IAI
Quality and Innovation

GB

RoboCylinder RCP4 Series
PowerCon PCON-CA

ROBO CYLINDER
Newest additions to the series!
Side-Mounted Motor Type
Cleanroom Type
Catalogue Slider Type
High Speed
High power
RCP4

www.robocylinder.de

PowerCon Realizing

1.5 Times the Speed and Double the Payload

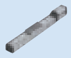
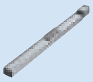
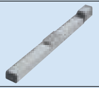
The PowerCon 150 series boosts the performance of RoboCylinder
The side-mounted motor specification and cleanroom specification

- ▶ Improved dynamic performance (the speed is up to 1.5 times and payload is up to twice
  *Specific values vary depending on the model.
- ▶ New functions designed to enhance maintainability enable preventative maintenance,
- ▶ The takt time minimization function lets you set optimal operating conditions with greater

Find the RCP4-3 series at the back of this catalogue

RCP4-SA5C **RCP4-SA6C** **RCP4-SA7C**

RCP4 Series Variations

Model type	Series	Shape	Type	External view	Actuator size (width)	Stroke	Ball screw lead (mm)	Maximum Speed (mm/s)	Maximum payload (kg)		Page
									Horizontal	Vertical	
Straight motor specification	RCP4	Slider type	SA5C		52mm	50~800	20	1440	6.5	1	P.9
							12	900	9	2.5	
							6	450	18	6	
							3	225	20	12	
			SA6C		58mm		20	1440	10	1	P.11
							12	900	15	2.5	
							6	450	25	6	
							3	225	25	12	
			SA7C		73mm		24	1200	20	3	P.13
							16	980	40	8	
							8	490	45	16	
							4	245	45	25	

*The maximum horizontal payload for the rod type is for when an external guide is used in combination.

Controller

Series	Type	Page
PCON	CA	p.40

150% the Output,

Achievable with Standard Controllers

standard motorized cylinders to amazing new heights.
(ISO class 4) have been added to the power controller RCP4 series.

IAI's conventional models*) significantly boosts the productivity of your system.

so less time is needed for maintenance.
ease.

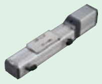
Find the RCP4-SA3 series at the back of this catalogue

NEW
Slider
Side-mounted motor
specification

RCP4-SA5R
RCP4-SA6R
RCP4-SA7R

NEW
Cleanroom
specification

RCP4CR-SA5C
RCP4CR-SA6C
RCP4CR-SA7C

Model type	Series	Shape	Type	External view	Actuator size (width)	Stroke	Ball screw lead (mm)	Maximum Speed (mm/s)	Maximum payload (kg)		Page
									Horizontal	Vertical	
NEW Side-mounted motor specification	**RCP4**	NEW Slider type	**SA5R**		52mm	50~800	20	1440	6.5	1	P.15
							12	900	9	2.5	
							6	450	18	6	
							3	225	20	12	
			SA6R		58mm		20	1280	10	1	P.17
							12	900	15	2.5	
							6	450	25	6	
							3	225	25	12	
			SA7R		73mm		24	1000	20	3	P.19
							16	840	40	8	
							8	490	45	16	
							4	210	45	25	
NEW Cleanroom specification	**RCP4CR**	NEW Slider type	**SA5C**		52mm	50~800	20	1440	6.5	1	P.29
							12	900	9	2.5	
							6	450	18	6	
							3	225	20	12	
			SA6C		58mm		20	1440	10	1	P.31
							12	900	15	2.5	
							6	450	25	6	
							3	225	25	12	
			SA7C		73mm		24	1200	20	3	P.33
							16	980	40	8	
							8	490	45	16	
							4	245	45	25	

Features

Shorter Takt Time Significantly Boosts

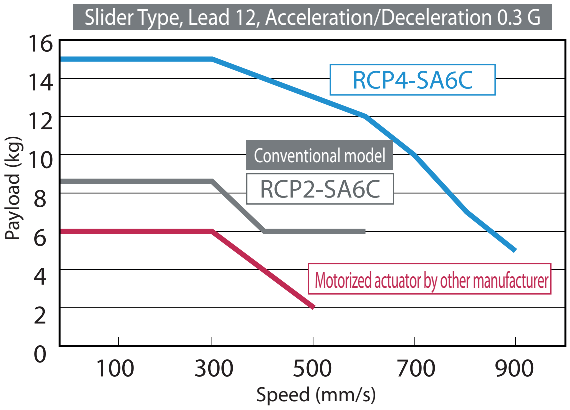
New Functions of **RCP4** Actuator

1 1.5 times higher maximum speed and double the payload when combined with a PowerCon 150

When the new controller (PowerCon 150) equipped with our newly developed high-output driver (patent pending) is used, the maximum speed increases significantly by up to 1.5 times the levels achievable with IAI's conventional models, while the payload is greater by up to twice (*).
In addition to these amazing improvements in specifications, the maximum speed does not drop as much even when the payload increases due to increased torque with the high speed motor, meaning that dynamic performance equivalent to that of a higher-class model can be achieved at lower cost.

