

Slider Type

Rod Type

# ROBO Cylinder® RCP4-SA3/RA3



**RCP4**  
series

# SA3/RA3 Types with body width 32mm added to RCP4 Series

RCP4 Series										
Series	Specification	Feature	Type	External view	Actuator width	Stroke (mm)	Ball screw lead (mm)	Maximum speed (mm/s)	Maximum payload (kg)	
									Horizontal	Vertical
RCP4	Motor Straight Specification	NEW	SA3C		32mm	25 ~ 300	6	420	3	1.5
							4	280	5	2.5
							2	140	8	3.5
							20	1440	6.5	1
							12	900	9	2.5
							6	450	18	6
			SA5C		52mm	50 ~ 800	3	225	20	12
							20	1440	10	1
							12	900	15	2.5
							6	450	25	6
							3	225	25	12
							24	1200	20	3
		SA6C		58mm	50 ~ 800	16	980	40	8	
						8	490	45	16	
						4	245	45	25	
						24	1200	20	3	
						16	980	40	8	
						8	490	45	16	
	SA7C		73mm	50 ~ 800	4	245	45	25		
					16	980	40	8		
					8	490	45	16		
					4	245	45	25		
					16	980	40	8		
					8	490	45	16		
Rod Type (Radial Cylinder)	NEW	RA3C		32mm	25 ~ 300	16	1120	6	1.5	
						10	700	12	2.5	
						5	350	24	5	
		RA5C		52mm	50 ~ 400	2.5	175	36	10	
						20	800	6	1.5	
						12	700	25	4	
	RA6C		61mm	50 ~ 500	6	450	40	10		
					3	225	60	20		
					24	800	20	3		
	Side-mounted Motor Specification	Slider Type	SA5R		52mm	50 ~ 800	16	700	50	8
							8	420	60	18
							4	210	80	28
SA6R				58mm	50 ~ 800	4	210	80	28	
						20	1440	6.5	1	
						12	900	9	2.5	
SA7R		73mm	50 ~ 800	6	450	18	6			
				3	225	25	12			
				20	1280	10	1			
Rod Type (Radial Cylinder)	RA5R		52mm	50 ~ 400	12	900	15	2.5		
					6	450	25	6		
					3	225	25	12		
	RA6R		61mm	50 ~ 500	24	1000	20	3		
					16	840	40	8		
					8	490	45	16		
RCP4CR	Cleanroom Specification	Slider Type	SA5C		52mm	50 ~ 800	4	210	80	28
							20	1440	6.5	1
							12	900	9	2.5
			SA6C		58mm	50 ~ 800	6	450	18	6
							3	225	20	12
							20	1440	10	1
		SA7C		73mm	50 ~ 800	12	900	15	2.5	
						6	450	25	6	
						3	225	25	12	
		Rod Type (Radial Cylinder)	RA5R		52mm	50 ~ 400	24	1200	20	3
							16	980	40	8
							8	490	45	16
RA6R			61mm	50 ~ 500	4	245	45	25		
					16	980	40	8		
					8	490	45	16		

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●The horizontal payload of the Rod Type described above is that when an external guide is used. ●Refer to the "ROBO Cylinder General Catalog 2014" for the RCP4 Series.

## RCP5 Series

Battery-less Absolute Encoder Installed as Standard

Series	Specification	Feature	Type	External view	Actuator width	Stroke (mm)	Ball screw lead (mm)	Maximum speed (mm/s)	Maximum payload (kg)	
									Horizontal	Vertical
RCP5	Motor Straight Specification	Slider Type	SA4C			50 ~ 500	16	1260	4	1
							10	785	10	2.25
							5	390	12	4.5
			SA6C		50 ~ 800	2.5	195	12	9	
						20	1440<1280>	10	1	
						12	900	15	2.5	
		SA7C		50 ~ 800	6	450	25	6		
					3	225	25	16		
					24	1200	20	3		
		Rod Type (Radial Cylinder)	RA4C		60 ~ 410	16	1120<840>	6	1.5	
						10	700	15	2.5	
						5	350	28	5	
	RA6C			65 ~ 415	2.5	175	40	10		
					20	800	6	1.5		
					12	700	25	4		
	RA7C		70 ~ 520	6	450	40	10			
				3	225	60	20			
				24	800<600>	20	3			
	RA8C		50 ~ 700	16	700<560>	50	8			
				8	420	60	18			
4				210	80	28				
RA10C		50 ~ 800	5	150	100	70				
			10	250<167>	80	80				
			2.5	63	300	150				
Side-mounted Motor Specification	Rod Type (Radial Cylinder)	RA8R		50 ~ 700	20	400	30	5		
					10	200	60	40		
	RA10R		50 ~ 800	5	100	100	70			
				10	200<140>	80	80			
2.5	50	300	150							

