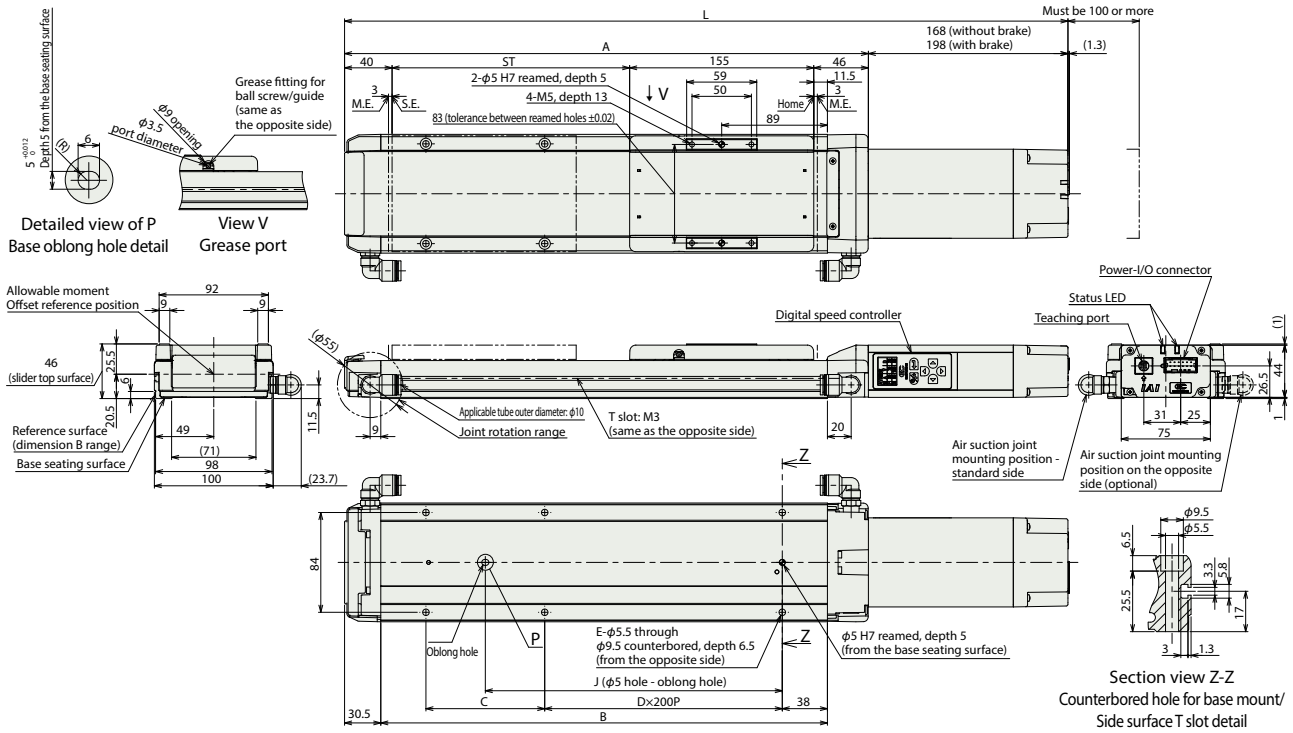
■ Mass by stroke

	Stroke	50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	2.7	3.0	3.2	3.5	3.7	4.0	4.2	4.5	4.7	5.0
	With brake	2.8	3.1	3.3	3.6	3.8	4.1	4.3	4.6	4.8	5.1

■ EC-DWS10□CR <with digital speed controller>

(Note) When the slider is returning to its home position, be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The drawing below is for the digital speed controller mounted at the left side (DL). Right side mounting (DR) is at the opposite side.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	459	509	559	609	659	709	759	809	859	909
	With brake	489	539	589	639	689	739	789	839	889	939
A		291	341	391	441	491	541	591	641	691	741
B		226	276	326	376	426	476	526	576	626	676
C		150	200	50	100	150	200	50	100	150	200
D		0	0	1	1	1	1	2	2	2	2
E		4	4	6	6	6	6	8	8	8	8
J		100	150	200	250	300	350	400	450	500	550

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	2.7	3.0	3.2	3.5	3.7	4.0	4.2	4.5	4.7	5.0
	With brake	2.8	3.1	3.3	3.6	3.8	4.1	4.3	4.6	4.8	5.1

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

EC-WS12□CR
EC-DWS12□CR <With digital speed controller>

Cleanroom Spec | Coupled Motor | Body Width 120 mm | 24v Stepper Motor

Model Specification Items

EC - [Series] - [Type] [Lead] - CR - [Specification] - [Stroke] - [Power / I/O cable length] - [Options]

Series
EC

Type		Lead	
WS12	Standard	S	24mm
DWS12	Digital speed controller	H	16mm
		M	8mm
		L	4mm

Specification	
CR	Cleanroom specification

Stroke	
50	50mm
~	~
500	800mm (Every 50mm)

Power / I/O cable length
See power / I/O cable length below

Options
See options below

Horizontal | Vertical | Side | Ceiling

EC-WS12□CR EC-DWS12□CR

Stroke

Stroke (mm)	WS12□CR	DWS12□CR	Stroke (mm)	WS12□CR	DWS12□CR
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

Option

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	43
Brake	**B**	43
Air cylinder compatible mounting plate	**CS**	43
Digital speed controller mounting orientation (left side) (Note 2)	**DL**	43
Digital speed controller mounting orientation (right side) (Note 2)	**DR**	43
Non-motor end specification	**NM**	44
PNP specification	**PN**	44
Twin power supply specification	**TMD2**	44
Suction joint /suction tube joint on the opposite side	**VR**	44
Battery-less absolute encoder specification	**WA**	44
Wireless communication specification	**WL**	44
Wireless axis operation specification	**WL2**	44

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) and twin power supply specification (TMD2) cannot be selected.
(Note 2) Only the DWS1□CR can be selected. Make sure to specify either model in the Model Specification Items.

Selection Notes

(1) The maximum speed varies depending on the stroke. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.
(2) "Main Specifications" displays the payload's maximum value. Refer to the "Table of Payload by Speed and Acceleration" for details.
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The push force is a reference value. Refer to P. 46 for precautions.
(4) Pay close attention to the mounting orientation. Refer to P. 46 for details.
(5) Reference value of the overhang load length is under 100mm in the Ma, Mb, and Mc directions. Refer to P. 5 for details.
(6) Leads S and H cannot be mounted vertically.
(7) Lead S cannot operate push motions.
(8) Reference value of the overhang load length is under 500mm in the Ma, Mb, and Mc directions. Refer to P. 5 for the overhang load length.
(9) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 51 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	10	20	40	62
		Max. payload (kg) (energy-saving enabled)	8	15	30	50
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	900	720	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	-	8	13.5
		Max. payload (kg) (energy-saving enabled)	-	-	8	13.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	-	-	360	210
		Min. speed (mm/s)	-	-	10	5
		Rated acceleration/deceleration (G)	-	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	-	0.5	0.3
Push		Max. push force (N)	-	84	168	337
		Max. push speed (mm/s)	-	20	20	20
Cleanroom specification		Suction volume (Nl/min) (Note 6)	115	85	50	50
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	-	-	8	13.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

(Note 6) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, □12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 328N·m
	Mb: 328N·m
	Mc: 751N·m
Dynamic allowable moment (Note 7)	Ma: 77.0N·m
	Mb: 77.0N·m
	Mc: 176N·m
Cleanliness	ISO Class 3 (ISO 14644-1 standard)
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	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operational life on P. 1-244 of the General Catalog 2021.

Slider type moment direction

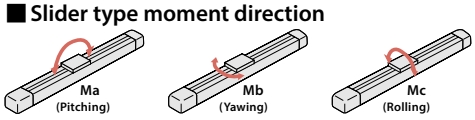


Table of Payload by Speed/Acceleration *The product is set to disabled for shipment. Refer to P. 4 for details.

