

RCL-SA5L

ROBO Cylinder, Slider Type, Mini Long Stroke Type, Actuator Width 48mm, Linear Servo Motor

Model Specification Items	RCL	SA5L	I	5	N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	5: Linear servo motor 5W	N: No screw	36: 36mm ? 216: 216mm (36mm pitch increments)	A1: ACON ASEL A3: AMEC ASEP MSEP	N: None P: 1m S: 3m M: 5m X <input type="checkbox"/> : Custom Length	Non-motor end

* See page Pre-47 for details on the model descriptions.



Technical References Appendix P.5

- POINT** Notes on selection
- Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA1L/SA2L/SA3L)
 - The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time} + \text{stop time}} \times 100$ per cycle.
 - The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
 - Simple absolute unit cannot be used with the RCL series.

Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)	
	Continuous operation (Duty is 100%)	
0.1	1.6	
0.3	1.0	
0.5	0.5	
1	0.35	
1.5	0.25	
2	0.25	

Actuator Specifications

Lead and Payload

Model number	Motor output(W)	Maximum payload		Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)					
RCL-SA5L-I-5-N-①-②-③-④	5	See chart above	—	5	18	2	±0.1	36~216 (Every 36mm)

Code explanation ① Stroke ② Applicable controller ③ Cable length ④ Options

Stroke and Maximum Speed

Stroke Lead	36~216 (Every 36mm)
(no screw)	1400

(Unit: mm/s)

① Stroke

① Stroke (mm)	Standard price
36	—
72	—
108	—
144	—
180	—
216	—

④ Options

Title	Option code	See page	Standard Price
Non-motor end specification	NM	→ A-52	—

③ Cable Length

Type	Cable symbol	Standard price
Standard (Robot Cables)	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
		—

* The standard cable for the RCL is the robot cable.

* See page A-59 for cables for maintenance.

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.49 N·m, Mb: 0.41 N·m, Mc: 0.72 N·m
Overhung load length	Ma direction: 80mm or less Mb and Mc directions: 100mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*) Based on 5,000km of traveling life

429

RCL-SA5L

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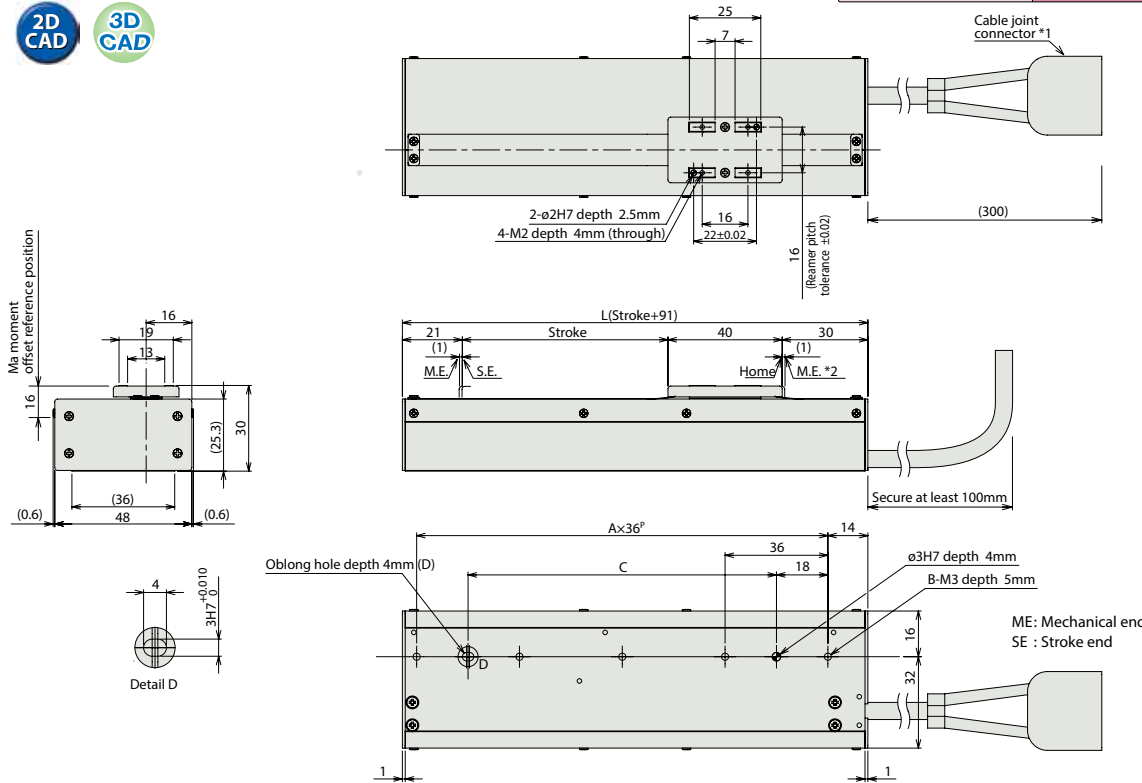
Dimensional Drawings

CAD drawings can be downloaded from the website.

www.intelligentactuator.com

For Special Orders

Appendix P.15



■ Dimensions and Weight by Stroke

Stroke	36	72	108	144	180	216
L	127	163	199	235	271	307
A	3	4	5	6	7	8
B	4	5	6	7	8	9
C	72	108	144	180	216	252
Weight (kg)	0.35	0.42	0.48	0.55	0.62	0.68

- (*1) Connect the motor-encoder integrated cable here. See page A-59 for details on cables.
- (*2) During home return, the slider travels until the mechanical end, so be careful to avoid interference from peripheral objects.

② Applicable Controllers

RCL series actuators can be operated with the controllers indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
Solenoid Valve Type		AMEC-C-5I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-5I-①-2-0	Simple controller operable with the same signal as a solenoid valve					→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-⑪-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected	256 points	DC24V	1.0A rated 6.4A max.	—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-⑪-⑪-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected					
Positioner type		ACON-C-5I-①-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.0A rated 6.4A max.	—	—
Safety-Compliant Positioner Type		ACON-CG-5I-①-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-5I-①-2-0	Pulse train input type with differential line driver support	(—)	DC24V	1.0A rated 6.4A max.	—	→ P631
Pulse Train Input Type (Open Collector)		ACON-PO-5I-①-2-0						
Serial Communication Type		ACON-SE-5I-N-0-0	Dedicated Serial Communication	64 points	DC24V	1.0A rated 6.4A max.	—	—
Program Control Type		ASEL-CS-1-5I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points	DC24V	1.0A rated 6.4A max.	—	→ P675

* This is for the single-axis ASEL. * ① indicates I/O type (NP/PN). * ⑪ indicates number of axes (1 to 8). * ⑪ indicates field network specification symbol.