●Refer to the individual catalog for the RCP5 Series.

## RCP4-SA3/RA3 Applicable Controllers

Name	External view	Model number	Features	Max. number of positioning points	Input power	Power supply capacity	Standard price	Reference page
Positioner type		PCON-CA-28P①-NP-2-0 PCON-CA-28P①-PN-2-0	Equipped with a high-output driver Positioner type based on PIO control	512 points	24V DC	Refer to ROBO Cylinder General Catalog	—	Refer to ROBO Cylinder General Catalog
Pulse-train type		PCON-CA-28PWAI-PLN-2-0 PCON-CA-28PWAI-PLP-2-0	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-28P①-①-0-0	Equipped with a high-output driver Applicable for 7 types of principal field networks	768 points				
Positioner Multiple Axes Specification PIO type		MSEP-②-③-~ -NP-2-0 MSEP-②-③-~ -PN-2-0	Positioner type with PIO control available to connect 8 axes at maximum	3 points	24V DC	Refer to ROBO Cylinder General Catalog	—	Refer to ROBO Cylinder General Catalog
Positioner Multiple Axes Specification network type		MSEP-②-③-~ -①-0-0	Positioner type applicable for field network available to connect 8 axes at maximum	256 points				

\*The encoder type comes in ①. Incremental Type is "WAI" and Simple Absolute is "SA". \*Either Type C or LC comes in ②. 6 axes are available to connect at the maximum if LC.  
\*The number of axes (1 to 8) comes in ③. \*The symbol (DV, CC, PR, CN, EC or EP) for the field network types comes in ④.

# RCP4-SA3C

ROBO Cylinder, Slider Type, Motor Unit Coupled, Actuator Width 32m, Pulse Motor 24V

Model Specification Items

<b>RCP4</b>	<b>SA3C</b>	<b>I</b>	<b>28P</b>			<b>P3</b>		
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		I: Incremental specification	28P: Pulse motor, size 28 □	6: 6mm 4: 4mm 2: 2mm	25: 25mm 300: 300mm (every 25 mm)	P3: PCON-CA MSEP-C/LC	N: None P: 1m S: 3m M: 5m X □ □: Specified length R □ □: Robot cable	Refer to the option list below.

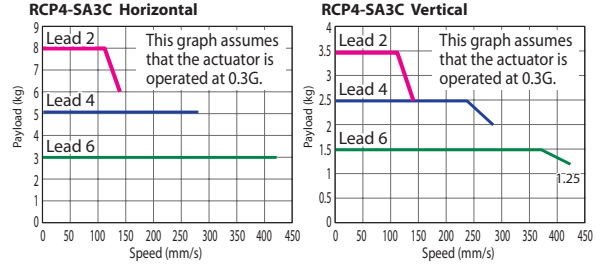


**POINT**  
Note on selection

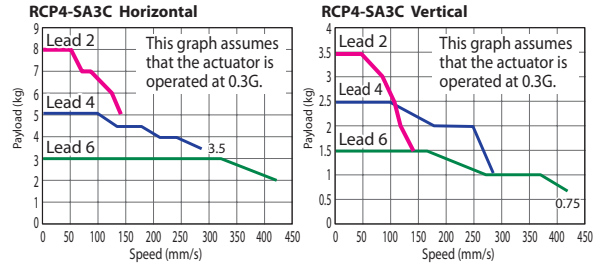
(1) Even though the payload described in the actuator specifications is the maximum value, it may vary depending on the acceleration. Refer to "Tables for Payload by Acceleration and Speed" on pg. 4 for details.  
(2) Refer to "Relative Graph for Pressing Force and Current Limit" at the back of the catalog for the pressing operation.