Energy-saving setting disabled (Power mode) 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	10	8	6	4
360	10	8	6	4
460	10	8	6	3.5
500	10	7.5	5.5	3.5
580	10	6.5	4.5	3
640	10	6	4	2.5
700	9	5	3.5	2
800	7.5	4.5	3	1.5
900	6	3	2	

Lead 16

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	20	14	9	7
280	20	14	9	7
320	20	14	9	6
360	20	14	8.5	5.5
420	20	12	7	5
460	18	11	6.5	4.5
500	16	10	6	4
580	13	8	4.5	3
640	11	6	3.5	2
720	7	4	2	

Lead 8

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	40	30	8	7.5
140	40	30	8	7.5
160	40	30	8	7.5
190	40	30	8	7.5
220	40	25	7	6
250	35	20	6	5
280	30	16	5	4
320	22	12	4	3
360	15	9	3	2
420	8	5		

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	62	13.5
65	62	13.5
75	62	13.5
95	62	13.5
110	62	13.5
125	55	13.5
140	50	11
160	42	9
180	35	7
210	20	3

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	8	5
360	8	5
460	8	4
500	7.5	3.5
580	6.5	3
640	5	2.5
700	4	1.5
800	1.5	

Lead 16

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	15	7
280	15	7
320	15	7
360	13	6
420	11	5
460	10	4.5
500	8	3
580	5	1.5
640	3	

Lead 8

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	30	8
140	30	8
160	30	8
190	25	6.5
220	20	4.5
250	16	3
280	12	2
320	8	

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	50	13.5
65	50	13.5
75	50	13.5
95	50	11
110	40	8
125	32	6
140	25	4
160	15	2

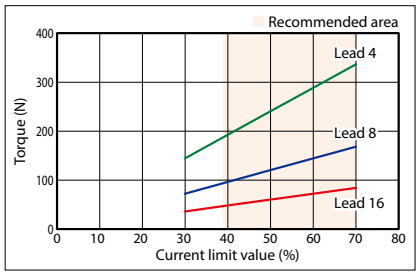
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 250 (Every 50mm)	300 (mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	900					800	700	580	500	460	400	360
	Enabled	800						700	580	500	460	400	360
16	Disabled	720		640	580	500	420	360	320	280	240	220	200
	Enabled	640			580	500	420	360	320	280	240	220	200
8	Disabled	420 <360>	360	280	250	220	190	170	150	130	110	90	85
	Enabled	320 <280>		280	250	220	190	170	150	130	110	90	85
4	Disabled	210	180	140	125	110	95	85	75	65	55	50	45
	Enabled	160		140	125	110	95	85	75	65	55	50	45

(Unit: mm/s)

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

Correlation between Torque and Current Limit

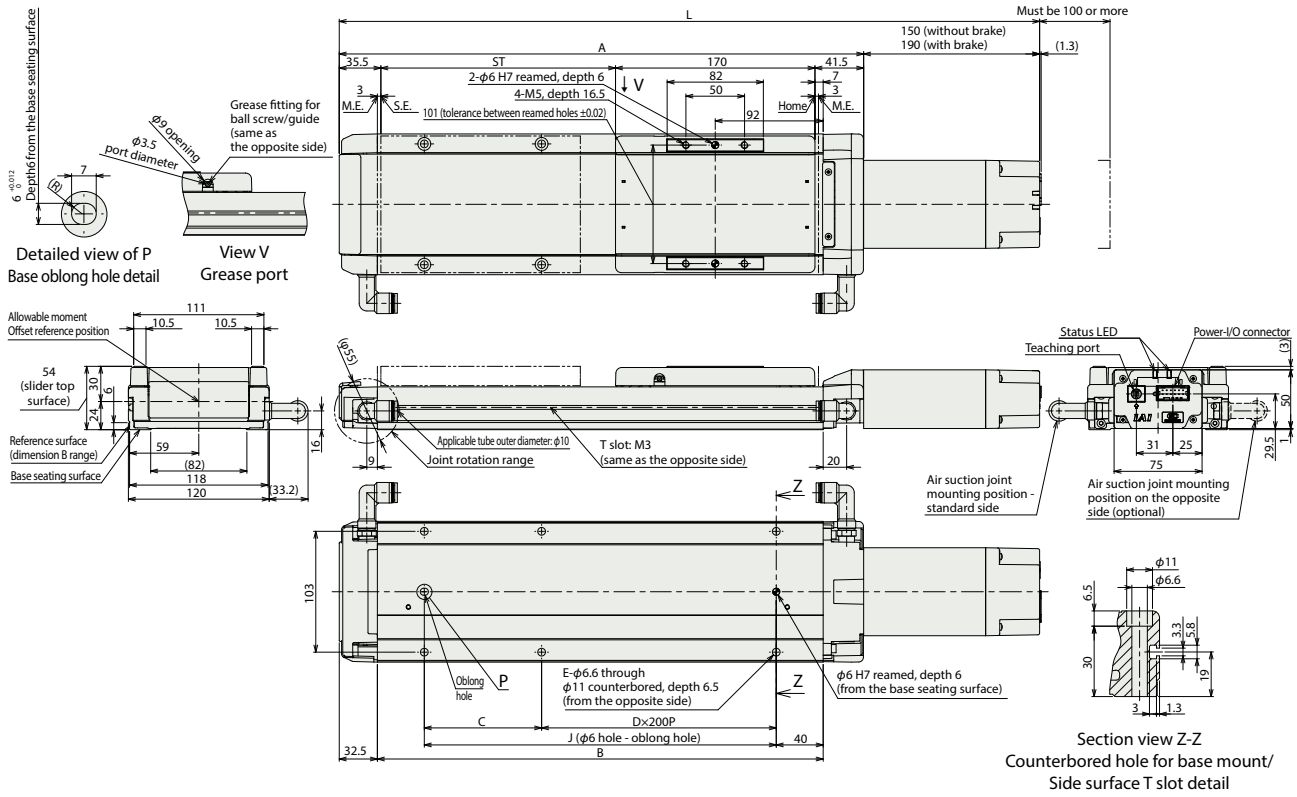


CAD drawings can be downloaded from our website.
www.intelligentactuator.com

■ EC-WS12□CR

(Note) When the slider is returning to its home position, 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	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197
	With brake	487	537	587	637	687	737	787	837	887	937	987	1037	1087	1137	1187	1237
A		297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047
B		230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980
C		150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
D		0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4
E		4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