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RCL-SA5L 430

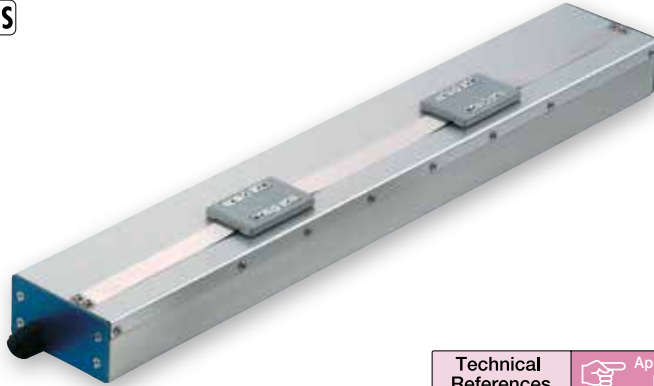
- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/ Arm/ Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Clean-room Type
- Splash-Proof Type
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCL-SM5L

ROBO Cylinder, Slider Type, Mini Multi-Slider Type, Actuator Width 48mm, Linear Servo Motor

Model Specification Items	RCL	SM5L	I	5	N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length
			I: Incremental specification	S: Linear servo motor 5W	N: No screw	36: 36mm ? 144: 144mm (36mm pitch increments)	A1: ACON ASEL A3: AMEC ASEP MSEP	N: None P: 1m S: 3m M: 5m X <input type="checkbox"/> : Custom Length

* See page Pre-47 for details on the model descriptions.



Technical References Appendix P.5

Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)	
	Continuous operation (Duty is 100%)	
0.1	1.6	
0.3		
0.5	1.0	
1	0.5	
1.5	0.35	
2	0.25	

- POINT** Notes on selection
- Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA1L/SA2L/SA3L)
 - The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time} + \text{stop time}} \times 100$ per cycle.
 - The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
 - Simple absolute unit cannot be used with the RCL series.

Actuator Specifications

Lead and Payload								Stroke and Maximum Speed		
Model number	Motor output(W)	Maximum payload		Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)	Stroke Lead	36~144 (Every 36mm)
		Horizontal (kg)	Vertical (kg)							
RCL-SM5L-I-5-N-①-②-③	5	See chart above	—	5	18	2	±0.1	36~144 (Every 36mm)	(no screw)	1400

Code explanation ① Stroke ② Applicable controller ③ Cable length (Unit: mm/s)

① Stroke

① Stroke (mm)	Standard price
36	—
72	—
108	—
144	—

③ Cable Length

Type	Cable symbol	Standard price
Standard (Robot Cables)	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
		—

* The standard cable for the RCL is the robot cable.
* See page A-59 for cables for maintenance.

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.49 N·m, Mb: 0.41 N·m, Mc: 0.72 N·m
Overhung load length	Ma direction: 80mm or less Mb and Mc directions: 100mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*) Based on 5,000km of traveling life

431 RCL-SM5L

Dimensional Drawings

CAD drawings can be downloaded from the website.

www.intelligentactuator.com

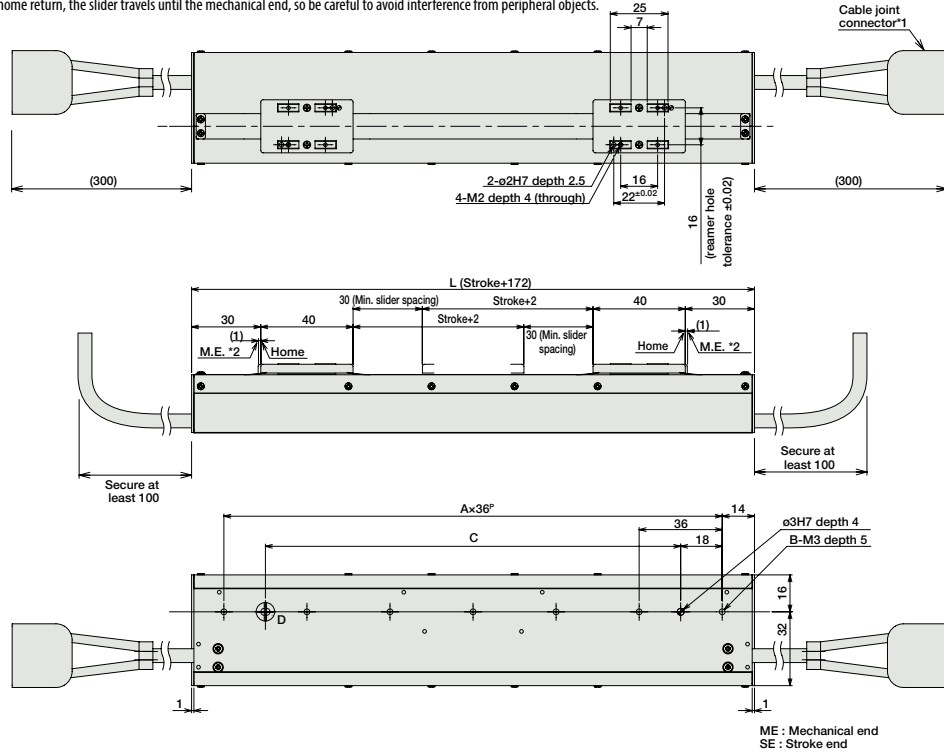
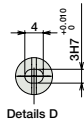
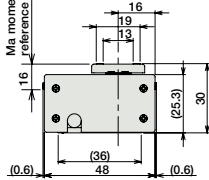
For Special Orders

Appendix P.15



- (*1) Connect the motor-encoder integrated cable here. See page A-59 for details on cables.
- (*2) During home return, the slider travels until the mechanical end, so be careful to avoid interference from peripheral objects.

