

MICRO CYLINDER **RCL**

**ROBO
CYLINDER**

Ultra-small Linear Servo Cylinder
with a minimum diameter of 16 mm



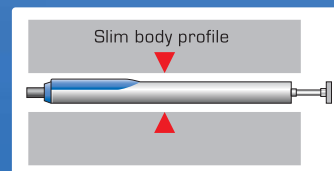


Space-saving, high speed, high acceleration/deceleration and quiet operation

The new ultra-small linear servo cylinder offers functions comparable to an air cylinder at $\phi 16\text{mm}$

1 Ultra-small diameter cylinder actuator

The compact actuator with the minimum size of 16mm can be installed even in the most confined spaces. Installation is easier than an air cylinder, because there's no piping to worry about.

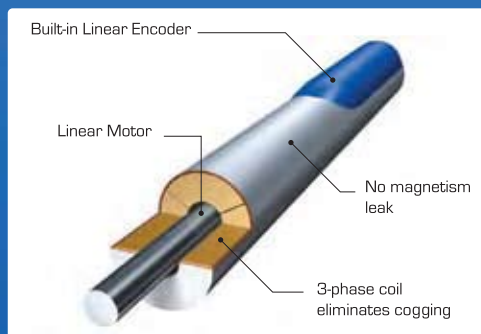


2 Compact size achieved by linear motor

IAI adopted the linear motor method requiring no rotating speed-reducer mechanism to accommodate all these features in a compact body.

4 Built-in encoder supports multiple positioning points

Thanks to its built-in encoder, the RCL series can perform positioning to a maximum of 512 points when combined with a compact, affordable ACON controller.



3 Smooth, quiet operation

The sine-wave drive using 3-phase coil eliminates cogging. Furthermore, there's virtually no outside leakage of magnetism.

5 Brake option

Designed for use in vertical applications, the brake-type RCL prevents the load from dropping when power outages occur or if the power is cut off accidentally.

6 Choice of controllers for different applications

The RCL series can be combined with ASEL controllers supporting program operation, or ACON controllers supporting operation by position specification. The ACON series includes different types of controllers including the standard type, solenoid type, pulse-train input type, and serial communication type. Choose a controller that best suits your specific application and purpose.



Lineup/Specifications

Outer Diameter [mm]	Stroke [mm]	Max Speed [mm/sec]	Max Load Capacity [kg]			Rated Thrust [N]	Max Momentary Thrust [N]	Max Acceleration [G]	Positioning Repeatability [mm]	Encoder	Controller Input Power
			Acceleration Condition	Horizontal	Vertical						
φ 16	25	300	0.5G	0.5	0.1	2.5	10	Horizontal: 2G Vertical: 1G	±0.1	Incremental	DC24V
φ 20	30	340	0.5G	1	0.2	5	18				
φ 25	40	450	0.5G	2	0.4	10	30				
			@ Max Acceleration	0.1	0.1						
			@ Max Acceleration	0.2	0.2						
			@ Max Acceleration	0.4	0.4						

The maximum load capacity decreases as the acceleration increases (contact IAI for details). The values at the maximum acceleration were measured based on 2G for horizontal installation and 1G for vertical installation. Even if the acceleration is reduced to less than 0.5G, the maximum load capacity will not increase beyond the specified capacity at 0.5G.

Types

Diameter	Stroke	Model
φ 16 [mm]	25 [mm]	RCL-RA1L-I-2-N-25-A1- []
φ 20 [mm]	30 [mm]	RCL-RA2L-I-5-N-30-A1- []
φ 25 [mm]	40 [mm]	RCL-RA3L-I-10-N-40-A- []

[] in the model names shown above indicates the cable length code.
(Refer to the table on the right.)

Cable Lengths

Type	Cable Length Code
Standard Type (Robot Cable)	P [1m]
	S [3m]
	M [5m]
Special Length	X06 [6m] - X10 [10m]
	X11 [11m] - X15 [15m]
	X16 [16m] - X20 [20m]

All RCL actuators come standard with robot cables

Model Reference

RCL- **(1)** **-I-** **(2)** **-N-** **(3)** **-** **(4)** **-** **(5)**

Series Name Encoder Type (Incremental) Ball screw lead (None)

(1) Type

RA1L : φ 16mm Type
RA2L : φ 20mm Type
RA3L : φ 25mm Type

(2) Applicable Driver Output

2 : 2V
5 : 5V
10 : 10W

(3) Stroke

25 : 25mm
30 : 30mm
40 : 40mm

(4) Applicable Controller

A1 : ACON
ASEL

(5) Cable Length

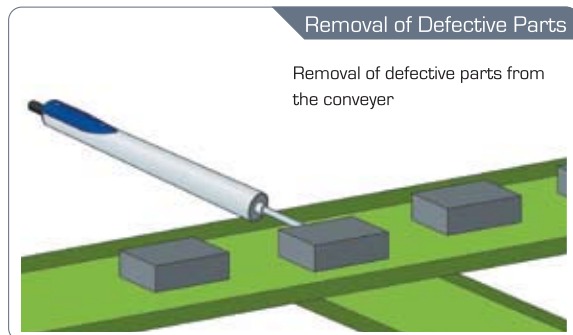
N : No Cable
P : 1m
S : 3m
M : 5m
X [] : Special Length