## Correlation Diagrams of Speed and Payload

### ① High output enabled PCON-CA-MSEP-C/LC connected



### ② High output disabled PCON-CA-MSEP-C/LC connected



## Actuator Specifications Table

### Leads and Payloads

Model number	Lead (mm)	Maximum payload		Stroke (mm)
		Horizontal (kg)	Vertical (kg)	
RCP4-SA3C-I-28P-6-①-P3-②-③	6	3	1.5	25 ~ 300 (every 25 mm)
RCP4-SA3C-I-28P-4-①-P3-②-③	4	5	2.5	
RCP4-SA3C-I-28P-2-①-P3-②-③	2	8	3.5	

Legend ① Stroke ② Cable length ③ Options

### Stroke and Max. Speed (unit: mm/s)

Lead (mm)	High-Output Setting	25 ~ 300 (every 25 mm)
6	Enabled	420
	Disabled	
4	Enabled	280
	Disabled	
2	Enabled	140
	Disabled	

### ① Stroke List (Standard price)

Stroke (mm)	Standard price	Stroke (mm)	Standard price
25	—	175	—
50	—	200	—
75	—	225	—
100	—	250	—
125	—	275	—
150	—	300	—

### ② Cable Length (Standard price)

Type	Cable symbol	Standard price
Standard type	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
	—	—
Robot Cable	R01 (1m) ~ R03 (3m)	—
	R04 (4m) ~ R05 (5m)	—
	R06 (6m) ~ R10 (10m)	—
	R11 (11m) ~ R15 (15m)	—
	R16 (16m) ~ R20 (20m)	—
	—	—

### ③ Option List (Standard price)

Name	Option code	Reference page	Standard price
Brake	B	Refer to ROBO Cylinder General Catalog	—
Home-Position Check Sensor (on right)	HSR		—
Home-Position Check Sensor (on left)	HSL		—
Non-motor end specification	NM		Free

\* In the home-position check sensor "HS", there are variations of "HSR" (attached on the right) and "HSL" (attached on the left) depending on the orientation that the sensor is attached. Refer to the ROBO Cylinder General Catalog for the contents of "HS" and the following page for the orientation of the attachment.

## Actuator Specifications

Item	Description
Drive system	Ball screw Ø6mm rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*1)	Ma: 2.4 N·m, Mb: 3.5 N·m, Mc: 3.8 N·m
Allowable overhang	Ma direction: 100mm or less Mb-Mc direction: 100mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(\*1) Based on 5,000km of traveling life.

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# RCP4-RA3C

ROBO Cylinder, Rod Type, Motor Unit Coupled, Actuator Width 32mm, Pulse Motor 24V

Model Specification Items

**RCP4** - **RA3C** - **I** - **28P** -  -  - **P3** -  -

Series - Type - Encoder type - Motor type - Lead - Stroke - Applicable controller - Cable length - Options

I: Incremental specification  
 28P: Pulse motor, size 28   
 16: 16mm  
 10: 10mm  
 5: 5mm  
 2.5: 2.5mm  
 25: 25mm  
 300: 300mm (every 25 mm)  
 P3: PCON-CA  
 MSEP-C/LC  
 N: None  
 P: 1m  
 S: 3m  
 M: 5m  
 X : Specified length  
 R : Robot cable  
 Refer to the option list below.

