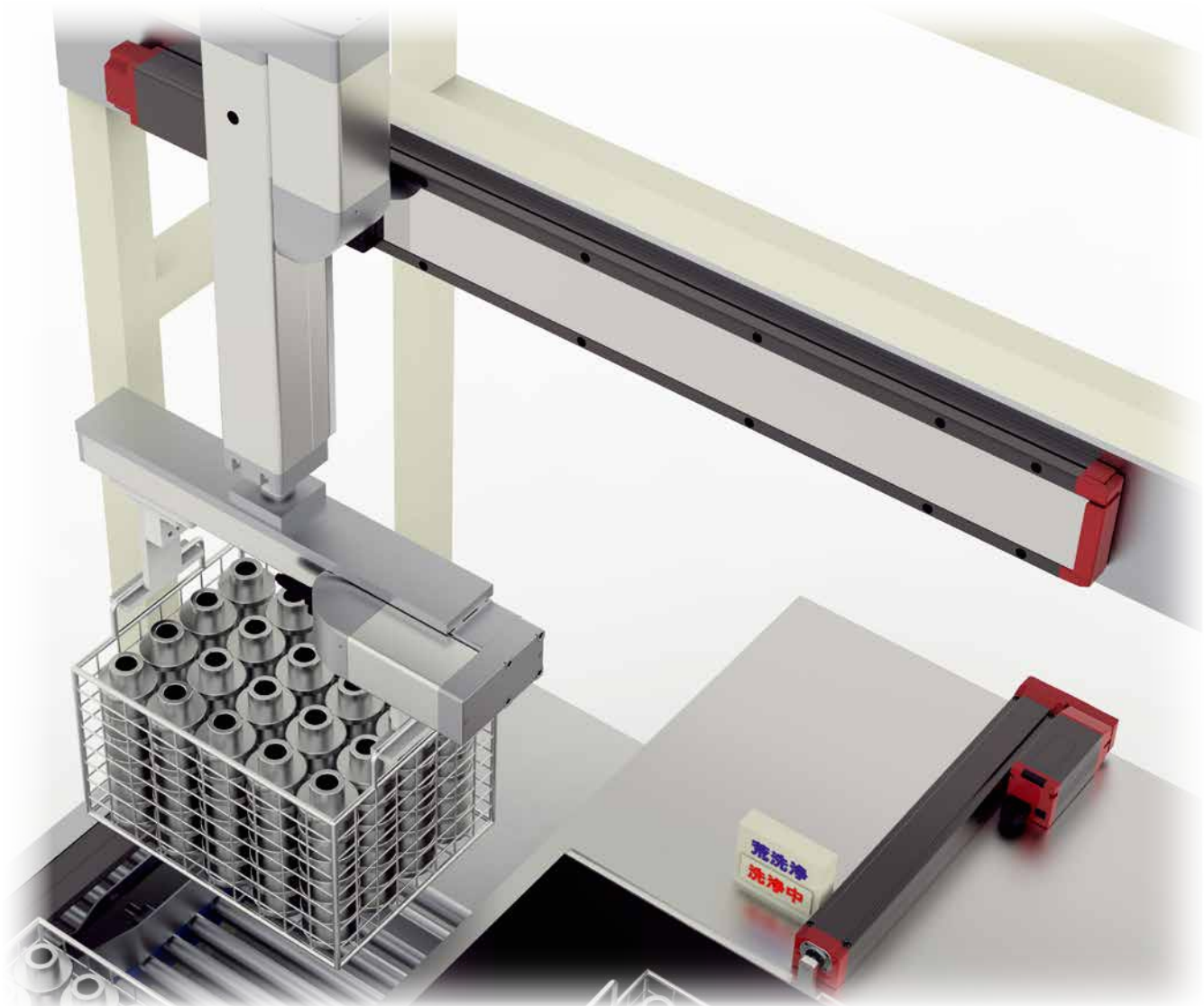


ELECYLINDER®
Wide Slider Type

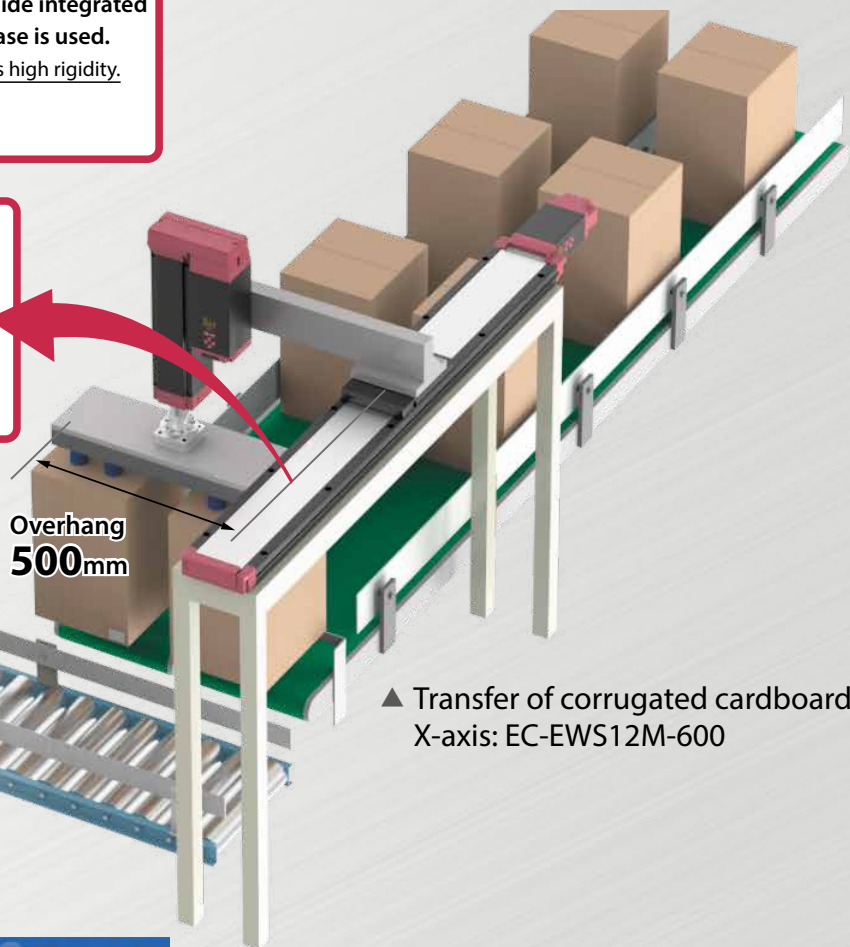
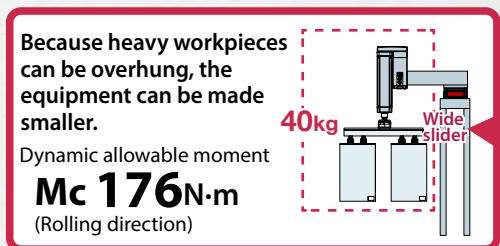
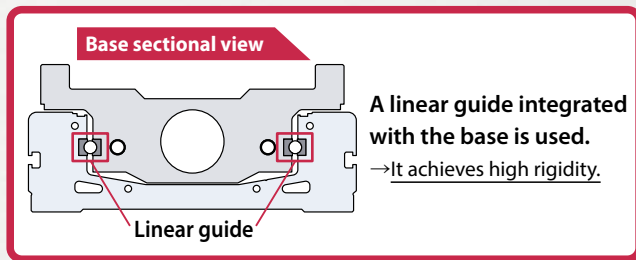
EC-(D)WS10(□R)
(D)WS12(□R)



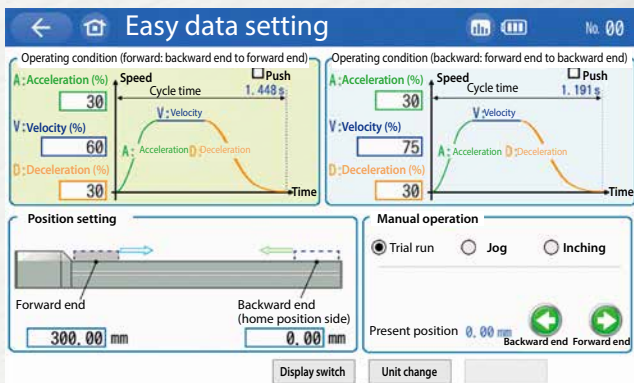
Wide Slider Type

Supports High Load Moment and Large Overhang

The wide body is equipped with a built-in ball circulating type linear guide. It is most suitable to heavy workpieces and large overhang applications.



In addition...



Since AVD (Acceleration, Velocity and Deceleration) can be individually set up, vibration will be suppressed and cycle times can be shortened.

▲ Easy data setting screen

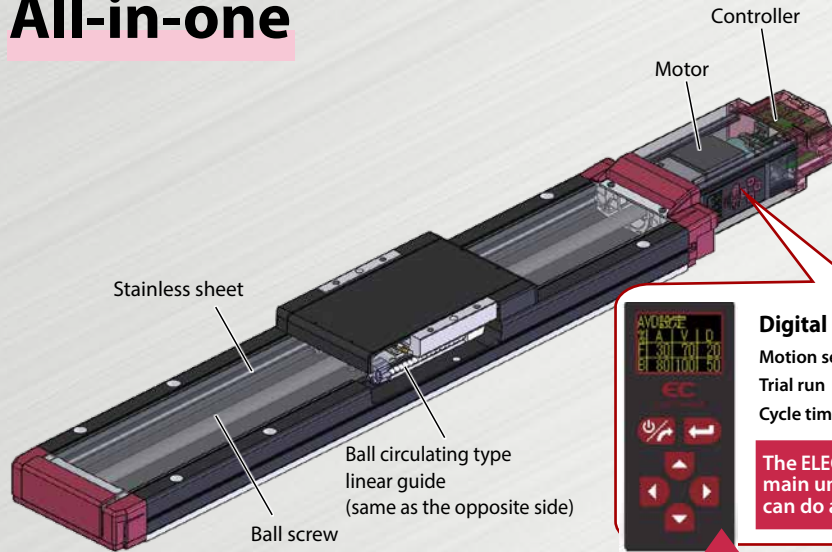
* The "Unit Change" enables display of the actual units (speed: mm/s and acceleration: G).

Wide Type

Positioning of two points

Built-in controller

All-in-one



Digital speed controller

Motion setting

Trial run

Cycle time checking

The ELECYLINDER main unit can do all of these !

All necessary functions for a single axis are built-in including controller and teaching functions.

Designing, start up and adjustment times can be shortened.

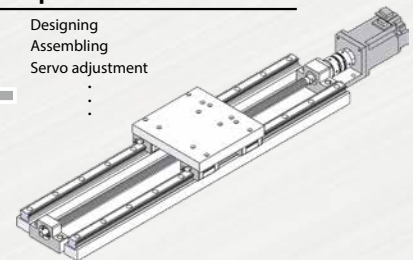
Example of in-house manufacturing a direct-acting unit

⇒ Greater number of parts and man-hours

Motor
Ball screw
Two linear guides
Guide block
Coupling
Bearing
Plate
...



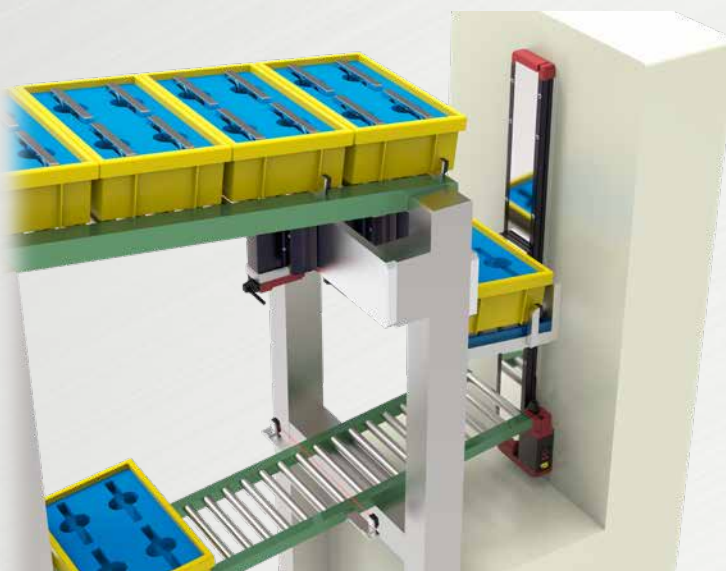
Designing
Assembling
Servo adjustment
...



Side mounted motor type

NEW

The side mounted motor type is suitable for limited space in the longitudinal direction.



