EC-S8

Simple dust-proof | Coupled Motor | Body width 90 mm | 24V Stepper motor

Model specification items

EC	–	S8		–		–		–	
Series	–	Type	Lead	–	Stroke	–	Power · I/O cable length	–	Option
			S 30mm H 20mm M 10mm L 5mm		50 ~ 600: 50mm ~ 600mm (every 50mm)		Refer to the Power · I/O cable length table below		Refer to the Option table below

CE | RoHS 10

Horizontal | Vertical | Side | Ceiling

Table of strokes

Stroke (mm)	Stroke (mm)
50	**350**
100	**400**
150	**450**
200	**500**
250	**550**
300	**600**

Table of Options

Name	Option code
RCON-EC connection specification (Note 1)	**ACR**
Brake	**B**
Grease Specification (Note 2)	**G1/G5**
Non-motor end homing specification	**NM**
PNP specification	**PN**
Slider part roller specification (Note 3)	**SR**
Twin power specification	**TMD2**
Double slider specification (Note 2) (Note 3) (Note 4)	**W**
Battery-less absolute encoder specification	**WA**
Wireless communication specification	**WL**
Wireless axis operation specification	**WL2**

(Note 1) When selecting RCON-EC connection specification (ACR), PNP specification (PN) and Twin power specification (TMD2) cannot be selected.
(Note 2) Double slider specification (W) and Grease Specification (G1/G5) cannot be used together.
(Note 3) When Slider part roller specification (SR) and Double slider specification (W) are used together, Slider part roller specification (SR)'s price will be doubled.
(Note 4) Some leads cannot be selected. Refer to P.169 for details.

Selection Notes

(1) Longer strokes may descrease the maximum speed due to the resonance of the ball screw. Check the stroke maximum speed required in the "Stroke and Max. Speed" table.
(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 Push force and Current Limit" diagram. The push force is only for a reference value. Contact IAI for precautions.
(4) Depending on the ambient operating temperature, the duty ratio may be limited. Contact IAI for details.
(5) Pay close attention to the installation orientation. Contact IAI for the overhang load length.
(6) Reference value of the overhang load length is under 400mm (800mm for the double slider specification) in the Ma, Mb, and Mc directions. Contact IAI 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.
(8) For the ordering model number and notes for the double slider specification, please contact IAI.
(9) There are limitations on connections when RCON-EC connection specification (ACR) is connected to EC connection unit (RCON-EC-4). Please contact IAI for details.

Power · I/O cable length

Standard connector cable

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

(Note 5) Only a terminal connector is supplied. Contact IAI for details.
(Note 6) In case an optional RCON-EC connection specification (ACR) is selected.
(Note) Robot cable

4-directional connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (With connectors on both end)
		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 7) In case an optional RCON-EC connection specification (ACR) is selected.
(Note) Robot cable

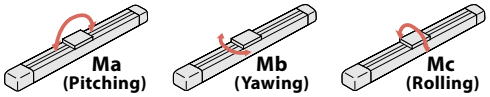
Main specifications

Item			Description			
Lead		Ball screw lead (mm)	30	20	10	5
Horizontal	Payload	Max. payload (kg)	23	35	70	80
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1200	975	450	225
		Min. speed (mm/s)	38	25	13	7
		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)	2	4	25	55
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	850	650	450	225
		Min. speed (mm/s)	38	25	13	7
		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)	78	103	235	470
		Max. push speed (mm/s)	38	25	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	2	4	25	55
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	600	600	600	600
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ16mm, 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: 173 N·m
	Mb: 173 N·m
	Mc: 271 N·m
Dynamic allowable moment (Note 8)	Ma: 61 N·m
	Mb: 61 N·m
	Mc: 116 N·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 (□56SP) (Power capacity: max. 6A)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Contact IAI to confirm operational life span.

Slider type moment direction



Payload by speed and acceleration

The unit for payload is kg. If blank, operation is not possible.

Lead 30

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	23	16	13	12	2	2
200	23	16	13	12	2	2
400	20	16	13	11	1	1
650	18	15	12	8	1	1
850	14	10	7	5	1	1
1000		6	3	2		
1200			1			

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	35	30	25	25	4	4
200	35	30	25	25	4	4
300	35	30	25	23	4	4
400	35	30	23	20	1	1
650	18	15	8	6	1	1
800	10	6	2	1		
900	7	3				
975		1				

Lead 10

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	70	70	25	25
100	70	70	25	25
155	65	50	20	20
225	65	50	20	20
300	60	30	9	9
400	25	15	3	2
450	25	15	3	

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	80	55
50	80	55
75	80	30
135	80	18
175	70	12
200	50	6
225	20	1