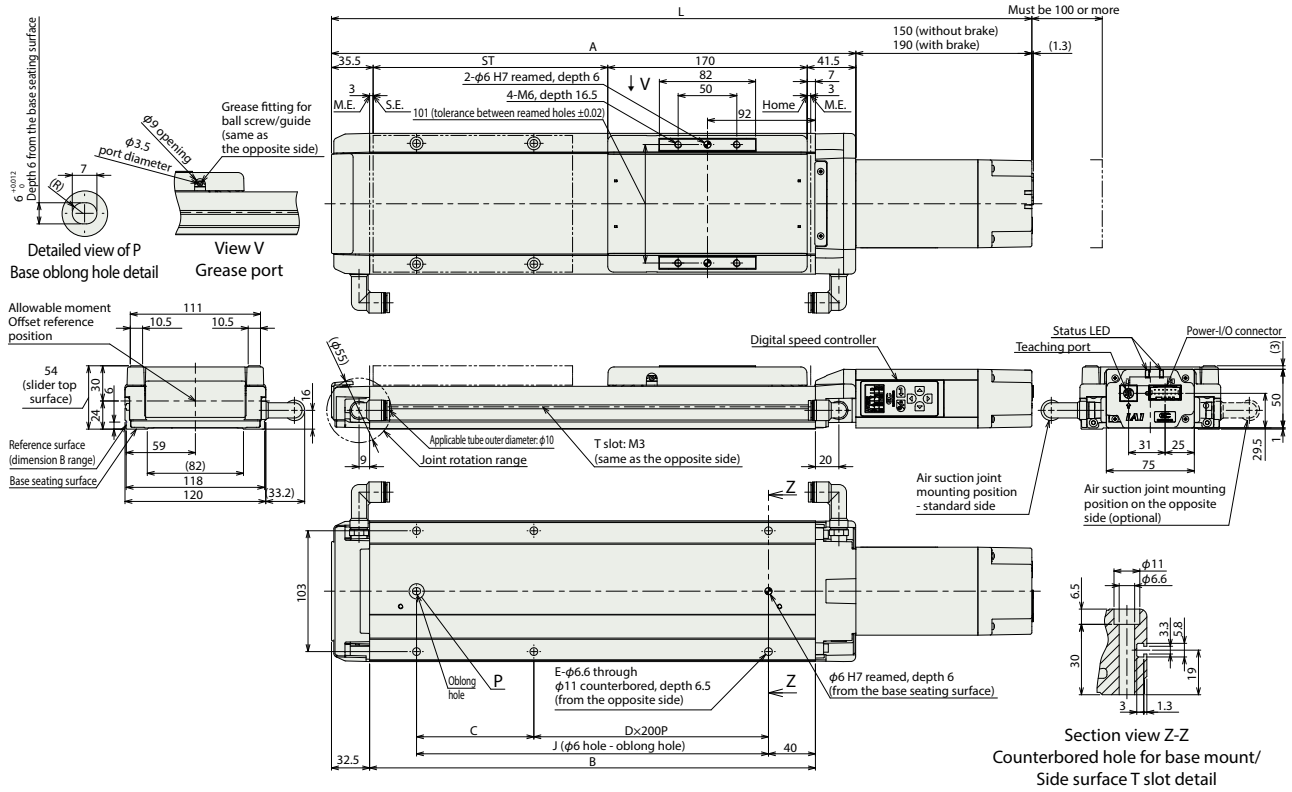
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.5	3.8	4.2	4.5	4.9	5.2	5.6	5.9	6.3	6.7	7.0	7.3	7.7	8.1	8.4	8.8
	With brake	3.7	4.1	4.4	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.3	8.7	9.1

■ EC-DWS12□CR <with digital speed controller>

(Note) When the slider is returning to its home position, be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The drawing below is for the digital speed controller mounted at the left side (DL). The right side mounting (DR) is at the opposite side.

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	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197
	With brake	487	537	587	637	687	737	787	837	887	937	987	1037	1087	1137	1187	1237
A		297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047
B		230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980
C		150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
D		0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4
E		4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.5	3.8	4.2	4.5	4.9	5.2	5.6	5.9	6.3	6.7	7.0	7.3	7.7	8.1	8.4	8.8
	With brake	3.7	4.1	4.4	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.3	8.7	9.1

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 50 for details on built-in controllers.

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** Applicable models **All models**

Description This option should be selected to connect to a field network via RCON-EC.
*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.

Brake

Model **B** Applicable models **All models**

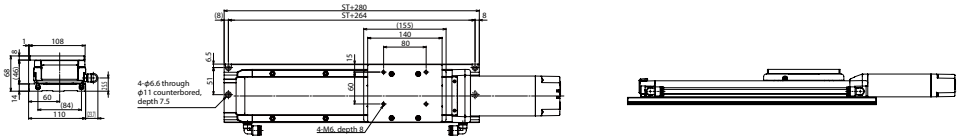
Description This mechanism stops the slider from moving when the power or servo is turned off. This option is needed when using the actuator vertically.

Air cylinder compatible mounting plate

Model **CS** Applicable models **EC-(D)WS10□CR / (D)WS12□CR**

Description This plate makes compatible with some rod-less air cylinder models.
By attaching the plate to the slider and base sides, the height and position of the air cylinder slider can be aligned.
* The plates are not assembled for shipment. The customer is requested to attach the plates.
(Note 1) When CS is selected, payload will be reduced by 1kg. (Note 2) Vertical, side and ceiling mounting are not possible.

EC-(D)WS10 □ CR Single unit model Base side: EC-CSB-WS10- (stroke) (Material aluminum)
Slider side: EC-CSS-WS10 (Material carbon steel, nickel plated)



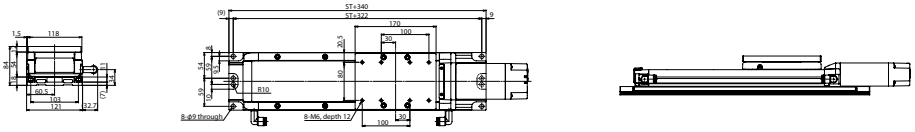
◆ Supplied items other than plates
- Bolt with hexagonal hole (for mounting slider): M5 x 10 (4 pieces)
- Bolt with hexagonal hole (for mounting base): M5 x 35 (Q'ty as stated below)
- Parallel pin: φ 5 x 8, Class B, h7 (2 pieces)
- Square nut: □ 8 x 4 M5 (Q'ty as stated below)

Stroke	50~100	150~300	350~500
Quantity	4 pieces	6 pieces	8 pieces

◆ Table of mass by stroke (increased mass by plates)

Stroke	50	100	150	200	250	300	350	400	450	500
Increased mass (kg)	2.1	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.4	3.6

EC-(D)WS12 □ CR Single unit model Base side: EC-CSB-WS12- (stroke) (Material aluminum)
Slider side: EC-CSS-WS12 (Material aluminum)



◆ Supplied items other than plates
- Bolt with hexagonal hole (for mounting slider): M6 x 15 (4 pieces)
- Bolt with hexagonal hole (for mounting base): M6 x 40 (Q'ty as stated below)
- Parallel pin: φ 6 x 10, Class B, h7 (2 pieces)
- Square nut: □ 10 x 5 M6 (Q'ty as stated below)

Stroke	50~100	150~300	350~500	550~700	750~800
Quantity	4 pieces	6 pieces	8 pieces	10 pieces	12 pieces

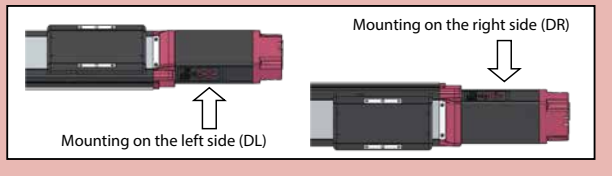
◆ Mass by stroke (increased by plates)

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Increased mass (kg)	2.2	2.5	2.7	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.6	4.8	5.1	5.3	5.5

Digital speed controller mounting orientation

Model **DL/DR** Applicable models **EC-DWS10□CR / DWS12□CR**

Description This model number is to specify the mounting orientation of digital speed controller.
The left side viewed from the motor is DL, and the right side is DR.
Make sure to specify either model.

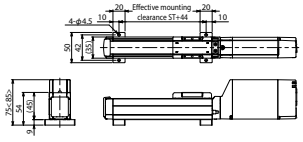


Foot bracket

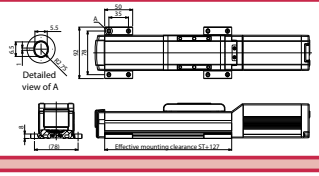
Model **FT** Applicable models **EC-(D)S3□CR / (D)S4□CR / (D)S6□CR / (D)S7□CR**

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. Numbers in brackets are dimensions with digital speed controller.