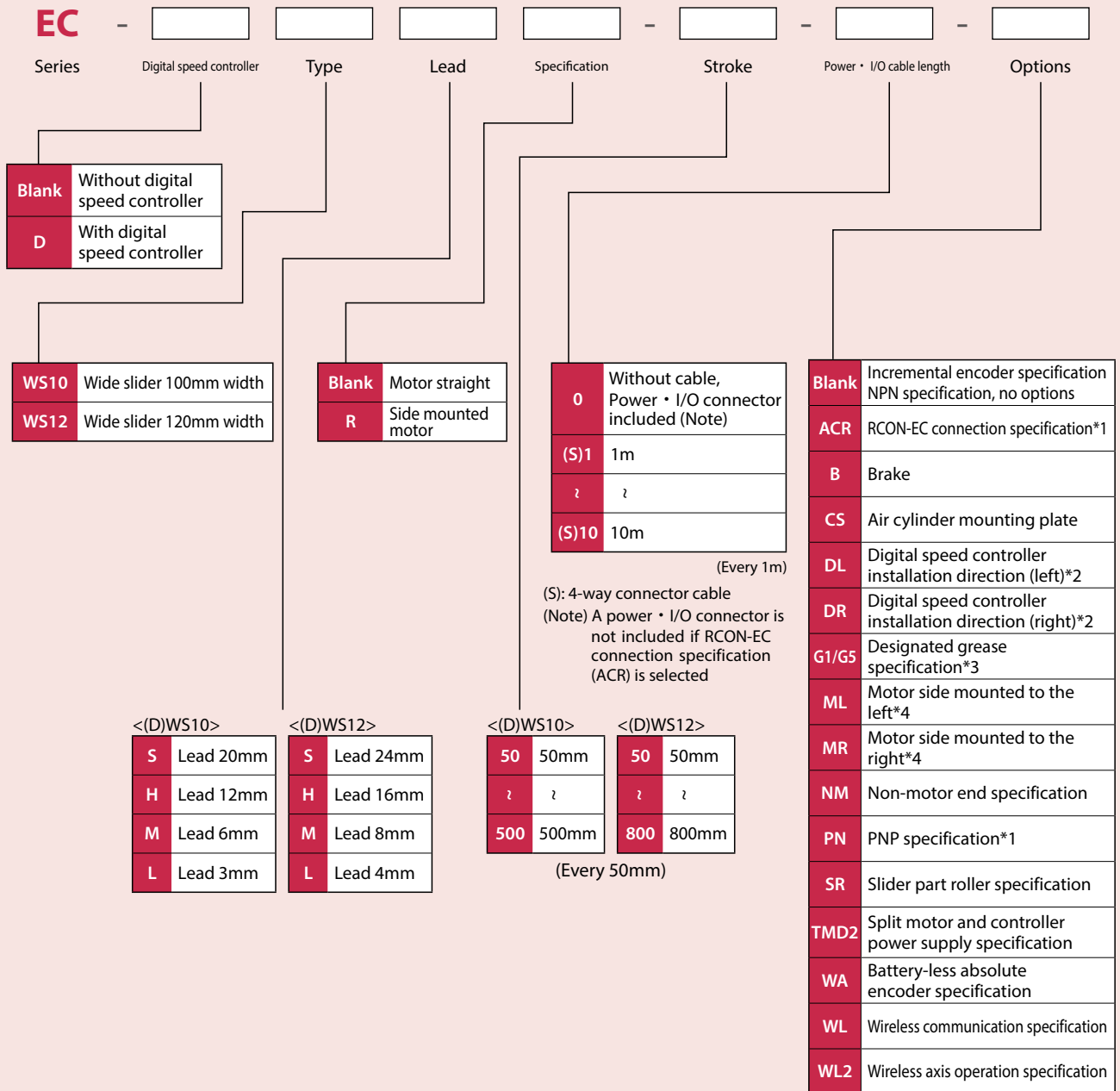
Wide slider type ELECYLINDER product page to view the demo video:



▲ Lifter transfer of parts container boxes
Z-axis: EC-DWS12MR-800

Model Specification Items

ELECYLINDER® Wider Slider Type



*1 "PN" and "TMD2" cannot be selected if "ACR" is selected

*2 Please be sure to select a code if selecting the specification with digital speed controller

*3 For the side mounted motor specification, G1 cannot be selected

*4 Selection is possible (and required) only for the side mounted motor specification

Table of Specifications

Specification	Type	Lead		Stroke (mm) and max. speed (mm/s)																	Max. payload		Reference page
		Model	mm	* Band length=stroke *Numbers in band = Max. speed by stroke, Numbers in < > are when used vertically.																	Horizontal	Vertical	
Motor straight	(D)WS10	S	20	900 800 700 600 480																	4	—	P7
		H	12	640 560 480 400 320 280																	15	—	
		M	6	400 <360> 360 270 210 180 140 120																	25	4	
		L	3	160 135 110 80 70 60																	44	7	
	(D)WS12	S	24	1000 900 800 700 580 500 460 400 360																	10	—	P11
		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	
Side mounted motor	(D)WS10□R	S	20	900 800 700 600 480																	4	—	P15
		H	12	640 560 480 400 320 280																	15	—	
		M	6	400 <320> 360 <320> 270 210 180 140 120																	25	4	
		L	3	135 110 80 70 60																	44	7	
	(D)WS12□R	S	24	1000 900 800 700 580 500 460 400 360																	10	—	P19
		H	16	720 640 580 500 420 360 320 280 240 220 200																	20	—	
		M	8	420 <280> 360 <280> 280 250 220 190 170 150 130 110 90 85																	40	8	
		L	4	210 <140> 180 <140> 140 125 110 95 85 75 65 55 50 45																	62	13.5	

Energy saving setting

ELECYLINDER® can select enable/disable of the "Energy saving" in parameter (No. 8).

Enable setting reduces power capacity by up to approx. 40% compared with the disable setting.

However, 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.


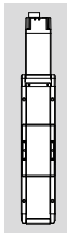
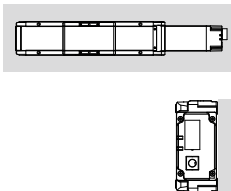

The product is set to disabled for shipment.

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)WS10(□R)	○	○ ^{*1} ○ ^{*2} ○ ^{*3} ○ ^{*4}	○ ^{*3} ○ ^{*5}	○ ^{*3} ○ ^{*5}
	(D)WS12(□R)				

*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 Not supported when selecting the air cylinder mounting plate (CS) option.

*4 Lead S and H are not supported.

*5 Installing the product horizontal to side or horizontal suspended may cause slack or misalignment in the stainless steel sheet.

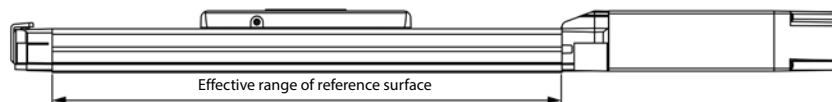
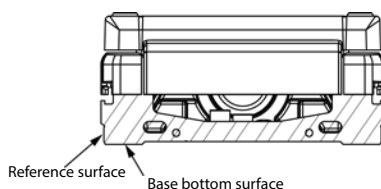
Continuing to use it this way could cause the stainless steel sheet to break. Please inspect it daily and adjust the sheet if any slack or misalignment is found.

Precautions for installation

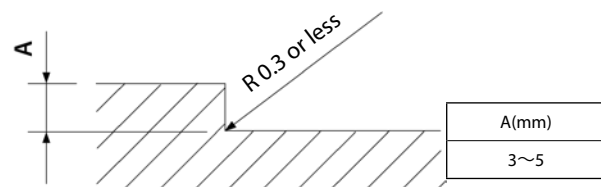
- Keep the body installation surface and parts mounting surface flatness within 0.05mm/m.

Uneven flatness will increase the sliding resistance of the slider and may cause a 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 mounting using the side surface as reference, machining of the surfaces should be done according to the drawing below.

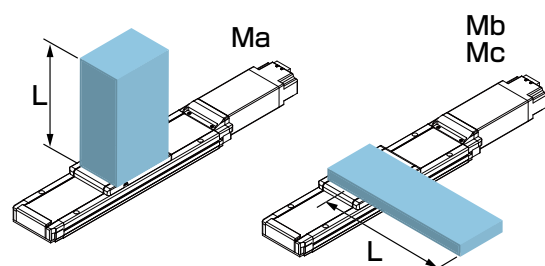


Overhang load length

This is the guideline of offset lengths for smooth operations 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.

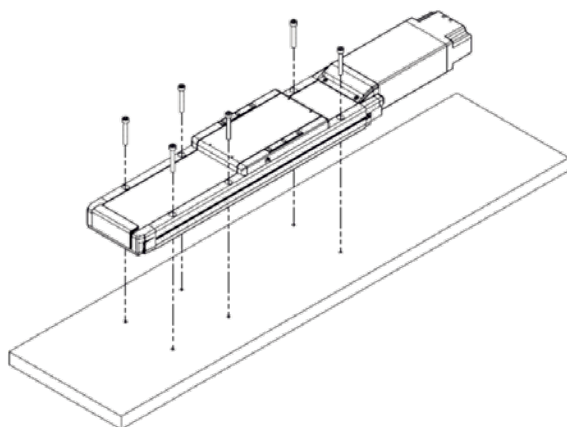
Use the actuator within the guideline for the offset length.



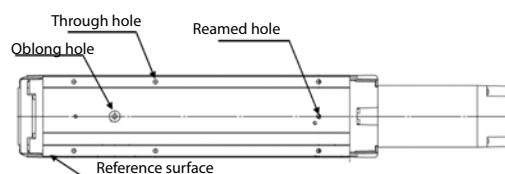
Mounting method

■ Using the through holes on the base

There are some through holes on the base so that it can be fixed from the top.

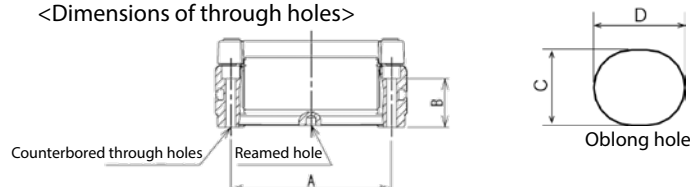


<Dimensions of the reamed hole and the oblong hole positions>



* Refer to the "Dimensions" in respective product pages for the details of the positions.

<Dimensions of through holes>



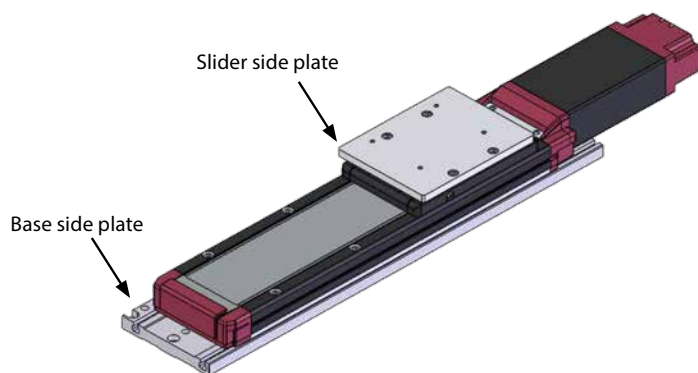
Type	Bolt size	Counterbored through holes (mm)	A (mm)	B (mm)	Reamed hole (mm)	Oblong hole (mm)
(D)WS10(□R)	M5	φ5.5 through φ9.5 deep counterbored, depth 6.5	84	25.5	φ5H7 Depth 5	C : 5 $+0.0012$ 0 D : 6, depth 5
(D)WS12(□R)	M6	φ6.6 through φ11 deep counterbored, depth 6.5	103	30	φ6H7 Depth 6	C : 6 $+0.0012$ 0 D : 7, depth 6

■ Using the air cylinder compatible plate

When the optional "air cylinder compatible mounting plate (type: CS)" is selected, mounting plates 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 (*)

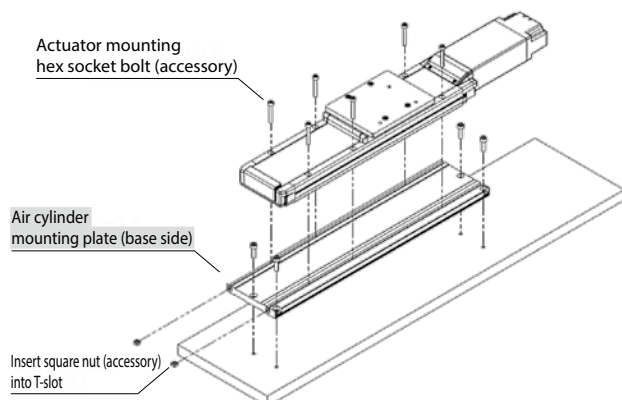
* Contact IAI representatives for details.



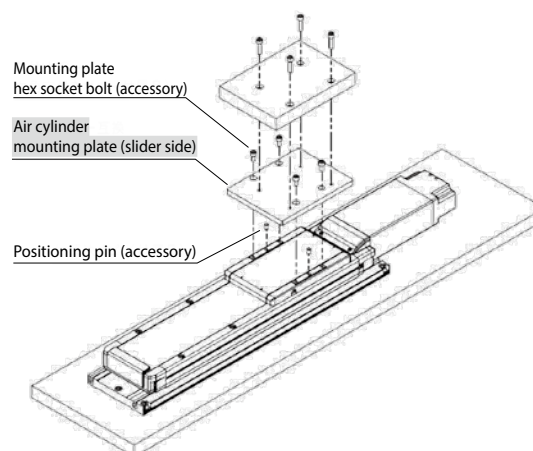
● Notes

- 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.

<Body mounting>



<Transported object mounting>



EC-WS10

EC-DWS10

<With digital speed controller>

Simple
Dust-
proof

Coupled
Motor

Body Width
100
mm

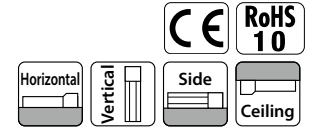
24v
Stepper
Motor

Model Specification Items

EC									
Series		Type		Lead		Stroke		Power • I/O cable length	
WS10		Standard		S 20mm		50		See power • I/O cable length below	
DWS10		Digital speed controller		H 12mm		500			
				M 6mm					
				L 3mm					



EC-WS10 EC-DWS10



Stroke

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

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	23
Brake	B	23
Air cylinder mounting plate	CS	23
Digital speed controller installation direction (left) (Note 2)	DL	24
Digital speed controller installation direction (right) (Note 2)	DR	24
Designated grease specification (Note 3)	G1/G5	25
Non-motor end specification	NM	25
PNP specification	PN	25
Slider part roller specification	SR	25
Split motor and controller power supply specification	TMD2	25
Battery-less absolute encoder specification	WA	25
Wireless communication specification	WL	25
Wireless axis operation specification	WL2	25

(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) Available only for DWS10. Be sure to enter a model in the options section of the model number.