Min. moment offset reference position



ME : Mechanical end
SE : Stroke end

■ Dimensions and Weight by Stroke

Stroke	36	72	108	144
L	208	244	280	316
A	5	6	7	8
B	6	7	8	9
C	144	180	216	252
Weight (kg)	0.62	0.69	0.75	0.82

Note:
One controller is required for each slider.
(Or, one 2-axis controller is required.)

② Applicable Controllers

RCL series actuators can be operated with the controllers indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
Solenoid Valve Type		AMEC-C-5I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-5I-①-2-0	Simple controller operable with the same signal as a solenoid valve					→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-⑪-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected	256 points	DC24V	1.0A rated 6.4A max.	—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-⑪-⑪-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected					→ P631
Positioner type		ACON-C-5I-①-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.0A rated 6.4A max.	—	→ P631
Safety-Compliant Positioner Type		ACON-CG-5I-①-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-5I-①-2-0	Pulse train input type with differential line driver support	(—)	DC24V	1.0A rated 6.4A max.	—	→ P631
Pulse Train Input Type (Open Collector)		ACON-PO-5I-①-2-0						
Serial Communication Type		ACON-SE-5I-N-0-0	Dedicated Serial Communication	64 points	DC24V	1.0A rated 6.4A max.	—	→ P675
Program Control Type		ASEL-CS-1-5I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points	DC24V	1.0A rated 6.4A max.	—	→ P675

* This is for the single-axis ASEL. * ① indicates I/O type (NP/PN). * ⑪ indicates number of axes (1 to 8). * ⑪ indicates field network specification symbol.

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RCL-SM5L

432

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Slider Type

Mini

Standard

Controllers Integrated

Rod Type

Mini

Standard

Controllers Integrated

Table/ Arm/ Flat Type

Mini

Standard

Gripper/ Rotary Type

Linear Servo Type

Clean-room Type

Splash-Proof Type

Pulse Motor

Servo Motor (24V)

Servo Motor (200V)

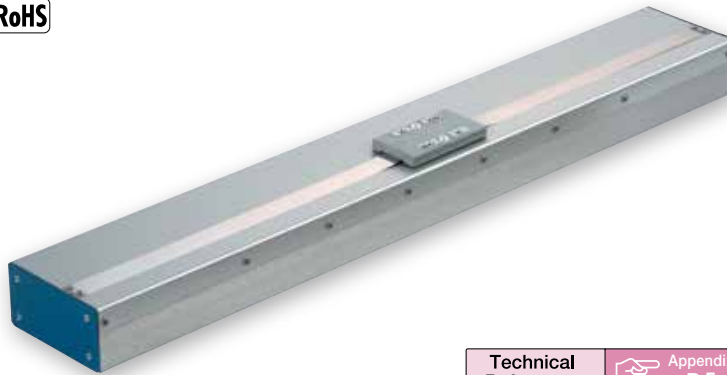
Linear Servo Motor

RCL-SA6L

ROBO Cylinder, Slider Type, Mini Long Stroke Type, Actuator Width 58mm, Linear Servo Motor

Model Specification Items	RCL	SA6L	I	10	N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	10: Linear servo motor 10W	N: No screw	48: 48mm ? 288: 288mm (48mm pitch increments)	A1: ACON ASEL A3: AMEC ASEP MSEP	N: None P: 1m S: 3m M: 5m X <input type="checkbox"/> : Custom Length	Non-motor end

* See page Pre-47 for details on the model descriptions.



Technical References Appendix P.5

- POINT**
Notes on selection
- Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA11/SA2L/SA3L)
 - The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time} + \text{stop time}} \times 100$ per cycle.
 - The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
 - Simple absolute unit cannot be used with the RCL series.

Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)	
	Continuous operation (Duty is 100%)	
0.1	3.2	
0.3	2	
0.5	1	
1	0.65	
1.5	0.5	

Actuator Specifications

Lead and Payload

Model number	Motor output(W)	Maximum payload		Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)					
RCL-SA6L-I-10-N-①-②-③-④	10	See chart above	—	10	30	2	±0.1	48~288 (Every 48mm)

Code explanation ① Stroke ② Applicable controller ③ Cable length ④ Options

Stroke and Maximum Speed

Stroke Lead	48~288 (Every 48mm)
(no screw)	1600

(Unit: mm/s)

① Stroke

① Stroke (mm)	Standard price
48	—
96	—
144	—
192	—
240	—
288	—

④ Options

Title	Option code	See page	Standard Price
Non-motor end specification	NM	→ A-52	—

③ Cable Length

Type	Cable symbol	Standard price
Standard (Robot Cables)	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—

* The standard cable for the RCL is the robot cable.

* See page A-59 for cables for maintenance.

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.87 N·m, Mb: 0.75 N·m, Mc: 1.22 N·m
Overhung load length	Ma direction: 80mm or less Mb and Mc directions: 120mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*) Based on 5,000km of traveling life

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- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/ Arm/ Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Clean-room Type
- Splash-Proof Type
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

