

EC-S6□AH

EC-DS6□AH

<With digital speed controller>

Simple Dust-proof

Straight Motor

Body Width 60mm

24v Stepper Motor

Ten great features

Application examples

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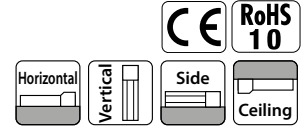
Gripper

Clean

Option

Model Specification Items

EC				AH			
Series	Type	Lead	Specifications	Stroke	Power / I/O cable length	Options	
S6	Standard	S 20mm	AH High rigidity	50 50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below	
DS6	Digital speed controller	H 12mm M 6mm L 3mm		800 800mm (Every 50mm)			



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

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Specified grease specification (Note 2) (Note 3)	G1/G5	2-381
Non-motor end specification	NM	2-384
PNP specification	PN	2-384
Slider part roller specification (Note 4)	SR	2-386
split motor and controller power supply specification	TMD2	2-387
Double slider specification (Note 3) (Note 4) (Note 5)	W	2-123
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
 (Note 2) The maximum speed and payload of the specified grease specification (G1) option are the same as the speed and payload by acceleration/deceleration of the clean room specification.
 (Note 3) Double slider specification (W) and specified grease specification (G1/G5) cannot be used together.
 (Note 4) When the slider part roller specification (SR) and Double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
 (Note 5) There are some non-selectable leads. See P. 2-123 for details.

POINT Selection Notes

- The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
- If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
- Duty must be restricted depending on the ambient operating temperature.
- Pay close attention to the installation orientation.
- Reference value of the overhang load length is under 300mm (under 600mm for double slider specification) in the direction of Ma, Mb and Mc.
- 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, operating conditions should be moderated if some abnormal vibration or noise is observed.

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

(Note 6) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
 (Note 7) If RCON-EC connection specification (ACR) is selected as an option, the robot cable is standard.

Cable code	Cable length	User wiring specification (flying leads)	
		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 8) If RCON-EC connection specification (ACR) is selected as an option, the robot cable is standard.

Main Specifications

Item		Description				
Lead	Ball screw lead (mm)	20	12	6	3	
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed / acceleration / deceleration	Max. speed (mm/s)	1440	900	450	225
		Min. speed (mm/s)	25	15	8	4
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	16
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed / acceleration / deceleration	Max. speed (mm/s)	1280	900	450	225
		Min. speed (mm/s)	25	15	8	4
Push	Max. push force (N)	67	112	224	449	
	Max. push speed (mm/s)	20	20	20	20	
Brake	Brake specification	Non-excitation actuating solenoid brake				
	Brake holding force (kgf)	1	2.5	6	16	
Stroke	Min. stroke (mm)	50	50	50	50	
	Max. stroke (mm)	800	800	800	800	
	Stroke pitch (mm)	50	50	50	50	

Item	Description
Driving system	Ball screw, ϕ 10mm, rolled C10
Positioning repeatability	\pm 0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063S5-T6 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48.5N-m
	Mb: 69.3N-m
	Mc: 103N-m
Dynamic allowable moment (Note 9)	Ma: 33.7N-m
	Mb: 40.2N-m
	Mc: 55.3N-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 (\square 42)
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.

Slider type moment direction

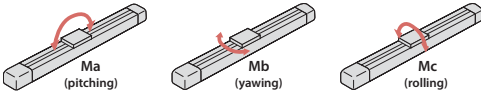


Table of Payload by Speed/Acceleration

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

Lead 20

Orientation	Horizontal						Vertical					
	Acceleration (G)						Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1						
160	15	10	8	7	1	1						
320	12	10	8	6	1	1						
480	12	9	8	6	1	1						
640	12	8	6	5	1	1						
800	10	6.5	4.5	3	1	1						
960	8	5	3.5	1.5	1	1						
1120	5	3	2	1	0.5	0.5						
1280		1	1	0.5								
1440		1	0.5									

(Note) Refer to the caution below when "G5" option is selected.

