RCP4-RA6C

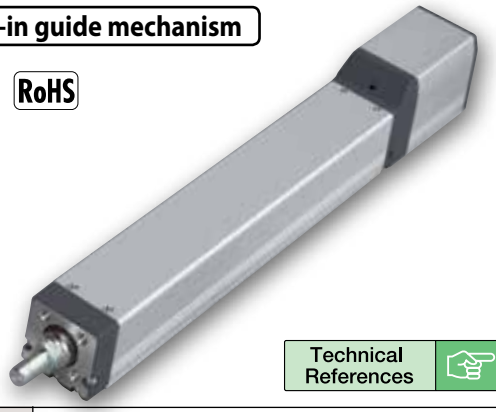
ROBO Cylinder, Rod Type, Motor Unit Coupled, Actuator Width 61mm, 24-V Pulse Motor

Model Specification Items: **RCP4** — **SA6C** — **I** — ☐ — ☐ — ☐ — ☐ — ☐ — ☐ — ☐

Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
RCP4	SA6C	I: Incremental	56P: Pulse motor, size 56☐ 56SP: High-thrust pulse motor size 56☐	24: 24mm 16: 16mm 8: 8mm 4: 4mm	50: 50mm 〜 500: 500mm (50mm pitch increments)	P3: PCON-CA MSEP-C P4: PCON-CFA	N: None P: 1m S: 3m M: 5m X☐☐: Custom length R☐☐: Robot cable	See Options below. * If the high-thrust pulse motor is selected, the actuator comes standard with option B (Brake).

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

Built-in guide mechanism



Technical References → Appendix P.5

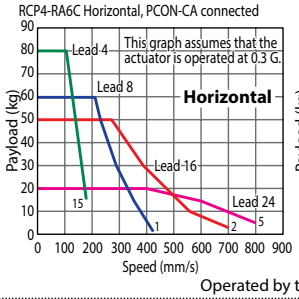
POINT Notes on selection

(1) The maximum payload is the value when operated at 0.3G (0.2G with some models) acceleration. The upper limit of acceleration is 1G (*).
Note that raising the acceleration causes the payload to drop.
(*) The specific value varies depending on the connected controller and actuator lead. For details, refer to "Selection References" on page A-101 and A-103.
(2) Take note that the maximum payload and maximum speed vary depending on the controller connected to the RCP4.
(Refer to the actuator specifications below.)
(3) All horizontal payloads are values when an external guide is used.
(4) See page A-71 for details on push motion.

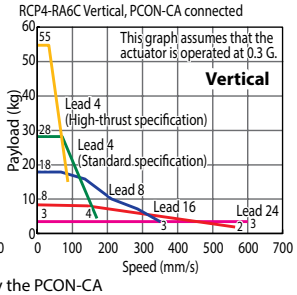
■ Correlation Diagrams of Speed and Payload

*The values of the horizontal specification assume that an external guide is used.

RCP4-RA6C Horizontal, PCON-CA connected

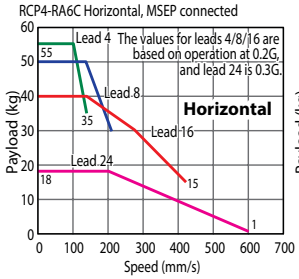


RCP4-RA6C Vertical, PCON-CA connected

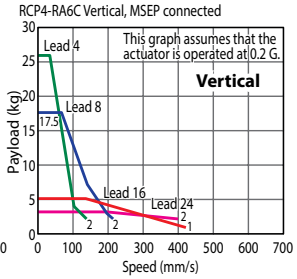


Operated by the PCON-CA

RCP4-RA6C Horizontal, MSEP connected



RCP4-RA6C Vertical, MSEP connected



Operated by the MSEP-C

Actuator Specifications

■ Leads and Payloads

(*) When operated at 0.2 G

Model number		Lead (mm)	Connected controller	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Max. push force (N)	Stroke (mm)
Standard specification	RCP4-RA6C-I-56P-24-①-P3-②-③	24	PCON-CA	20	3	182	50 to 500 (every 50mm)
			MSEP-C	18	3 (*)		
	RCP4-RA6C-I-56P-16-①-P3-②-③	16	PCON-CA	50	8	273	
			MSEP-C	40 (*)	5 (*)		
	RCP4-RA6C-I-56P-8-①-P3-②-③	8	PCON-CA	60	18	547	
			MSEP-C	50 (*)	17.5 (*)		
	RCP4-RA6C-I-56P-4-①-P3-②-③	4	PCON-CA	80	28	1094	
			MSEP-C	55 (*)	26 (*)		
High-thrust specification	RCP4-RA6C-I-56SP-4-①-P4-②-③-B	4	PCON-CFA	—	55	1106	
			—	—	—		