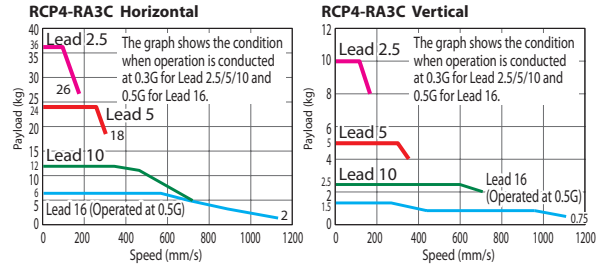
## Built-in guide mechanism



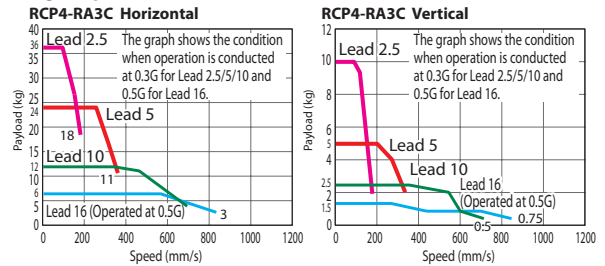
- Even though the payload described in the actuator specifications is the maximum value, it may vary depending on the acceleration. Refer to "Tables for Payload by Acceleration and Speed" on pg. 6 for details.
- Refer to "Relative Graph for Pressing Force and Current Limit" at the back of the catalog for the pressing operation.

## Correlation Diagrams of Speed and Payload

### ① High output enabled PCON-CA-MSEP-C/LC connected



### ② High output disabled PCON-CA-MSEP-C/LC connected



## Actuator Specifications Table

### Leads and Payloads

Model number	Lead (mm)	Maximum payload		Maximum push force (N)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
RCP4-RA3C-I-28P-16-①-P3-②-③	16	6	1.5	36	25 ~ 300 (every 25 mm)
RCP4-RA3C-I-28P-10-①-P3-②-③	10	12	2.5	57	
RCP4-RA3C-I-28P-5-①-P3-②-③	5	24	5	114	
RCP4-RA3C-I-28P-2.5-①-P3-②-③	2.5	36	10	229	

Legend ① Stroke ② Cable length ③ Options

### Stroke and Max. Speed (unit: mm/s)

Lead (mm)	High-Output Setting	25 ~ 300 (every 25 mm)
16	Enabled	1120
	Disabled	840
10	Enabled	700
	Disabled	350
5	Enabled	350
	Disabled	175
2.5	Enabled	175
	Disabled	175

### ① Stroke List (Standard price)

Stroke (mm)	Standard price	Stroke (mm)	Standard price
25	—	175	—
50	—	200	—
75	—	225	—
100	—	250	—
125	—	275	—
150	—	300	—

### ② Cable Length (Standard price)

Type	Cable symbol	Standard price
Standard type	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
	R01 (1m) ~ R03 (3m)	—
Robot Cable	R04 (4m) ~ R05 (5m)	—
	R06 (6m) ~ R10 (10m)	—
	R11 (11m) ~ R15 (15m)	—
	R16 (16m) ~ R20 (20m)	—
	R01 (1m) ~ R03 (3m)	—
	R04 (4m) ~ R05 (5m)	—

### ③ Option List (Standard price)

Name	Option code	Reference page	Standard price
Brake	B	Refer to ROBO Cylinder General Catalog	—
Home-Position Check Sensor (top)	HS		—
Non-motor end specification	NM		Free

## Actuator Specifications

Item	Description
Drive system	Ball screw Ø8mm rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Rod	Ø16mm Aluminum
Rod non-rotation precision(*1)	±0 deg
Allowable rod load mass	Refer to reference at the back
Rod tip overhang distance	100mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(\*1) Accuracy of rod displacement in rotating direction when no load is received.



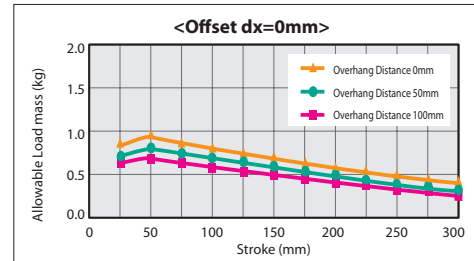
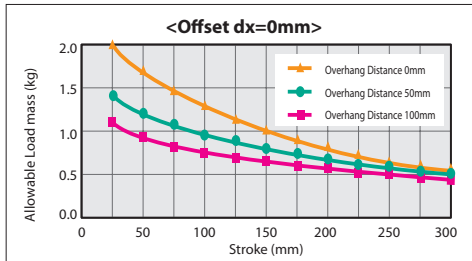
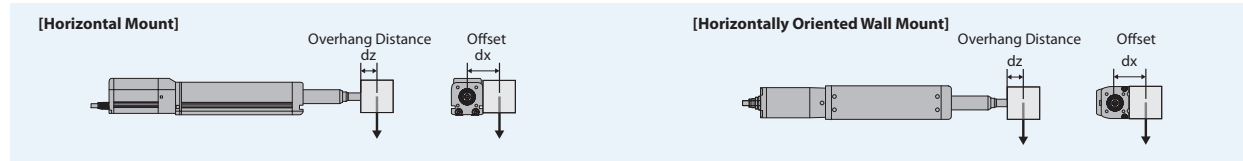
**Criteria for Selection**