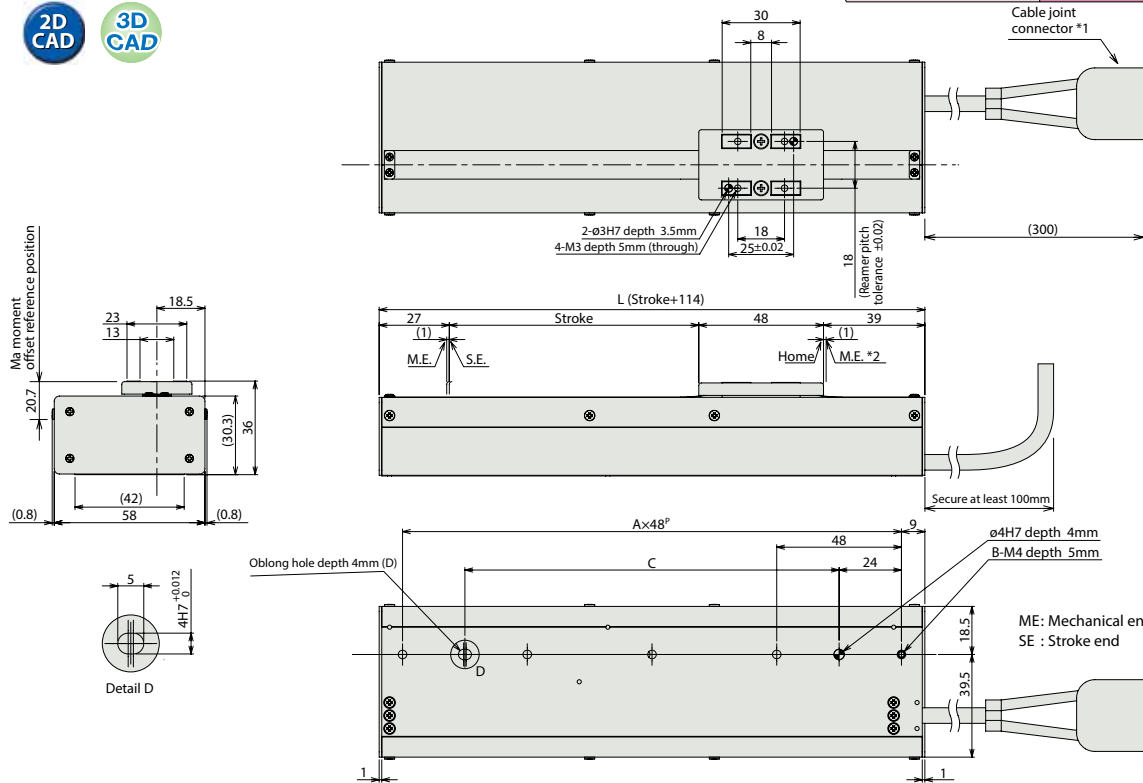
Dimensional Drawings

CAD drawings can be downloaded from the website.

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For Special Orders

Appendix P.15



Dimensions and Weight by Stroke

Stroke	48	96	144	192	240	288
L	162	210	258	306	354	402
A	3	4	5	6	7	8
B	4	5	6	7	8	9
C	96	144	192	240	288	336
Weight (kg)	0.67	0.8	0.93	1.07	1.2	1.34

(*1) Connect the motor-encoder integrated cable here. See page A-59 for details on cables.
 (*2) During home return, the slider travels until the mechanical end, so be careful to avoid interference from peripheral objects.

Applicable Controllers

RCL series actuators can be operated with the controllers indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
Solenoid Valve Type		AMEC-C-10I-1-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-10I-1-2-0	Simple controller operable with the same signal as a solenoid valve					→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-10I-1-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected	256 points	DC24V	1.3A rated 6.4A max.	—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-10I-1-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected					
Positioner type		ACON-C-10I-1-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.3A rated 6.4A max.	—	—
Safety-Compliant Positioner Type		ACON-CG-10I-1-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-10I-1-2-0	Pulse train input type with differential line driver support	(—)	DC24V	1.3A rated 6.4A max.	—	→ P631
Pulse Train Input Type (Open Collector)		ACON-PO-10I-1-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-10I-N-0-0	Dedicated Serial Communication	64 points	DC24V	1.3A rated 6.4A max.	—	—
Program Control Type		ASEL-CS-1-10I-1-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points	DC24V	1.3A rated 6.4A max.	—	→ P675

* This is for the single-axis ASEL. * ① indicates I/O type (NP/PN). * ② indicates number of axes (1 to 8). * ③ indicates field network specification symbol.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Clean-room Type
- Splash-Proof Type

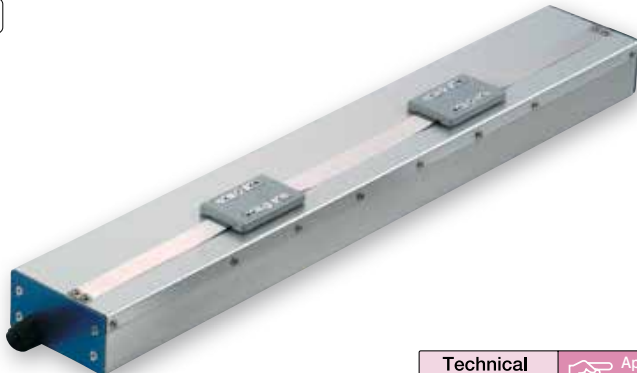
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCL-SM6L

ROBO Cylinder, Slider Type, Mini Multi-Slider Type, Actuator Width 58mm, Linear Servo Motor

Model Specification Items	RCL	SM6L	I	10	N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length
			I: Incremental specification	10: Linear servo motor 10W	N: No screw	48: 48mm ? 192: 192mm (48mm pitch increments)	A1: ACON ASEL A3: AMEC ASEP MSEP	N: None P: 1m S: 3m M: 5m X□□: Custom Length

* See page Pre-47 for details on the model descriptions.



Technical References Appendix P.5

- POINT** Notes on selection
- Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA1L/SA2L/SA3L)
 - The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time} + \text{stop time}} \times 100$ per cycle.
 - The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
 - Simple absolute unit cannot be used with the RCL series.

Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)	
	Continuous operation (Duty is 100%)	
0.1	3.2	
0.3		
0.5	2	
1	1	
1.5	0.65	
2	0.5	

Actuator Specifications

Lead and Payload

Model number	Motor output(W)	Maximum payload		Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)					
RCL-SM6L-I-10-N-①-②-③	10	See chart above	—	10	30	2	±0.1	48~192 (Every 48mm)

Code explanation ① Stroke ② Applicable controller ③ Cable length

Stroke and Maximum Speed

Stroke Lead	48~192 (Every 36mm)
(no screw)	1600

(Unit: mm/s)

① Stroke

① Stroke (mm)	Standard price
48	—
96	—
144	—
192	—

③ Cable Length

Type	Cable symbol	Standard price
Standard (Robot Cables)	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
		—

* The standard cable for the RCL is the robot cable.
* See page A-59 for cables for maintenance.