(*) The specific rates of improvement vary depending on the model.

PowerCon 150 PCON-CA



Correlation Diagram of Speed and Payload

2 Extended lineup with the latest additions: the side-mounted motor specification and the cleanroom specification

Three slider types (SA5/SA6/SA7) and two rod types (RA5/RA6) are now available in the side-mounted motor specification characterized by a significantly shorter overall length for space-saving design. Three slider types are also available in the cleanroom specification conforming to ISO cleanliness class 4.

Find the RCP4-3 series at the back of this catalogue

RCP4-SA5C
RCP4-SA6C
RCP4-SA7C

Standard (coupling) specification

RCP4-SA5R
RCP4-SA6R
RCP4-SA7R
NEW

Side-mounted motor specification

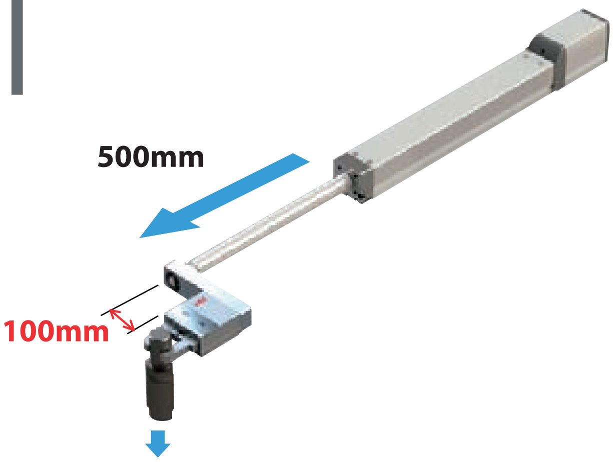
RCP4CR-SA5C NEW
RCP4CR-SA6C NEW
RCP4CR-SA7C NEW

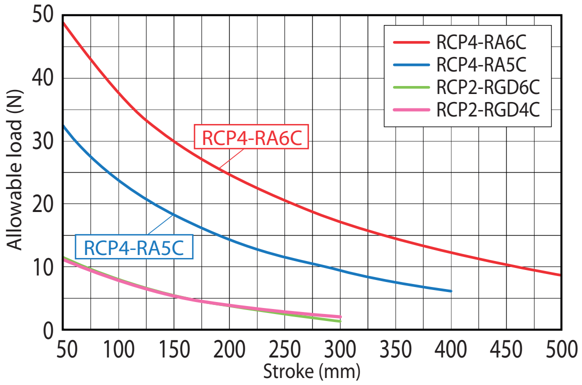
Cleanroom specification

the Productivity of Your System

3 The rod type <Radial Cylinder> with a built-in guide mechanism can carry radial loads over a long stroke (500mm).

The rod type <Radial Cylinder> has a built-in guide mechanism in the actuator to carry radial loads on the rod over a long stroke of up to 500 mm. The actuator can also support a radial load at a position offset from the center of the rod.

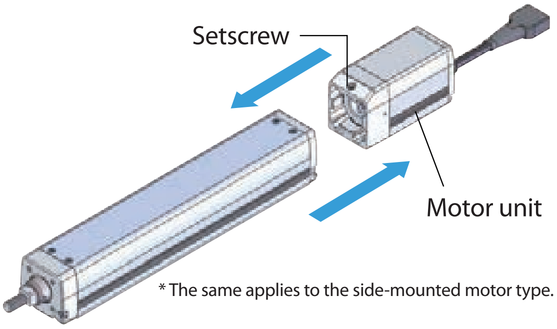

500mm
100mm



Comparison of Allowable Load at End of Rod
(Assuming 5000 km of Traveling Life)