(Note 3) When using Lead 3 in a vertical mount, the max. speed is 110mm/s if the specified grease specification (G1) is selected.



- (1) The maximum speed decreases as the stroke becomes longer due to the dangerous number of rotation of the ball screw. 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. Refer to P. 26 for precautions.
- (4) Pay close attention to the installation orientation. Please refer to P. 5 for details.
- (5) The "H" and "S" leads cannot be vertically mounted.
- (6) Reference value of the overhang load length is under 400mm in the Ma, Mb, and Mc directions. Refer to descriptions about the overhang length on P. 5.
- (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)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		CB-EC-PWBIO□□□-RB supplied	CB-REC-PWBIO□□□-RB supplied
0	No cable	○ (Note 4)	○
1 ~ 3	1 ~ 3m	○	○
4 ~ 5	4 ~ 5m	○	○
6 ~ 7	6 ~ 7m	○	○
8 ~ 10	8 ~ 10m	○	○

(Note 4) Only terminal block connector is included. Please refer to P. 31 for details.

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

(Note) Robot cable is standard.

4-way connector cable

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

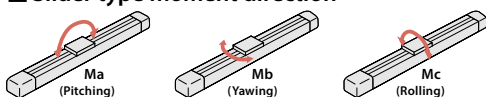
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.

(Note) Robot cable is standard.

Main Specifications

Item		Description			
Lead	Horizontal	Ball screw lead (mm)	20	12	6
		Max. payload (kg) (energy-saving disabled)	4	15	25
	Vertical	Max. payload (kg) (energy-saving enabled)	4	15	25
		Max. speed (mm/s)	900	640	400
	Speed / acceleration / deceleration	Min. speed (mm/s)	25	15	8
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
	Max. acceleration / deceleration (G)	Max. acceleration/deceleration (G)	1	1	0.5
		Max. acceleration/deceleration (G)	1	1	0.5
	Payload	Max. payload (kg) (energy-saving disabled)	-	-	4
		Max. payload (kg) (energy-saving enabled)	-	-	4
	Speed / acceleration / deceleration	Max. speed (mm/s)	-	-	360
		Min. speed (mm/s)	-	-	8
	Max. acceleration / deceleration (G)	Rated acceleration/deceleration (G)	-	-	0.3
		Max. acceleration/deceleration (G)	-	-	0.5
	Push	Max. push force (N)	34	57	114
		Max. push speed (mm/s)	25	20	20
	Brake	Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	-	-	4
	Stroke	Min. stroke (mm)	50	50	50
		Max. stroke (mm)	500	500	500
	Stroke pitch (mm)	Stroke pitch (mm)	50	50	50

Slider type moment direction



Item	Description
Driving system	Ball screw, φ10mm, 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 6)	Ma:44.7N·m Mb:44.7N·m Mc:113N·m
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 6) Assumes a standard rated life of 5,000km. The operational life will vary depending on operation and installation conditions.
Confirm the operational life on P.1-244 of the General Catalog 2021.

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

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

Lead 20

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

Lead 12

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

Lead 6

Orientation	Horizontal Acceleration (G)			
	Speed (mm/s)	0.3	0.5	0.7
0	25	20	4	3.5
	140	25	20	4
180	25	20	4	3.5
	220	25	20	4
270	20	15	4	3
	320	15	9	3
360	11	6	2	1
	400	7	3	

Lead 3

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

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

Lead 20

Orientation	Horizontal Acceleration (G)	
	Speed (mm/s)	0.3
0	4	3
	320	4
480	4	3
	600	4
700	2.5	1
	800	1

Lead 12

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

Lead 6

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

Lead 3

Orientation	Horizontal Acceleration (G)	
	Speed (mm/s)	0.3
0	40	7
	60	40
80	40	7
	110	35
135	25	1.5

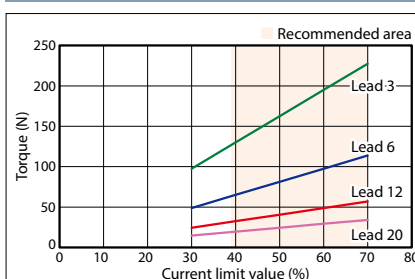
Stroke and Max Speed

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	135	110	80	70	60	
	Enabled	135		110	80	70	60	

(Unit: mm/s)

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

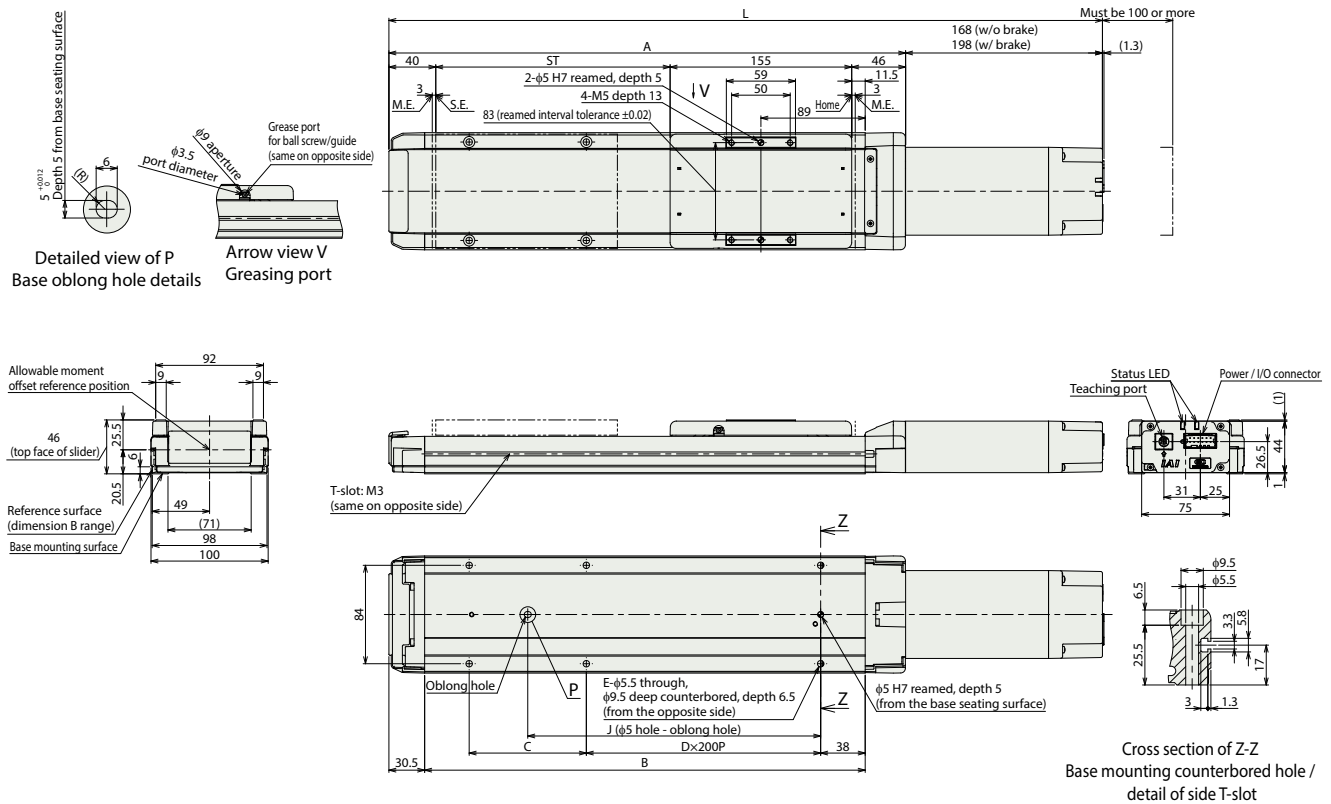
Correlation between torque and current limit



EC-WS10

(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
L	Without brake	459	509	559	609	659	709	759	809	859
	With brake	489	539	589	639	689	739	789	839	889
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

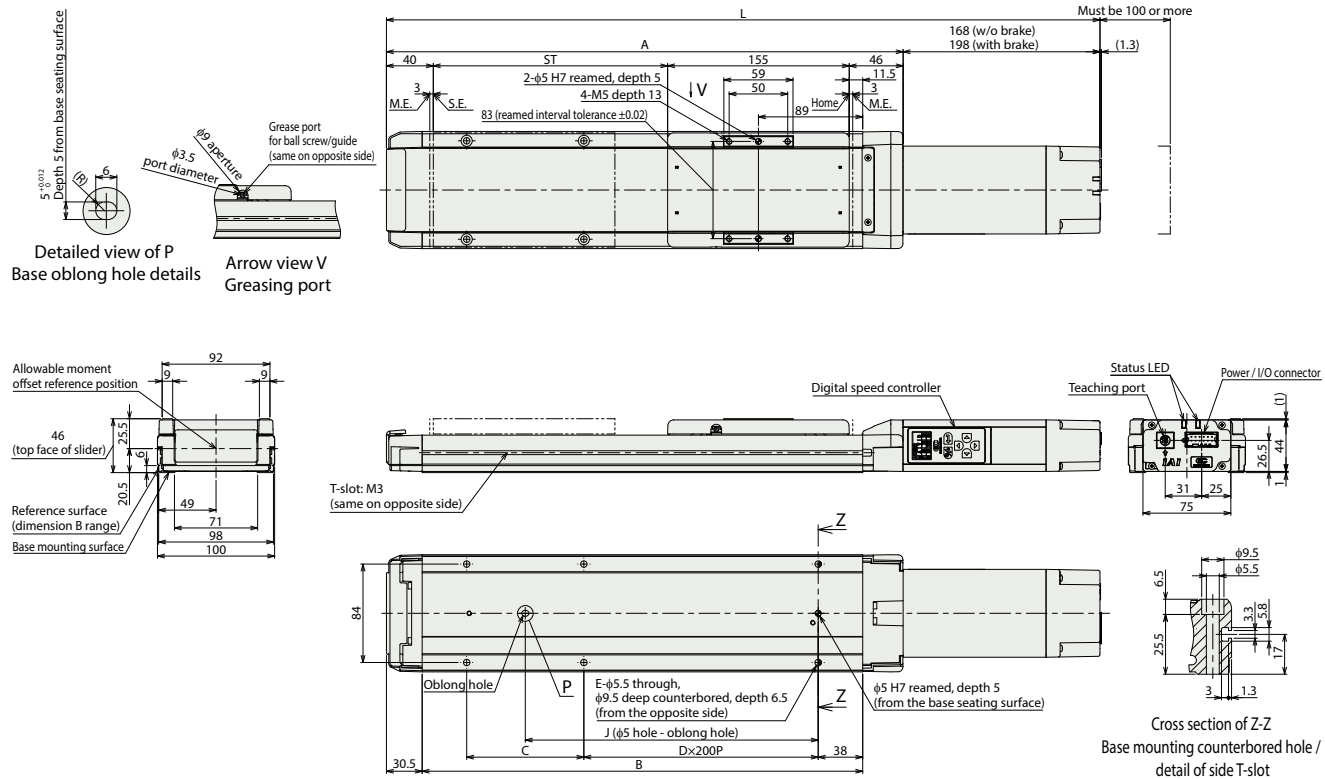
Mass by stroke

Stroke	50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7
	With brake	2.8	3.1	3.3	3.5	3.8	4.1	4.3	4.5	4.8

■ EC-DWS10 <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 figures below are for digital speed controller installation direction left (DL). These would be reversed for digital speed controller installation direction right (DR).

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
	With brake	489	539	589	639	689	739	789	839	889
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	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.9
	With brake	2.8	3.1	3.3	3.5	3.8	4.1	4.3	4.5	5.0

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 30 for details on built-in controllers.

EC-WS12

EC-DWS12

<With digital speed controller>

Simple
Dust-
proof

Coupled
Motor

Body Width
120
mm

24v
Stepper
Motor

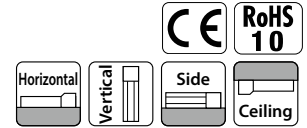
Model Specification Items

EC							
Series	Type		Lead	Stroke		Power • I/O cable length	
	WS12	Standard	S 24mm	50 ~ 800	50mm ~ 800mm (Every 50mm)	See power • I/O cable length below	
	DWS12	Digital speed controller	H 16mm			See options below	
			M 8mm				
			L 4mm				



EC-WS12

EC-DWS12



Stroke

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

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	23
Brake	B	23
Air cylinder mounting plate	CS	23
Digital speed controller installation direction (left) (Note 2)	DL	24
Digital speed controller installation direction (right) (Note 2)	DR	24
Designated grease specification	G1/G5	25
Non-motor end specification	NM	25
PNP specification	PN	25
Slider part roller specification	SR	25
Split motor and controller power supply specification	TMD2	25
Battery-less absolute encoder specification	WA	25
Wireless communication specification	WL	25
Wireless axis operation specification	WL2	25

(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) Available only for DWS12. Be sure to enter a model in the options section of the model number.

POINT
Selection
Notes

- (1) The maximum speed decreases as the stroke becomes longer due to the dangerous number of rotation of the ball screw. 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. Refer to P. 26 for precautions.
- (4) The duty ratio is to be limited depending on the ambient operating temperature. Refer to P. 26 for precautions.
- (5) Pay close attention to the installation orientation. Please refer to P. 5 for details.
- (6) The "H" and "S" leads cannot be vertically mounted.
- (7) Push-motion operations are unavailable for the "S" lead.
- (8) Reference value of the overhang load length is under 400mm in the Ma, Mb, and Mc directions. Refer to descriptions about the overhang length on P. 5.
- (8) 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)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		CB-EC-PWBIO□□□-RB supplied	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. 31 for details.

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

(Note) Robot cable is standard.