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.87 N·m, Mb: 0.75 N·m, Mc: 1.22 N·m
Overhung load length	Ma direction: 80mm or less Mb and Mc directions: 120mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*) Based on 5,000km of traveling life

435

RCL-SM6L

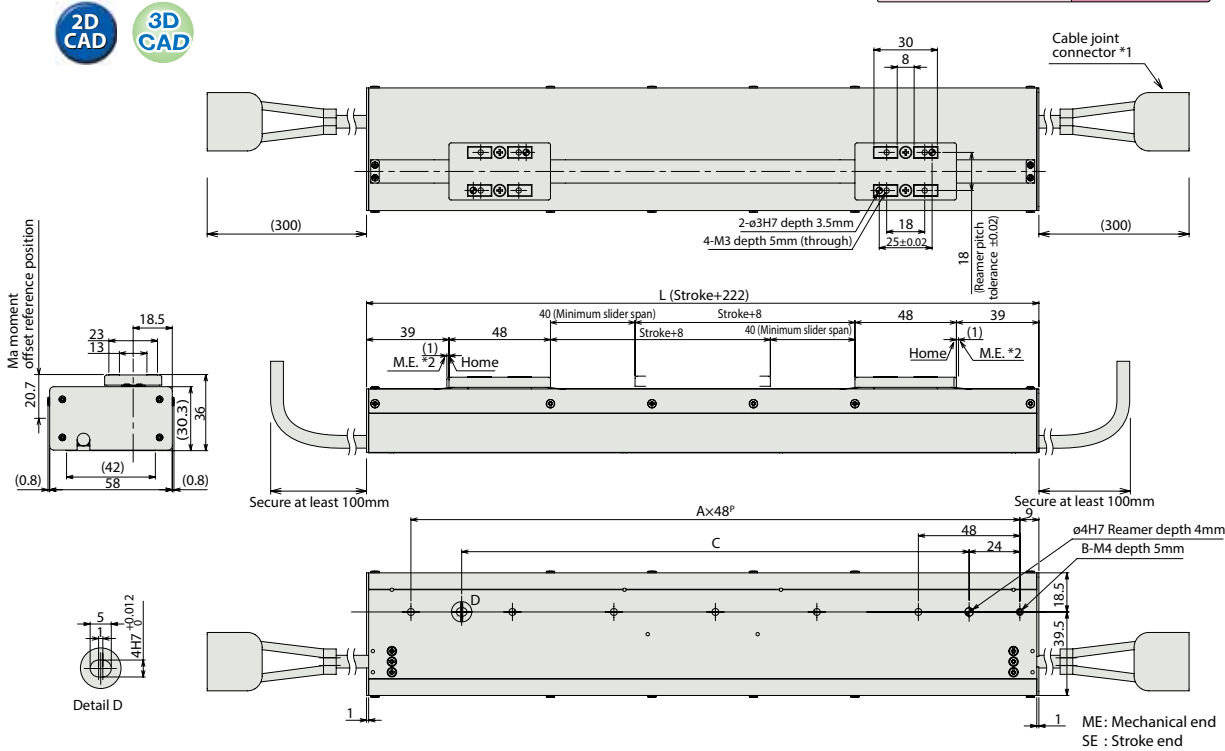
Dimensional Drawings

CAD drawings can be downloaded from the website.

www.intelligentactuator.com

For Special Orders

Appendix P.15



Note:
One controller is required for each slider.
(Or, one 2-axis controller is required.)

Dimensions and Weight by Stroke

Stroke	48	96	144	192
L	270	318	366	414
A	5	6	7	8
B	6	7	8	9
C	192	240	288	336
Weight (kg)	1.17	1.31	1.44	1.58

(*1) Connect the motor-encoder integrated cable here. See page A-59 for details on cables.
(*2) During home return, the slider travels until the mechanical end, so be careful to avoid interference from peripheral objects.

② Applicable Controllers

RCL series actuators can be operated with the controllers indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
Solenoid Valve Type		AMEC-C-10I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-10I-①-2-0	Simple controller operable with the same signal as a solenoid valve					→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-①-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected	256 points	DC24V	1.3A rated 6.4A max.	—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-①-②-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected					
Positioner type		ACON-C-10I-①-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.3A rated 6.4A max.	—	—
Safety-Compliant Positioner Type		ACON-CG-10I-①-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-10I-①-2-0	Pulse train input type with differential line driver support	(—)	DC24V	1.3A rated 6.4A max.	—	→ P631
Pulse Train Input Type (Open Collector)		ACON-PO-10I-①-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-10I-N-0-0	Dedicated Serial Communication	64 points	DC24V	1.3A rated 6.4A max.	—	—
Program Control Type		ASEL-CS-1-10I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points	DC24V	1.3A rated 6.4A max.	—	→ P675

* This is for the single-axis ASEL. * ① indicates I/O type (NP/PN). * ② indicates number of axes (1 to 8). * ③ indicates field network specification symbol.

Slider Type

Mini

Standard

Controllers Integrated

Rod Type

Mini

Standard

Controllers Integrated

Table/ Arm/ Flat Type

Mini

Standard

Gripper/ Rotary Type

Linear Servo Type

Clean-room Type

Splash-Proof Type

Pulse Motor

Servo Motor (24V)

Servo Motor (200V)

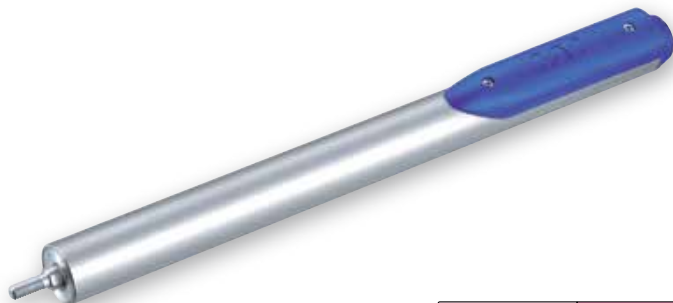
Linear Servo Motor

RCL-RA1L

ROBO Cylinder, Rod Type, Mini Slim Type, Main unit diameter: 16mm, Linear Servo Motor

Model Specification Items	RCL — RA1L — I — 2 — N — 25 — <input type="checkbox"/> — <input type="checkbox"/> — <input type="checkbox"/>	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
				1: Incremental specification	2: Linear servo motor 2W	N: No screw	25: 25mm	A1: ACON ASEL A3: AMEC ASEP MSEP	N: None P: 1m S: 3m M: 5m X <input type="checkbox"/> <input type="checkbox"/> : Custom Length	B: Brake (with brake box) BN: Brake (without brake box)

* See page Pre-47 for details on the model descriptions.



Technical References Appendix P.5

POINT Notes on selection

(1) The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time} + \text{stop time}} \times 100$ per cycle.

(2) If the actuator is operated vertically, use the optional brake specification.
 (3) Please use an external guide to avoid a horizontal or rotational load applied to the rod.
 (4) The pushing force fluctuation increases when the current limit is low.
 (5) Simple absolute unit cannot be used with the RCL series.

Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)			
	Continuous operation (Duty is 100%)		Duty is 70% or less	
	Horizontal	Vertical	Horizontal	Vertical
0.1	0.5	0.1	0.5	0.1
0.3				
0.5	0.42		0.25	
1	0.2	—	0.15	—
1.5	0.11	—	0.1	—
2	0.07	—	—	—

Pushing force guidelines

Pushing operation is possible within the range of numeric values listed below. (N)

Electric current limit	30%	40%	50%	60%	70%	80%
Pushing force	0.75	1	1.25	1.5	1.75	2

* The pushing forces listed above are for horizontal usage. If facing vertically upward, subtract 0.5N from the numeric values listed above, but if facing vertically downward, add 0.5N.

Actuator Specifications

Lead and Payload

Model number	Motor output(W)	Maximum payload		Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)					
RCL-RA1L-I-2-N-25-①-②-③	2	See chart above	See chart above	2.5	10	Horizontal 2G Vertical 1G	±0.1	25 (Fixed)

Code explanation ① Applicable controller ② Cable length ③ Options

Stroke and Maximum Speed

Stroke Lead	25 (mm)
(no screw)	300

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
25	—

② Cable Length

Type	Cable symbol	Standard price	
		with Brake	without Brake
Standard (Robot Cables)	P (1m)	—	—
	S (3m)	—	—
	M (5m)	—	—
Special length	X06 (6m) ~ X10 (10m)	—	—
	X11 (11m) ~ X15 (15m)	—	—
	X16 (16m) ~ X20 (20m)	—	—
		—	—

* The standard cable for the RCL is the robot cable.
 * See page A-59 for the cable for non-brake specification.
 * See page 438 for the cable for brake specification.
 (All prices represent the total of an integrated motor/encoder/brake cable.)

③ Options

Title	Option code	See page	Standard Price
Brake (with brake box)	B	→ P438	—
Brake (without brake box)	BN	→ P438	—

* The brake box and cable with brake is needed to use the brake. If only the actuator with brake is needed for a repair, specify the BN (specification without brake box).

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Pipe	Material: Nickel-plated carbon steel tube
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	10 million cycles

437

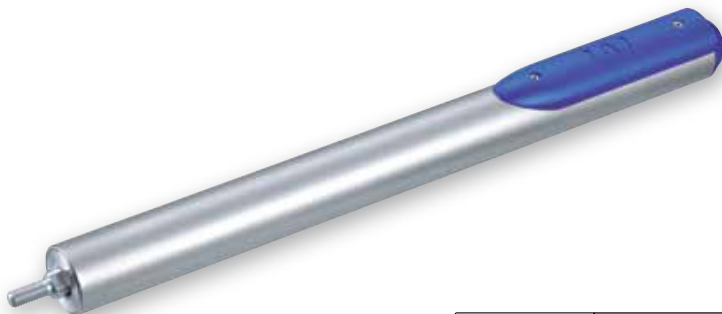
RCL-RA1L

RCL-RA2L

ROBO Cylinder, Rod Type, Mini Slim Type, Main unit diameter: 20mm, Linear Servo Motor

Model Specification Items	RCL — RA2L — I — 5 — N — 30 —	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Series — Type — Encoder type — Motor type — Lead — Stroke —	Applicable controller —	Cable length —	Options
	I: Incremental specification 5: Linear servo motor SW	N: No screw 30: 30mm	A1: ACON ASEL A3: AMEC ASEP MSEP	N: None P: 1m S: 3m M: 5m X□□: Custom Length
				B: Brake (with brake box) BN: Brake (without brake box)

* See page Pre-47 for details on the model descriptions.



Technical References Appendix P.5

POINT Notes on selection

- The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right. The duty is $\frac{\text{Operating time}}{\text{Operating time} + \text{stop time}} \times 100$ per cycle.
- If the actuator is operated vertically, use the optional brake specification.
- Please use an external guide to avoid a horizontal or rotational load applied to the rod.
- The pushing force fluctuation increases when the current limit is low.
- Simple absolute unit cannot be used with the RCL series.

Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)			
	Continuous operation (Duty is 100%)		Duty is 70% or less	
	Horizontal	Vertical	Horizontal	Vertical
0.1	1	0.2	1	0.2
0.3				
0.5	0.85		0.5	
1	0.4	—	0.3	—
1.5	0.24	—	0.2	—
2	0.15	—	—	—

Pushing force guidelines

Pushing operation is possible within the range of numeric values listed below. (N)

Electric current limit	30%	40%	50%	60%	70%	80%
Pushing force	1.5	2	2.5	3	3.5	4

* The pushing forces listed above are for horizontal usage. If facing vertically upward, subtract 1N from the numeric values listed above, but if facing vertically downward, add 1N.

Actuator Specifications

Lead and Payload

Model number	Motor output(W)	Maximum payload		Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)					
RCL-RA2L-I-5-N-30-①-②-③	5	See chart above	See chart above	5	18	Horizontal 2G Vertical 1G	±0.1	30 (Fixed)

Code explanation ① Applicable controller ② Cable length ③ Options

Stroke and Maximum Speed

Stroke Lead	30 (mm)
	(no screw)

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
30	—

② Cable Length

Type	Cable symbol	Standard price	
		with Brake	without Brake
Standard (Robot Cables)	P (1m)	—	—
	S (3m)	—	—
	M (5m)	—	—
Special length	X06 (6m) ~ X10 (10m)	—	—
	X11 (11m) ~ X15 (15m)	—	—
	X16 (16m) ~ X20 (20m)	—	—
		—	—

* The standard cable for the RCL is the robot cable.
* See page A-59 for the cable for non-brake specification.
* See page 440 for the cable for brake specification.
(All prices represent the total of an integrated motor/encoder/brake cable.)

③ Options

Title	Option code	See page	Standard Price
Brake (with brake box)	B	→ P440	—
Brake (without brake box)	BN	→ P440	—

* The brake box and cable with brake is needed to use the brake. If only the actuator with brake is needed for a repair, specify the BN (specification without brake box).