4 Easy replacement of the motor with removal of only one setscrew

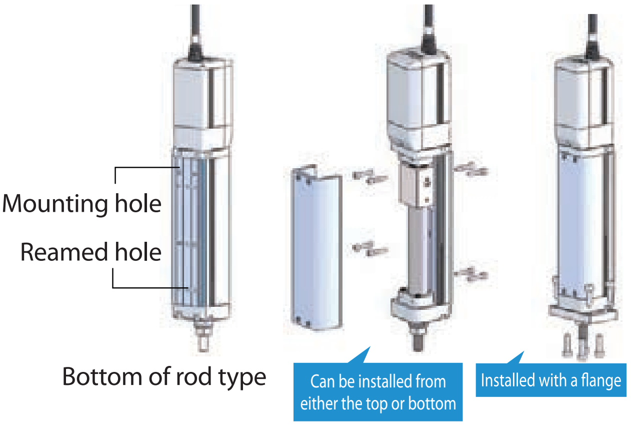
The motor has been unitized for easy replacement. The actuator and motor unit can be separated and replaced by removing only one setscrew, so the time required for maintenance becomes significantly shorter.


Setscrew
Motor unit

* The same applies to the side-mounted motor type.

5 Slider types have mounting holes compatible with the RCP2

Slider types have mounting holes that are compatible with RCP2 actuators, meaning that you can replace your current RCP2 actuator with a RCP4 with ease. Also, the mounting holes provided on rod types are the same as those provided on slider types, instead of T-slots found on the RCP2, and reamed holes are also provided to significantly improve installation repeatability.


Mounting hole
Reamed hole
Bottom of rod type
Can be installed from either the top or bottom
Installed with a flange

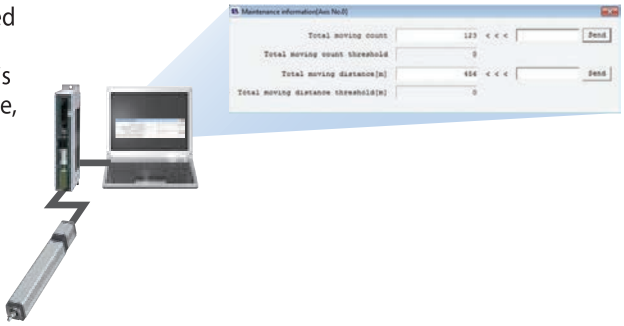
Features

New Functions to Enhance Maintainability

New Functions of PowerCon 150 **PCON-CA**

6 Keep track of the production volume and utilization ratio with the total movement counter function

The total number of times the actuator has moved is counted and recorded in the controller, and a signal is output to an external device once the pre-defined count is exceeded. This function can be used to keep track of the production volume, utilization ratio, etc.

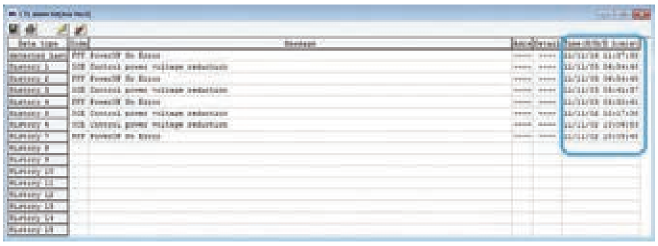

Maintenance information(Axis No.0)
Total moving count 123 < < < Send
Total moving count threshold 0
Total moving distance[m] 456 < < < Send
Total moving distance threshold[m] 0

7 Know when to perform maintenance with the total travel counter function

The total distance travelled by the actuator is counted and recorded in the controller, and a signal is output to an external device once the pre-defined count is exceeded. By using this function, you know when to add grease or perform periodic maintenance.

8 Retain alarm generation times with the calendar function

The calendar function (clock function) lets you add timestamps to the history of alarms, etc. This information is useful in troubleshooting, etc.



9 The smart tuning function lets you set up the operation conditions of your equipment optimally with ease

The smart tuning function is a new feature introduced to the RoboCylinder PC software (version 8.03.00.00 or later) and touch panel teaching pendant (model number: CON-PTA). When the actuator is connected to a controller supporting the smart tuning function, all the user needs is to enter the actuator type, transfer load, etc., and the optimal acceleration/deceleration and speed will be set automatically according to the load.

1. Setting the acceleration/deceleration from the speed

Enter a desired speed in the position data table, and the maximum settable acceleration/deceleration will be set automatically according to the pre-defined load-speed combinations.

