ROBO CYLINDER

Linear Servo Type

RCL

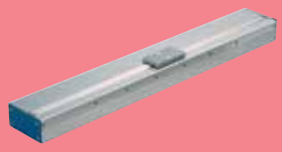
RCL-SA1L

RCL-SA2L

RCL-SA3L

RCL-SA4L

RCL-SA5L



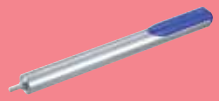
RCL-SA6L

RCL-SM4L

RCL-SM5L

RCL-SM6L

RCL-RA1L



RCL-RA2L

RCL-RA3L

RCL *series*
Linear Servo Motor Type

RCL-SA1L

ROBO Cylinder, Slider Type, Mini Slim Type, Actuator Width 20mm, Linear Servo Motor

Model Specification Items: **RCL** — **SA1L** — **I** — **2** — **N** — **40** — □ — □

- Series: RCL
- Type: SA1L
- Encoder type: I (I: Incremental specification)
- Motor type: 2 (2: Linear servo motor 2W)
- Lead: N (N: No screw)
- Stroke: 40 (40: 40mm)
- Applicable controller: A1: ACON, ASEL; A3: AMEC, ASEP, MSEP
- Cable length: N: None; P: 1m; S: 3m; M: 5m; X□□: Custom Length

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

RoHS

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 $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.
(2) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
(3) 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
0.1	0.5	0.5
0.3		
0.5	0.42	
1	0.25	0.32
1.5	0.18	0.24
2	0.15	0.2

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-SA1L-I-2-40-N-①-②	2	See chart above	—	2	10	2	±0.1	40 (Fixed)

Code explanation ① Applicable Controller ② Cable length

■ Stroke and Maximum Speed

Lead \ Stroke	40 (mm)
(no screw)	420

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
40	—

②Cable 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

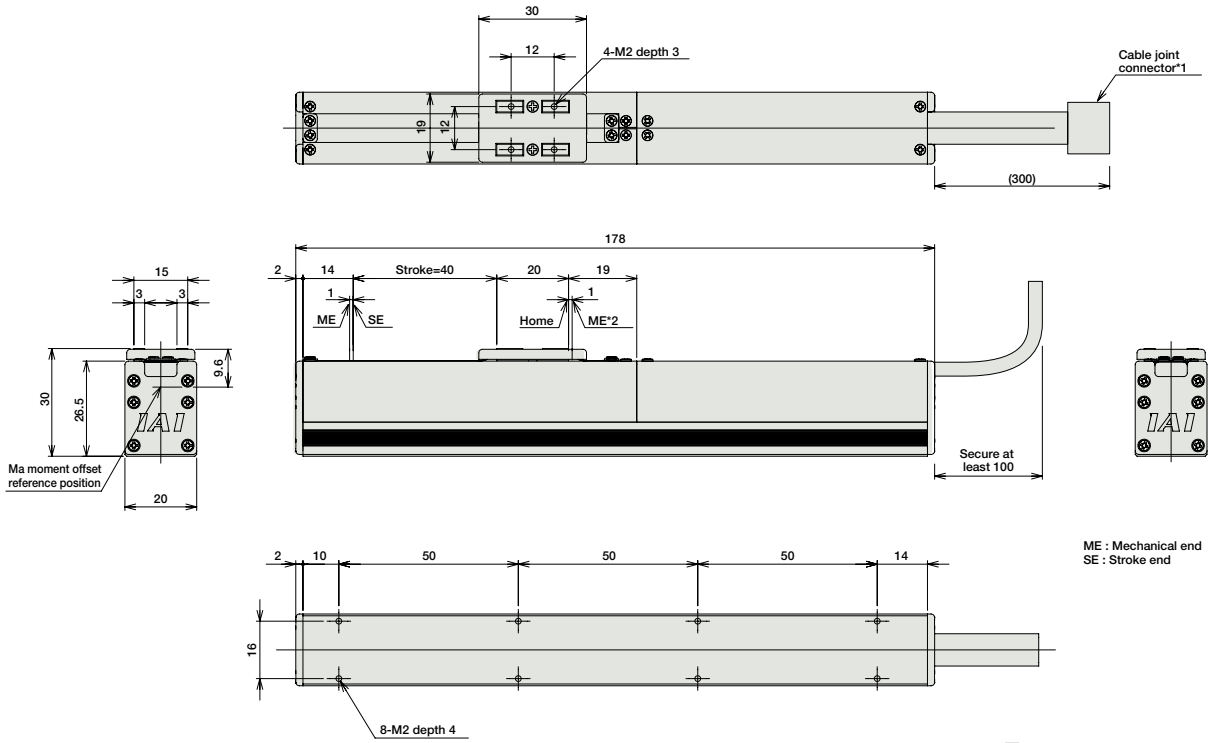
Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.13 N·m, Mb: 0.12 N·m, Mc: 0.21 N·m
Overhung load length	50mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

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

Dimensional Drawings

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.



■ Dimensions and Weight by Stroke

Stroke	40
Weight (kg)	0.28

①Applicable 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-2I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-2I-①-2-0	Simple controller operable with the same signal as a solenoid valve		DC24V	0.8A rated 4.6A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⓘ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⓘ-~~-ⓘⓘ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-2I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
Safety-Compliant Positioner Type		ACON-CG-2I-①-2-0					—	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-2I-①-2-0	Pulse train input type with differential line driver support	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-2I-①-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-2I-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-2I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SA2L

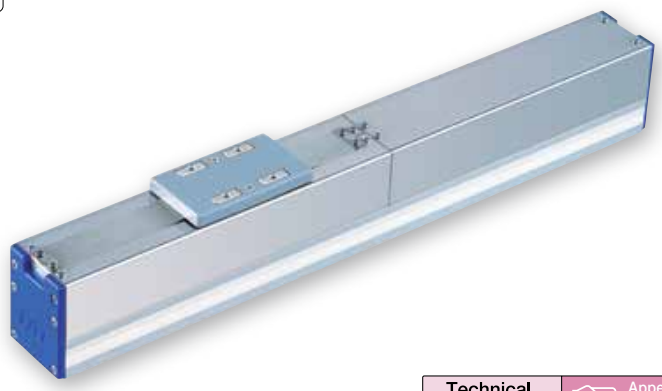
ROBO Cylinder, Slider Type, Mini Slim Type, Actuator Width 24mm, Linear Servo Motor

Model Specification Items: **RCL** — **SA2L** — **I** — **5** — **N** — **48** — □ — □

- Series: RCL
- Type: SA2L
- Encoder type: I (I: Incremental specification)
- Motor type: 5 (5: Linear servo motor 5W)
- Lead: N (N: No screw)
- Stroke: 48 (48: 48mm)
- Applicable controller: A1: ACON, ASEL; A3: AMEC, ASEP, MSEP
- Cable length: N: None; P: 1m; S: 3m; M: 5m; X□□: Custom Length

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

RoHS



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 $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.
(2) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
(3) 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
0.1	1	1
0.3		
0.5	0.85	
1	0.5	0.6
1.5	0.36	0.45
2	0.3	0.36

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-SA2L-I-5-N-48-①-②	5	See chart above	—	4	18	2	±0.1	48 (Fixed)