4-way connector cable

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

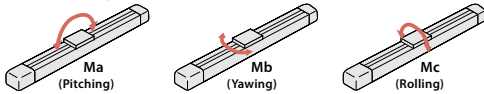
(Note 5) If RCON-EC connection specification (ACR) is selected as an option.

(Note) Robot cable is standard.

Main Specifications

		Item	Description			
Horizontal	Payload	Ball screw lead (mm)	24	16	8	4
		Max. payload (kg) (energy-saving disabled)	10	20	40	62
	Speed / acceleration / deceleration	Max. payload (kg) (energy-saving enabled)	8	15	30	50
		Max. speed (mm/s)	1000	720	420	210
Vertical	Payload	Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
	Speed / acceleration / deceleration	Max. acceleration/deceleration (G)	1	1	0.5	0.3
		Max. payload (kg) (energy-saving disabled)	-	-	8	13.5
Push	Payload	Max. payload (kg) (energy-saving enabled)	-	-	8	13.5
		Max. speed (mm/s)	-	-	360	210
	Speed / acceleration / deceleration	Min. speed (mm/s)	-	-	10	5
		Rated acceleration/deceleration (G)	-	-	0.3	0.3
Stroke	Max. acceleration/deceleration (G)	Max. acceleration/deceleration (G)	-	-	0.5	0.3
		Max. push force (N)	-	84	168	337
	Max. push speed (mm/s)	Max. push speed (mm/s)	-	20	20	20
		Stroke specification	Non-excitation actuating solenoid brake			
Brake	Brake holding force (kgf)	Brake holding force (kgf)	-	-	8	13.5
		Min. stroke (mm)	50	50	50	50
	Max. stroke (mm)	Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Slider type moment direction



Item	Description
Driving system	Ball screw, $\phi 12\text{mm}$, rolled C10
Positioning repeatability	$\pm 0.05\text{mm}$
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 6)	Ma:77.0N·m Mb:77.0N·m Mc:176N·m
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) Assumes a standard rated life of 5,000km. The operational life will vary depending on operation and installation conditions.
Confirm the operational life on P. 1-244 of the General Catalog 2021.

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

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

Lead 24

Orientation	Horizontal			
	Speed (mm/s)	0.3	0.5	0.7
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	
1000		1.5		

Lead 16

Orientation	Horizontal			
	Speed (mm/s)	0.3	0.5	0.7
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)	0.3	0.5	0.3
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)	0.3	0.3	0.3
0	62	62	13.5	
65	62	62	13.5	
75	62	62	13.5	
95	62	62	13.5	
110	62	62	13.5	
125	55	55	13.5	
140	50	50	11	
160	42	42	9	
180	35	35	7	
210	20	20	3	

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

Lead 24

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

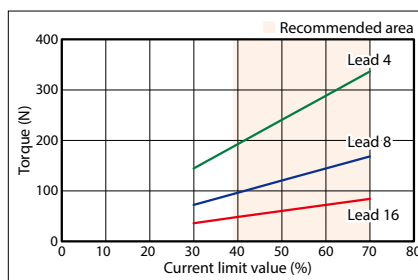
Stroke and Max Speed

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		1000				900	800	700	580	500	460	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
8	Disabled	420 <360>	360	280	250	220	190	170	150	130	110	90	85
	Enabled			320 <280>				280	250	220	190	170	150
4	Disabled		210	180	140	125	110	95	85	75	65	55	45
	Enabled			160				140	125	110	95	85	75

(Unit: mm/s)

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

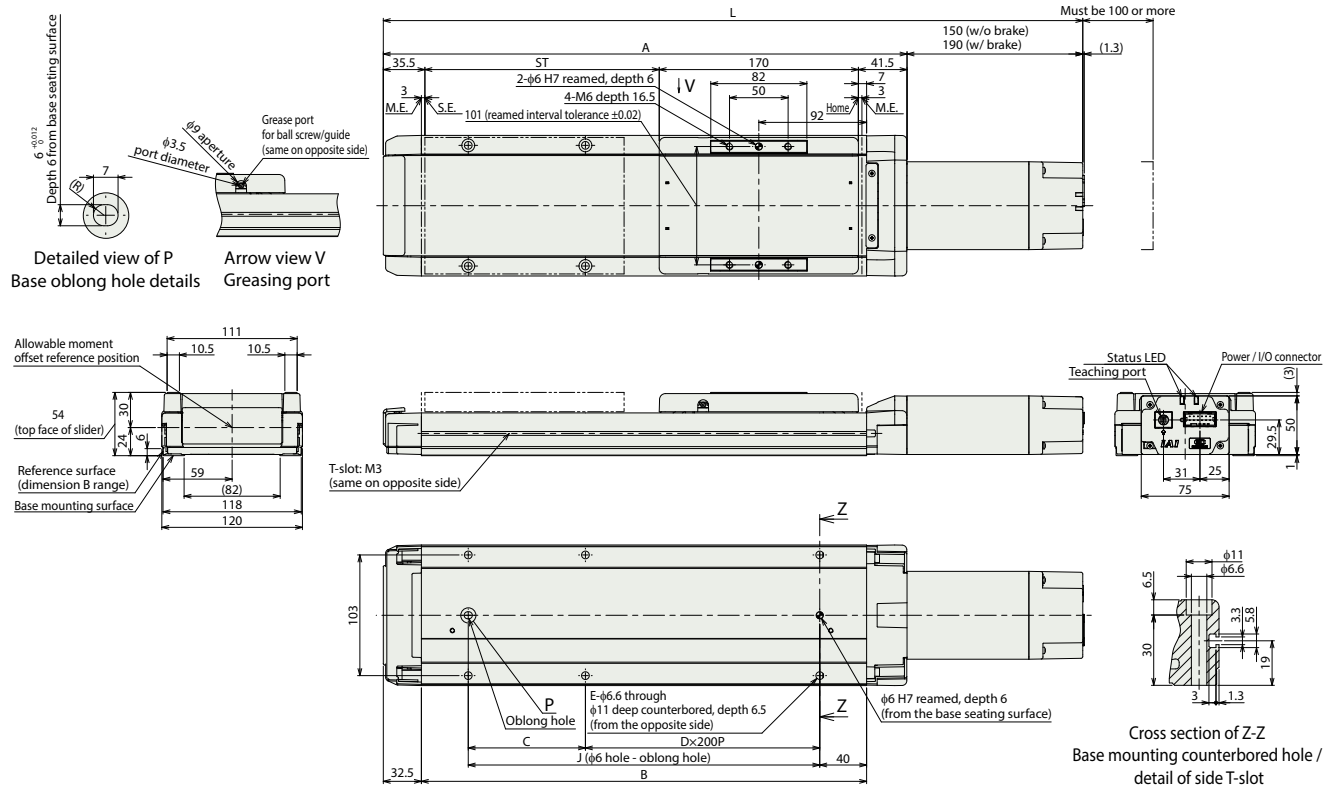
Correlation between torque and current limit



EC-WS12

(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	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

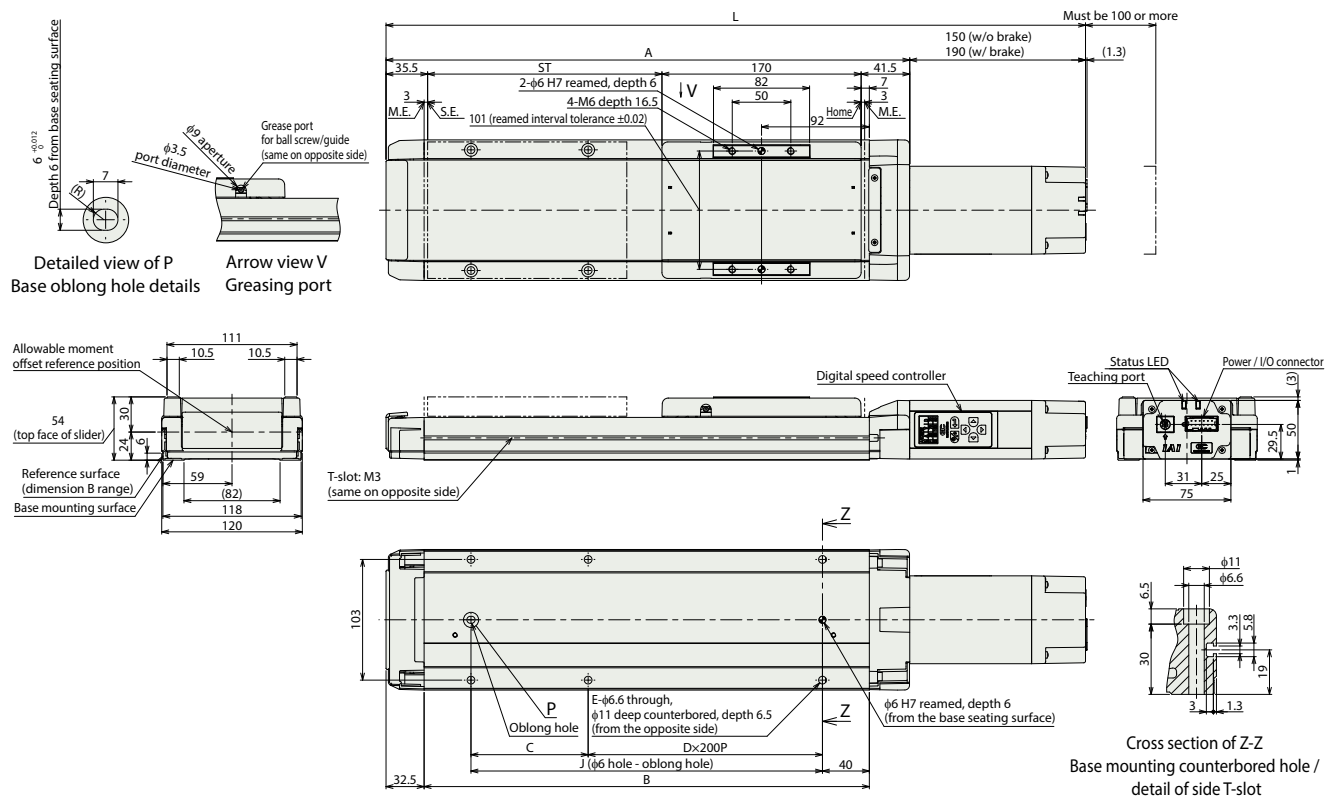
Mass by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)																
Without brake	3.4	3.7	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.4	8.7
With brake	3.7	4.0	4.4	4.7	5.1	5.5	5.8	6.2	6.5	6.9	7.2	7.6	7.9	8.3	8.6	9.0

■ EC-DWS12 <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 figures below are for digital speed controller installation direction left (DL). These would be reversed for digital speed controller installation direction right (DR).

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
	With brake	487	537	587	637	687	737	787	837	887	937	987	1037	1087	1137	1187
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	3	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	3.4	3.7	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.4
	With brake	3.7	4.0	4.4	4.7	5.1	5.5	5.8	6.2	6.5	6.9	7.2	7.6	7.9	8.3	8.6

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 30 for details on built-in controllers.

EC-WS10□R

EC-DWS10□R

<With digital speed controller>

Simple
Dust-
proof

Side
mounted
motor

Body Width
100
mm

24v
Stepper
Motor

Model Specification Items

EC			R		
Series	Type	Lead	Specifications	Stroke	Power • I/O cable length
WS10	Standard	S 20mm	R Side mounted motor	50 50mm	See power • I/O cable length below
DWS10	Digital speed controller	H 12mm		500 500mm (Every 50mm)	
		M 6mm			
		L 3mm			
					Options
					See options below



EC-WS10□R EC-DWS10□R

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

Stroke

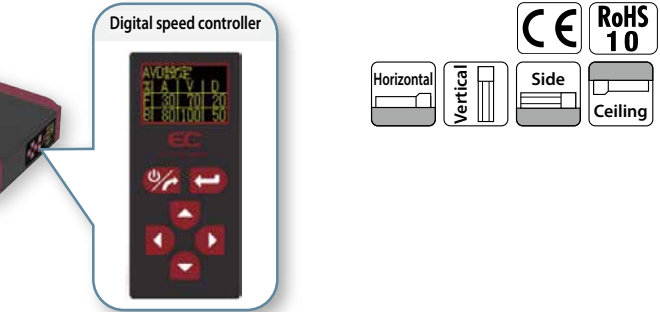
Stroke (mm)	WS10□R	DWS10□R	Stroke (mm)	WS10□R	DWS10□R
50	○	○	300	○	○
100	○	○	350	○	○
150	○	○	400	○	○
200	○	○	450	○	○
250	○	○	500	○	○

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	23
Brake	B	23
Air cylinder mounting plate	CS	23
Designated grease specification	G5	25
Motor side mounted to the left (Note2)	ML	25
Motor side mounted to the right (Note2)	MR	25
Non-motor end specification	NM	25
PNP specification	PN	25
Slider part roller specification	SR	25
Split motor and controller power supply specification	TMD2	25
Battery-less absolute encoder specification	WA	25
Wireless communication specification	WL	25
Wireless axis operation specification	WL2	25

(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) Make sure to specify either model in the option column of the model specification items.



CE RoHS 10



- POINT Selection Notes**
- (1) The maximum speed decreases as the stroke becomes longer due to the dangerous number of rotation of the ball screw. 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. Refer to P. 26 for precautions.
 - (4) Pay close attention to the installation orientation. Please refer to P. 5 for details.
 - (5) The "H" and "S" leads cannot be vertically mounted.
 - (6) Reference value of the overhang load length is under 400mm in the Ma, Mb, and Mc directions. Refer to descriptions about the overhang length on P. 5.
 - (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 included. Please refer to P. 31 for details.