■ Stroke and Maximum Speed

Lead (mm)	Stroke / Connected controller	50~500 (every 50mm)
24	PCON-CA	800<600>
	MSEP-C	600<400>
16	PCON-CA	700<560>
	MSEP-C	420
8	PCON-CA	420
	MSEP-C	210
4 (Standard)	PCON-CA	210
	MSEP-C	140
4 (High-thrust)	PCON-CFA	90

The values in < > apply when the actuator is used vertically. (Unit: mm/s)

Code explanation ① Stroke ② Cable length ③ Options *See page A-71 for details on push motion.

①Stroke

Stroke (mm)	Standard price Standard	Standard price High-thrust
50	—	—
100	—	—
150	—	—
200	—	—
250	—	—
300	—	—
350	—	—
400	—	—
450	—	—
500	—	—

②Cable Length

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)	—

* See page A-59 for cables for maintenance.

③Options

Name	Option code	Page	Standard Price
Brake	**B**	→ A-42	—
Optional cable exit direction (top)	**CJT**	→ A-42	—
Optional cable exit direction (right)	**CJR**	→ A-42	—
Optional cable exit direction (left)	**CJL**	→ A-42	—
Optional cable exit direction (bottom)	**CJB**	→ A-42	—
Flange bracket	**FL**	→ A-44	—
Non-motor end specification	**NM**	→ A-52	—
Scraper	**SC**	→ A-55	—

Actuator Specifications

Item	Description
Drive method	Ball screw, ø12mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Rod	ø25mm stainless steel pipe
Rod non-rotation precision	±0 deg
Allowable rod load mass	Refer to page 150 and page A-117
Rod tip overhang distance	100mm or less
Ambient operating temperature/humidity	0 to 40°C, 85% RH max. (Non-condensing)

(*1) The value at lead 24 is shown in [ ].

Dimensional Drawings

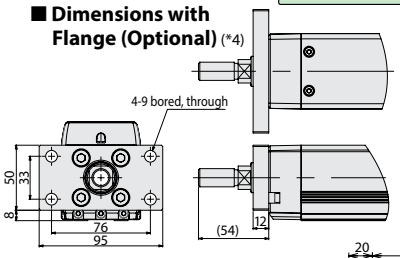
CAD drawings can be downloaded from the website. www.intelligentactuator.com