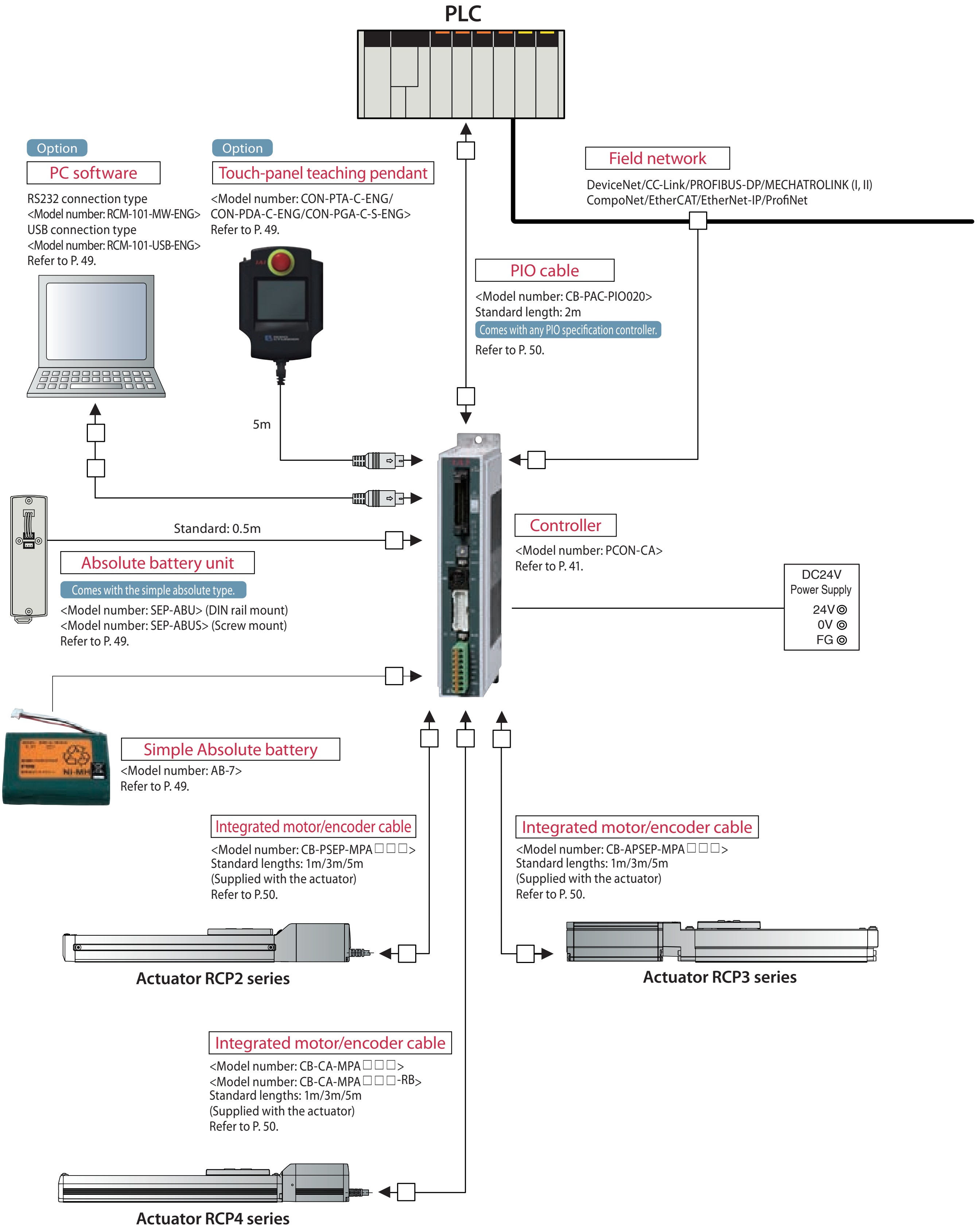
2. Setting the acceleration/deceleration and speed from the travel

Specify the position data number associated with desired start/end positions of movement and set a desired travel distance, and the combination of acceleration/deceleration and speed that gives the shortest travel time will be set automatically.

10 Three controller operation types to choose from

1.**Positioner type** that operates the actuator via ON/OFF of PIOs
2.**Pulse-train type** that operates the actuator by sending pulses from the positioning unit
3.**Field network type** that operates the actuator by sending position data via the network

System Configuration



Option

PC software

RS232 connection type
<Model number: RCM-101-MW-ENG>
USB connection type
<Model number: RCM-101-USB-ENG>
Refer to P. 49.

Option

Touch-panel teaching pendant

<Model number: CON-PTA-C-ENG/
CON-PDA-C-ENG/CON-PGA-C-S-ENG>
Refer to P. 49.

Field network

DeviceNet/CC-Link/PROFIBUS-DP/MECHATROLINK (I, II)
CompoNet/EtherCAT/EtherNet-IP/ProfiNet

PIO cable

<Model number: CB-PAC-PIO020>
Standard length: 2m
Comes with any PIO specification controller.
Refer to P. 50.

Controller

<Model number: PCON-CA>
Refer to P. 41.

