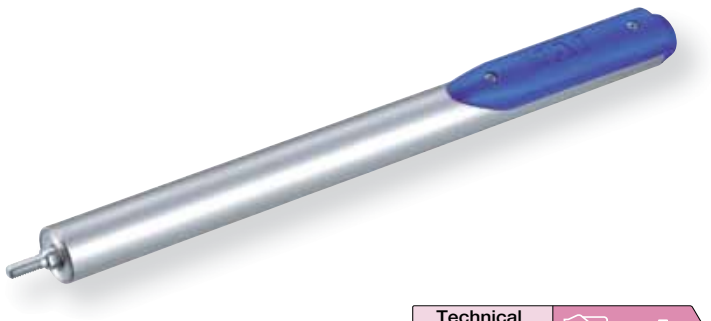
RCL-RA1L ROBO Cylinder Rod Type Mini-Slim Type ø16mm Diameter Linear Servo Motor

■ Configuration: RCL — RA1L — I — 2 — N — 25 — □ — □ — □

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
RCL	RA1L	I: Incremental	2 : 2W linear servo motor	N: No screw	25: 25mm	A1: ACON, RACON, ASEL A3: AMEC, ASEP	N : None P : 1m S : 3m M : 5m X□□ : Custom	B : Brake (with brake box) BN: Brake (without brake box)

* See page Pre-35 for an explanation of the naming convention.



Technical References P. A-5

POINT Notes on Selection

(1) The load capacity is determined by the acceleration and the duty.
Check the load capacity on the Load Capacity (Horizontal) vs. Acceleration graph on the right.
The duty is $\frac{\text{Operating time}}{\text{Operating time + stationary time}}$ ×100 per cycle.
(2) If you will be operating the actuator vertically, please use the optional brake.
(3) Please use an external guide to avoid horizontal or rotational load on the rod.
(4) The pushing force will fluctuate significantly at low electrical limits.
(5) Please note that an absolute unit cannot be used.

■ Load Capacity (Horizontal) vs. Acceleration

Max. Acceleration (G)	Load Capacity (kg)			
	Continuous Operation (100% duty)		(70% or less duty)	
	Horizontal	Vertical	Horizontal	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 Guideline

The pushing motion is possible within the values below. (N)

Electrical Limit	30%	40%	50%	60%	70%	80%
Pushing Force	0.75	1	1.25	1.5	1.75	2

(Note) The above pushing force is applicable to horizontal usage. For vertical upward motions, subtract 0.5N from the above value, and for downward motions, add 0.5N.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Max. Load Capacity Horizontal (kg)	Max. Load Capacity Vertical (kg)	Rated Thrust (N)	Max. Momentary Thrust (N)	Max. Acceleration (G)	Positioning Repeatability (mm)	Stroke (mm)
RCL-RA1L-I-2-N-25-①-②-③	2	See table above	See table above	2.5	10	Horizontal 2G Vertical 1G	±0.1	25 (Fixed)

Legend ① Compatible controller ② Cable length ③ Options

■ Stroke and Maximum Speed

Lead \ Stroke	25 (mm)
(No lead screw)	300

(Unit: mm/s)

Stroke List

Stroke (mm)	Standard Price
25	–

② Cable List

Type	Cable Symbol	Standard Price No Brake	Standard Price With Break
Standard Type (Robot Cables)	P (1m)	–	–
	S (3m)	–	–
	M (5m)	–	–
Special Lengths	X06 (6m) ～ X10 (10m)	–	–
	X11 (11m) ～ X15 (15m)	–	–
	X16 (16m) ～ X20 (20m)	-	–

* The RCL comes standard with a robot cable.
* See page A-39 for cables for the brake-less model.
* See page 392 for cables for the brake-equipped model.

③ Option Price List

Name	Option Code	See Page	Standard Price
Brake (with brake box)	B	→ P392	–
Brake (without brake box)	BN	→ P392	–

* To use the brake, a brake box and a dedicated cable for the brake-equipped model are required. If you just need the brake-equipped actuator itself for maintenance, please specify option "BN" (no brake box).