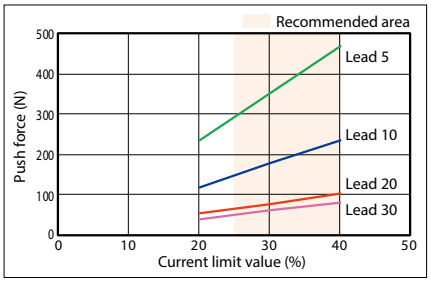
Stroke and maximum speed

Lead (mm)	50~350 (every 50mm)	400 (mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)
30	1200<850>	1160<850>	940<850>	770	645	550
20	975<650>	790<650>	640	520	440	370
10	450	335	280	225	185	180
5	225	165	150	110	90	90

(Unit: mm/s)

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

Correlation between Push force and Current Limit



Dimensions

CAD drawings can be downloaded from our website.
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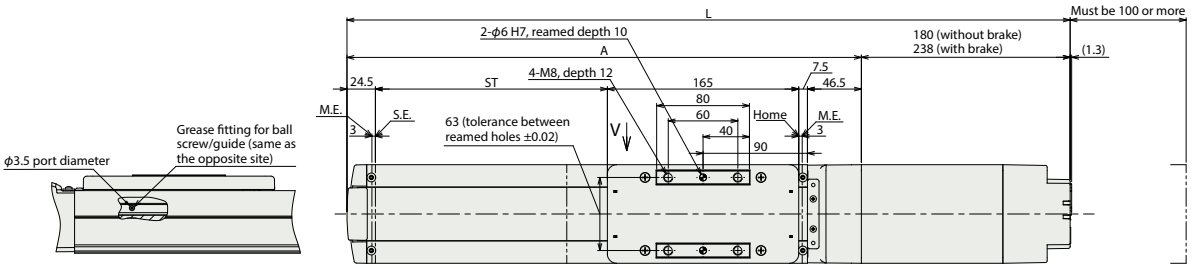
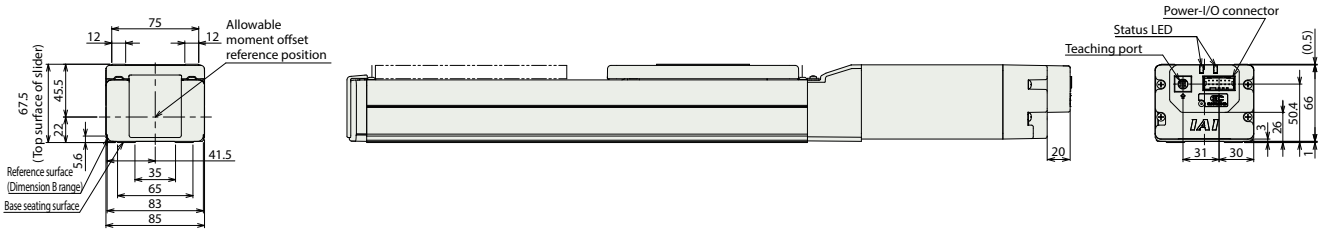
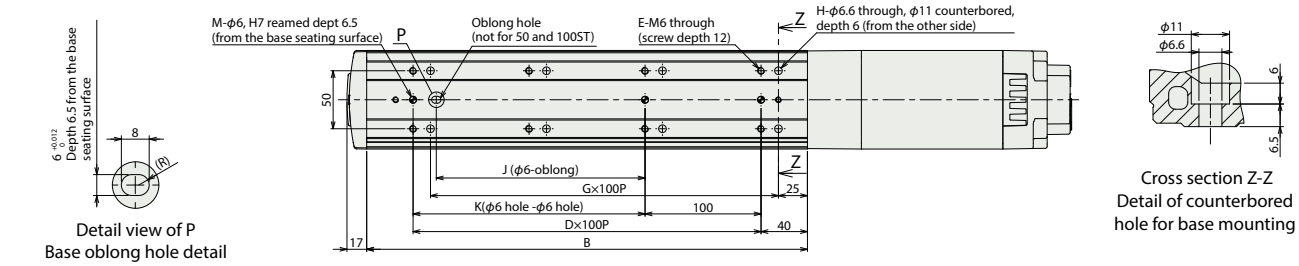
(Note) When the slider is returning to its home position, be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) To mount the actuator using the through holes on the base, it is necessary to remove the side cover and stainless sheet.
(Note) Some through holes cannot be used for Strokes 50 and 100. Mount the cylinder using the screw holes on the base bottom surface.