Absolute battery unit

Comes with the simple absolute type.
<Model number: SEP-ABU> (DIN rail mount)
<Model number: SEP-ABUS> (Screw mount)
Refer to P. 49.

Simple Absolute battery

<Model number: AB-7>
Refer to P. 49.

Integrated motor/encoder cable

<Model number: CB-PSEP-MPA□□□>
Standard lengths: 1m/3m/5m
(Supplied with the actuator)
Refer to P.50.

Integrated motor/encoder cable

<Model number: CB-APSEP-MPA□□□>
Standard lengths: 1m/3m/5m
(Supplied with the actuator)
Refer to P. 50.

Actuator RCP2 series

Actuator RCP3 series

Integrated motor/encoder cable

<Model number: CB-CA-MPA□□□>
<Model number: CB-CA-MPA□□□-RB>
Standard lengths: 1m/3m/5m
(Supplied with the actuator)
Refer to P. 50.

Actuator RCP4 series

Model Specification Items

<Slider type>

RCP4	—	☐	—	I	—	☐	—	☐	—	☐	—	P3	—	☐	—	☐
Series		Type		Encoder type		Motor type		Ball screw lead		Stroke		Applicable controller		Cable length		Options

Type	
SA5C	Actuator width: 52mm Coupling type
SA6C	Actuator width: 58mm Coupling type
SA7C	Actuator width: 73mm Coupling type
SA5R	Actuator width: 52 mm Side-mounted motor type
SA6R	Actuator width: 58 mm Side-mounted motor type
SA7R	Actuator width: 73 mm Side-mounted motor type

Encoder type	
I	Incremental

Motor type	
42P	42 frame pulse motor
56P	56 frame pulse motor

Ball screw lead	
3	Lead 3mm
4	Lead 4mm
6	Lead 6mm
8	Lead 8mm
12	Lead 12mm
16	Lead 16mm
20	Lead 20mm
24	Lead 24mm

Stroke	
50	50mm
~	~
800	800mm

(Can be set in 50mm increments)

Applicable controller	
P3	PCON-CA MSEP

Cable length	
N	None
P	1m
S	3m
M	5m
X□□	Specified Length
R□□	Robot cable

Options	
B	Brake
CJT	Optional cable exit direction (top)
CJR	Optional cable exit direction (right)
CJL	Optional cable exit direction (left)
CJO	Optional cable exit direction (outside)
CJB	Optional cable exit direction (bottom)
ML	Motor side-mounted to the left (standard)
MR	Motor side-mounted to the right
NM	Non-motor end specification
SR	Slider roller specification

* Be sure to specify either "ML" or "MR" for the side-mounted motor type.

* The selection ranges for lead and stroke vary depending on the actuator type. For details, refer to the page explaining each type.

<Cleanroom type>

RCP4CR	—	☐	—	I	—	☐	—	☐	—	☐	—	P3	—	☐	—	☐
Series		Type		Encoder type		Motor type		Ball screw lead		Stroke		Applicable controller		Cable length		Options

Type	
SA5C	Actuator width: 52mm Coupling type
SA6C	Actuator width: 58mm Coupling type
SA7C	Actuator width: 73mm Coupling type

Encoder type	
I	Incremental

Motor type	
42P	42 frame pulse motor
56P	56 frame pulse motor

Ball screw lead	
3	Lead 3mm
4	Lead 4mm
6	Lead 6mm
8	Lead 8mm
12	Lead 12mm
16	Lead 16mm
20	Lead 20mm
24	Lead 24mm

Stroke	
50	50mm
~	~
800	800mm

(Can be set in 50mm increments)

Applicable controller	
P3	PCON-CA MSEP

Cable length	
N	None
P	1m
S	3m
M	5m
X□□	Specified Length
R□□	Robot cable

Options	
B	Brake
CJT	Optional cable exit direction (top)
CJR	Optional cable exit direction (right)
CJL	Optional cable exit direction (left)
CJB	Optional cable exit direction (bottom)
NM	Non-motor end specification
VR	Suction joint on opposite side

* The selection ranges for lead and stroke vary depending on the actuator type. For details, refer to the page explaining each type.

Actuator Options

Brake
Option code: B

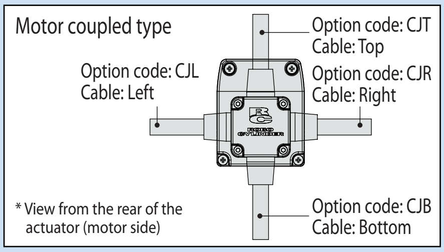
Description: All models

A mechanism to hold the slider in place when the actuator is used vertically, so that it will not drop and damage the work part, etc., when the power or servo is turned off.