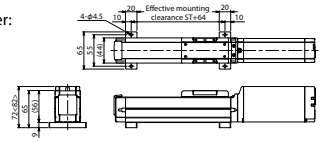
EC-(D)S3□CR Individual model number: EC-FT-SRR3 (2-piece set)
(Material: Aluminum)



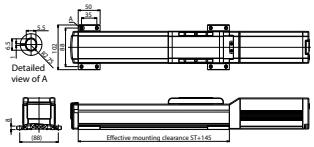
EC-(D)S6□CR Individual model number: EC-FT-SRR4 (2-piece set))
(Material: Steel [steam treated])



EC-(D)S4□CR Individual model number: EC-FTSB (4-piece set)
(Material: Iron)



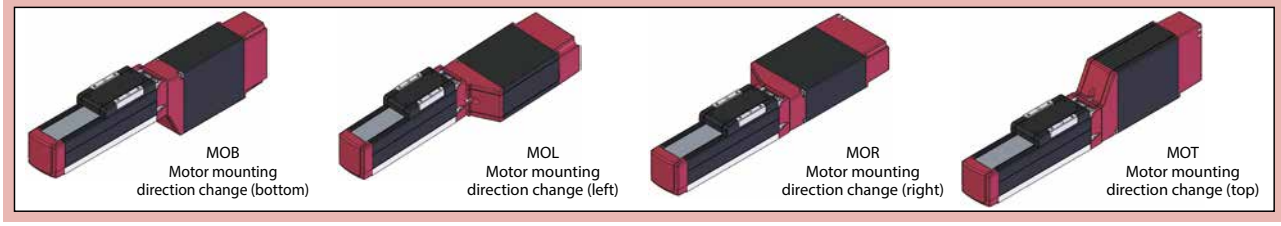
EC-(D)S7□CR Individual model number: EC-FTSB (4-piece set)
(Material: Steel [steam treated])



Motor mounting direction change

Model **MOB / MOL / MOR / MOT** Applicable models **EC-(D)S3□CR / (D)S4□CR**

Description One of four motor mounting directions can be selected: bottom, left, right, or top.
* Be sure to enter a code in the model number.



MOB
Motor mounting direction change (bottom)

MOL
Motor mounting direction change (left)

MOR
Motor mounting direction change (right)

MOT
Motor mounting direction change (top)

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 other side in order to accommodate variations in equipment layout, etc.

PNP specification *Cannot be selected with ACR option, which is the 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. 51 for more information on wiring.

Air suction joint in opposite position

Model **VR** Applicable models **All models**

Description The vacuum joint is normally installed on the left side of the body when seen from the motor side. This option changes it to the opposite (right) side.

Battery-less absolute encoder specification

Model **WA** Applicable models **All models**

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** Applicable models **All models**

Description This option enables support for wireless communication. Specifying this option enables wireless connection 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 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. Refer to P. 2-436 of the IAI General Catalog 2021 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.

Standard for cleanliness

Cleanliness is an indicator of how clean a cleanroom is. It is indicated as the "number of dust particles of a certain size or larger within a set volume."
The standard was based on United States Federal Standard 209 (1963), but was eliminated in 2001 following the establishment of ISO14644-1 in 1999.
Japanese Industrial Standard JIS B 9920 was also revised in 2002 to completely mimic the ISO.
Therefore, the ELECYLINDER® cleanroom specification complies with ISO 14644-1.

Standard	Class	Particle diameter	Standard volume	Remarks
Fed.Std.209D	Class 1, 10, 100 ... 100,000	0.5μm	$1ft^3$	Established in 1963, eliminated in 2001
ISO14644-1	Class 1 to 9	0.1μm	$1m^3$	Established in 1999

EC Cleanroom specification

The standard regulates the number of dust particles of a certain diameter with a space of a certain size ($1m^3$ or $1ft^3$)

<ISO cleanliness standard>

ISO 14644-1

Particle diameter	0.1μm					
Class standard	Exponential of number of particles in $1m^3$					
Class	Upper density [particles/m^3]					
	0.1μm	0.2μm	0.3μm	0.5μm	1μm	5μm
Class 1	10	2				
(Class 1.5)	32					
Class 2	100	24	10	4		
(Class 2.5)	316					
Class 3	1,000	237	102	35	8	
(Class 3.5)	3,160					
Class 4	10,000	2,370	1,020	352	83	
(Class 4.5)	31,600					
Class 5	100,000	23,700	10,200	3,520	832	29
Class 6	1,000,000	237,000	102,000	35,200	8,320	293
Class 7				352,000	83,200	2,930
Class 8				3,520,000	832,000	29,300
Class 9				35,200,000	8,320,000	293,000

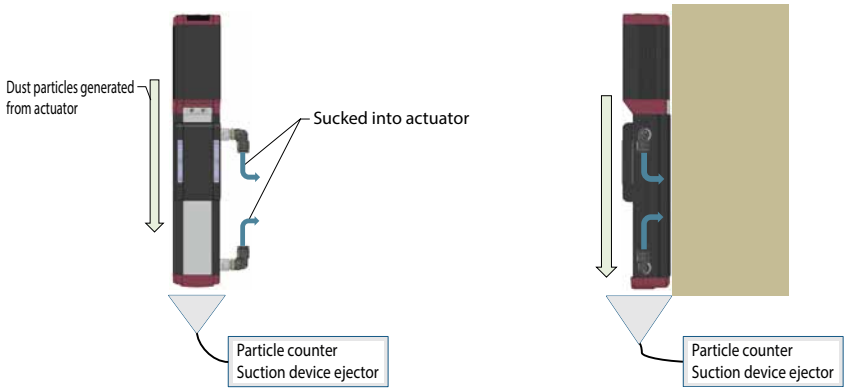
*Filled area indicates applicable particle diameter

EC Cleanroom specification cleanliness

Type	ISO class
(D)S3□CR	Class 3
(D)S4□CR	
(D)S6□CR	
(D)S7□CR	
(D)S6□AHCR	Class 2.5
(D)S7□AHCR	
(D)WS10□CR	Class 3
(D)WS12□CR	

<IAI method for measuring cleanliness>

As shown in the figure below, the number of dust particles is measured 3 times with the product vertically mounted. The largest number is used as the cleanliness.



Duty ratio

The duty ratio is the operation rate in % of the actuator operating time in one cycle.

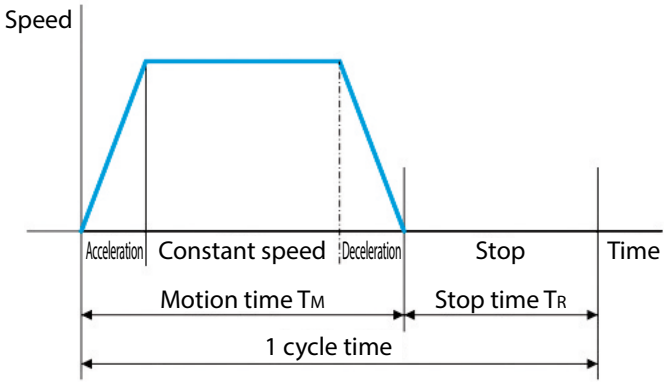
For ELECYLINDER types, the duty ratio is limited as shown below.
The duty ratio for operations at the maximum speed and acceleration/deceleration is as follows.

[Duty ratio]

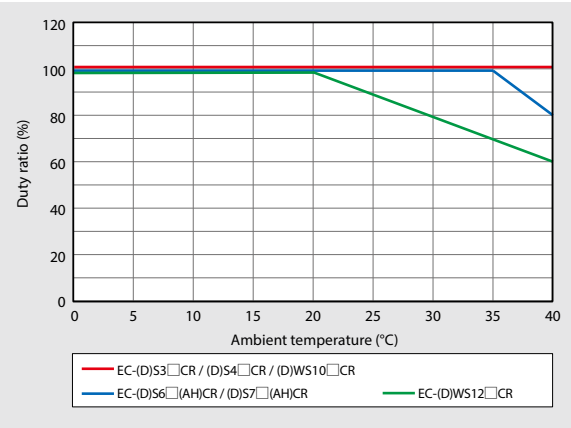
The duty ratio is the operation rate in % of the actuator operating time in one cycle.

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

D: duty ratio
TM: Motion time (including push motion)
TR: Stop time



■ Ambient temperature and duty ratio



Push motion

A push motion is a function that the slider pushes against workpiece, etc. and holds it like an air cylinder.
Make sure to confirm the method of use and precautions stated below before using it.

[Adjustment of the push force]

* The force of the push motion (push force) can be adjusted by changing the "Push Force (%)" of the ELECYLINDER.

* To select the most suitable model, confirm the push force at the "Correlation between Torque and Current Limit" of each product page.

[Method of lead selection]

Select a lead whose desired push force is within the recommended area of the current limit value (colored area in the graph).