Lead 12

Orientation	Horizontal						Vertical					
	Acceleration (G)						Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5						
80	26	18	16	14	2.5	2.5						
200	26	18	16	14	2.5	2.5						
320	26	18	14	12	2.5	2.5						
440	26	18	12	10	2.5	2.5						
560	20	12	8	7	2.5	2.5						
700	15	9	5	4	2	1						
800	9	5	2	1	1.5	1						
900	5	3	1	1	0.5	0.5						

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

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

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal						Vertical					
	Acceleration (G)						Acceleration (G)					
Speed (mm/s)	0.3	0.5	0.7	1	0.3	0.5	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	16	16						
50	40	35	35	35	16	16						
80	40	35	35	30	16	16						
110	40	35	35	30	16	16						
140	40	35	35	28	15	15						
170	40	32	32	24	12.5	12						
200	35	28	23	20	10	9						
225	28	20	16	12	6							

(Note) Refer to the caution below when "G5" option is selected.

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

Lead 20

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

(Note) Refer to the caution below when "G5" option is selected.

Lead 12

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

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

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

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

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

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

- * Lead 20: 800mm/s or less
- * Lead 12: 440mm/s or less
- * Lead 6: 220mm/s or less
- * Lead 3: 110mm/s or less

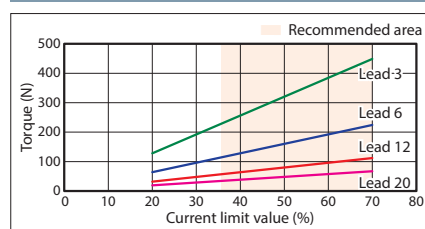
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 400 (Every 50mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	1440		1280	1090	940	815	715	630	560
	Enabled	<1280>		800				715	630	560
12	Disabled	900	845	705	585	515	445	390	345	315
	Enabled		680		585	515	445	390	345	315
6	Disabled	450	415	350	295	255	220	190	170	140
	Enabled		340		295	255	220	190	170	140
3	Disabled	225	205	170	145	125	110	95	85	70
	Enabled		170		145	125	110	95	85	70

(Unit: mm/s)