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Pipe	Material: Nickel-plated carbon steel tube
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	10 million cycles

439

RCL-RA2L

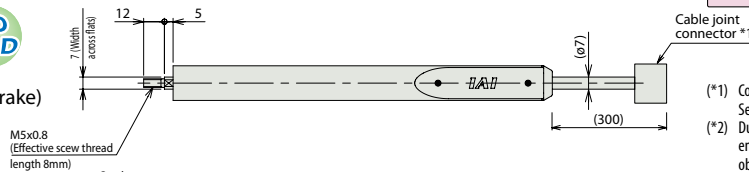
Dimensional Drawings

CAD drawings can be downloaded from the website.

www.intelligentactuator.com



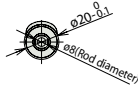
(Without Brake)



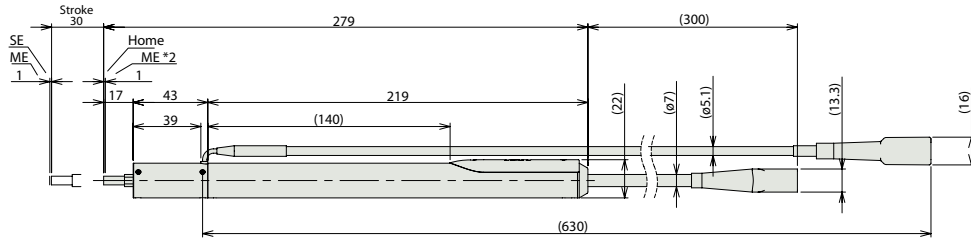
For Special Orders Appendix P.15

- (*1) Connect the motor-encoder integrated cable here. See page A-59 for details on cables.
- (*2) During home return, the slider travels until the mechanical end, so be careful to avoid interference from peripheral objects.

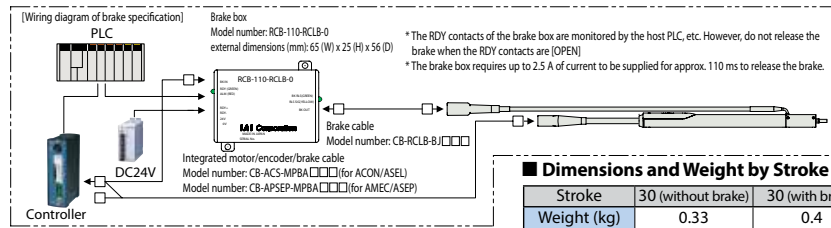
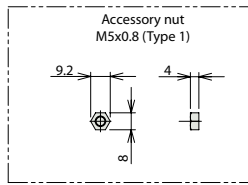
Note: Please refer to page A-12 for the actuator mounting instruction.



(With Brake)



ME: Mechanical end
SE: Stroke end



Dimensions and Weight by Stroke

Stroke	30 (without brake)	30 (with brake)
Weight (kg)	0.33	0.4

① Applicable Controllers

RCL series actuators can be operated with the controllers indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
Solenoid Valve Type		AMEC-C-5I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-5I-①-2-0	Simple controller operable with the same signal as a solenoid valve					→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-①-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected	256 points	DC24V	1.0A rated 6.4A max.	—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-①-①-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected					→ P631
Positioner type		ACON-C-5I-①-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.0A rated 6.4A max.	—	→ P631
Safety-Compliant Positioner Type		ACON-CG-5I-①-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-5I-①-2-0	Pulse train input type with differential line driver support	(—)	DC24V	1.0A rated 6.4A max.	—	→ P631
Pulse Train Input Type (Open Collector)		ACON-PO-5I-①-2-0						
Serial Communication Type		ACON-SE-5I-N-0-0	Dedicated Serial Communication	64 points	DC24V	1.0A rated 6.4A max.	—	→ P675
Program Control Type		ASEL-CS-1-5I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points	DC24V	1.0A rated 6.4A max.	—	→ P675

* This is for the single-axis ASEL. * ① indicates I/O type (NP/PN). * ① indicates number of axes (1 to 8). * ① indicates field network specification symbol.



RCL-RA2L 440

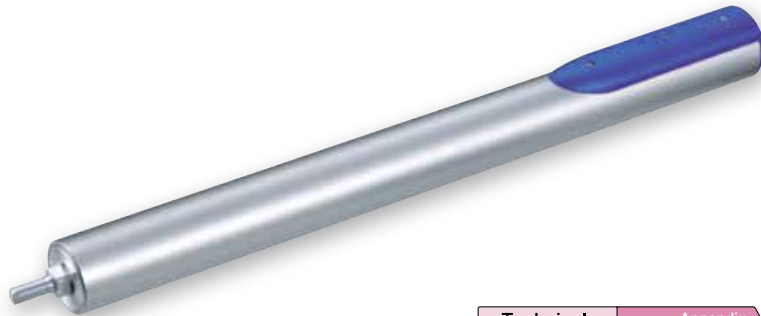
- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Clean-room Type
- Splash-Proof Type
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCL-RA3L

ROBO Cylinder, Rod Type, Mini Slim Type, Main unit diameter: 25mm, Linear Servo Motor

Model Specification Items	RCL — RA3L — I — 10 — N — 40 —	□	□	□
	Series — Type — Encoder type — Motor type — Lead — Stroke	Applicable controller	Cable length	Options
	I: Incremental specification 10: Linear servo motor 10W N: No screw 40: 40mm	A1: ACON ASEL A3: AMEC ASEP MSEP	N: None P: 1m S: 3m M: 5m X□□: Custom Length	B: Brake (with brake box) BN: Brake (without brake box)

* See page Pre-47 for details on the model descriptions.



Technical References Appendix P.5

- POINT** Notes on selection
- The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right. The duty is $\frac{\text{Operating time}}{\text{Operating time} + \text{stop time}} \times 100$ per cycle.
 - If the actuator is operated vertically, use the optional brake specification.
 - Please use an external guide to avoid a horizontal or rotational load applied to the rod.
 - The pushing force fluctuation increases when the current limit is low.
 - Simple absolute unit cannot be used with the RCL series.

Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)			
	Continuous operation (Duty is 100%)		Duty is 70% or less	
	Horizontal	Vertical	Horizontal	Vertical
0.1	2	0.4	2	0.4
0.3				
0.5	1.6		1	
1	0.78	—	0.6	—
1.5	0.46	—	0.4	—
2	0.3	—	—	—

Pushing force guidelines

Pushing operation is possible within the range of numeric values listed below. (N)

Electric current limit	30%	40%	50%	60%	70%	80%
Pushing force	3	4	5	6	7	8

* The pushing forces listed above are for horizontal usage. If facing vertically upward, subtract 1.8N from the numeric values listed above, but if facing vertically downward, add 1.8N.