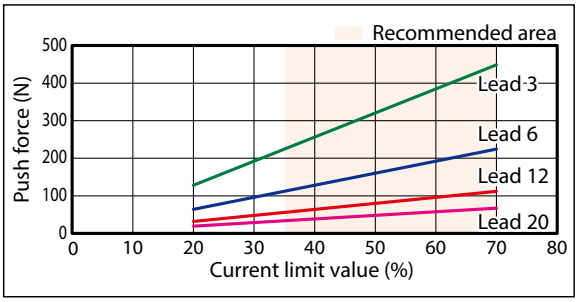
Taking the EC-(D)S6□CR type in the right graph as an example, when the desired push force is 150N, Lead 6 is suitable. If Lead 3 is selected, the adjustment area is limited.

[Precautions]

When a push motion is performed using a slider type, it is necessary to consider the dynamic allowable moment of the guide. Limit the push current so that the reaction moment generated by the push force does not exceed the dynamic allowable moment (Ma and Mb) specified in the catalog.

(Example)

EC-(D)S6□CR



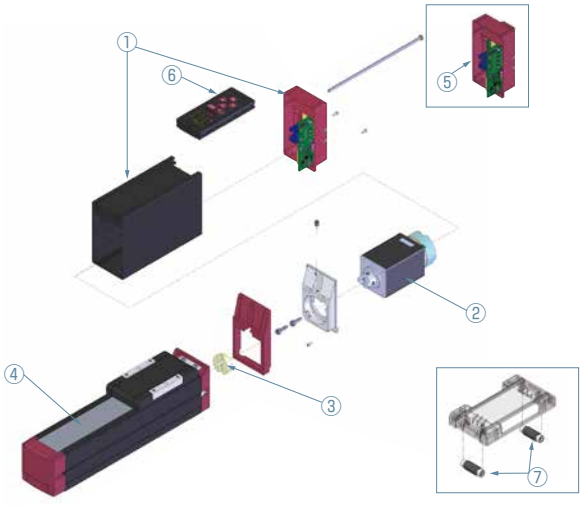
<Correlation between Push Force and Current Limit>

Notes

- **The "Correlation between Torque and Current Limit" show lower guidelines for torque for each current limit value.**
- **Individual differences in the motor and variations in machine operation may cause the torque 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 torque lower limit could be exceeded by 40% or more.**

Maintenance Parts (actuator)

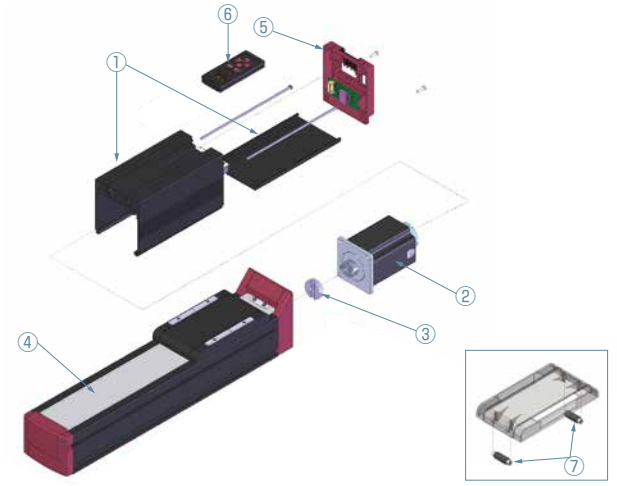
EC-(D)S3□CR (D)S4□CR



(1) Controller Assy
(Motor cover/end cover/cable between substrates)
(2) Motor unit
(3) Coupling spacer
(4) Stainless sheet
(5) End cover Assy (with wireless communication substrate cable)
(6) Digital speed controller
(7) Slider roller Assy

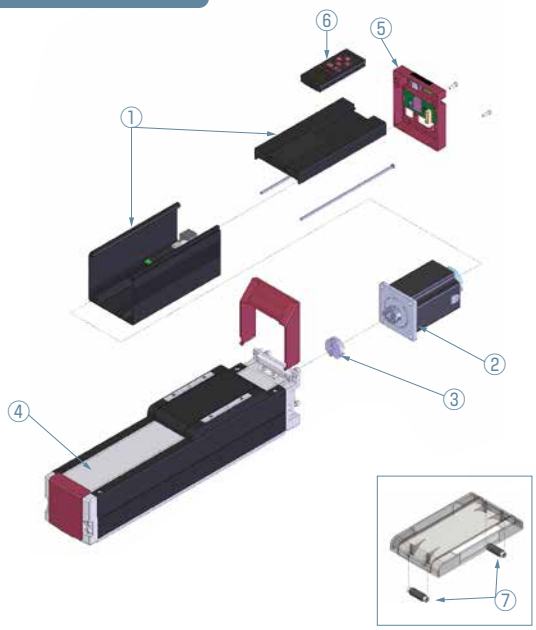
EC-(D)S6□CR (D)S7□CR

* The drawing below is a schematic drawing of the digital speed controller. In case of models without a digital speed controller, the external appearance of the motor cover is different. (There is no machining for the digital speed controller)



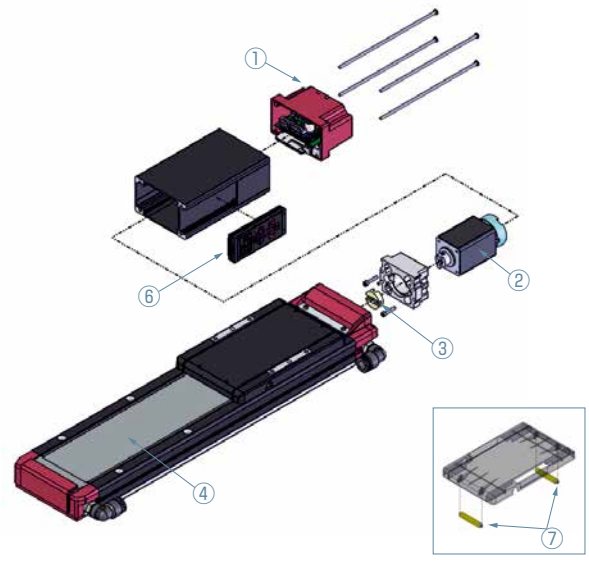
(1) Motor cover Assy (including controller substrate)
(2) Motor unit
(3) Coupling spacer
(4) Stainless sheet
(5) End cover Assy (with wireless communication substrate cable)
(6) Digital speed controller
(7) Slider roller Assy

EC-(D)S6□AHCR (D)S7□AHCR



(1) Motor cover Assy (including controller substrate)
(2) Motor unit
(3) Coupling spacer
(4) Stainless sheet
(5) End cover Assy (with wireless communication substrate cable)
(6) Digital speed controller
(7) Slider roller Assy

EC-(D)WS10□CR (D)WS12□CR



(1) Motor cover Assy
(including controller substrate)
(2) Motor unit
(3) Coupling spacer
(4) Stainless sheet
(6) Digital speed controller
(7) Slider roller Assy

The numbers in the table correspond to those in the schematic drawing.
(Note) Fixing screws are not supplied for maintenance parts. For a modification purpose, contact IAI representatives.