Applicable Controllers

Name	Model
Positioner Type	ACON-C- []I-NP-2-0
Safety-Category Compliant Type	ACON-CG- []I-NP-2-0
Solenoid Type	ACON-CY- []I-NP-2-0
Pulse Train Type (Differential)	ACON-PL- []I-NP-2-0
Pulse Train Type (Open-collector)	ACON-PO- []I-NP-2-0
Serial Type	ACON-SE- []I-N-0-0
Program Control Type	ASEL-C-1- []I-NP-2-0

[] in the model names shown above indicates the value of driver output

Applications

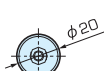


External Dimensions

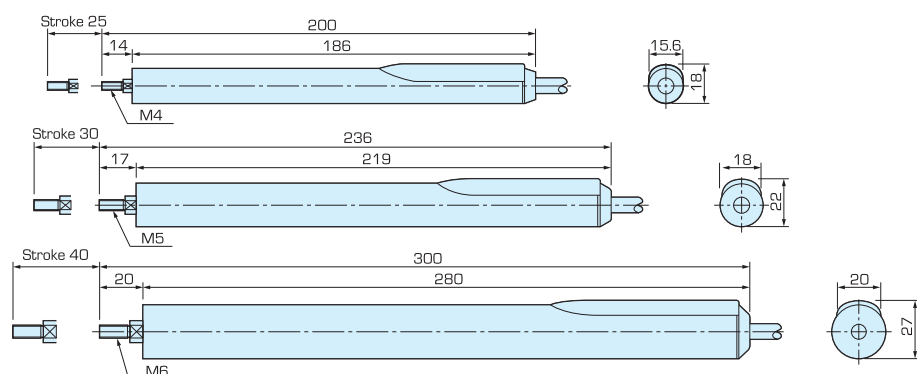
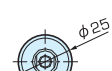
• RCL-RA1L



• RCL-RA2L



• RCL-RA3L

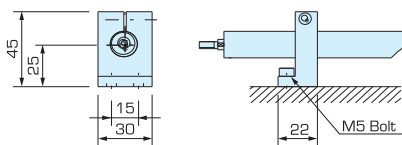


Mounting Bracket

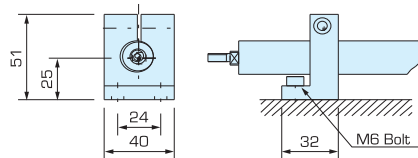
General-purpose mounting brackets like the ones shown below can be used. For details on brackets, contact your bracket supplier directly.

• Shaft holders by Misumi

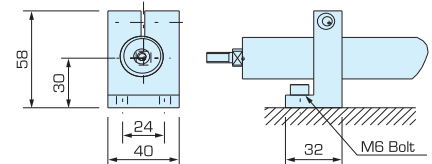
SHKSBT16 (ϕ 16 Type)



SHKSBT20 (ϕ 20 Type)

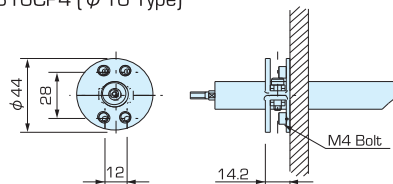


SHKSBT25 (ϕ 25 Type)

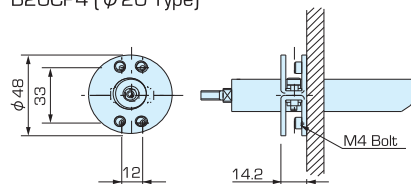


• Shaft brackets by Iwata Parts

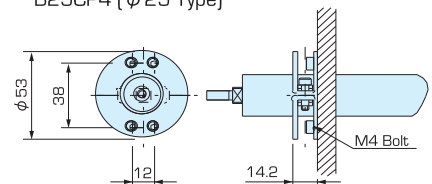
B16CP4 (ϕ 16 Type)



B20CP4 (ϕ 20 Type)

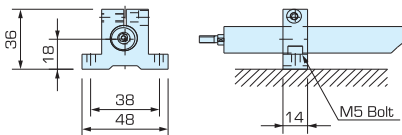


B25CP4 (ϕ 25 Type)

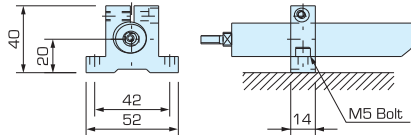


• Round Pijon brackets by Miyoshi Pijon

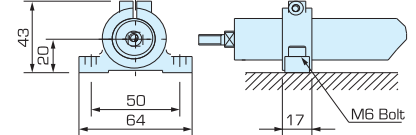
PN600 (ϕ 16 Type)



PQ600 (ϕ 20 Type)



PH600 (ϕ 25 Type)



Note When clamping the actuator pipe, strictly observe the tightening torque specified in the operation manual. Tightening the actuator with excessive force may cause deformation or actuator malfunction.