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

Correlation between Torque and Current Limit

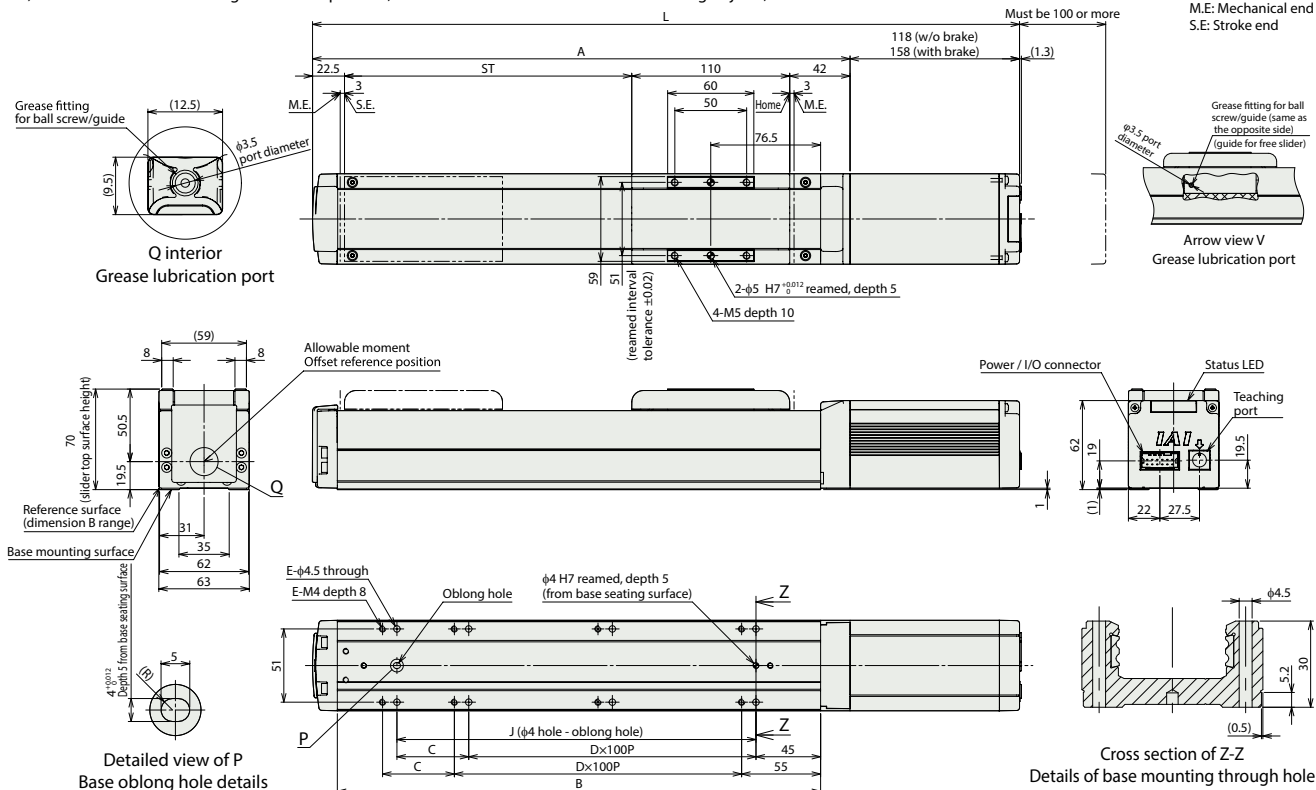


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■ EC-S6□AH

(Note) When the slider is returning to its home position, be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
L	Without brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A	224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5	
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5	
C	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	
D	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	
E	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	
J	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	

■ Mass by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
Mass (kg)	Without brake	2	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4	4.2	4.4	4.7	4.9	5.1	5.3
	With brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5	5.2	5.4	5.6

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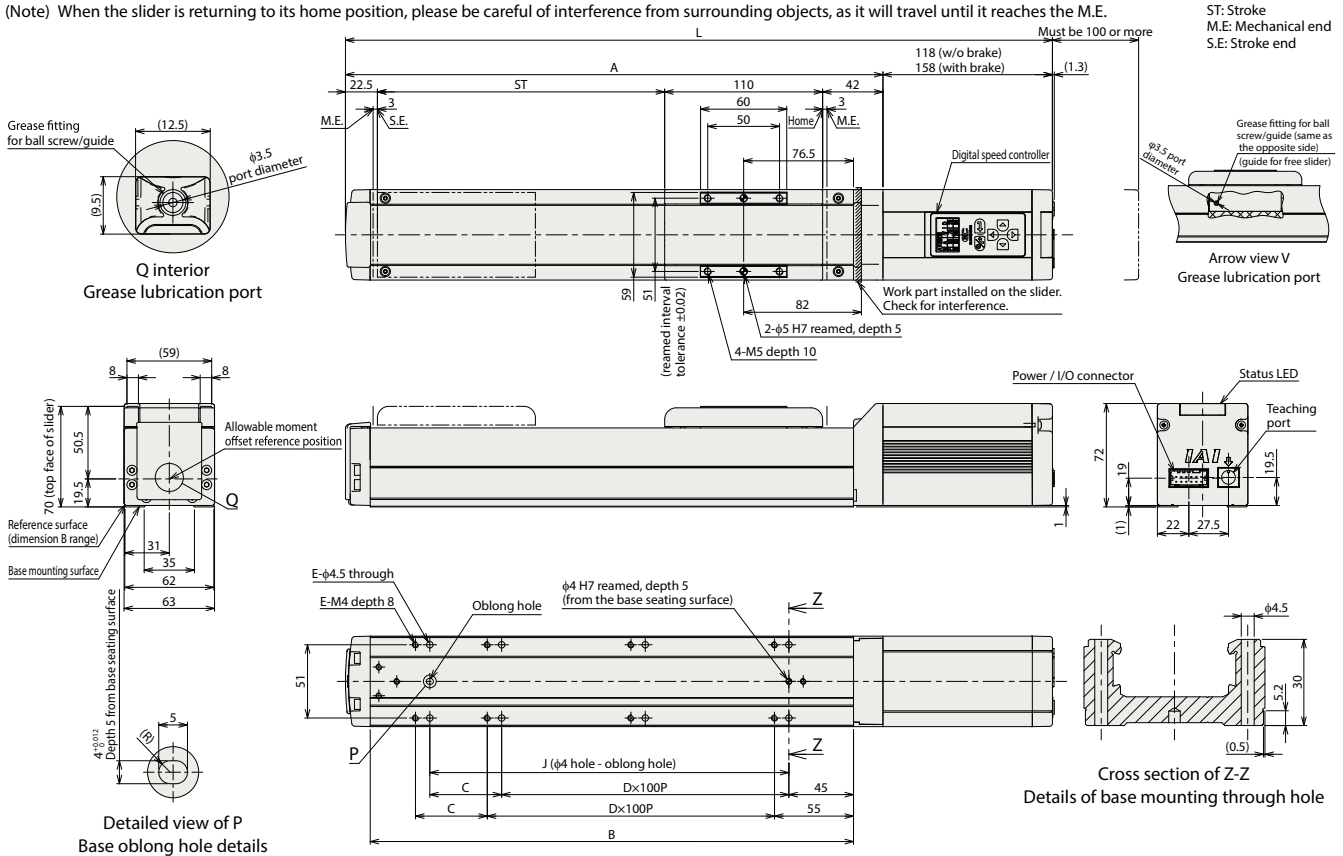
Clean