Code explanation ① Applicable Controller ② Cable length

■ Stroke and Maximum Speed

Lead \ Stroke	48 (mm)
(no screw)	460

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
48	—

②Cable 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

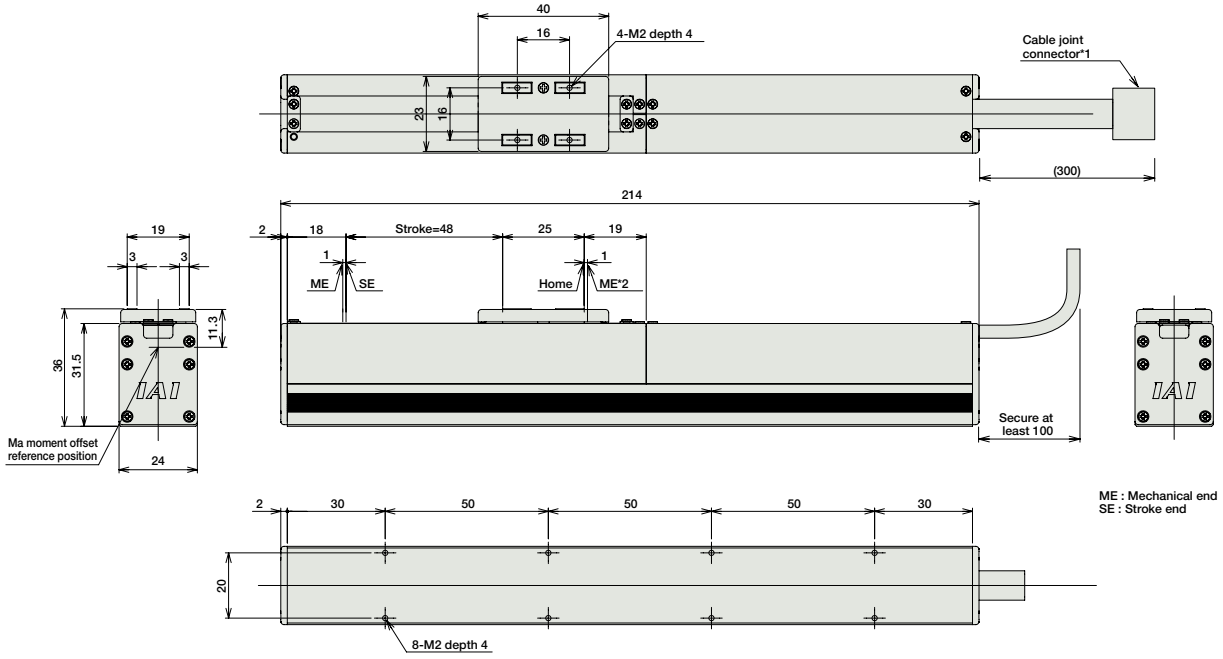
Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.2 N·m, Mb: 0.17 N·m, Mc: 0.25 N·m
Overhung load length	60mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

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

Dimensional Drawings

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.



■ Dimensions and Weight by Stroke

Stroke	48
Weight (kg)	0.45

①Applicable 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		DC24V	1.0A rated 6.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⓘ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⓘ-~~-ⓘⓘ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-5I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ 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	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-5I-①-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-5I-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-5I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SA3L

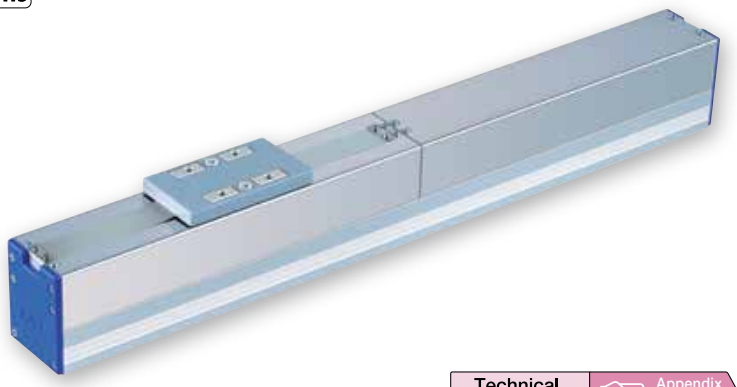
ROBO Cylinder, Slider Type, Mini Slim Type, Actuator Width 28mm, Linear Servo Motor

Model Specification Items: **RCL** — **SA3L** — **I** — **10** — **N** — **64** — □ — □

- Series: RCL
- Type: SA3L
- Encoder type: I (I: Incremental specification)
- Motor type: 10 (10: Linear servo motor 10W)
- Lead: N (N: No screw)
- Stroke: 64 (64: 64mm)
- Applicable controller: A1: ACON, ASEL; A3: AMEC, ASEP, MSEP
- Cable length: N: None; P: 1m; S: 3m; M: 5m; X□□: Custom Length

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

RoHS



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 $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.
(2) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
(3) 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
0.1	2	2
0.3		
0.5	1.8	
1	1	1.2
1.5	0.65	0.8
2	0.5	0.6

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-SA3L-I-10-N-64-①-②	10	See chart above	—	8	30	2	±0.1	64 (Fixed)

Code explanation ① Applicable Controller ② Cable length

■ Stroke and Maximum Speed

Lead \ Stroke	64 (mm)
(no screw)	600

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
64	—

②Cable 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

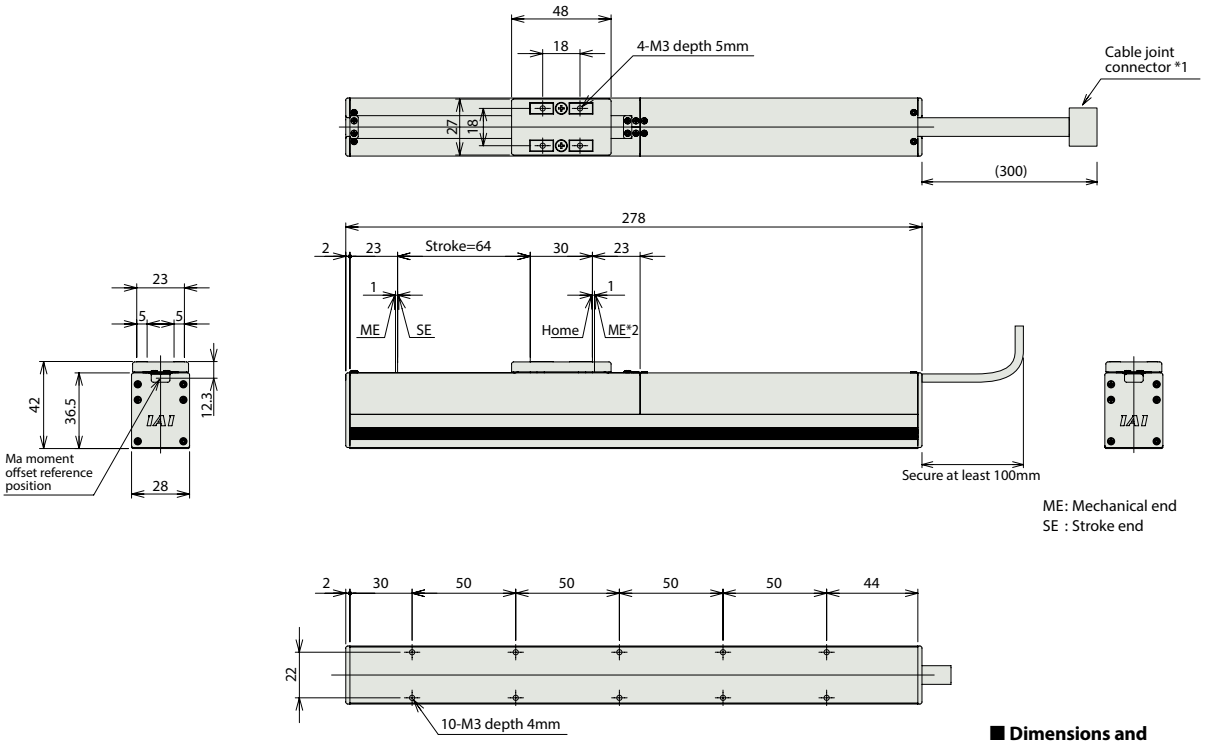
Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 1.22 N·m, Mb: 1.08 N·m, Mc: 0.34 N·m
Overhung load length	Ma direction: 120mm or less Mb and Mc directions: 80mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

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

Dimensional Drawings

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.