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

(Note) 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	○	○

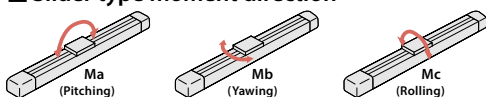
(Note 5) If RCON-EC connection specification (ACR) is selected as an option.

(Note) Robot cable is standard.

Main Specifications

Item		Description			
Lead	Horizontal	Ball screw lead (mm)	20	12	6
		Max. payload (kg) (energy-saving disabled)	4	15	25
	Vertical	Max. payload (kg) (energy-saving enabled)	4	15	25
		Max. speed (mm/s)	900	640	400
	Speed / acceleration / deceleration	Min. speed (mm/s)	35	35	8
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
	Max. acceleration / deceleration (G)	Max. acceleration/deceleration (G)	1	1	0.5
		Max. acceleration/deceleration (G)	1	1	0.5
	Payload	Max. payload (kg) (energy-saving disabled)	-	-	4
		Max. payload (kg) (energy-saving enabled)	-	-	4
	Speed / acceleration / deceleration	Max. speed (mm/s)	-	-	320
		Min. speed (mm/s)	-	-	8
	Max. acceleration / deceleration (G)	Rated acceleration/deceleration (G)	-	-	0.3
		Max. acceleration/deceleration (G)	-	-	0.5
	Push	Max. push force (N)	34	57	114
		Max. push speed (mm/s)	35	35	20
	Brake	Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	-	-	4
	Stroke	Min. stroke (mm)	50	50	50
		Max. stroke (mm)	500	500	500
	Stroke pitch (mm)	Stroke pitch (mm)	50	50	50

Slider type moment direction



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 6)	Ma:44.7N·m Mb:44.7N·m Mc:113N·m
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 6) Assumes a standard rated life of 5,000km. The operational life will vary depending on operation and installation conditions.
Confirm the operational life on P.1-244 of the General Catalog 2021.

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

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

Lead 20

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

Lead 12

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

Lead 6

Orientation	Horizontal			
	Speed (mm/s)	0.3	0.5	0.7
0	25	20	4	3.5
	140	25	20	4
180	25	20	4	3.5
	220	25	20	4
270	20	15	4	3
	320	15	9	3
360	11	6	2	1
	400	7	3	

Lead 3

Orientation	Horizontal		Vertical
	Speed (mm/s)	Acceleration (G)	
0	44	7	
	60	44	7
80	44	7	
	110	40	7
135	37	7	
	160	30	2

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

Lead 20

Orientation	Horizontal	
	Speed (mm/s)	Acceleration (G)
0	4	3
	320	4
480	4	3
	600	4
700	2.5	1
	800	1

Lead 12

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

Lead 6

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

Lead 3

Orientation	Horizontal	
	Speed (mm/s)	Acceleration (G)
0	40	7
	60	40
80	40	7
	110	35
135	25	1.5

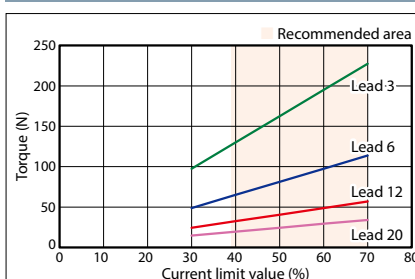
Stroke and Max Speed

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	135	110	80	70	60	
	Enabled	135		110	80	70	60	

(Unit: mm/s)

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

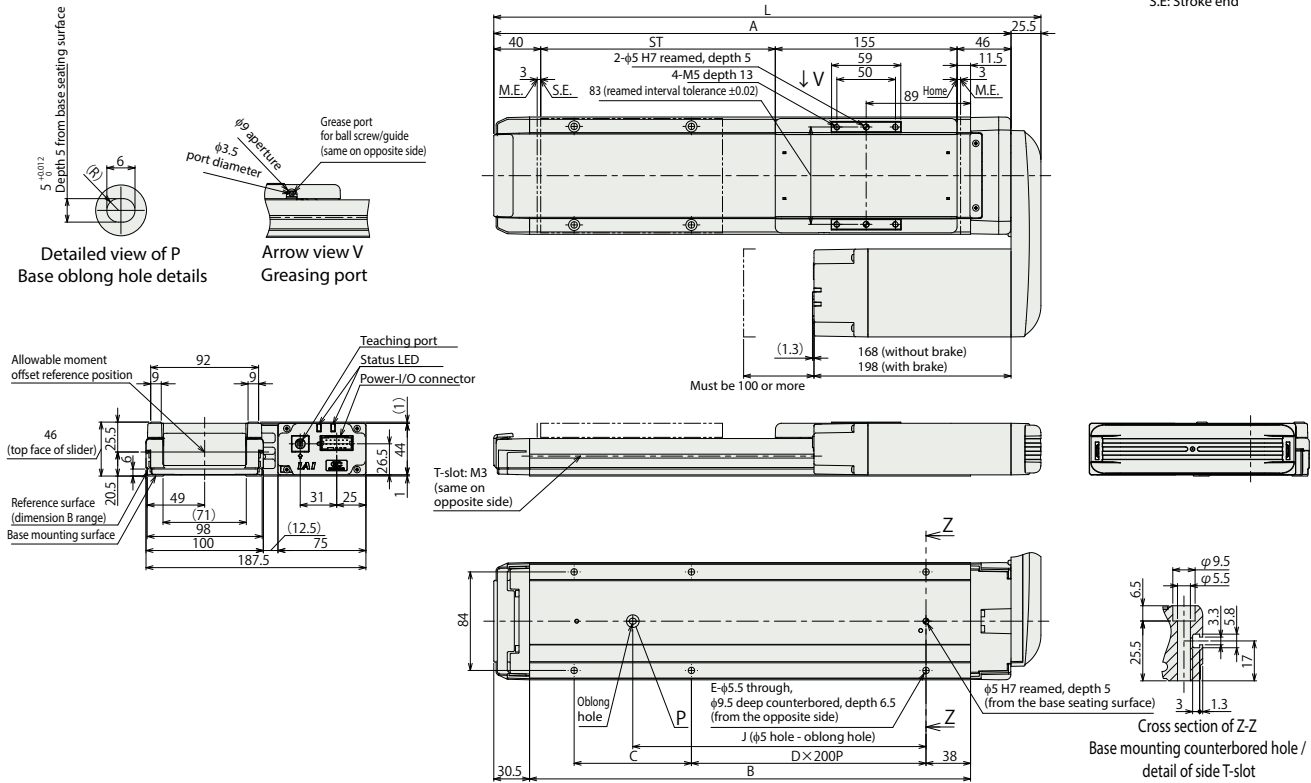
Correlation between torque and current limit



EC-WS10□R

(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 drawings below are for the motor side mounted to the left (ML).

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	316.5	366.5	416.5	466.5	516.5	566.5	616.5	666.5	716.5	766.5
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	2.9	3.1	3.4	3.7	3.9	4.1	4.4	4.6	4.9	5.1
With brake	3.0	3.3	3.5	3.8	4.0	4.3	4.5	4.8	5.0	5.3

EC-WS12□R

EC-DWS12□R

<With digital speed controller>

Simple
Dust-
proof

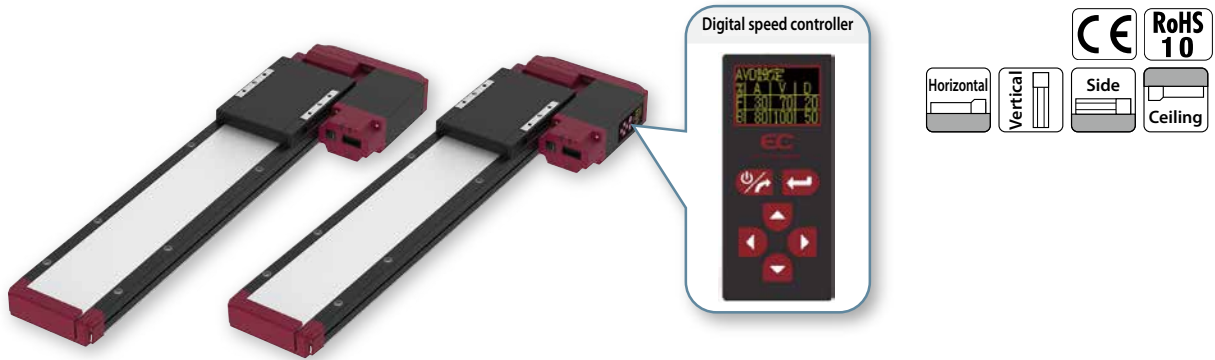
Side
mounted
motor

Body Width
120
mm

24v
Stepper
Motor

Model Specification Items

EC				R			
Series	Type	Lead	Specifications	Stroke	Power · I/O cable length	Options	
WS12	Standard	S 24mm	R Side mounted motor	50 ~ 800	50mm ~ 800mm (Every 50mm)	See power · I/O cable length below	
DWS12	Digital speed controller	H 16mm M 8mm L 4mm				See options below	



EC-WS12□R EC-DWS12□R

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

Stroke

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

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	23
Brake	B	23
Air cylinder mounting plate	CS	23
Designated grease specification	G5	25
Motor side mounted to the left (Note2)	ML	25
Motor side mounted to the right (Note2)	MR	25
Non-motor end specification	NM	25
PNP specification	PN	25
Slider part roller specification	SR	25
Split motor and controller power supply specification	TMD2	25
Battery-less absolute encoder specification	WA	25
Wireless communication specification	WL	25
Wireless axis operation specification	WL2	25

(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) Make sure to specify either model in the option column of the model specification items.

POINT
Selection
Notes

- The maximum speed decreases as the stroke becomes longer due to the dangerous number of rotation of the ball screw. Confirm the maximum speed, referring to the "Stroke and Max. Speed" of the desired stroke.
- "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.
- If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values. Refer to P. 26 for precautions.
- The duty ratio is to be limited depending on the ambient operating temperature. Refer to P. 26 for precautions.
- Pay close attention to the installation orientation. Please refer to P. 5 for details.
- The "H" and "S" leads cannot be vertically mounted.
- Push-motion operations are unavailable for the "S" lead.
- Reference value of the overhang load length is under 400mm in the Ma, Mb, and Mc directions. Refer to descriptions about the overhang length on P. 5.
- The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Power · I/O cable length

Standard connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		CB-EC-PWBIO□□□-RB supplied	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. 31 for details.

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

(Note) Robot cable is standard.

4-way connector cable

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

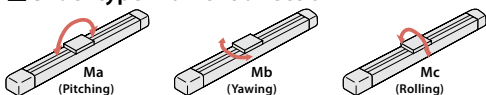
(Note 5) If RCON-EC connection specification (ACR) is selected as an option.

(Note) 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)	1000	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)	-	-	280	140
		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)	-	72	144	288	
	Max. push speed (mm/s)	-	20	20	20	
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

Slider type moment direction



Item	Description
Driving system	Ball screw, φ12mm, 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 6)	Ma:77.0N·m
	Mb:77.0N·m
	Mc:176N·m
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) Assumes a standard rated life of 5,000km. The operational life will vary depending on operation and installation conditions.
Confirm the operational life on P. 1-244 of the General Catalog 2021.

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

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

Lead 24

Orientation	Horizontal			
	Speed (mm/s)	Acceleration (G)		
		0.3	0.5	0.7
0	10	8	6	3.5
360	10	8	6	3.5
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	
1000		1.5		

Lead 16

Orientation	Horizontal			
	Speed (mm/s)	Acceleration (G)		
		0.3	0.5	0.7
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	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	4	3
280	30	16	3	2
320	22	12		
360	15	9		
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	11		
140	50	5		
160	42			
180	35			
210	20			

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

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			

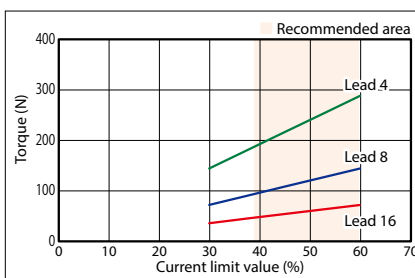
Stroke and Max Speed

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		1000				900	800	700	580	500	460	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
8	Disabled	420 <360>	360	280	250	220	190	170	150	130	110	90	85
	Enabled		320 <280>					280	250	220	190	170	150
4	Disabled	210 <140>	180 <140>	140	125	110	95	85	75	65	55	50	45
	Enabled			160 <140>				140	125	110	95	85	75

(Unit: mm/s)

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

Correlation between torque and current limit

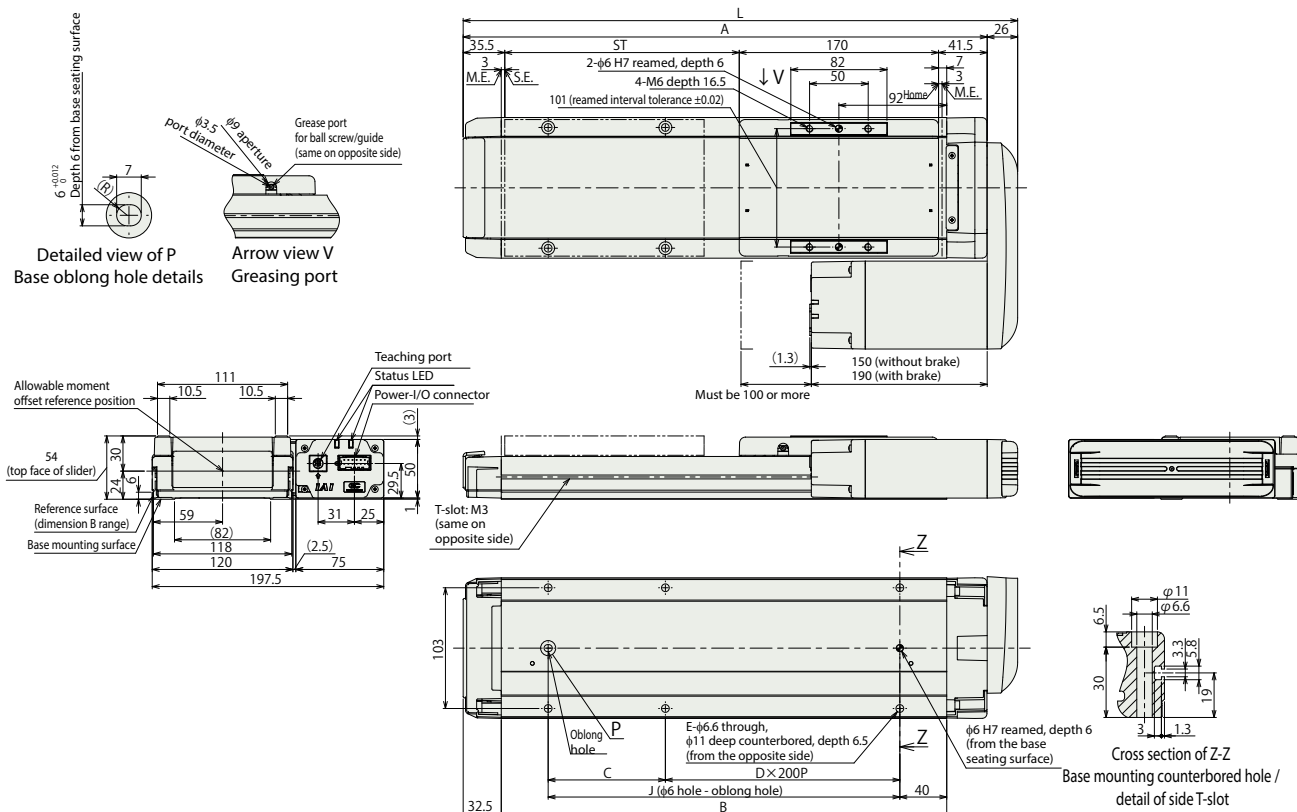


■ EC-WS12□R

(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 drawings below are for the motor side mounted to the left (ML).