Dust-and splash-proof

Option

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

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
L	Without brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A	224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5	
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5	
C	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	
D	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	
E	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	
J	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	

■ Mass by stroke

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

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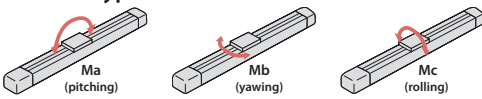
Option

Main Specifications (double slider specification)

Item		Description		
Lead	Ball screw lead (mm)	12	6	3
	Horizontal	Max. payload (kg) (energy-saving disabled)	24	30
Max. payload (kg) (energy-saving enabled)		12	18	23
Speed / acceleration / deceleration	Max. speed (mm/s)	700	450	225
	Min. speed (mm/s)	15	8	4
	Rated acceleration/deceleration (G)	0.3	0.3	0.3
	Max. acceleration/deceleration (G)	1	1	1
	Vertical	Max. payload (kg) (energy-saving disabled)	—	4
Vertical	Max. payload (kg) (energy-saving enabled)	—	3	8
	Max. speed (mm/s)	—	340	200
Speed / acceleration / deceleration	Min. speed (mm/s)	—	8	4
	Rated acceleration/deceleration (G)	—	0.3	0.3
	Max. acceleration/deceleration (G)	—	0.5	0.5
Push	Max. push force (N)	112	224	449
	Max. push speed (mm/s)	20	20	20
Brake	Brake specification	Non-excitation actuating solenoid brake		
	Brake holding force (kgf)	2.5	6	16
Stroke	Min. nominal stroke (mm)	200	200	200
	Min. effective stroke (mm)	50	50	50
	Max. nominal stroke (mm)	800	400	800
	Max. effective stroke (mm)	650	250	650
	Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 12 cannot be mounted vertically.