■ Dimensions and Weight by Stroke

Stroke	64
Weight (kg)	0.82

①Applicable 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		DC24V	1.3A rated 6.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⓘ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⓘ-~~-ⓘⅰ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-10I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
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	(—)			—	
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			—	
Program Control Type		ASEL-CS-1-10I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SA4L

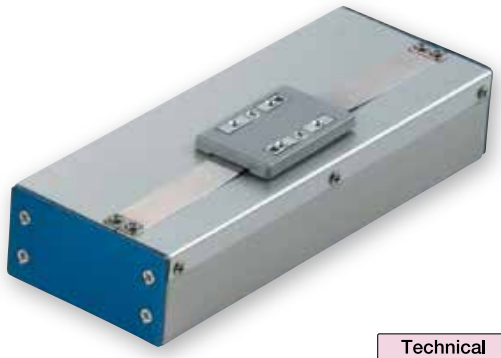
ROBO Cylinder, Slider Type, Mini Long Stroke Type, Actuator Width 40mm, Linear Servo Motor

Model Specification Items: **RCL** — **SA4L** — **I** — **2** — **N** — □ — □ — □ — □ — □

- Series: RCL
- Type: SA4L
- Encoder type: I (I: Incremental specification)
- Motor type: 2 (2: Linear servo motor 2W)
- Lead: N (N: No screw)
- Stroke: 30: 30mm ~ 180: 180mm (50mm pitch increments)
- Applicable controller: A1: ACON, ASEL; A3: AMEC, ASEP, MSEP
- Cable length: N: None, P: 1m, S: 3m, M: 5m, X□□: Custom Length
- Options: Non-motor end

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

RoHS



Technical References → Appendix P.5

■ Relation between payload (horizontal) and acceleration

Maximum Acceleration (G)	Load Capacity (kg)
	Continuous operation (Duty is 100%)
0.1	0.8
0.3	
0.5	0.5
1	0.25
1.5	0.18
2	0.14

POINT — Notes on selection

(1) Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA1L/SA2L/SA3L)

(2) The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.

The duty is $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.

(3) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.

(4) Simple absolute unit cannot be used with the RCL series.

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-SA4L-I-2-N-①-②-③-④	2	See chart above	—	2.5	10	2	±0.1	30~180 (Every 30mm)

■ Stroke and Maximum Speed

Lead \ Stroke	30~180 (Every 30mm)
(no screw)	1200

(Unit: mm/s)

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

①Stroke

①Stroke (mm)	Standard price
30	—
60	—
90	—
120	—
150	—
180	—

③Cable 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.

④Options

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

Actuator Specifications

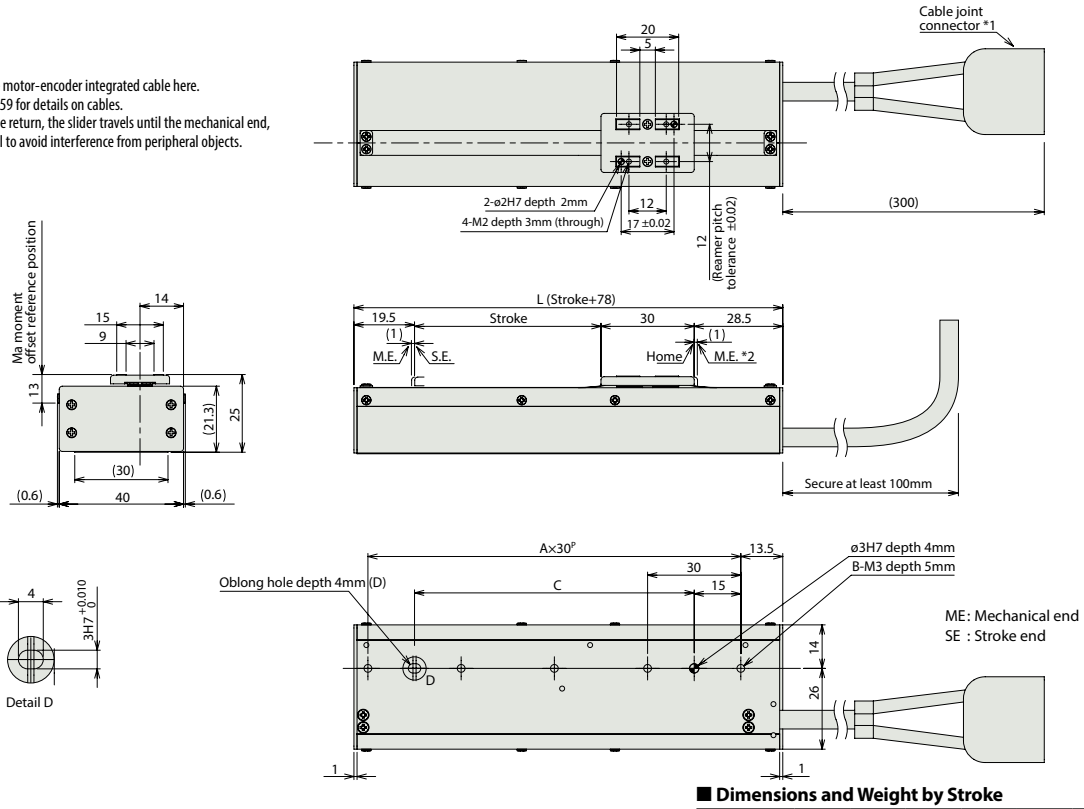
Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.2 N·m, Mb: 0.17 N·m, Mc: 0.25 N·m
Overhung load length	Ma direction: 60mm or less Mb and Mc directions: 80mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

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

Dimensional Drawings

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.



■ Dimensions and Weight by Stroke

Stroke	30	60	90	120	150	180
L	108	138	168	198	228	258
A	3	4	5	6	7	8
B	4	5	6	7	8	9
C	60	90	120	150	180	210
Weight (kg)	0.21	0.25	0.29	0.32	0.36	0.4

②Applicable 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-2I-Ⓘ-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-2I-Ⓘ-2-0	Simple controller operable with the same signal as a solenoid valve		DC24V	0.8A rated 4.6A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-Ⓝ-~~-Ⓘ-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-Ⓝ-~~-Ⓝ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-2I-Ⓘ-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
Safety-Compliant Positioner Type		ACON-CG-2I-Ⓘ-2-0					—	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-2I-Ⓘ-2-0	Pulse train input type with differential line driver support	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-2I-Ⓘ-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-2I-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-2I-Ⓘ-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SM4L

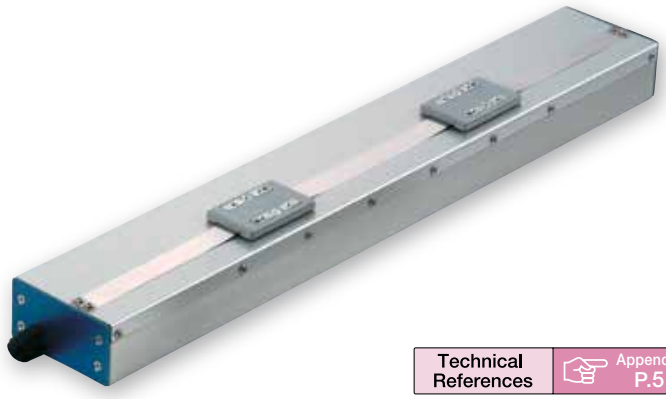
ROBO Cylinder, Slider Type, Mini Multi-Slider Type, Actuator Width 40mm, Linear Servo Motor

Model Specification Items

RCL	—	SM4L	—	I	—	2	—	N	—	□	—	□	—	□
Series		Type		Encoder type		Motor type		Lead		Stroke		Applicable controller		Cable length
				I: Incremental specification		2: Linear servo motor 2W		N: No screw		30: 30mm ~ 120: 120mm (30mm 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.