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



■ Dimensions by stroke

■ Dimensions by stroke																
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073
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

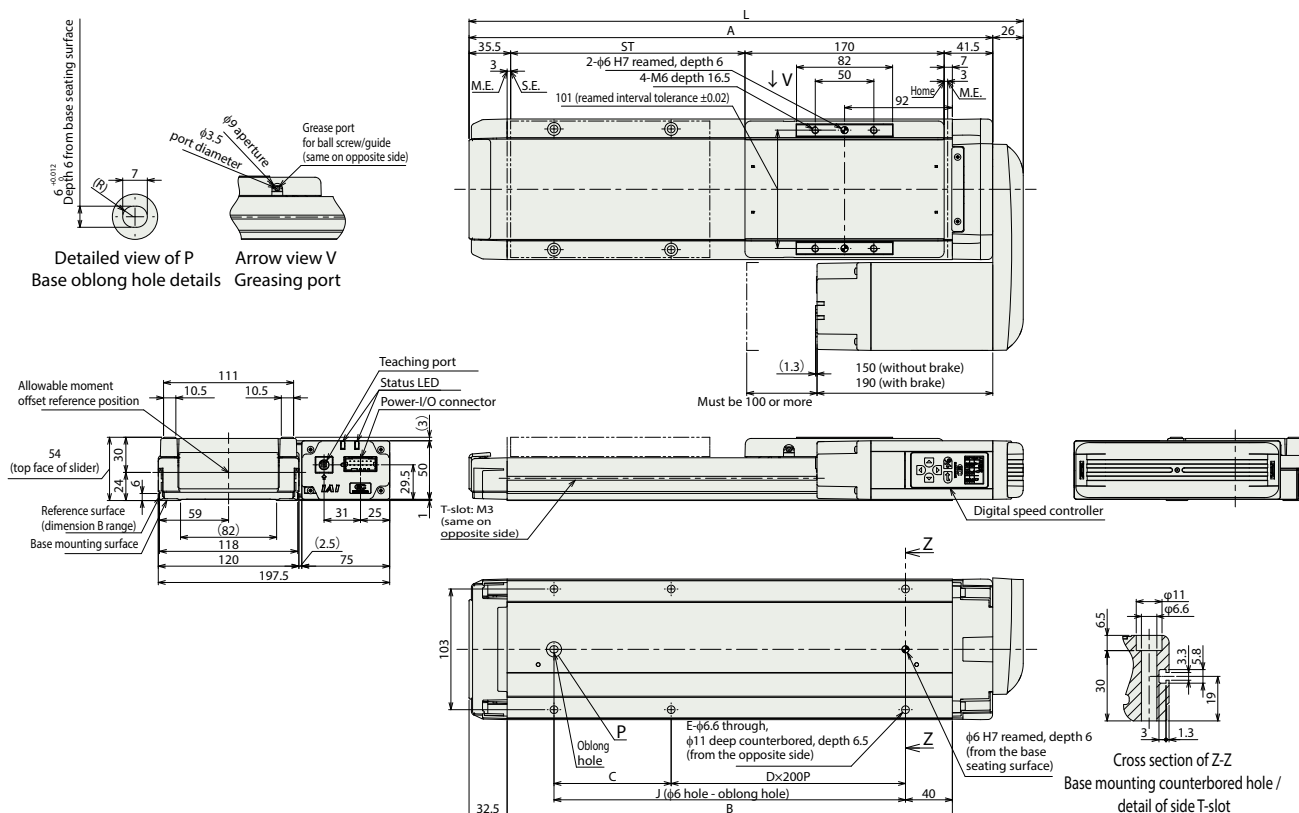
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.9	4.2	4.6	4.9	5.3	5.6	6.0	6.4	6.7	7.1	7.4	7.8	8.1	8.5	8.8	9.2
	With brake	4.2	4.5	4.9	5.2	5.6	5.9	6.3	6.7	7	7.4	7.7	8.1	8.4	8.8	9.1	9.5

■ EC-DWS12□R <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 drawings below are for the motor side mounted to the left (ML).

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	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073
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	3.9	4.2	4.6	4.9	5.3	5.6	6.0	6.4	6.7	7.1	7.4	7.8	8.1	8.5	8.8	9.2
With brake	4.2	4.5	4.9	5.2	5.6	5.9	6.3	6.7	7	7.4	7.7	8.1	8.4	8.8	9.1	9.5

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 30 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 over an R-unit to a field network.

* When this option is selected, the power source becomes twin power and input/output specifications are fixed to NPN. Therefore, TMD2 and PN options cannot be selected at the same time.

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 necessary when the actuator is used vertically.

Air cylinder mounting plates

Model

CS

Applicable models

All models

Description

These plates provide compatibility for mounting with some models of rodless air cylinders.

Plates can be mounted to the slider carriage and actuator base to align their heights with the slider on an air cylinder.

*Not shipped assembled. Assembly required.

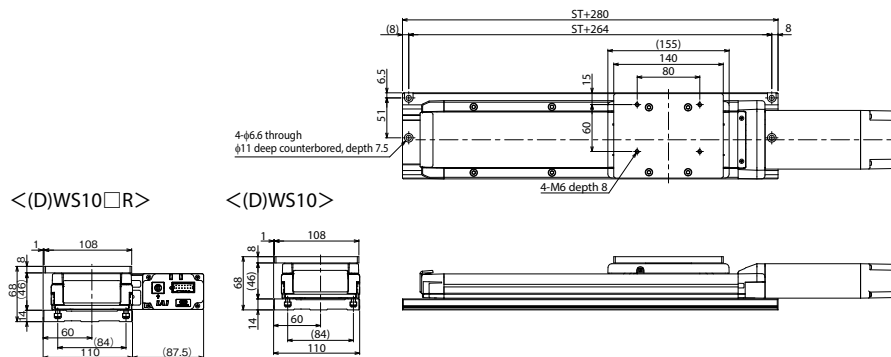
(Note 1) Selecting CS will reduce the payload by 1kg.

(Note 2) Cannot be side mounted, invert mounted, or vertically mounted.

EC-(D)WS10 / (D)WS10□R

Individual model number Base bracket: EC-CSB-WS10-(stroke) (material: aluminum)

Slider bracket: EC-CSS-WS10 (material: carbon steel, nickel plated)



◆ Additional accessories

- Hex socket bolts (for mounting to the slider carriage): M5×10 (4 bolts)
- Parallel pin: φ5×8 type B h7 (2 pins)
- Hex socket bolts (for mounting to the actuator base): M5×35 (no. of bolts shown in following table)
- Square nuts: □8×4 M5 (no. of nuts shown in following table)

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

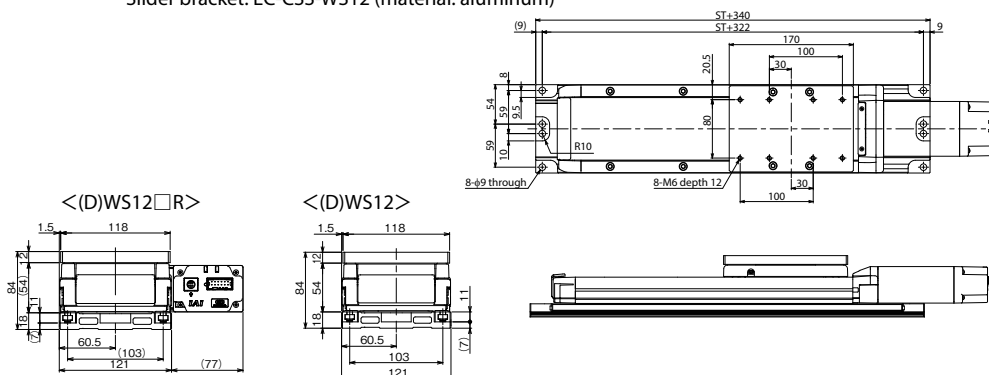
◆ Mass by stroke (plate addition)

Stroke	50	100	150	200	250	300	350	400	450	500
Added 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 / (D)WS12□R

Individual model number Base bracket: EC-CSB-WS12-(stroke) (material: aluminum)

Slider bracket: EC-CSS-WS12 (material: aluminum)



◆ Additional accessories

- Hex socket bolts (for slider mounting): M6×15 (4 bolts)
- Parallel pin: φ6×10 type B h7 (2 pins)
- Hex socket bolts (for base mounting): M6×40 (no. of bolts shown in following table)
- Square nuts: □10×5 M6 (no. of nuts shown in following table)

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

◆ Mass by stroke (plate addition)

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Added 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 installation direction

Model

DL/DR

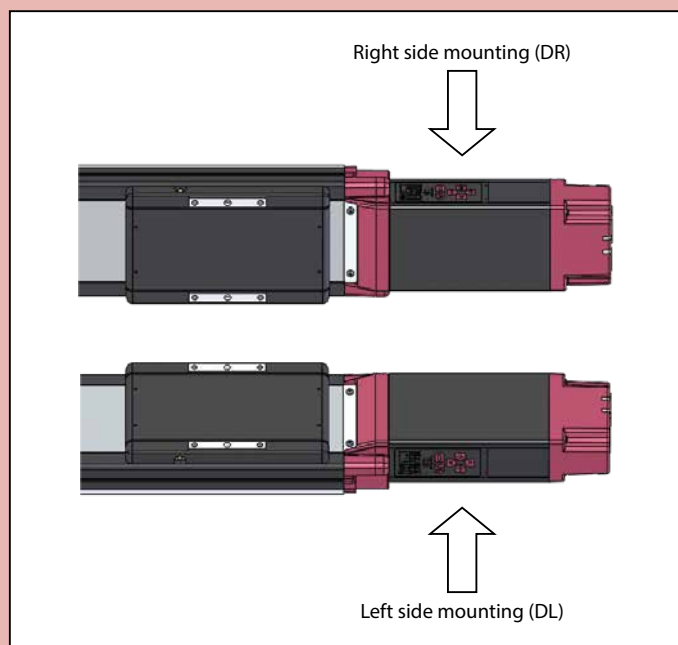
Applicable models

EC-DWS10 / DWS12 (motor straight type)

Description

This code specifies the installation orientation of the digital speed controller for types with digital speed controllers.

The left side and right side are indicated with DL and DR, respectively, when looking from the motor side. Be sure to enter a code in the model number.



Designated grease specification

Model	G1/G5	Applicable models	G1: EC-(D)WS10 / (D)WS12 (motor straight type) G5: All models
Description	Replaces the grease applied to the actuator ball screw and linear guide with food grade grease (White Alcom Grease).		

Side mounted motor

Model	ML/MR	Applicable models	EC-(D)WS10□R / (D)WS12□R (motor straight type)
Description	This option is to specify the orientation of the side mounted motor. Motor side mounted to the left is ML, and to the right is MR.		

Non-motor end specification

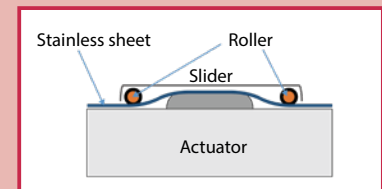
Model	NM	Applicable models	All models
Description	The standard home position is set to the motor side, but this option reverses the home position to the opposite end in order to accommodate equipment variations and the facility layout.		

PNP specification *Cannot be selected with ACR option, which must be 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.		

Slider part roller specification

Model	SR	Applicable models	All models
Description	The slider construction of the standard slider type will be changed to the roller construction same as that of the cleanroom 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 provides separate power for the motor and controller. Select this option to allow shutting down the actuator drive power only. Please refer to P.31 for more information on wiring.		

Battery-less absolute encoder specification

Model	WA	Applicable models	All models
Description	EC actuators use incremental encoders as a standard feature. Specify this option to use the battery-less absolute encoder instead.		