①-1 Controller Assy [model configuration] Basic model - (ACR selected) - (TMD2 selected) - (WL2 selected)

(Example) Digital speed controller specification with TMD2 and WL2 selected.
MWB-EC-DSRR3-TMD2-WL2

Type	Encoder	Brake	I/O	Basic model Specify "D" for the digital speed controller specification.	RCON-EC connection specification* Model: ACR	Twin power supply specification* Model: TMD2	*Wireless axis operation specification Model: WL2
(D)S3□CR	Incremental	No	NPN	MWB-EC-(D)SRR3	ACR (Only NPN for I/O)	TMD2	WL2
			PNP	MWB-EC-(D)SRR3-P			
		Yes	NPN	MWB-EC-(D)SRR3-B			
			PNP	MWB-EC-(D)SRR3-B-P			
	Battery-less absolute	No	NPN	MWB-EC-(D)SRR3-WA			
			PNP	MWB-EC-(D)SRR3-WA-P			
		Yes	NPN	MWB-EC-(D)SRR3-WA-B			
			PNP	MWB-EC-(D)SRR3-WA-B-P			
(D)S4□CR	Incremental	No	NPN	MWB-EC-(D)SRR4			
			PNP	MWB-EC-(D)SRR4-P			
		Yes	NPN	MWB-EC-(D)SRR4-B			
			PNP	MWB-EC-(D)SRR4-B-P			
	Battery-less absolute	No	NPN	MWB-EC-(D)SRR4-WA			
			PNP	MWB-EC-(D)SRR4-WA-P			
		Yes	NPN	MWB-EC-(D)SRR4-WA-B			
			PNP	MWB-EC-(D)SRR4-WA-B-P			

* Common with the wireless communication specification (Model: WL) (Note) Wireless communication substrate is not supplied

①-2 Motor cover Assy

(Example) Digital speed controller specification with TMD2 and WL2 selected.
MWB-EC-DSR6-TMD2-WL2

Type	Brake	I/O	Basic model Specify "D" for the digital speed controller specification.	RCON-EC connection specification* Model: ACR	Twin power supply specification* Model: TMD2	*Wireless axis operation specification Model: WL2
(D)S6□CR	No	NPN	MWB-EC-(D)SR6	ACR (Only NPN for I/O)	TMD2	WL2
		PNP	MWB-EC-(D)SR6-P			
	Yes	NPN	MWB-EC-(D)SR6-B			
		PNP	MWB-EC-(D)SR6-B-P			
(D)S7□CR	No	NPN	MWB-EC-(D)SR7			
		PNP	MWB-EC-(D)SR7-P			
	Yes	NPN	MWB-EC-(D)SR7-B			
		PNP	MWB-EC-(D)SR7-B-P			
(D)S6□AHCR	No	NPN	MWB-ECH-(D)SRR6			
		PNP	MWB-ECH-(D)SRR6-P			
	Yes	NPN	MWB-ECH-(D)SRR6-B			
		PNP	MWB-ECH-(D)SRR6-B-P			
(D)S7□AHCR	No	NPN	MWB-ECH-(D)SRR7			
		PNP	MWB-ECH-(D)SRR7-P			
	Yes	NPN	MWB-ECH-(D)SRR7-B			
		PNP	MWB-ECH-(D)SRR7-B-P			

* Common with the wireless communication specification (Model: WL) (Note) Wireless communication substrate is not supplied

①-3 Controller cover Assy

Type	I/O	Wireless	Model		
			Standard	in case TMD2 is selected	in case ACR is selected
(D)WS10□CR	NPN	No	CCA-EC-WS10	CCA-EC-WS10-TMD2	CCA-EC-WS10-ACR
		WL	CCA-EC-WS10-WL	CCA-EC-WS10-TMD2-WL	CCA-EC-WS10-ACR-WL
		WL2	CCA-EC-WS10-WL2	CCA-EC-WS10-TMD2-WL2	CCA-EC-WS10-ACR-WL2
	PNP	No	CCA-EC-WS10-P	CCA-EC-WS10-P-TMD2	
		WL	CCA-EC-WS10-P-WL	CCA-EC-WS10-TMD2-P-WL	
		WL2	CCA-EC-WS10-P-WL2	CCA-EC-WS10-P-TMD2-WL2	
(D)WS12□CR	NPN	No	CCA-EC-WS12	CCA-EC-WS12-TMD2	CCA-EC-WS12-ACR
		WL	CCA-EC-WS12-WL	CCA-EC-WS12-TMD2-WL	CCA-EC-WS12-ACR-WL
		WL2	CCA-EC-WS12-WL2	CCA-EC-WS12-TMD2-WL2	CCA-EC-WS12-ACR-WL2
	PNP	No	CCA-EC-WS12-P	CCA-EC-WS12-P-TMD2	
		WL	CCA-EC-WS12-P-WL	CCA-EC-WS12-P-TMD2-WL	
		WL2	CCA-EC-WS12-P-WL2	CCA-EC-WS12-P-TMD2-WL2	

②Motor unit

Type	Encoder	Brake	Model
(D)S3□CR	Incremental	No	EC-MUSRR3
		Yes	EC-MUSRR3-B
	Battery-less absolute	No	EC-MUSRR3-WA
		Yes	EC-MUSRR3-WA-B
(D)S4□CR (D)WS10□CR	Incremental	No	EC-MUSRR4
		Yes	EC-MUSRR4-B
	Battery-less absolute	No	EC-MUSRR4-WA
		Yes	EC-MUSRR4-WA-B
(D)S6□(AH)CR (D)WS12□CR	Incremental	No	EC-MUSR6
		Yes	EC-MUSR6-B
	Battery-less absolute	No	EC-MUSR6-WA
		Yes	EC-MUSR6-WA-B
(D)S7□(AH)CR	Incremental	No	EC-MUS7
		Yes	EC-MUS7-B
	Battery-less absolute	No	EC-MUS7-WA
		Yes	EC-MUS7-WA-B

③Coupling spacer

Type	Model
(D)S3□CR	CPG-EC-SRR3
(D)S4□CR	CPG-EC-SRR4
(D)S6□(AH)CR (D)WS10□CR (D)WS12□CR	CPG-EC-SR6
(D)S7□(AH)CR	CPG-EC-SR7

⑤End cover Assy

Type	Model Specify "D" for the digital speed controller specification.
(D)S3□CR	EWB-EC-(D)SRR3
(D)S4□CR	EWB-EC-(D)SRR4
(D)S6□CR	EWB-EC-(D)SR6
(D)S7□CR	EWB-EC-(D)SR7
(D)S6□AHCR	EWB-ECH-(D)SRR6
(D)S7□AHCR	EWB-ECH-(D)SRR7

(Note) Wireless communication substrate cable is supplied. For non-wireless specification, contact IAI representatives.

④Stainless sheet

Type	Model
(D)S3□CR	ST-EC-S3-○○○
(D)S4□CR	ST-EC-S4-○○○
(D)S6□CR	ST-EC-S6-○○○
(D)S7□CR	ST-EC-S7-○○○
(D)S6□AHCR	ST-ECXH-S6-○○○
(D)S7□AHCR	ST-ECXH-S7-○○○
(D)WS10□CR	ST-6WA10-○○○
(D)WS12□CR	ST-EC-WS12-○○○

* ○○○ is the stroke

⑥Digital speed controller

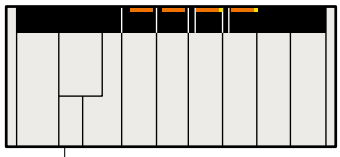
Type	Model
All models	DSC-01

⑦Slider roller Assy

Type	Model
(D)S3□CR	EC-SR-S3
(D)S4□CR (D)S6□(AH)CR (D)S7□(AH)CR	EC-SR-S467
DWS10□CR DWS12□CR	EC-SR-WS1012

The above model is for one piece.
Order two pieces for one axis.

System Configuration



<Wires>
For "24V" and "0V," the thickness should be AWG18 or more. For others, it should be AWG26 or more.
*All cables should be 10m or shorter.

Accessory
Power / I/O connector
Connector for connecting customer-side power wiring.
<Model: 1-1871940-6>

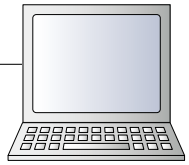
Accessory
Power / I/O cable
(See P. 53)
<Model: CB-EC-PWBIO□□□-RB (standard connector)>
<Model: CB-EC2-PWBIO□□□-RB (4-way connector)>
Cable for connecting power and PLC I/O signals.

Options
24VDC power supply
(Refer to P. 2-429 of the IAI General Catalog 2021)
<Model: PSA-24>

Options
EC connection unit
(Refer to P. 2-405 of the IAI General Catalog 2021)
<Model: REC-GW-□+RCON-EC-4>
Unit to connect to the field network. (Note)

Accessory
Power / I/O cable
(See P. 53)
<Model: CB-REC-PWBIO□□□-RB (standard connector)>
<Model: CB-REC2-PWBIO□□□-RB (4-way connector)>
Cable to connect an actuator and EC connection unit.