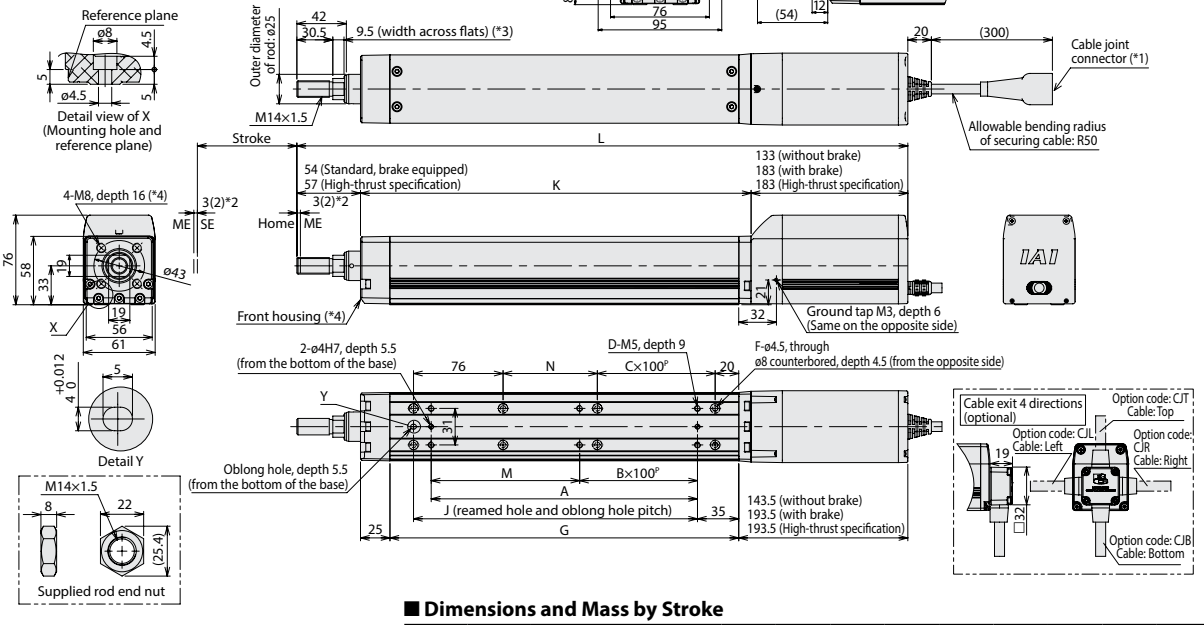
2D CAD 3D CAD

For Special Orders Appendix P.15

(*1) Connect the motor-encoder integrated cable here.
(*2) During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end. Also, please note that the lengths between Home and ME, SE and ME are 2mm for the high-thrust specification.
(*3) The orientation of the bolt varies depending on the product.
(*4) If the actuator is installed using the front housing and flange, make sure the actuator will not receive any external force.
ME : Mechanical end
SE : Stroke end

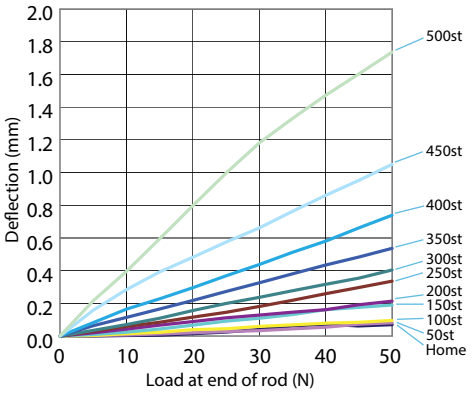
■ Dimensions with Flange (Optional) (*4)





■ Rod Deflection of RCP4-RA6C (Reference Values)

(The graph below plots deflection as measured by installing the actuator vertically and applying a force to the rod from one side.)



■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5
	With brake	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5
	High-thrust specification	421.5	471.5	521.5	571.5	621.5	671.5	721.5	771.5	821.5	871.5
A		76	126	176	226	276	326	376	426	476	526
B		0	0	1	1	2	2	3	3	4	4
C		0	0	0	1	1	2	2	3	3	4
D		4	4	6	6	8	8	10	10	12	12
F		6	6	6	8	8	10	10	12	12	14
G		146	196	246	296	346	396	446	496	546	596
J		91	141	191	241	291	341	391	441	491	541
K		181.5	231.5	281.5	331.5	381.5	431.5	481.5	531.5	581.5	631.5
M		76	126	76	126	76	126	76	126	76	126
N		30	80	130	80	130	80	130	80	130	80
Allowable static load at end of rod (N)		112.7	91.5	76.7	65.7	57.2	50.4	44.8	40.2	36.2	32.7
Allowable dynamic load at end of rod (N)	Load offset 0mm	49.0	37.4	29.9	24.5	20.4	17.1	14.5	12.3	10.3	8.6
	Load offset 100mm	38.7	31.0	25.5	21.4	18.1	15.4	13.2	11.2	9.5	8.0
Allowable static torque at end of rod (N•m)		11.4	9.3	7.9	6.8	6.0	5.4	4.9	4.5	4.1	3.8
Allowable dynamic torque at end of rod (N•m)		3.9	3.1	2.5	2.1	1.8	1.5	1.3	1.1	1.0	0.8
Weight (kg)	Without brake	3.4	3.7	4.1	4.4	4.7	5.0	5.4	5.7	6.0	6.3
	With brake	3.9	4.2	4.6	4.9	5.2	5.5	5.9	6.2	6.5	6.8

Applicable Controllers

RCP4 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
Positioner type High-output specification		PCON-CA-56PI-Ⓘ-2-0	Equipped with a high-output driver PIO control supported	512 points	DC24V	Refer to P618	—	→ P607
Pulse-train type High-output specification		PCON-CA-56PI-PL-□-2-0	Equipped with a high-output driver Pulse-train input supported	—			—	
Field network type High-output specification		PCON-CA-56PI-ⒾⅡ-0-0	Equipped with a high-output driver Field network supported	768 points			—	
Solenoid valve multi-axis type PIO specification		MSEP-C-ⒾⅡ-~~-Ⓘ-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected	3 points		Refer to P572	—	→ 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		PCON-CFA-56SPI-Ⓘ-2-0	High-thrust specification Positioner type based on PIO control	512 points	DC24V	Refer to P618	—	→ P607
Pulse-train type		PCON-CFA-56SPI-PL-□-2-0	High-thrust specification Pulse-train input type	—			—	
Field network type		PCON-CFA-56SPI-ⒾⅢ-0-0	High-thrust specification Supporting 7 major field networks	768 points			—	

* Ⓘ indicates I/O type (NP/PN). * Ⅱ indicates number of axes (1 to 8). * Ⅲ indicates field network specification symbol. * □ indicates N (NPN specification) or P (PNP specification) symbol.