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 continuous operation. Please refer to P. 326 of the ELECYLINDER® General Catalog 2020 for precautions on axis operations using a wireless connection. (Note) WL cannot be changed to WL2, or WL2 to WL, by the customer. Please contact IAI for this.		

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]

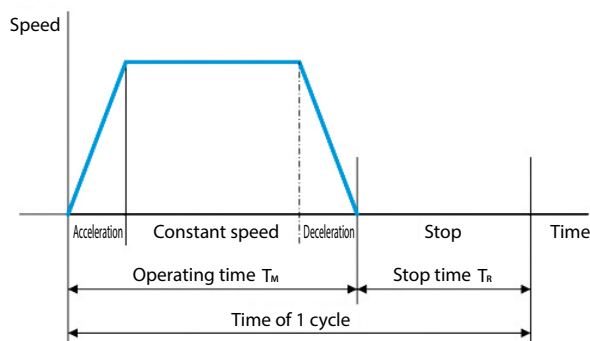
The duty ratio is the operation rate in % of the actuator operating time in one cycle.

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

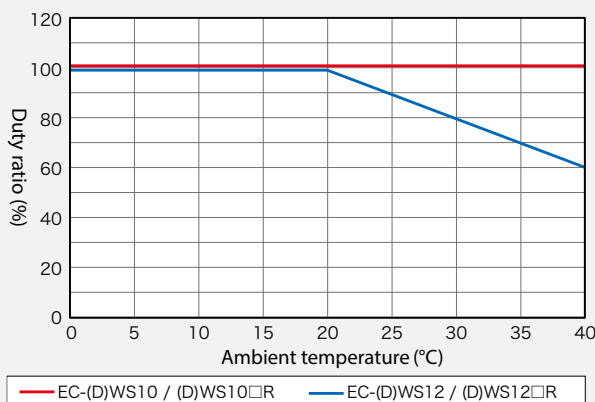
D : duty ratio

T_M: Motion time (including push motion)

T_R: Stop time



Ambient temperature and duty ratio



Push motion

A push motion is a function that pushes the slider 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).

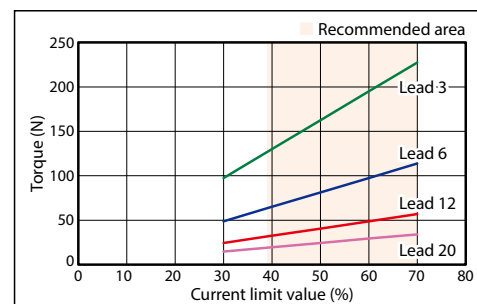
Taking the EC-(D)WS10 type in the right graph as an example, when the desired push force is 100N, Lead 6 is appropriate. If Lead 3 is selected, the adjustment area is limited.

[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)WS10



<Correlation between Torque and Current Limit>

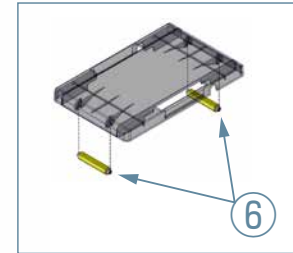
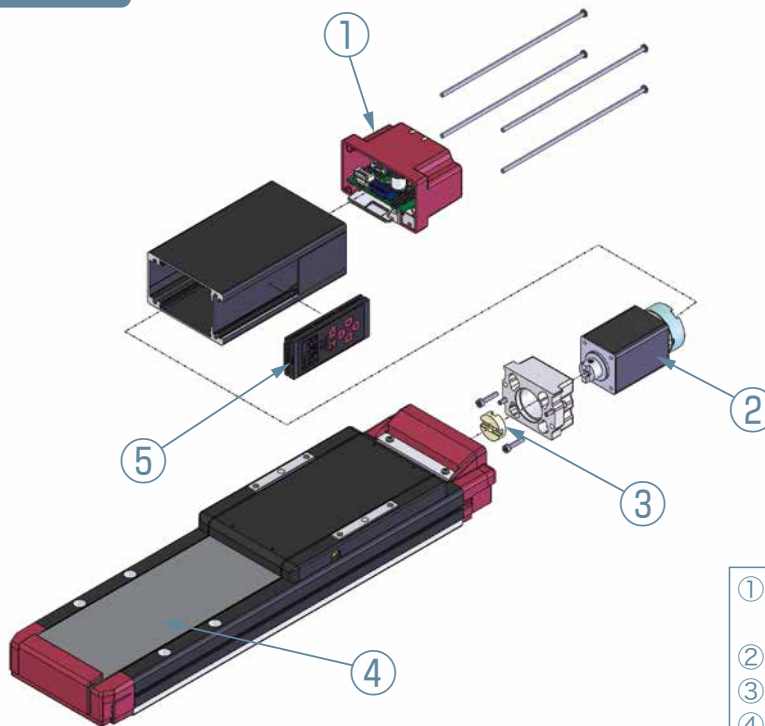
Notes

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

Maintenance parts (Actuator)

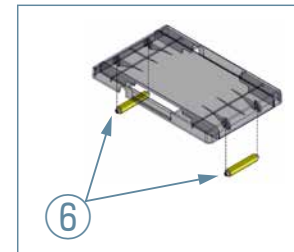
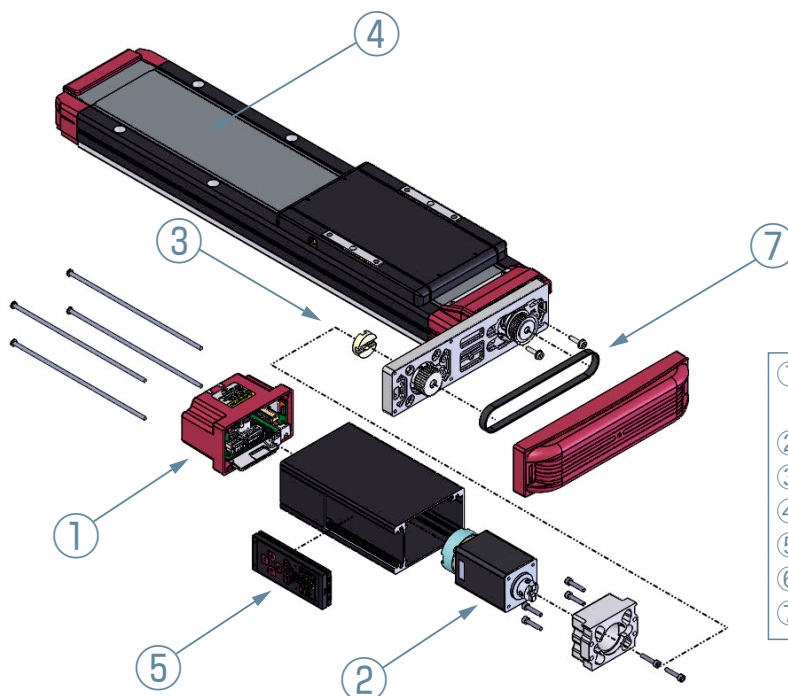
EC-(D)WS10
(D)WS12

* The following is a schematic drawing of an actuator with a 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 Controller cover Assy
(including controller substrate)
- ② Motor unit
- ③ Coupling spacer
- ④ Stainless sheet
- ⑤ Digital speed controller
- ⑥ Slider roller Assy

EC-(D)WS10□R
(D)WS12□R



- ① Controller cover Assy
(including controller substrate)
- ② Motor unit
- ③ Coupling spacer
- ④ Stainless sheet
- ⑤ Digital speed controller
- ⑥ Slider roller Assy
- ⑦ Timing belt

The numbers in the table correspond to those in the schematic drawing.

(Note) Maintenance parts do not come with fixing screws. For a modification purpose, contact IAI.

①-1 Controller cover Assy

Type	I/O	Wireless	Model
(D)WS10(□R)	NPN	No	CCA-EC-WS10
		WL	CCA-EC-WS10-WL
		WL2	CCA-EC-WS10-WL2
	PNP	No	CCA-EC-WS10-P
		WL	CCA-EC-WS10-P-WL
		WL2	CCA-EC-WS10-P-WL2
(D)WS12(□R)	NPN	No	CCA-EC-WS12
		WL	CCA-EC-WS12-WL
		WL2	CCA-EC-WS12-WL2
	PNP	No	CCA-EC-WS12-P
		WL	CCA-EC-WS12-P-WL
		WL2	CCA-EC-WS12-P-WL2

①-2 Controller cover Assy for twin power supply

Type	I/O	Wireless	Model
(D)WS10(□R)	NPN	No	CCA-EC-WS10-TMD2
		WL	CCA-EC-WS10-TMD2-WL
		WL2	CCA-EC-WS10-TMD2-WL2
	PNP	No	CCA-EC-WS10-P-TMD2
		WL	CCA-EC-WS10-P-TMD2-WL
		WL2	CCA-EC-WS10-P-TMD2-WL2
(D)WS12(□R)	NPN	No	CCA-EC-WS12-TMD2
		WL	CCA-EC-WS12-TMD2-WL
		WL2	CCA-EC-WS12-TMD2-WL2
	PNP	No	CCA-EC-WS12-P-TMD2
		WL	CCA-EC-WS12-P-TMD2-WL
		WL2	CCA-EC-WS12-P-TMD2-WL2

①-3 Controller cover Assy for twin power supply
RCON-EC connection specification

Type	I/O	Wireless	Model
(D)WS10(□R)	NPN-REC	No	CCA-EC-WS10-ACR
		WL	CCA-EC-WS10-ACR-WL
		WL2	CCA-EC-WS10-ACR-WL2
(D)WS12(□R)	NPN-REC	No	CCA-EC-WS12-ACR
		WL	CCA-EC-WS12-ACR-WL
		WL2	CCA-EC-WS12-ACR-WL2

② Motor unit

Type	Encoder	Brake	Model
(D)WS10(□R)	Incremental	No	EC-MUSRR4
		Yes	EC-MUSRR4-B
	Battery-less absolute	No	EC-MUSRR4-WA
		Yes	EC-MUSRR4-WA-B
(D)WS12(□R)	Incremental	No	EC-MUSR6
		Yes	EC-MUSR6-B
	Battery-less absolute	No	EC-MUSR6-WA
		Yes	EC-MUSR6-WA-B

③ Coupling spacer

Type	Model
(D)WS10(□R) (D)WS12(□R)	CPG-EC-SR6

④ Stainless sheet

Type	Model
(D)WS10(□R)	ST-6WA10-(Stroke)
(D)WS12(□R)	ST-EC-WS12-(Stroke)

*○○○ is the stroke

⑤ Digital speed controller

Type	Model
DWS10(□R) DWS12(□R)	DSC-01

⑥ Slider roller

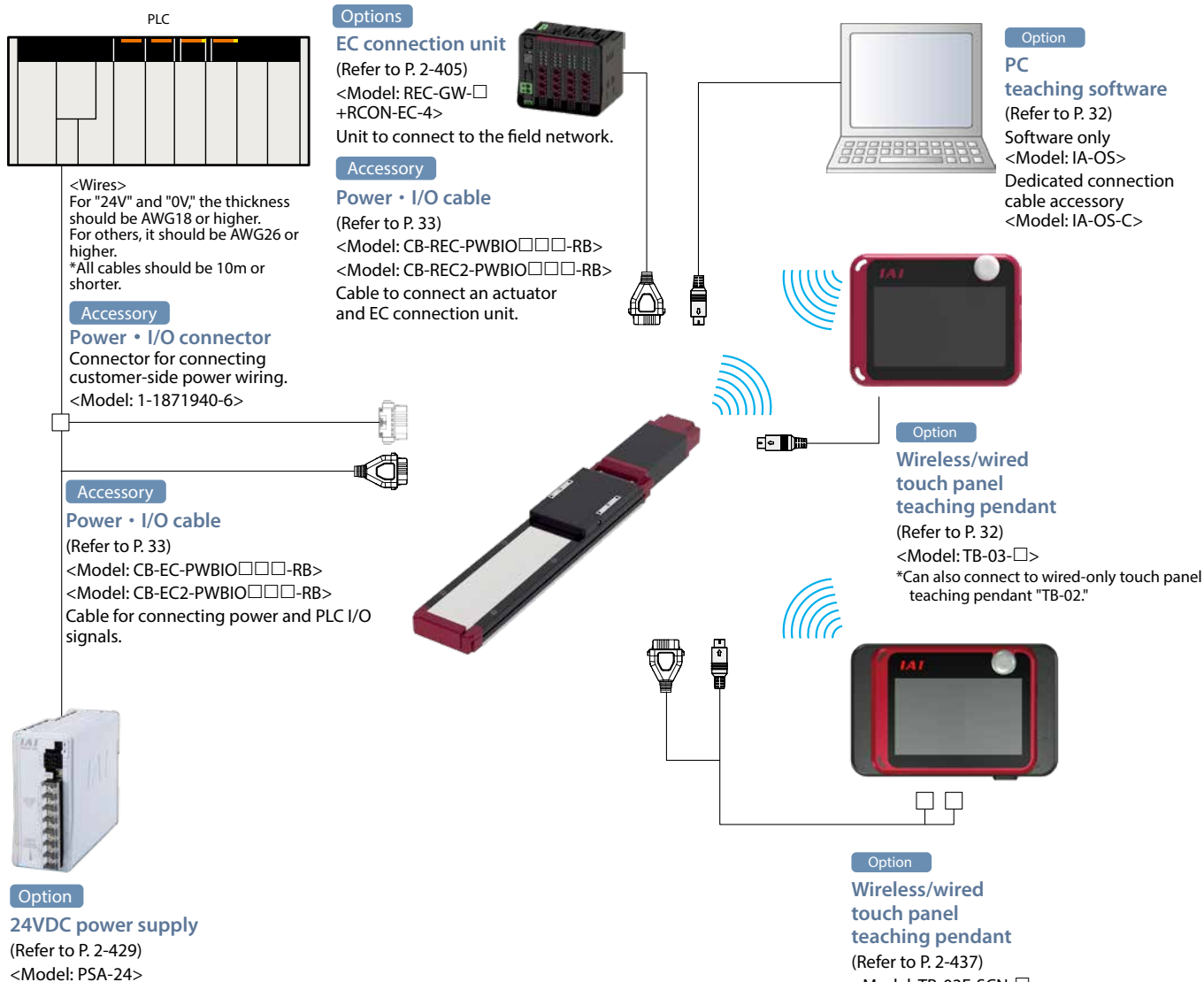
Type	Model
(D)WS10(□R) (D)WS12(□R)	EC-SR-WS1012

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

⑦ Timing belt

Type	Model
(D)WS10□R (D)WS12□R	TB-EC-WS10R12R

System Configuration



((Note) When the EC connection unit and ELECYLINDER with the digital speed controller are connected, the digital speed controller cannot be operated.