RoHS



Technical References Appendix P.5

POINT Notes on selection

(1) Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA1L/SA2L/SA3L)
(2) The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.
(3) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
(4) 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	0.8
0.3	
0.5	0.5
1	0.25
1.5	0.18
2	0.14

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-SM4L-I-2-N-①-②-③	2	See chart above	—	2.5	10	2	±0.1	30~120 (Every 30mm)

Code explanation ① Stroke ② Applicable controller ③ Cable length

■ Stroke and Maximum Speed

Stroke / Lead	30~120 (Every 30mm)
(no screw)	1200

(Unit: mm/s)

① Stroke

① Stroke (mm)	Standard price
30	—
60	—
90	—
120	—

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

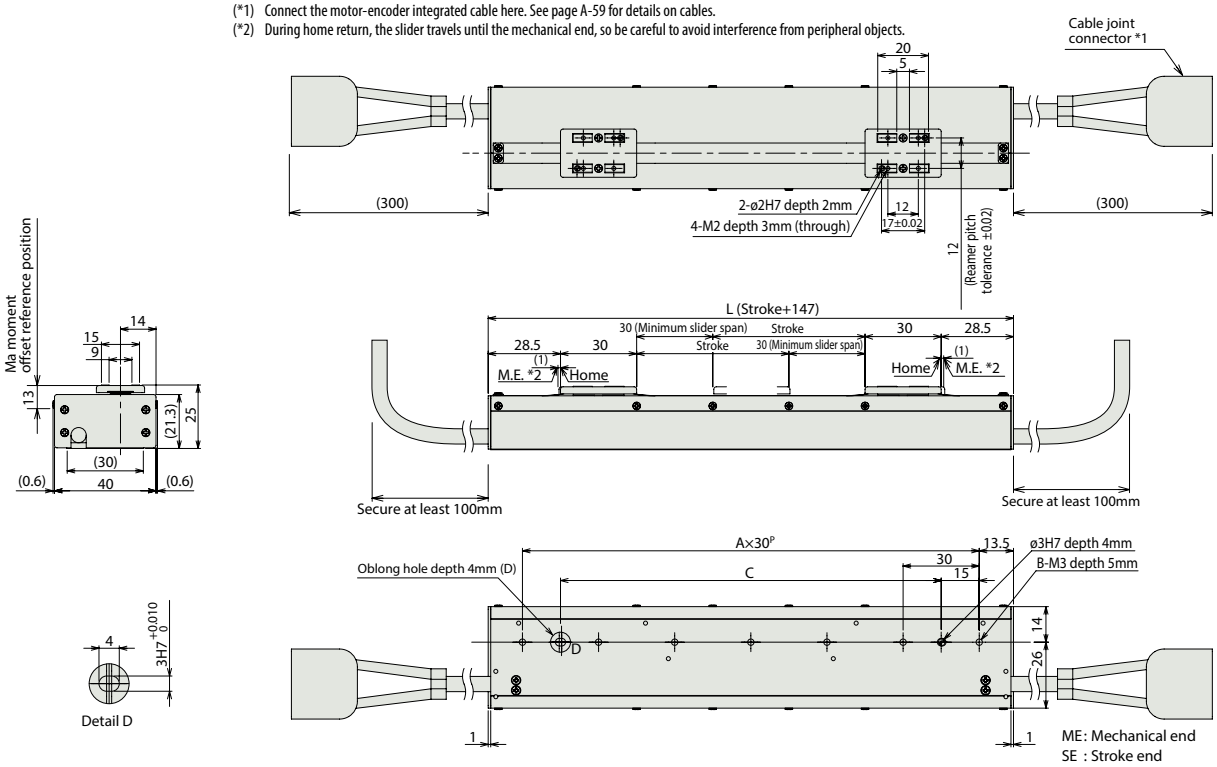
Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.2 N·m, Mb: 0.17 N·m, Mc: 0.25 N·m
Overhung load length	Ma direction: 60mm or less Mb and Mc directions: 80mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

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

Dimensional Drawings

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

■ Dimensions and Weight by Stroke

Stroke	30	60	90	120
L	177	207	237	267
A	5	6	7	8
B	6	7	8	9
C	120	150	180	210
Weight (kg)	0.37	0.4	0.44	0.48

②Applicable 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-2I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-2I-①-2-0	Simple controller operable with the same signal as a solenoid valve		DC24V	0.8A rated 4.6A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⓝ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⓝ-~~-ⓜ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-2I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
Safety-Compliant Positioner Type		ACON-CG-2I-①-2-0					—	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-2I-①-2-0	Pulse train input type with differential line driver support	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-2I-①-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-2I-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-2I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SA5L

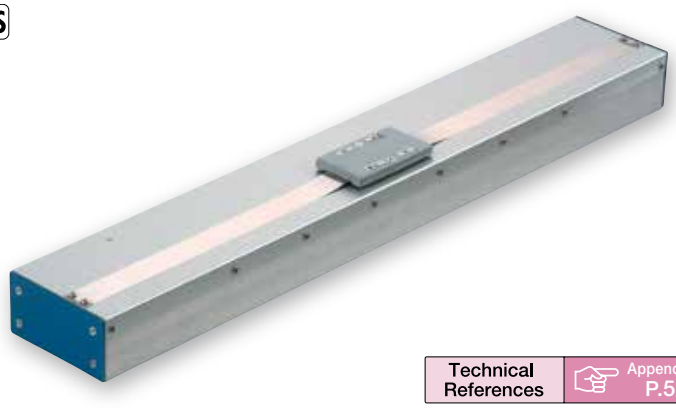
ROBO Cylinder, Slider Type, Mini Long Stroke Type, Actuator Width 48mm, Linear Servo Motor

Model Specification Items: **RCL** — **SA5L** — **I** — **5** — **N** — ☐ — ☐ — ☐ — ☐ — ☐

Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
RCL	SA5L	I	5	N	☐	☐	☐	☐
		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☐☐: Custom Length	Non-motor end

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

RoHS



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

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

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)

■ Stroke and Maximum Speed

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

(Unit: mm/s)

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

①Stroke

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

③Cable 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.

④Options

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

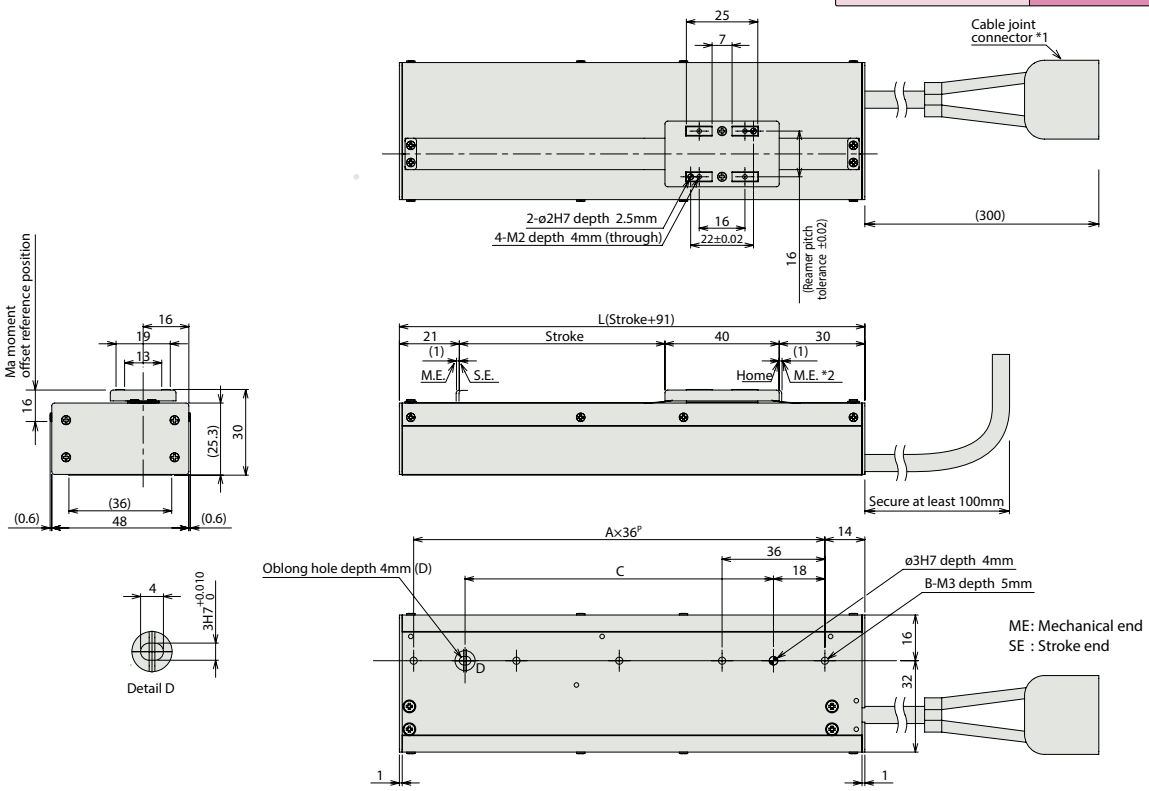
Actuator Specifications

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

Dimensional Drawings

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.