Options
PC teaching software
(See P. 52)
Software only
<Model: RC/EC Software>
Dedicated connection cable accessory
<Model: RCM-101-USB>



Option
Wireless/wired touch panel teaching pendant
(See P. 52)
<Model: TB-03-□>
*Can also connect to wired-only touch panel teaching pendant "TB-02."

Option
Wireless/wired touch panel teaching pendant with power supply unit
(Refer to P. 2-437 of the IAI General Catalog 2021)
<Model: TB-03E-SCN-□>
*Can also connect to wired-only touch panel teaching pendant with power supply unit "TB-02E."

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 (1-1871940-6)
	Yes	—
1 ~ 10	No	Power / I/O cable (CB-EC-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC-PWBIO□□□-RB)

[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 ±10%
Power capacity (Including 0.3A control power) (Note 1)		(D)S3☐CR	Max. 2.2A (with energy-saving setting enabled only)
		Other than the above	With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Max. 2.2A
Brake release power supply			24VDC ±10%, 200mA (only for external brake release)
Generated heat (at 100% of the duty ratio)		(D)S3☐CR	5W
		Other than the above	8W
Inrush current (Note 2)		(D)S3☐CR	2A
		Other than the above	8.3A (with inrush current limit circuit)
Momentary power failure resistance			Max 500μs
Motor size			☐28, ☐35, ☐42, ☐56
Motor rated current			1.2A
Motor control system			Weak field-magnet vector control
Supported encoders			Incremental (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 ±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 ±10%
		Output current	50mA per point
		Residual voltage	2V or less
		Isolation method	Non-isolated
Data setting, input method			PC teaching 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 and when the LED (right side) blinks alternately green and red at overload warning *Only when configured in advance
Ambient operating temperature			0 ~ 40°C
Ambient operating humidity			5%RH to 85%RH (Non-condensing or freezing)
Operating environment			No corrosive gas and excessive dust
Insulation resistance			500VDC 10MΩ
Electric shock protection mechanism			Class 1 basic insulation
Cooling method			Natural air cooling

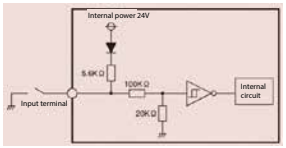
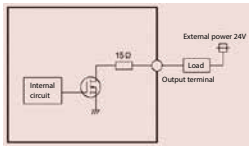
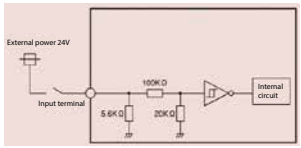
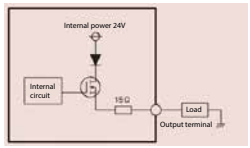
(Note 1) Subtract 0.3A of control power from the control power.
(Note 2) Inrush current flows for approximately 5ms after the power is input. (At 40°C.) Inrush current value differs depending on the impedance on the power line.

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.

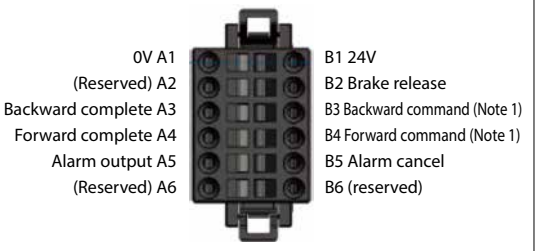
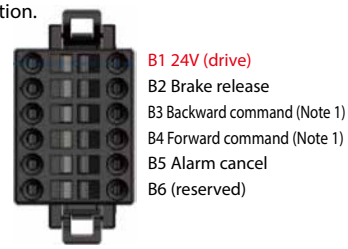
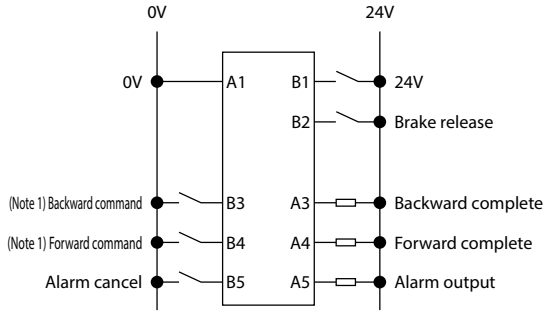
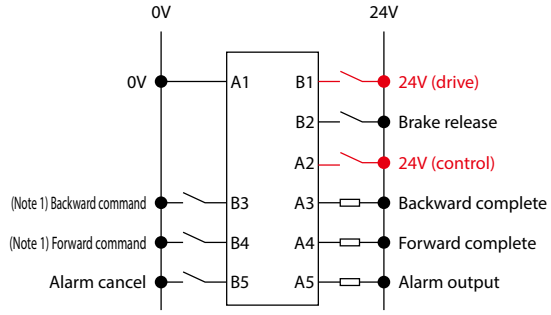
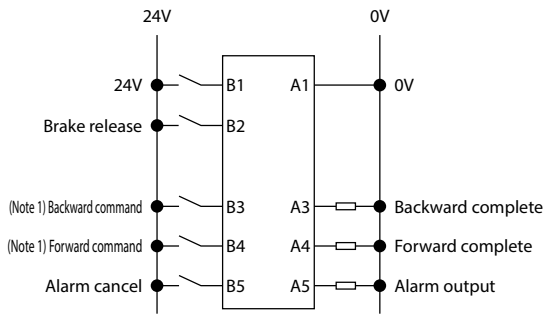
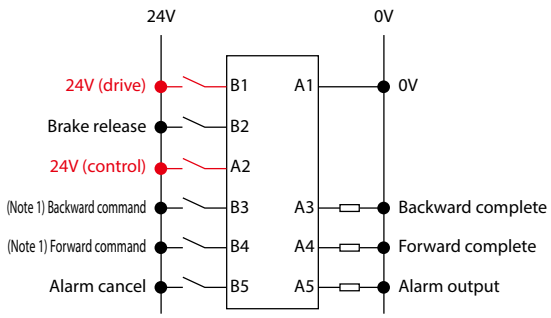
<Caution>
Operation cannot be performed using the single solenoid method when operating connected to RCON-EC.

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			Drive power and control power are separate for the TMD2 specification. 
I/O logic	NPN		
	PNP		

(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 reset	RES	Alarm reset
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).

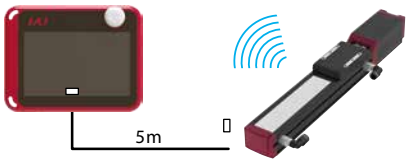
Option

Wireless/wired touch panel teaching pendant

■ **Features** This teaching device supports wireless connections.
Start point/end point/AVD (Acceleration/Velocity/Deceleration) input and axis operation can be performed wirelessly.

■ **Model** **TB-03-□** Please contact IAI for the current supported versions.

■ **Configuration** Wireless or wired connection



■ **Specifications**

Rated voltage	DC24V
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 ~ 40°C
Ambient operating humidity	5 ~ 85%RH (Non-condensing)
Environmental resistance	IPX0
Mass	Approx. 485g (body) + approx. 175g (battery)
Charging method	Wired connection with dedicated adapter/controller
Wireless connection	Bluetooth 4.2 class2

Teaching software for PC (Windows only)

■ **Features** The start-up support software which comes equipped with functions such as position teaching, trial operation, and monitoring.
A complete range of functions needed for making adjustments contributes to shortened start-up time.

■ **Model** **IA-OS** (software only, for customers who already own a dedicated connection cable)

Please contact IAI for the current supported versions.

* Please purchase through your distributor and a download link will be sent to your valid email address.

■ **Configuration**

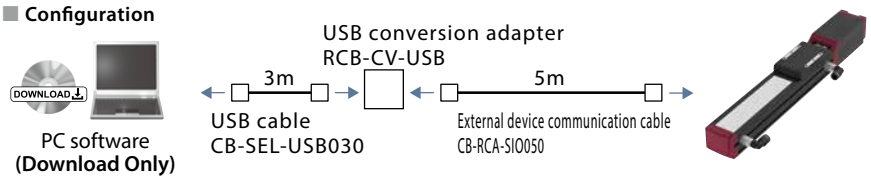
PC software
(Download Only)

■ **Model** **IA-OS-C** (with an external device communication cable + USB conversion adapter + USB cable)

Please contact IAI for the current supported versions.