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)			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% duty)			8W
Inrush current (Note 2)			8.3A (with inrush current limit circuit)
Momentary power failure resistance			Max 500μs
Motor size			□35, □42
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 - 85% RH or less (Non-condensing or freezing)
Operating environment			No corrosive gas and excessive dust
Insulation resistance			500 VDC 10MΩ
Electric shock protection mechanism			Class 1 basic insulation
Cooling method			Natural air cooling

(Note 1) In case of the RCON-EC, subtract 0.3A of control power from the control power.

(Note 2) Inrush current flows approx. 5ms after the power is turned on. (at 40°C) Inrush current value varies depending on the impedance of the power source line.

Solenoid valve method

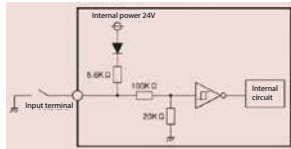
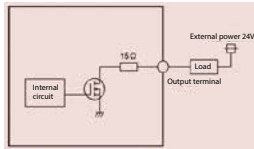
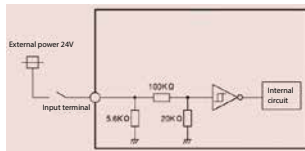
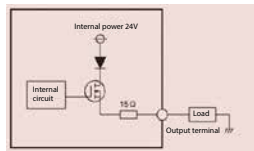
ELECYLINDER® products normally use a double solenoid method.

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

<Caution>



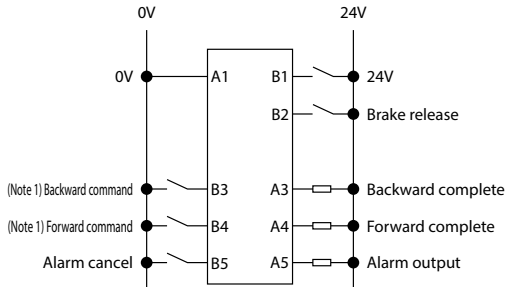
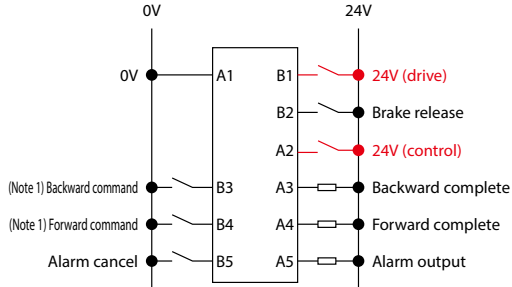
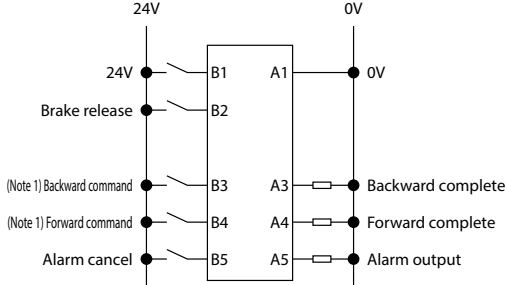
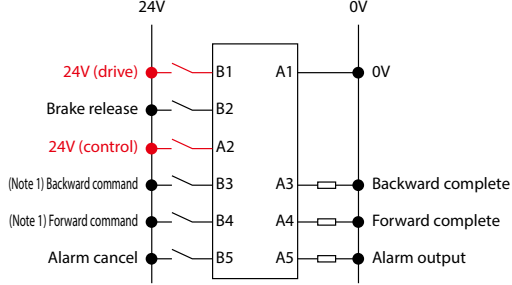
Operation cannot be performed using the single solenoid method when operating connected to RCON-EC.

I/O (Input/Output) Specifications

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

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

I/O Signal Wiring Diagram

I/O		Standard specification	Split motor and controller power supply specification (option model: TMD2)
Power•I/O connector		<p>0V A1 (Reserved) A2 (Note 1) Backward complete A3 (Note 1) Forward complete A4 Alarm output A5 (Reserved) A6</p>  <p>B1 24V B2 Brake release B3 Backward command B4 Forward command B5 Alarm cancel B6 (reserved)</p>	<p>0V A1 24V (control) A2 (Note 1) Backward complete A3 (Note 1) Forward complete A4 Alarm output A5 (Reserved) A6</p>  <p>B1 24V (drive) B2 Brake release B3 Backward command B4 Forward command B5 Alarm cancel B6 (reserved)</p>
I/O logic	NPN		
	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 cancel	RES	Alarm cancel
A3	Backward complete	LS0/PE0	Backward complete/push complete
A4	Forward complete	LS1/PE1	Forward complete/push complete
A5	Alarm	*ALM	Alarm detection (b-contact)
B2	Brake release	BKRLS	Brake forced release (for brake equipped specification)
B1 (Note 2)	24V	24V	24V input
A1	0V	0V	0V input
A2 (Note 2)	(24V)	(24V)	24V input

(Note 1) Switching to the single solenoid method will change B3 to "forward/backward" and B4 to "unused."

However, the power • I/O connector display will still read "B3: Backward" and "B4: Forward."

(Note 2) B1 is 24V (drive) and A2 is 24V (control) for split motor and controller power supply specification (TMD2).

Option

Wireless/wired touch panel teaching pendant

- **Features** This teaching device supports wireless connections. Start point/end point/AVD input and axis operation can be performed wirelessly.

- **Model** **TB-03-** ☐ (Please contact IAI for the current supported versions.)

- **Configuration** Wireless or wired connection



Specifications

Rated voltage	24V DC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 ~ 40°C
Ambient operating humidity	5 ~ 85%RH (no condensing)
Environmental resistance	IPX0
Mass	Approx. 485g (body) + approx. 175g (battery)
Charging method	Wired connection with dedicated adapter/controller
Wireless connection	Bluetooth4.2 class2

PC teaching software (Windows only)

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

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

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

Configuration

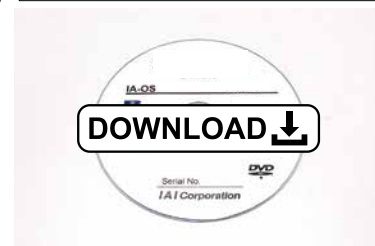


(Please contact IAI for the current supported versions.)

(Your dedicated connection cable)



Supported Windows versions: 7/10



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

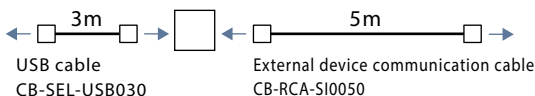
* Please purchase through your distributor and a download link will be sent to your valid email address.

Configuration



(Please contact IAI for the current supported versions.)

USB conversion adapter
RCB-CV-USB



Maintenance Parts (Cable)

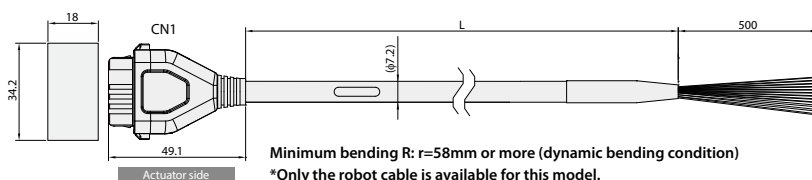
When placing an order for a replacement cable, please use the model name shown below.

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 □□□, Max. 10m, (Ex. 030=3m)



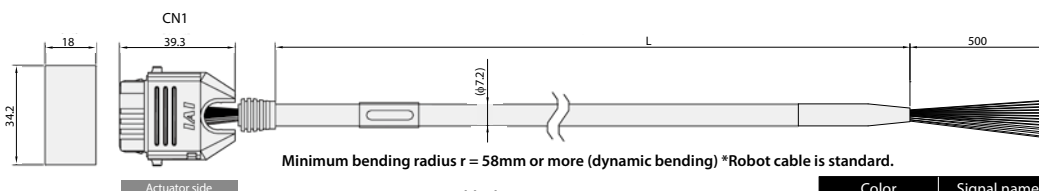
Minimum bending R: r=58mm or more (dynamic bending condition)
*Only the robot cable is available for this model.

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	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

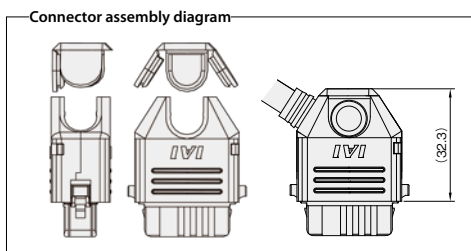
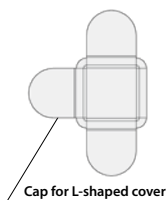
(Note 1) 24V (control) when split motor and controller power supply specification (TMD2) selected.

Model CB-EC2-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□, Max. 10m, (Ex. 030=3m)



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

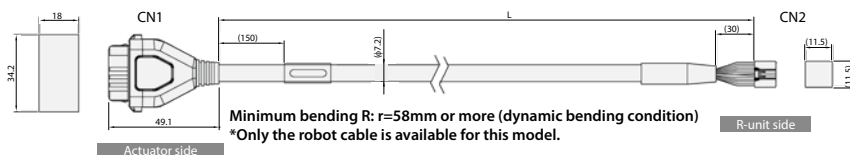


Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserved) (Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserved)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserved)	A6
Brown (AWG26)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

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

Model CB-REC-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□, Max. 10m, (Ex. 030=3m)

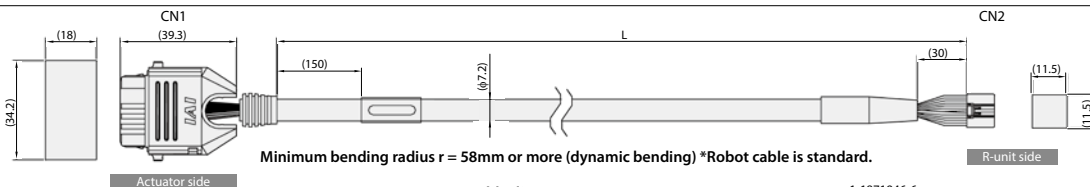


Minimum bending R: r=58mm or more (dynamic bending condition)
*Only the robot cable is available for this model.

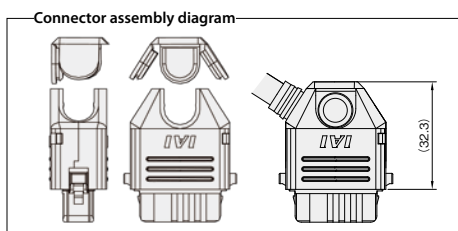
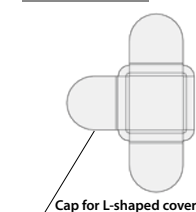
Color	Signal name	Pin No.	Pin No.	Signal name	Color
Black (AWG18)	0V	A1	1	24V(MP)	Red (AWG18)
Red (AWG18)	24V(MP)	B1	12	24V(CP)	Light blue
Light blue (AWG22)	24V(CP)	A2	7	OUT0	Orange (AWG26)
Orange (AWG26)	IN0	B3	8	OUT1	Yellow (AWG26)
Yellow (AWG26)	IN1	B4	9	OUT2	Green (AWG26)
Green (AWG26)	IN2	B5	6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

Model CB-REC2-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□, Max. 10m, (Ex. 030=3m)



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



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

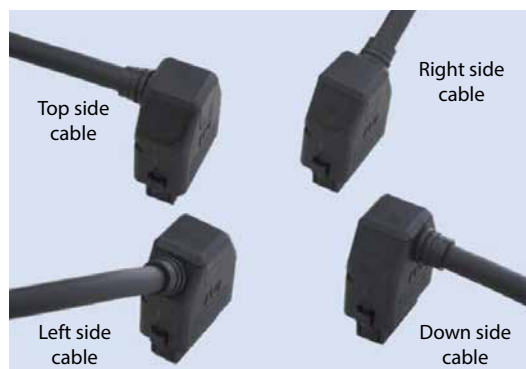
Maintenance Parts (Cable)

■ 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.

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.(CB-EC2-PWBIO□□□-RB)
- The cable length may be from 1m to 10m long.
The length can be specified in 1m units.
- Example models are listed below.

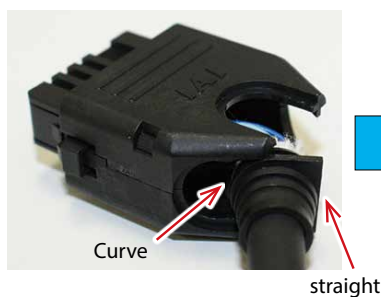
Cable length 1m → CB-EC2-PWBIO010-RB

Cable length 3m → CB-EC2-PWBIO030-RB

Cable length 10m → CB-EC2-PWBIO100-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.



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The information contained in this product brochure may change without prior notice due to product improvements.

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