②Applicable 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		DC24V	1.0A rated 6.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⅱ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⅱ-~~-ⅲ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-5I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ 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	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-5I-①-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-5I-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-5I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SM5L

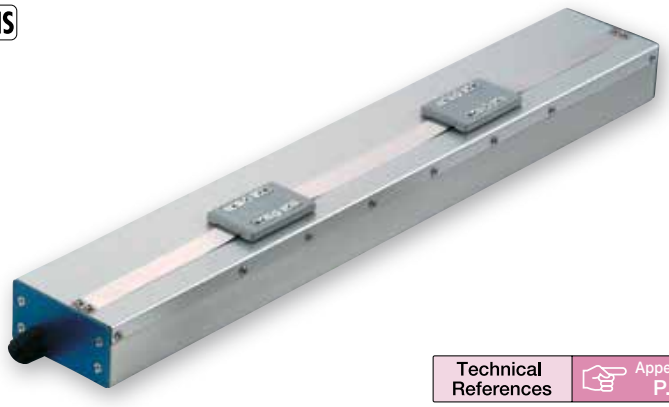
ROBO Cylinder, Slider Type, Mini Multi-Slider Type, Actuator Width 48mm, Linear Servo Motor

Model Specification Items

RCL	SM5L	I	5	N	☐	☐	☐
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length
		I: Incremental specification	5: 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☐☐: Custom Length

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

RoHS



Technical References Appendix P.5

POINT Notes on selection

(1) Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA1L/SA2L/SA3L)
(2) The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.
(3) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
(4) 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	
0.5	1.0
1	0.5
1.5	0.35
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-SM5L-I-5-N-①-②-③	5	See chart above	—	5	18	2	±0.1	36~144 (Every 36mm)

Code explanation ① Stroke ② Applicable controller ③ Cable length

■ Stroke and Maximum Speed

Stroke / Lead	36~144 (Every 36mm)
(no screw)	1400

(Unit: mm/s)

①Stroke

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

③Cable 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

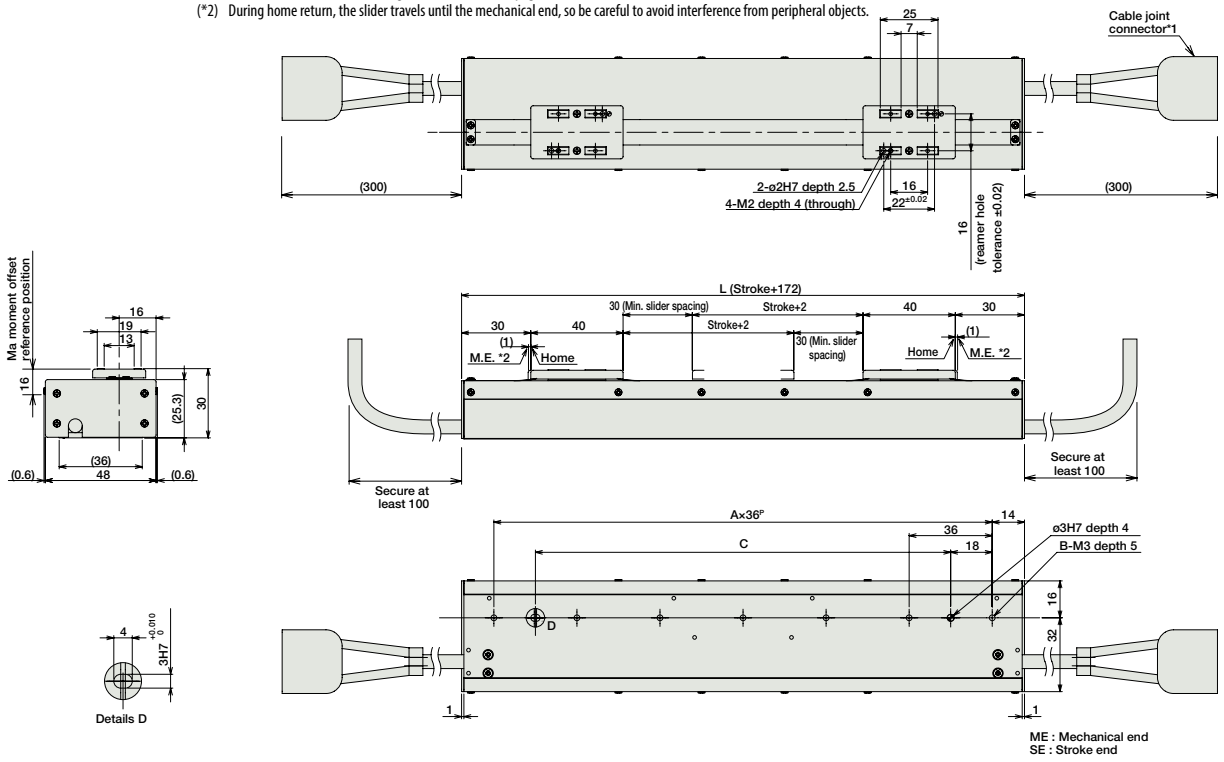
Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Base	Material: Aluminum, white alumite treated
Allowable dynamic moment (*)	Ma: 0.49 N·m, Mb: 0.41 N·m, Mc: 0.72 N·m
Overhung load length	Ma direction: 80mm or less Mb and Mc directions: 100mm or less
Ambient operating temperature,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

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

Dimensional Drawings

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

■ 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

②Applicable 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		DC24V	1.0A rated 6.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⅱ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⅱ-~~-ⅲ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-5I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ 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	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-5I-①-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-5I-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-5I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SA6L

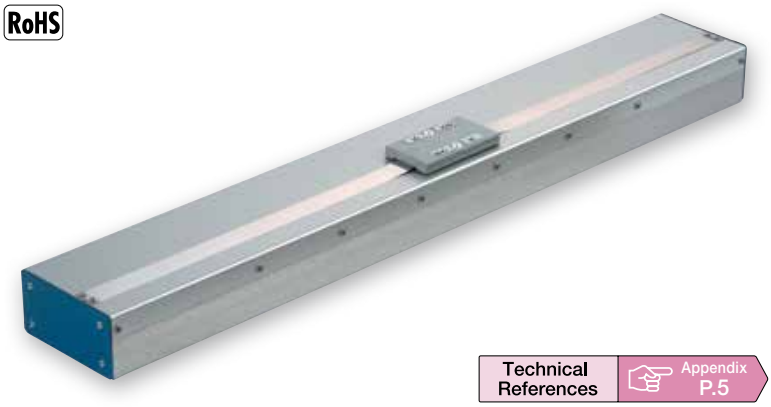
ROBO Cylinder, Slider Type, Mini Long Stroke Type, Actuator Width 58mm, Linear Servo Motor

Model Specification Items: **RCL** — **SA6L** — **I** — **10** — **N** — ☐ — ☐ — ☐ — ☐

Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
RCL	SA6L	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☐☐:Custom Length	Non-motor end

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

RoHS



Technical References → Appendix P.5

POINT Notes on selection

(1) Please take care because this type has magnetic flux leakage. (If magnetism is a problem, use SA1L/SA2L/SA3L)
(2) The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.
(3) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
(4) 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 Horizontal (kg)	Maximum payload Vertical (kg)	Rated thrust (N)	Instantaneous maximum thrust (N)	Maximum acceleration (G)	Positioning repeatability (mm)	Stroke (mm)
RCL-SA6L-I-10-N-①-②-③-④	10	See chart above	—	10	30	2	±0.1	48~288 (Every 48mm)

■ Stroke and Maximum Speed

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

(Unit: mm/s)

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

①Stroke

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

③Cable 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.