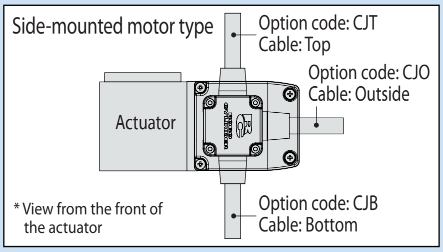
Optional cable exit direction
Option code: CJT
CJR
CJL
CJB
CJO

Applicable models: All models

Description: The actuator cable exit direction from the motor cover of the actuator is changed.


Motor coupled type
Option code: CJT
Cable: Top
Option code: CJL
Cable: Left
Option code: CJR
Cable: Right
Option code: CJB
Cable: Bottom

* View from the rear of the actuator (motor side)


Side-mounted motor type
Option code: CJT
Cable: Top
Option code: CJO
Cable: Outside
Actuator
Option code: CJB
Cable: Bottom

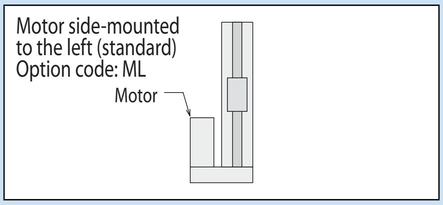
* View from the front of the actuator

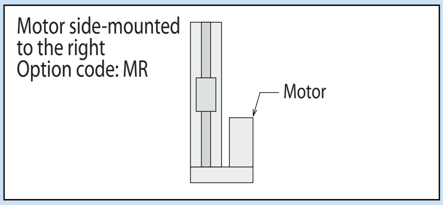
Motor side-mounted direction
Option code: ML/MR

* Be sure to specify either "ML" or "MR" for the side-mounted motor type.

Applicable models: RCP4-SA5R/SA6R/SA7R/RA5R/RA6R

Description: The motor side-mounted direction can be specified. ML and MR represent the left and right, respectively, as viewed from the motor side of the actuator.


Motor side-mounted
to the left (standard)
Option code: ML
Motor


Motor side-mounted
to the right
Option code: MR
Motor

Non-motor end specification
Option code: NM

Applicable models: All models

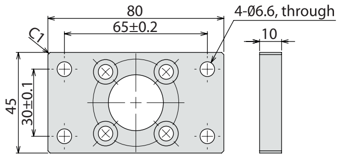
Description: Select this option if you want to change the home position of the actuator slider or rod from the normal position (motor end) to the front end.

Flange
Option code: FL

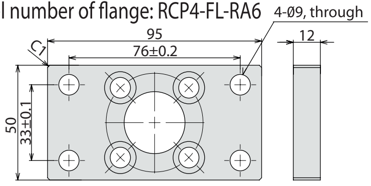
Applicable models: RCP4-RA5C/RA6C/RA5R/RA6R

Description: A bracket used to secure a rod actuator from the actuator side. The flange can be purchased separately later on.

RCP4-RA5 type
Model number of flange: RCP4-FL-RA5


80
65±0.2
4-Ø6.6, through
10
C1
45
30±0.1

RCP4-RA6 type
Model number of flange: RCP4-FL-RA6


4-Ø9, through
95
76±0.2
12
C1
50
33±0.1

Scraper
Option code: SC

Applicable models: RCP4-RA5C/RA6C/RA5R/RA6R

Description: When a rod actuator is used, select this option if you want to prevent dust attached to the rod from entering the actuator.

Slider roller specification
Option code: SR

Applicable models: RCP4-SA5C/SA6C/SA7C/SA5R/SA6R/SA7R

Description: The slider of the standard slider type specification is changed to the same roller structure of the cleanroom specification.
When the slider roller specification is selected, the appearance and dimensions of the slider cover become the same as those of the cleanroom specification.

Vacuum joint on opposite side
Option code: VR

Applicable models: RCP4CR-SA5C/SA6C/SA7C

Description: The standard specification is that the vacuum joint is installed on the left side of the actuator as viewed from the motor side. This option changes the vacuum joint position to the right side (opposite side).