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



View of V,
Interior grease lubrication port





Detail view of P
Base oblong hole detail

Cross section Z-Z
Detail of counterbored hole for base mounting

Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600
L	Without brake	473.5	523.5	573.5	623.5	673.5	723.5	773.5	823.5	873.5	923.5	973.5	1023.5
	With brake	531.5	581.5	631.5	681.5	731.5	781.5	831.5	881.5	931.5	981.5	1031.5	1081.5
A		293.5	343.5	393.5	443.5	493.5	543.5	593.5	643.5	693.5	743.5	793.5	843.5
B		230	280	330	380	430	480	530	580	630	680	730	780
D		1	2	2	3	3	4	4	5	5	6	6	7
E		4	6	6	8	8	10	10	12	12	14	14	16
G		1	2	2	3	3	4	4	5	5	6	6	7
H		4	6	6	8	8	10	10	12	12	14	14	16
J		0	0	80	180	180	280	280	380	380	480	480	580
K		0	100	100	200	200	300	300	400	400	500	500	600
M		2	3	3	3	3	3	3	3	3	3	3	3

Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600
Mass (kg)	Without brake	4.4	4.7	5.0	5.3	5.6	5.9	6.2	6.5	6.8	7.1	7.4	7.7
	With brake	4.7	5.0	5.3	5.6	5.9	6.2	6.5	6.8	7.1	7.4	7.7	8.0

Main specifications (Double slider)

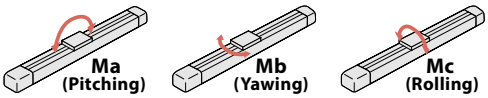
Item			Description		
Lead		Ball screw lead (mm)	20	10	5
Horizontal	Payload	Max. payload (kg)	35	63	73
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	400	400	225
		Min. speed (mm/s)	25	13	7
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.3
Vertical	Payload	Max. payload (kg)	—	18	48
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	—	300	175
		Min. speed (mm/s)	—	13	7
		Rated acceleration/deceleration (G)	—	0.3	0.3
		Max. acceleration/deceleration (G)	—	0.5	0.3
Push		Max. push force (N)	103	235	470
		Max. push speed (mm/s)	25	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	4	25	55
Stroke		Minimum nominal stroke (mm)	250	250	250
		Minimum effective stroke (mm)	50	50	50
		Maximum nominal stroke (mm)	600	600	600
		Maximum effective stroke (mm)	400	400	400
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke specified as the model code
Effective stroke: Actually operable stroke
(Note) Lead 20 cannot be installed vertically.

Item	Description
Driving system	Ball screw, ϕ16mm, 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: 1560 N·m
	Mb: 1560 N·m
	Mc: 542 N·m
Dynamic allowable moment (Note 9)	Ma: 449 N·m
	Mb: 449 N·m
	Mc: 188 N·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 (□56SP) (Power capacity: max. 6A)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 9) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Contact IAI to confirm operational life span.

Slider type moment direction



Payload by speed and acceleration (double slider specification)

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	0.3	0.5
0	35	30		
200	35	30		
300	35	30		
400	28	23		

Lead 10

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	63	63	18	18
100	63	63	18	18
155	58	42	13	13
225	53	23	2	2
300	53	23	2	2
400	18	8		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	73	48
50	73	48
75	73	23
135	73	11
175	63	5
200	43	
225	13	

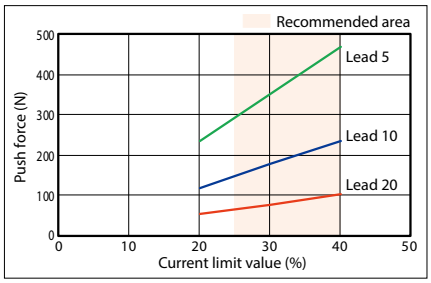
Stroke and maximum speed (double slider specification)

Lead (mm)	Nominal stroke	250~350	400	450	500	550	600
	Effective stroke	50~150	200	250	300	350	400
		(every 50mm)	(mm)	(mm)	(mm)	(mm)	(mm)
20		400					370
10		400<300>	335<300>	280	225	185	180
5		225<175>	165	150	110	90	90

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke specified as the model code
Effective stroke: Actually operable stroke

Correlation between Push force and Current Limit (double slider specification)