④Options

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

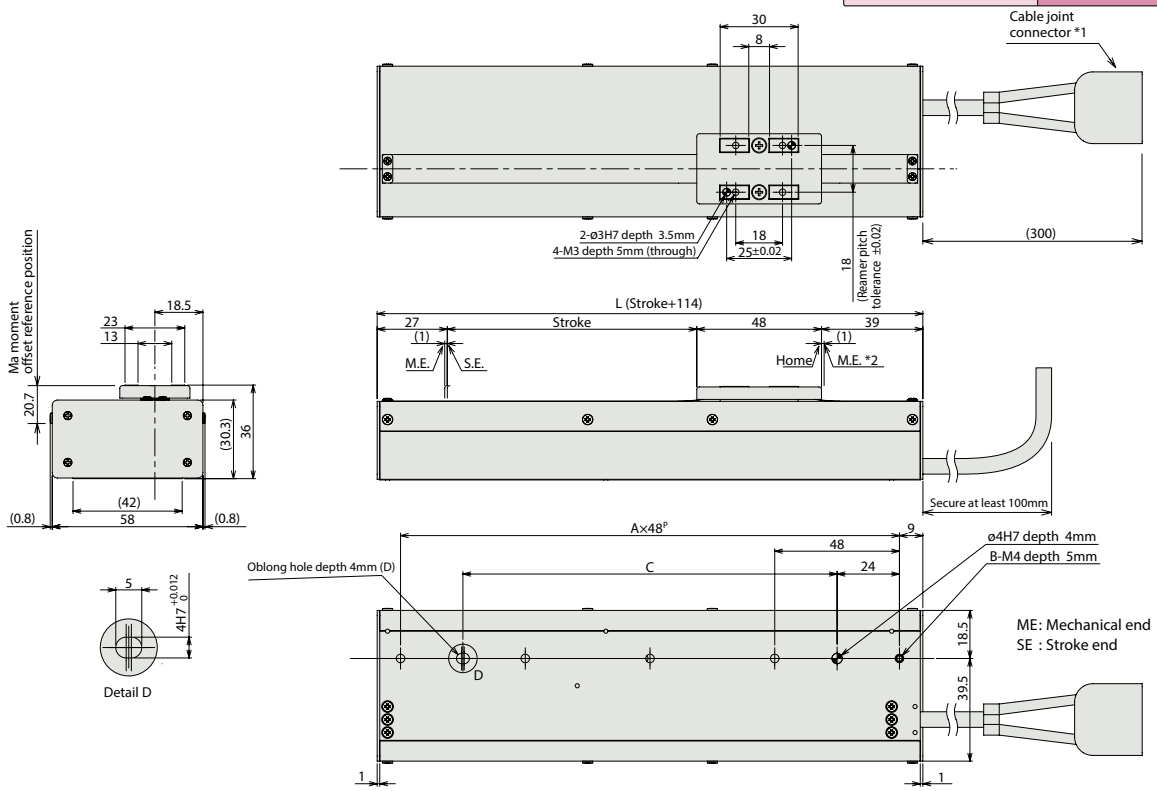
Actuator Specifications

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

Dimensional Drawings

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.

■ 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

②Applicable 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		DC24V	1.3A rated 6.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⅡⅡ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⅡⅡ-~~-ⅢⅢ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-10I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
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	(—)			—	
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			—	
Program Control Type		ASEL-CS-1-10I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-SM6L

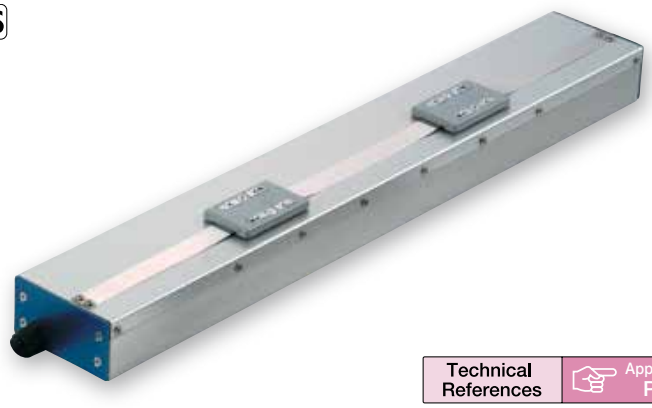
ROBO Cylinder, Slider Type, Mini Multi-Slider Type, Actuator Width 58mm, Linear Servo Motor

Model Specification Items

RCL	SM6L	I	10	N	□	□	□
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.

RoHS



Technical References Appendix P.5

POINT Notes on selection

(1) Please take care because this type has magnetic flux leakage.
(If magnetism is a problem, use SA1L/SA2L/SA3L)
(2) The payload is determined by the acceleration and duty. Verify the payload in the payload (horizontal) and acceleration chart at right.
The duty is $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 100 per cycle.
(3) The mounting position is horizontal-only. Please take care because the slider will drop down with power OFF when operating vertically.
(4) 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)

■ Stroke and Maximum Speed

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

(Unit: mm/s)

Code explanation ① Stroke ② Applicable controller ③ Cable length

①Stroke

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

③Cable 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.

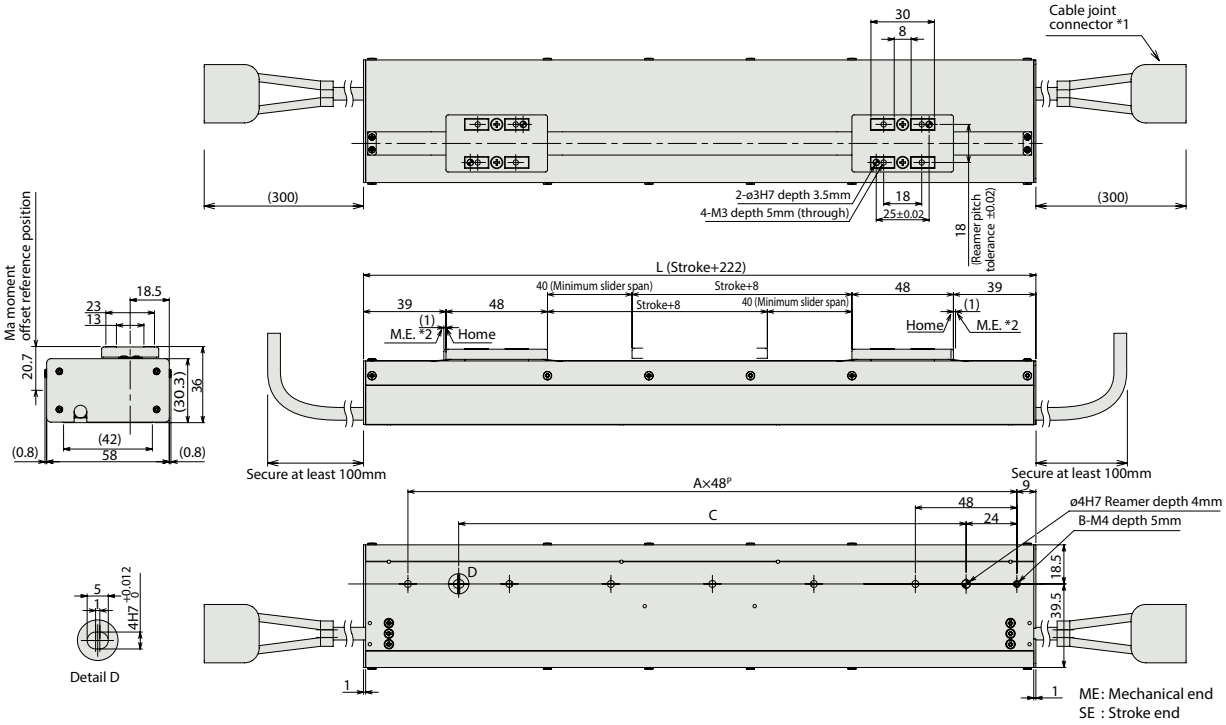
Actuator Specifications

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

Dimensional Drawings

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.