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-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 546N-m
	Mb: 779N-m
	Mc: 205N-m
Dynamic allowable moment (Note 10)	Ma: 167N-m
	Mb: 199N-m
	Mc: 89.8N-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 10) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

Table of Payload by Speed/Acceleration (double slider specification)

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

Lead 12

Orientation	Horizontal			Vertical		
	Speed (mm/s)	Acceleration (G)			Acceleration (G)	
	0.3	0.5	0.7	1	0.3	0.5
0	24	16	14	12		
80	24	16	14	12		
200	24	16	14	12		
320	24	16	10	8		
440	20	12	8	6		
560	12	6	4	2		
700	5	1				

Lead 6

Orientation	Horizontal			Vertical		
	Speed (mm/s)	Acceleration (G)			Acceleration (G)	
	0.3	0.5	0.7	1	0.3	0.5
0	30	24	22	18	4	4
40	30	24	22	18	4	4
100	30	24	22	18	4	4
160	30	24	22	18	4	4
220	30	24	20	16	4	4
280	28	22	18	10	3	3
340	20	12	10	6	1	1
400	6	4	1			
450	1					

Lead 3

Orientation	Horizontal			Vertical		
	Speed (mm/s)	Acceleration (G)			Acceleration (G)	
	0.3	0.5	0.7	1	0.3	0.5
0	38	33	33	33	14	14
50	38	33	33	33	14	14
80	38	33	33	28	14	14
110	38	33	33	28	14	14
140	38	33	30	26	13	12
170	36	28	26	20	10	8
200	30	22	14	9	3	2
225	15	4	1			

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

Lead 12

Orientation	Horizontal			Vertical		
	Speed (mm/s)	Acceleration (G)			Acceleration (G)	
	0.3	0.7	0.3			
0	12	8				
80	12	8				
200	12	8				
320	12	8				
440	9	3				
560	2					

Lead 6

Orientation	Horizontal			Vertical		
	Speed (mm/s)	Acceleration (G)			Acceleration (G)	
	0.3	0.7	0.3			
0	18	12	3			
40	18	12	3			
100	18	12	3			
160	18	12	3			
220	14	12	2			
280	8	4				
340	1					

Lead 3

Orientation	Horizontal			Vertical		
	Speed (mm/s)	Acceleration (G)			Acceleration (G)	
	0.3	0.7	0.3			
0	23	20	8			
20	23	20	8			
50	23	20	8			
80	23	20	8			
110	18	12	6			
140	12	8	3			
170	8	4	1			

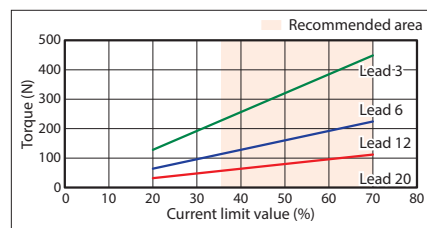
Stroke and Max Speed (double slider specification)

Lead	Nominal stroke (mm)	200~400		450	500	550	600	650	700	750	800
		Effective stroke (mm)	Energy-saving setting (Every 50mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
12	Disabled	700			585	515	445	390	345	315	
	Enabled	560			515	445	390	345	315		
6	Disabled	450 <340>	415 <340>	350 <340>	295	255	220	190	170	140	
	Enabled	340 <220>			295 <220>	255 <220>	220	190	170	140	
3	Disabled	225 <200>	205 <200>	170	145	125	110	95	85	70	
	Enabled	170			145	125	110	95	85	70	

(Note) Values in brackets <> are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

(Unit: mm/s)

Correlation between Torque and Current Limit (double slider specification)



(Note) Same values as single slider specification.

■ Dimensions (double slider specification)