**Document for Selection of Radial Cylinder Allowable Load**

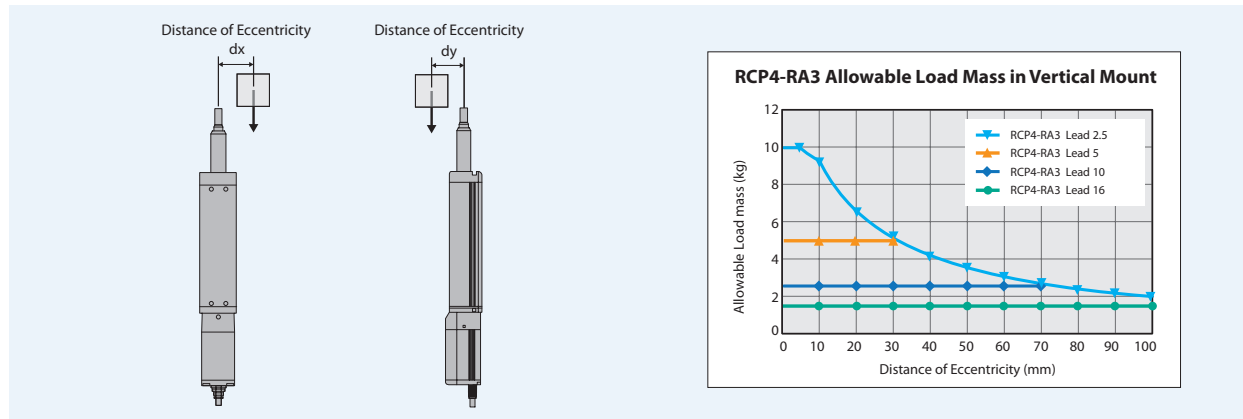
Because the Radial Cylinder is equipped with a built-in guide structure, a certain amount of load can be applied to the rod even without an external guide. Refer to the graphs below for the allowable load mass.

Please note that it is necessary to apply an external guide feature when the operational condition exceeds the allowable load.

**Allowable Load Mass in Horizontal Mount**



**Allowable Load Mass in Vertical Mount**

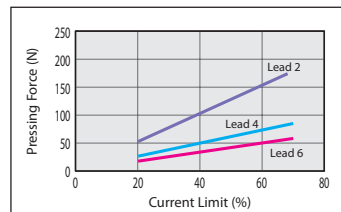


**Relative Graph for Pressing Force and Current Limit**

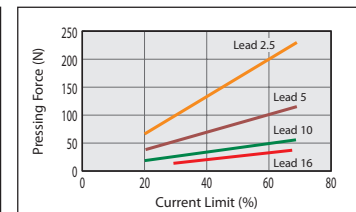
The pressing force in the pressing operation can be changed with the current limit (20% to 70%) on the controller.

It is necessary to control the pressing force so the reaction moment generated by the pressing force in the pressing operation would not exceed 80% of the rated moment (Ma, Mb) specified in the catalog when pressing operation is conducted with the Slider Type. Refer to the instruction manual for the details of how to select.

**RCP4-SA3 Type**



**RCP4-RA3 Type**



**Maintenance Parts**

Model number	CB-CAN-MPA□□□	Integrated Motor-Encoder Cable	for RCP4-SA3/RA3
	CB-CAN-MPA□□□-RB	Integrated Motor-Encoder Robot Cable	

\* Please indicate cable length (L) in □□□, maximum 20m. e.g.) 080 = 8m

\*Refer to the RCP5 individual catalog for details.