②Applicable 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		DC24V	1.3A rated 6.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⓘ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⓘ-~~-ⓘⓘ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-10I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
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	(—)			—	
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			—	
Program Control Type		ASEL-CS-1-10I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-RA1L

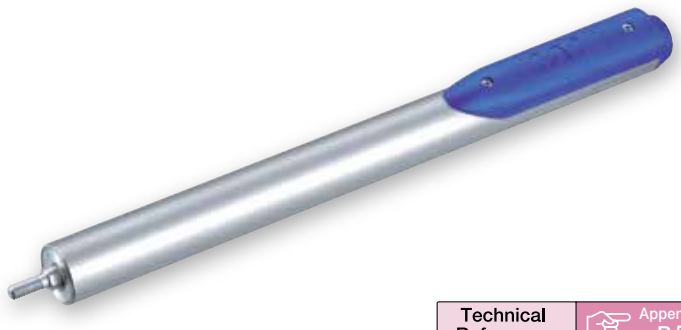
ROBO Cylinder, Rod Type, Mini Slim Type, Main unit diameter: 16mm, Linear Servo Motor

Model Specification Items: **RCL** — **RA1L** — **I** — **2** — **N** — **25** — □ — □ — □

- Series: RCL
- Type: RA1L
- Encoder type: I: Incremental specification
- Motor type: 2: Linear servo motor 2W
- Lead: N: No screw
- Stroke: 25: 25mm
- Applicable controller: A1: ACON, ASEL; A3: AMEC, ASEP, MSEP
- Cable length: N: None, P: 1m, S: 3m, M: 5m, X□□: Custom Length
- Options: B: Brake (with brake box); BN: Brake (without brake box)

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

RoHS



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 $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 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	
	Holizontal	Vertical	Holizontal	Vertical
0.1	0.5	0.1	0.5	0.1
0.3				
0.5	0.42			
1	0.2		0.25	
1.5	0.11	—	0.15	—
2	0.07	—	0.1	—

■ 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	Holizontal 2G Vertical 1G	±0.1	25 (Fixed)

Code explanation ① Applicable controller ② Cable length ③ Options

■ Stroke and Maximum Speed

Lead \ Stroke	25 (mm)
(no screw)	300

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
25	—

②Cable 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.)

③Options

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).

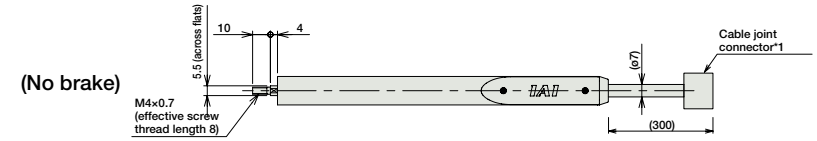
Actuator Specifications

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

Dimensional Drawings

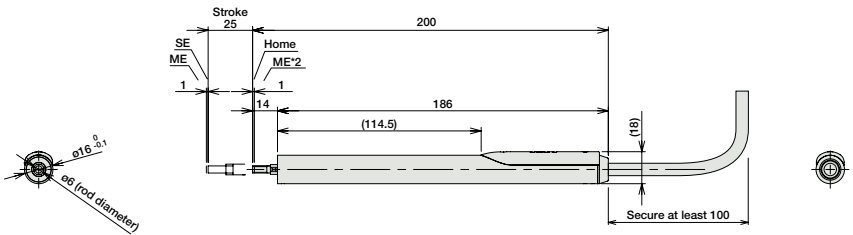
For Special Orders Appendix P.15

(No brake)

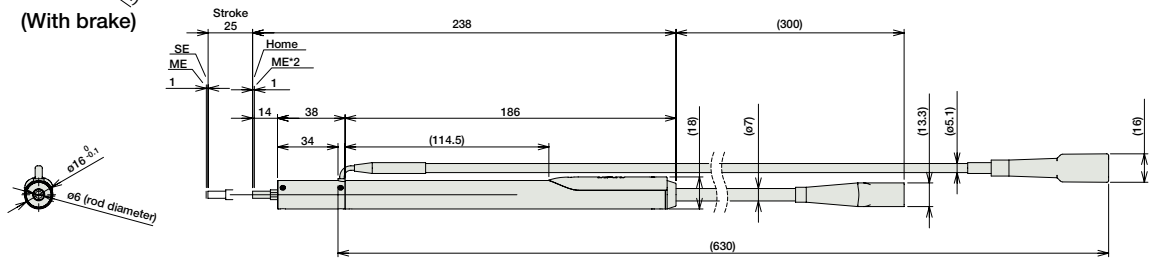


(*1) Connect the motor-encoder integrated cable here. See page A-59 for details on cables.
(*2) During home return, the slider travels until the mechanical end, so be careful to avoid interference from peripheral objects.

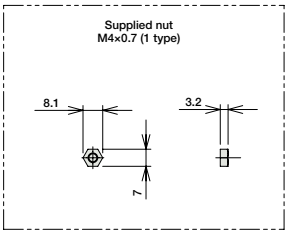
Note: Please refer to page A-12 for the actuator mounting instruction.

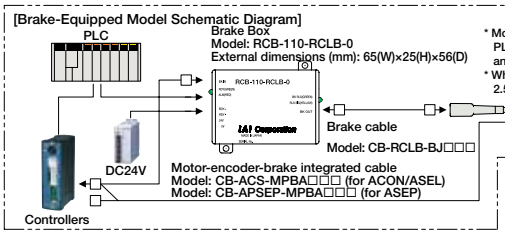


(With brake)



ME : Mechanical end
SE : Stroke end





■ Dimensions and Weight by Stroke

Stroke	25 (without brake)	25 (with brake)
Weight (kg)	0.2	0.25

①Applicable 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-2I-①-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-2I-①-2-0	Simple controller operable with the same signal as a solenoid valve		DC24V	0.8A rated 4.6A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⓘ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⓘ-~~-ⓘⓘ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-2I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
Safety-Compliant Positioner Type		ACON-CG-2I-①-2-0					—	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-2I-①-2-0	Pulse train input type with differential line driver support	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-2I-①-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-2I-①-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-2I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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

RCL-RA2L

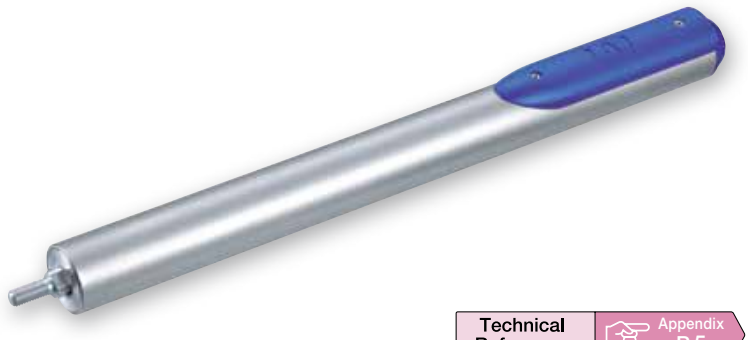
ROBO Cylinder, Rod Type, Mini Slim Type, Main unit diameter: 20mm, Linear Servo Motor

Model Specification Items: **RCL** — **RA2L** — **I** — **5** — **N** — **30** — □ — □ — □ — □

Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
RCL	RA2L	I: Incremental specification	5: Linear servo motor 5W	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.

RoHS



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 $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 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	
	Holizontal	Vertical	Holizontal	Vertical
0.1	1	0.2	1	0.2
0.3				
0.5	0.85			
1	0.4		0.5	
1.5	0.24	—	0.3	—
2	0.15	—	0.2	—

■ 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	Holizontal 2G Vertical 1G	±0.1	30 (Fixed)

Code explanation ① Applicable controller ② Cable length ③ Options

■ Stroke and Maximum Speed

Lead \ Stroke	30 (mm)
(no screw)	340

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
30	—

②Cable 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.)

③Options

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).