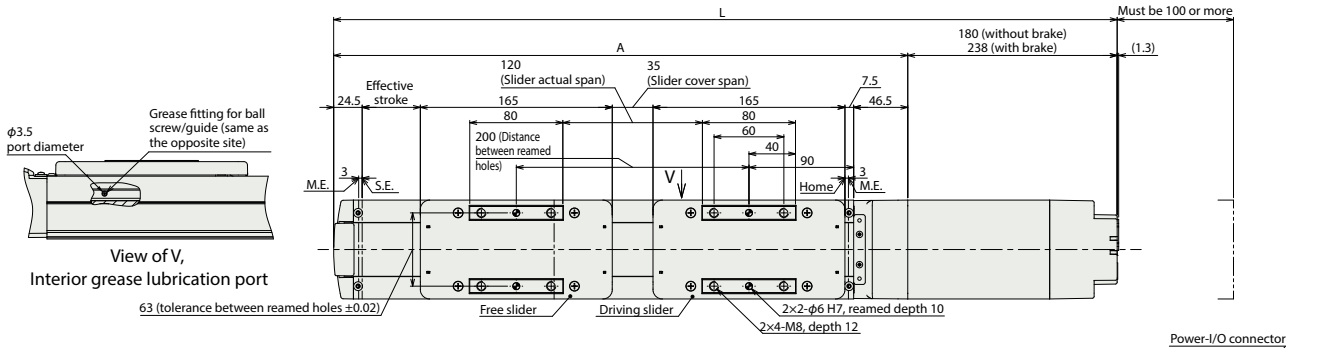
(Note) Same values as those for the single slider specification.

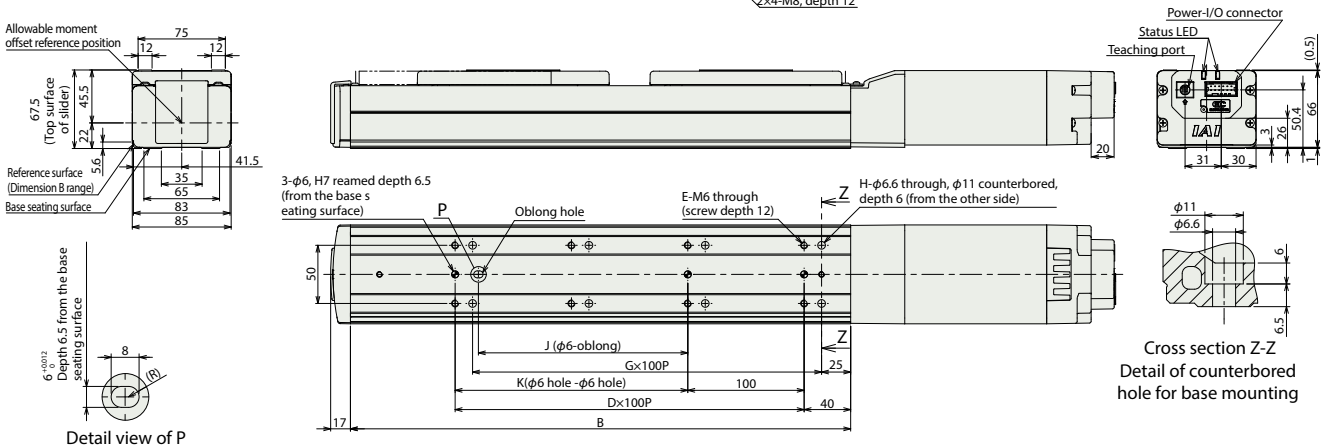
Dimensions (double slider specification)

(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) Connect the slider at the slider cover span or distance between reamed holes as specified in the drawing.
(Note) To mount the actuator using the through holes on the base, it is necessary to remove the side cover and stainless sheet.
(Note) Some through holes cannot be used for Stroke 50. Mount the cylinder using the screw holes on the base bottom surface.

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

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





■Dimensions by stroke

	Nominal stroke	250	300	350	400	450	500	550	600
	Effective stroke	50	100	150	200	250	300	350	400
L	Without brake	673.5	723.5	773.5	823.5	873.5	923.5	973.5	1023.5
	With brake	731.5	781.5	831.5	881.5	931.5	981.5	1031.5	1081.5
A		493.5	543.5	593.5	643.5	693.5	743.5	793.5	843.5
B		430	480	530	580	630	680	730	780
D		3	4	4	5	5	6	6	7
E		8	10	10	12	12	14	14	16
G		3	4	4	5	5	6	6	7
H		8	10	10	12	12	14	14	16
J		180	280	280	380	380	480	480	580
K		200	300	300	400	400	500	500	600

(Note) Nominal stroke: Stroke specified as the model code
Effective stroke: Actually operable stroke

■Mass by stroke

	Nominal stroke	250	300	350	400	450	500	550	600
	Effective stroke	50	100	150	200	250	300	350	400
Mass (kg)	Without brake	6.39	6.69	6.99	7.29	7.59	7.89	8.19	8.49
	With brake	6.69	6.99	7.29	7.59	7.89	8.19	8.49	8.79

(Note) The mass is added by 0.79 kg of the free slider to the single slider specification.

Applicable controller

(Note) The EC series is equipped with a built-in controller. Contact IAI for more details about the built-in controller.