RCP4-SA5C

RoboCylinder, Slider Type, Motor Unit Coupled, Actuator Width 52mm, 24-V Pulse Motor

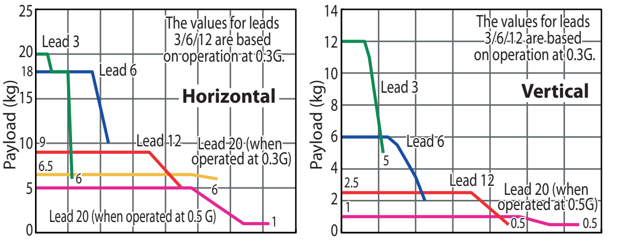
Model Specification Items	**RCP4**	**SA5C**	**I**	**42P**	☐	☐	**P3**	☐	☐
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	42P: Pulse motor, size 42□	20: 20mm 12: 12mm 6: 6mm 3: 3mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1m S: 3m M: 5m X□□: Specified length R□□: Robot cable	Refer to the options table below.

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 1 G (*). 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 P. 37 to 40.

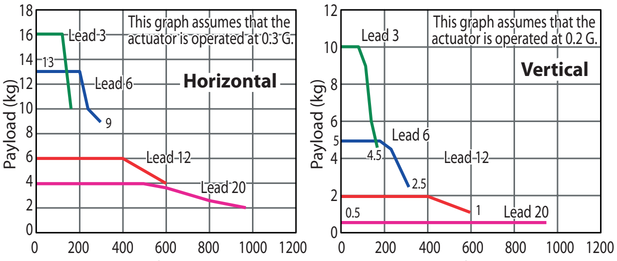
(2) Take note that the maximum payload and maximum speed vary depending on the controller connected to the RCP4. (Refer to the actuator specifications below.)

Correlation Diagrams of Speed and Payload



RCP4-SA5C Horizontal, PCON-CA connected   RCP4-SA5C Vertical, PCON-CA connected

Operated by the PCON-CA



RCP4-SA5C Horizontal, MSEP connected   RCP4-SA5C Vertical, MSEP connected

Operated by the MSEP-C

Actuator Specifications

Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Stroke (mm)
RCP4-SA5C-I-42P-20-①-P3-②-③	20	PCON-CA	6.5	1	50~800 (every 50mm)
		MSEP-C	4	0.5 (*)	
RCP4-SA5C-I-42P-12-①-P3-②-③	12	PCON-CA	9	2.5	
		MSEP-C	6	2	
RCP4-SA5C-I-42P-6-①-P3-②-③	6	PCON-CA	18	6	
		MSEP-C	13	5	
RCP4-SA5C-I-42P-3-①-P3-②-③	3	PCON-CA	20	12	
		MSEP-C	16	10	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	PCON-CA	1440 <1280>		1225	1045	900	785	690	610
	MSEP-C	960				900	785	690	610
12	PCON-CA	900	795	665	570	490	425	375	330
	MSEP-C	600			570	490	425	375	330
6	PCON-CA	450	395	335	285	245	215	185	165
	MSEP-C	300			285	245	215	185	165
3	PCON-CA	225	195	165	140	120	105	90	80
	MSEP-C	150			140	120	105	90	80

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

Cable Length

Type	Cable symbol
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)

Options

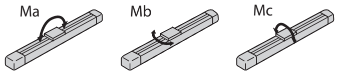
Name	Option code	See page
Brake	B	P8
Optional cable exit direction (top)	CJT	P8
Optional cable exit direction (right)	CJR	P8
Optional cable exit direction (left)	CJL	P8
Optional cable exit direction (bottom)	CJB	P8
Non-motor end specification	NM	P8
Slider roller specification	SR	P8

Actuator Specifications

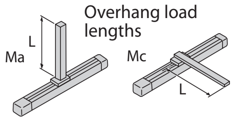
Item	Description
Drive system	Ball screw Ø10mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*2)	Ma: 4.9 N·m, Mb: 6.8 N·m, Mc: 11.7 N·m
Allowable overhang	150mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 20 is shown in [ ]. (*2) Based on 5000km of traveling life