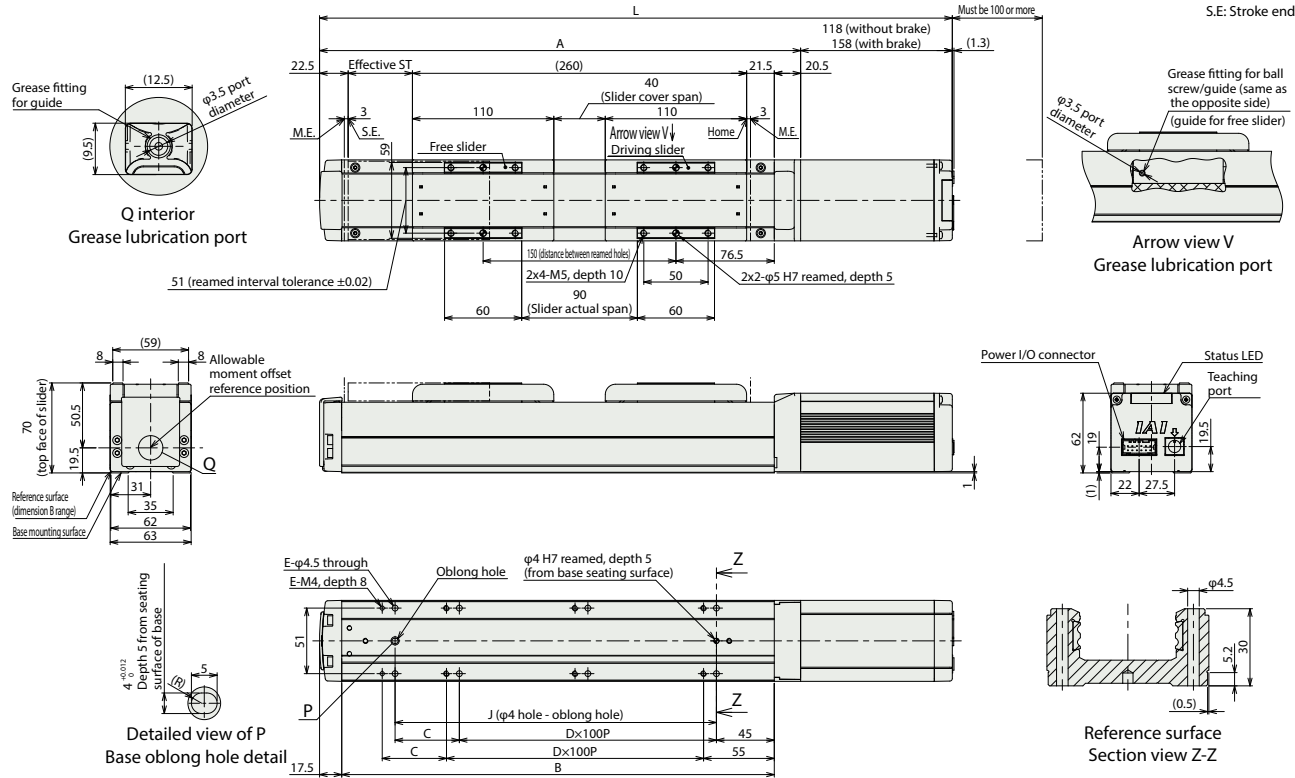
■ EC-(D)S6□AH (double slider specification)

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



(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) External view of the motor differs for product with a digital speed controller.
 Refer to the external view for single slider with digital speed controller for details.
 (Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■ Dimensions by stroke

	Nominal stroke	200	250	300	350	400	450	500	550	600	650	700	750	800
	Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650
L	Without brake	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
	A	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5
	B	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
	C	50	0	50	0	50	0	50	0	50	0	50	0	50
	D	2	3	3	4	4	5	5	6	6	7	7	8	8
	E	8	8	10	10	12	12	14	14	16	16	18	18	20
	J	250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

	Nominal stroke	200	250	300	350	400	450	500	550	600	650	700	750	800
	Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650
Mass (kg)	Without digital speed controller	Without brake	3.03	3.33	3.53	3.73	3.93	4.23	4.43	4.63	4.83	5.13	5.33	5.53
		With brake	3.33	3.63	3.83	4.03	4.23	4.53	4.73	4.93	5.13	5.43	5.63	5.83
	With digital speed controller	Without brake	3.03	3.33	3.53	3.73	3.93	4.23	4.43	4.63	4.83	5.13	5.33	5.53
		With brake	3.33	3.63	3.83	4.03	4.23	4.53	4.73	4.93	5.13	5.43	5.63	5.83

(Note) Mass is added by 0.43kg of additional slider to the single slider specification.

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P.2-391 for details on built-in controllers.

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