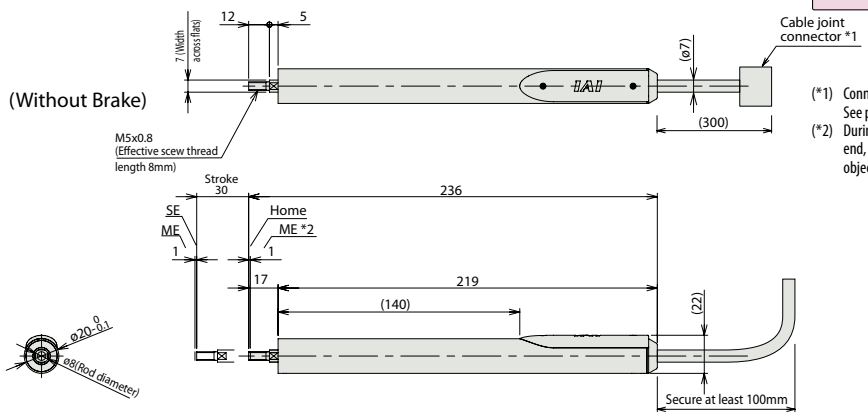
Actuator Specifications

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

Dimensional Drawings

For Special Orders Appendix P.15

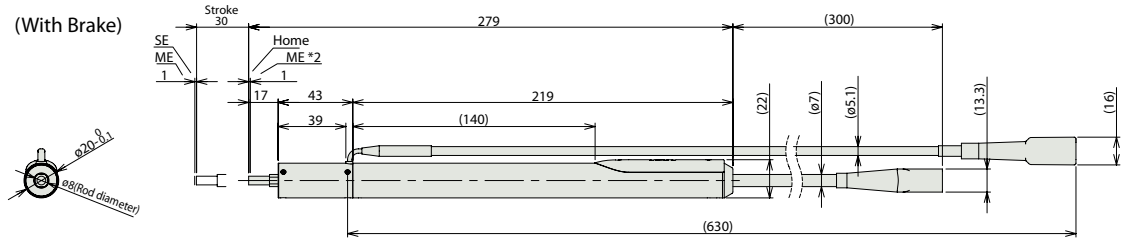
(Without Brake)



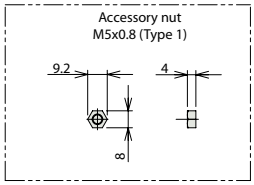
(*1) Connect the motor-encoder integrated cable here. See page A-59 for details on cables.
(*2) During home return, the slider travels until the mechanical end, so be careful to avoid interference from peripheral objects.

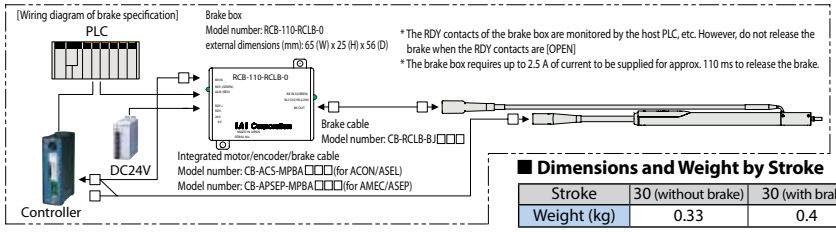
Note: Please refer to page A-12 for the actuator mounting instruction.

(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

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

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

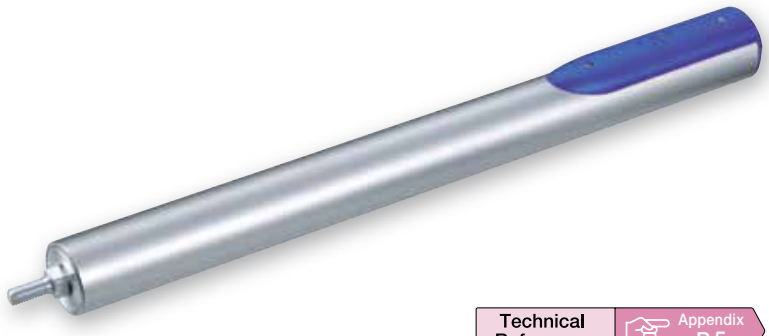
RCL-RA3L

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.

RoHS



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 $\frac{\text{Operating time}}{\text{Operating time + stop time}}$ x 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	
	Holizontal	Vertical	Holizontal	Vertical
0.1	2	0.4	2	0.4
0.3				
0.5	1.6			
1	0.78		1	
1.5	0.46	—	0.6	—
2	0.3	—	0.4	—

■ 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	Holizontal 2G Vertical 1G	±0.1	40 (Fixed)

Code explanation ①Applicable controller ②Cable length ③Options

■ Stroke and Maximum Speed

Lead \ Stroke	40 (mm)
(no screw)	450

(Unit: mm/s)

Stroke

Stroke (mm)	Standard price
40	—

②Cable 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.)

③Options

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

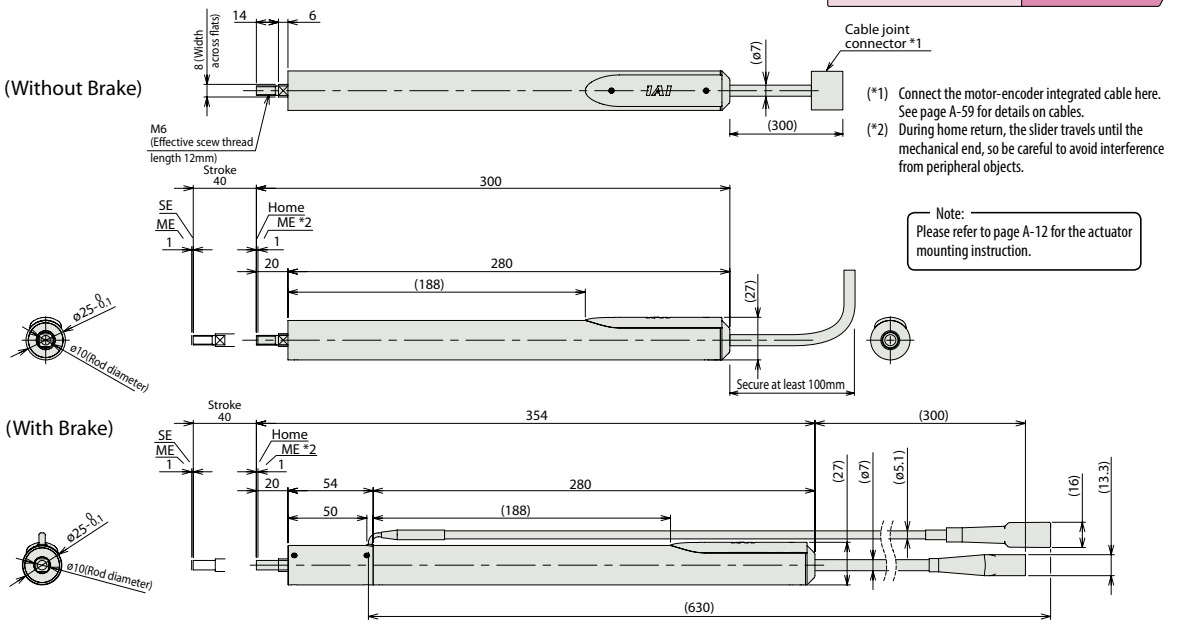
* The brake box and cable with brake is needed to use the brake. If only the actuator with brake is needed for a repair, specify the BN (specification without brake box).

Actuator Specifications

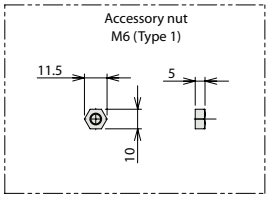
Item	Description
Drive System	Linear servo motor
Encoder resolution	0.042mm
Pipe	Material: Nickel-plated carbon steel tube
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)
Service life	10 million cycles

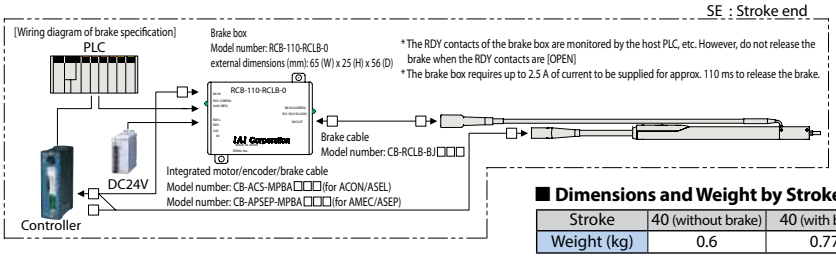
Dimensional Drawings

For Special Orders Appendix P.15



ME: Mechanical end
SE : Stroke end





■ Dimensions and Weight by Stroke

Stroke	40 (without brake)	40 (with brake)
Weight (kg)	0.6	0.77

①Applicable 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		DC24V	1.3A rated 6.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-ⓘ-~~-①-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-ⓘ-~~-ⓘⓘ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-10I-①-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
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	(—)			—	
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			—	
Program Control Type		ASEL-CS-1-10I-①-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

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