* Please purchase through your distributor and a download link will be sent to your valid email address.

■ **Configuration**



PC software
(Download Only)

Maintenance Parts (cables)

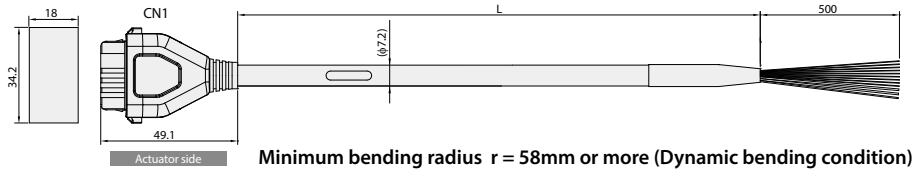
When placing an order for a replacement cable, please use the model name shown below.

■ **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 □□□, Maximum 10m. (for example. 030 = 3m)



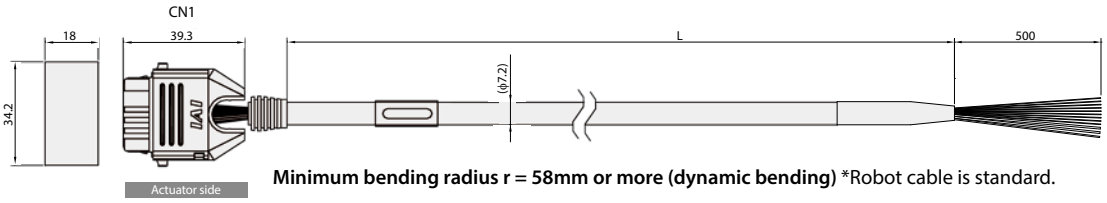
Minimum bending radius r = 58mm or more (Dynamic bending condition)
***Only the robot cable is available for this model.**

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

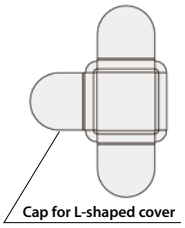
(Note 1) 24V (control) when split motor and controller power supply specification (TMD2) selected.

Model CB-EC2-PWBIO□□□-RB

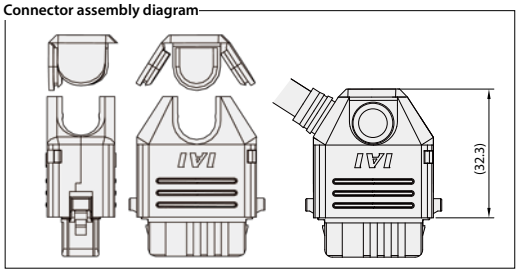
*Please indicate the cable length (L) in □□□, Maximum 10m. (for example, 030 = 3m)



Minimum bending radius r = 58mm or more (dynamic bending) *Robot cable is standard.



Connector assembly diagram

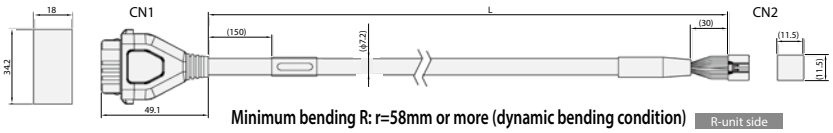


Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserved) (Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserved)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserved)	A6
Brown (AWG26)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



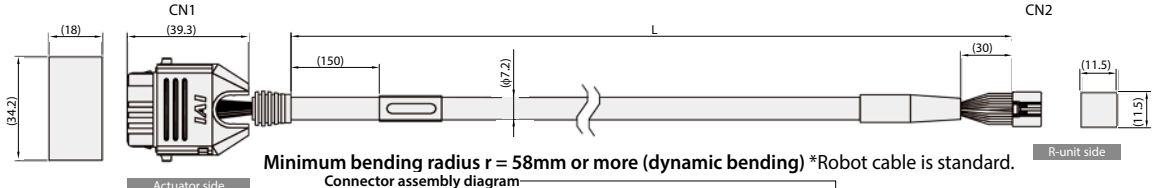
Minimum bending R: r=58mm or more (dynamic bending condition)
*Only the robot cable is available for this model.

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

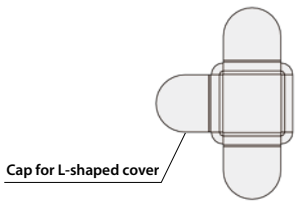
Pin No.	Signal name	Color
1	24V(MP)	Red (AWG18)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Pink (AWG26)
10	SD-	White (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

Model CB-REC2-PWBIO□□□-RB

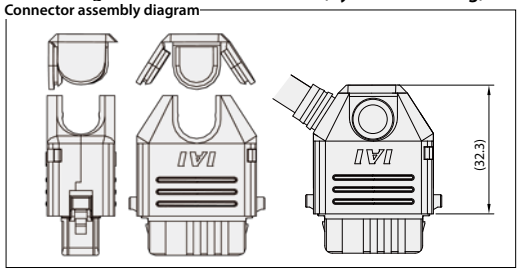
*Please indicate the cable length (L) in □□□, maximum 10m (for example, 030 = 3m)



Minimum bending radius r = 58mm or more (dynamic bending) *Robot cable is standard.



Connector assembly diagram



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)	IN0	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

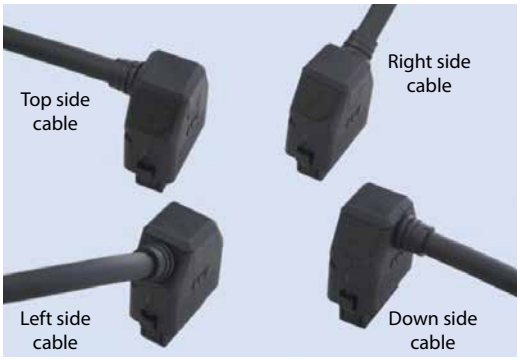
DF62C-13S-2C(18)

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 connector direction to be changed to any of 4 directions.
The cable wiring for the connector is the same as that of power I/O cable CB-EC-PWBIO□□□-RB / CB-REC-PWBIO□□□-RB.

Model: CB-EC2-PWBIO□□□-RB (user wiring specification)
CB-REC2-PWBIO□□□-RB (RCON-EC connection specification)



Cable direction can be set to any of 4 directions

- The wiring on the side opposite the connector is left unprepared.
- The cable length may be from 1m to 10m long.
  The length can be specified in 1m units.
- Example models are listed below.

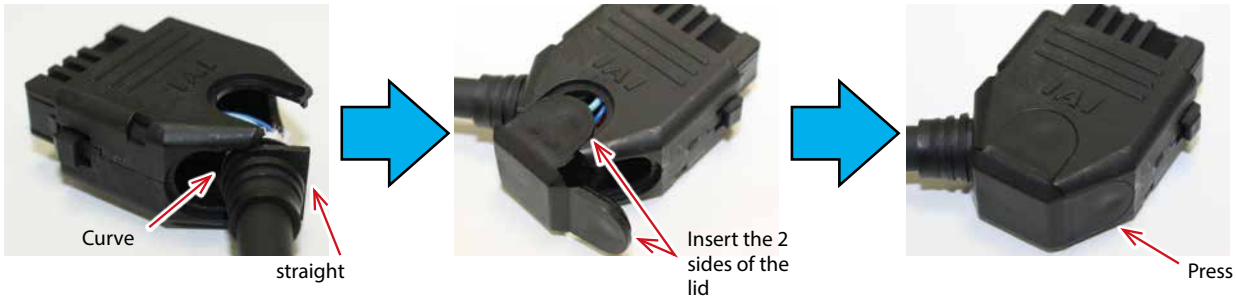
Cable length **1**m → CB-EC2-PWBIO**010**-RB
Cable length **3**m → CB-EC2-PWBIO**030**-RB
Cable length **10**m → CB-EC2-PWBIO**100**-RB

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.



Catalog No. CE0281-2A (2022JUL)

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