Actuator Specifications

Item	Description
Drive System	Linear servo motor
Encoder Resolution	0.042mm
Base	Material: Carbon steel tube (nickel-plated)
Ambient Operating Temp./Humidity	0～40°C, 85% RH or less (non-condensing)
Service Life	10 million round trip cycles

Dimensions

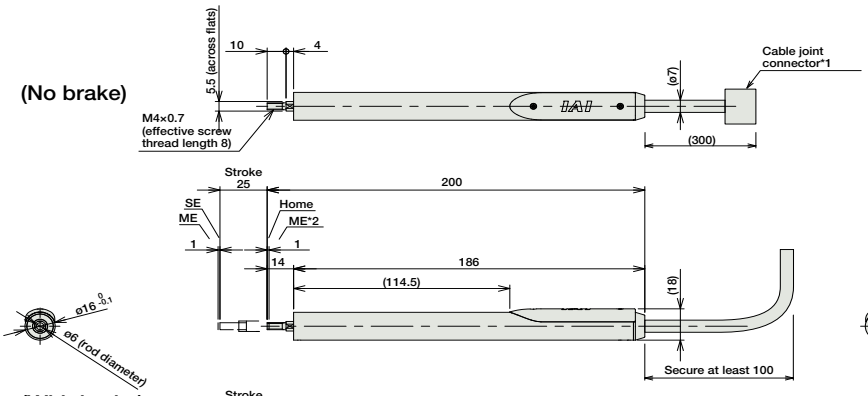
For Special Orders P. A-9

*1 The motor-encoder cable is connected here. See page A-39 for details on cables.

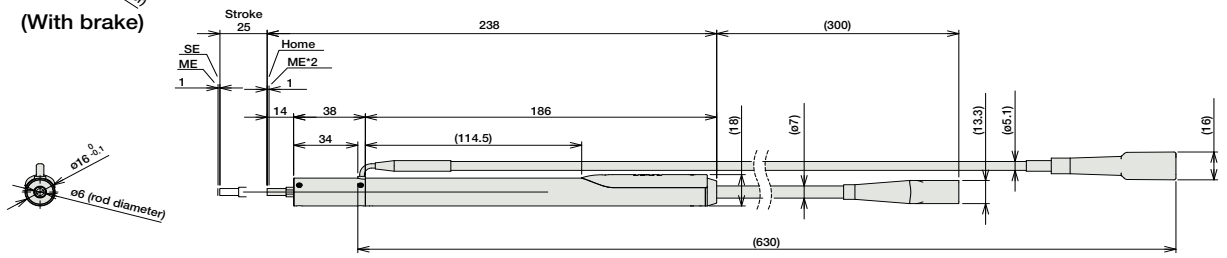
*2 When homing, the slider moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

See page A-45 for methods of securing the actuator.

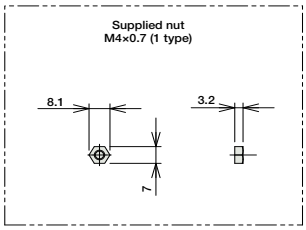
(No brake)



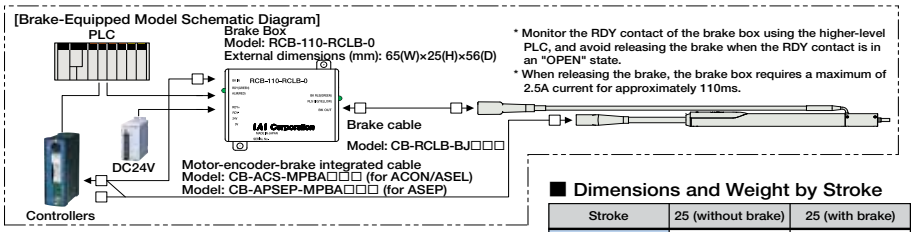
(With brake)



ME : Mechanical end
SE : Stroke end



[Brake-Equipped Model Schematic Diagram]



* Monitor the RDY contact of the brake box using the higher-level PLC, and avoid releasing the brake when the RDY contact is in an "OPEN" state.
* When releasing the brake, the brake box requires a maximum of 2.5A current for approximately 110ms.

■ Dimensions and Weight by Stroke

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

① Compatible Controllers

The RCL series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-2I-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	–	→ P477
		ASEP-C-2I-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.		DC24V	4.6A max.	–	→ P487
Splash-Proof Solenoid Valve Type		ASEP-CW-2I-NP-2-0					–	
Positioner Type		ACON-C-2I-NP-2-0	Positioning is possible for up to 512 points	512 points			–	
Safety-Compliant Positioner Type		ACON-CG-2I-NP-2-0					–	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-2I-NP-2-0	Pulse train input type with differential line driver support	(–)			–	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-2I-NP-2-0	Pulse train input type with open collector support				–	
Serial Communication Type		ACON-SE-2I-N-0-0	Dedicated to serial communication	64 points			–	
Field Network Type		RACON-2	Dedicated to field network	768 points			–	→ P503
Program Control Type		ASEL-C-1-2I-NP-2-0	Programmed operation is possible Operation is possible on up to 2 axes	1500 points			–	→ P567

* This is for the single-axis ASEL.