Actuator Specifications

Leads and Payload

Model number	Motor output(W)	Maximum payload		Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)					
RCL-RA3L-I-10-N-40-①-②-③	10	See chart above	See chart above	10	30	Horizontal 2G Vertical 1G	±0.1	40 (Fixed)

Code explanation ① Applicable controller ② Cable length ③ Options

Stroke and Maximum Speed

Stroke Lead	40 (mm)
(no screw)	450

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
40	—

② Cable Length

Type	Cable symbol	Standard price	
		without Brake	with Brake
Standard (Robot Cables)	P (1m)	—	—
	S (3m)	—	—
	M (5m)	—	—
Special length	X06 (6m) ~ X10 (10m)	—	—
	X11 (11m) ~ X15 (15m)	—	—
	X16 (16m) ~ X20 (20m)	—	—
	—	—	—

* The standard cable for the RCL is the robot cable.
* See page A-59 for the cable for non-brake specification.
* See page 442 for the cable for brake specification.
(All prices represent the total of an integrated motor/encoder/brake cable.)

③ Options

Title	Option code	See page	Standard Price
Brake (with brake box)	B	→ P442	—
Brake (without brake box)	BN	→ P442	—

* The brake box and cable with brake is needed to use the brake. If only the actuator with brake is needed for a repair, specify the BN (specification without brake box).

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Pipe	Material: Nickel-plated carbon steel tube
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	10 million cycles

441

RCL-RA3L

Dimensional Drawings

CAD drawings can be downloaded from the website.

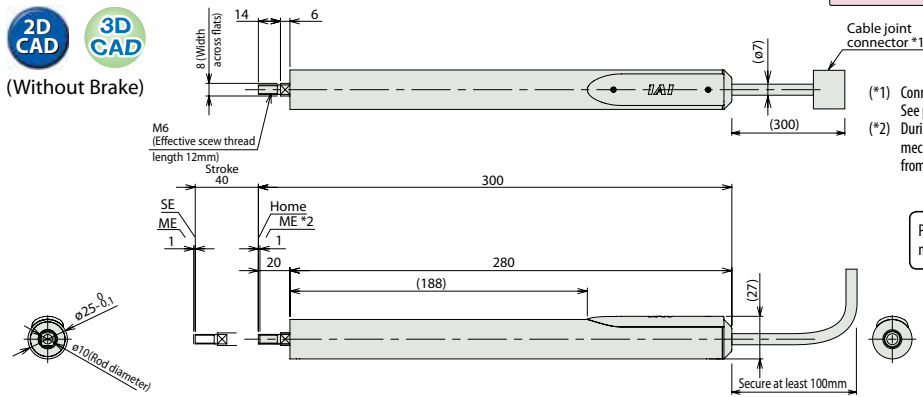
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For Special Orders

Appendix P.15

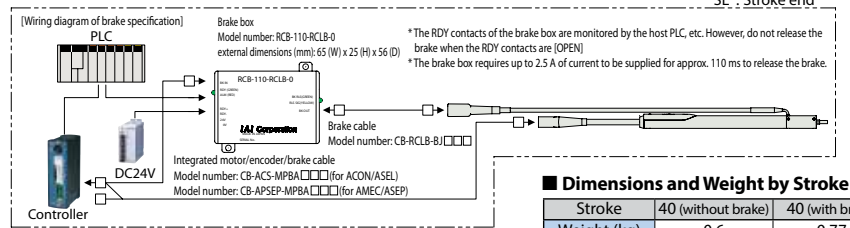
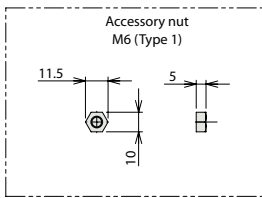
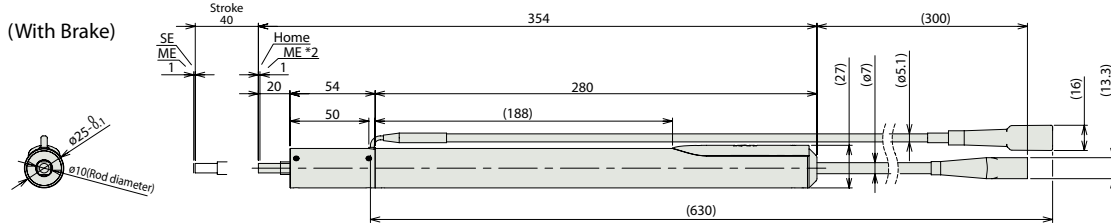


(Without Brake)



Note:
Please refer to page A-12 for the actuator mounting instruction.

(With Brake)



① Applicable Controllers

RCL series actuators can be operated with the controllers indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
Solenoid Valve Type		AMEC-C-10I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-10I-①-2-0	Simple controller operable with the same signal as a solenoid valve					→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-①-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected	256 points	DC24V	1.3A rated 6.4A max.	—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-①-①-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected					
Positioner type		ACON-C-10I-①-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.3A rated 6.4A max.	—	—
Safety-Compliant Positioner Type		ACON-CG-10I-①-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-10I-①-2-0	Pulse train input type with differential line driver support	(—)	DC24V	1.3A rated 6.4A max.	—	→ P631
Pulse Train Input Type (Open Collector)		ACON-PO-10I-①-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-10I-N-0-0	Dedicated Serial Communication	64 points	DC24V	1.3A rated 6.4A max.	—	—
Program Control Type		ASEL-CS-1-10I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points	DC24V	1.3A rated 6.4A max.	—	→ P675

* This is for the single-axis ASEL. * ① indicates I/O type (NP/PN). * ① indicates number of axes (1 to 8). * ① indicates field network specification symbol.

Slider Type

Mini

Standard

Controllers Integrated

Rod Type

Mini

Standard

Controllers Integrated

Table/Arm/Flat Type

Mini

Standard

Gripper/Rotary Type

Linear Servo Type

Clean-room Type

Clean-room Type

Splash-Proof Type

Pulse Motor

Servo Motor (24V)

Servo Motor (200V)

Linear Servo Motor