Allowable load moment directions



Overhang load lengths

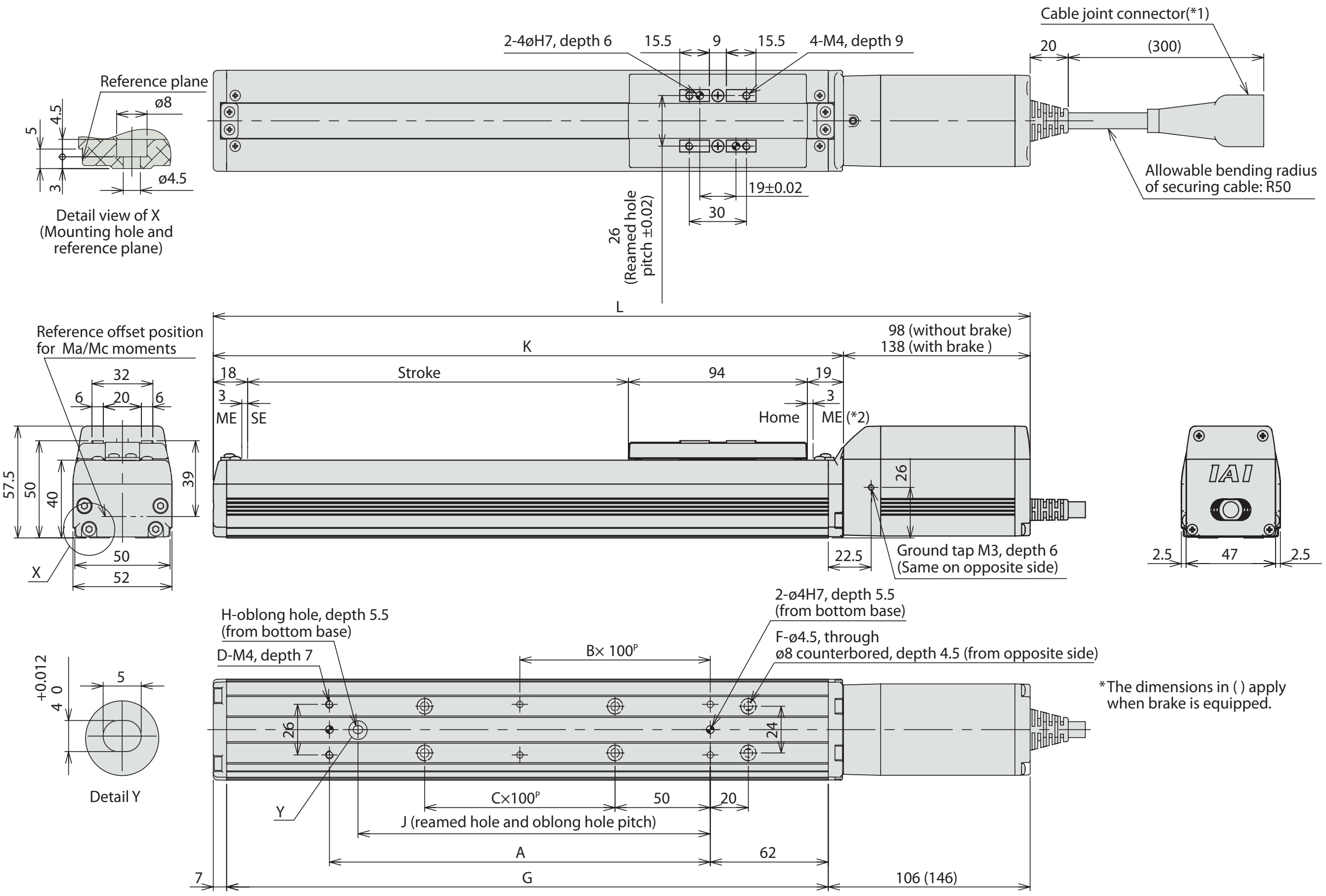


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.



Cable joint connector(*1)
2-4øH7, depth 6
15.5
9
15.5
4-M4, depth 9
20
(300)
Reference plane
ø8
4.5
5
3
ø4.5
Detail view of X
(Mounting hole and reference plane)
19±0.02
30
Allowable bending radius of securing cable: R50
26 (Reamed hole pitch ±0.02)
L
Reference offset position for Ma/Mc moments
K
98 (without brake)
138 (with brake)
32
6
20
6
18
Stroke
94
19
3
3
ME
SE
Home
ME (*2)
57.5
50
40
39
26
50
52
X
22.5
Ground tap M3, depth 6
(Same on opposite side)
2.5
47
2.5
IAI
2-ø4H7, depth 5.5
(from bottom base)
H-oblong hole, depth 5.5
(from bottom base)
F-ø4.5, through
ø8 counterbored, depth 4.5 (from opposite side)
D-M4, depth 7
B× 100P
+0.012
4 0
5
26
24
Detail Y
Y
C×100P
50
20
J (reamed hole and oblong hole pitch)
A
62
7
G
106 (146)

*The dimensions in ( ) apply when brake is equipped.

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	279	329	379	429	479	529	579	629	679	729	779	829	879	929	979	1029
	With brake	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069
A		73	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
D		4	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		166	216	266	316	366	416	466	516	566	616	666	716	766	816	866	916
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		181	231	281	331	381	431	481	531	581	631	681	731	781	831	881	931
Mass (kg)	Without brake	1.5	1.6	1.8	1.9	2.1	2.2	2.4	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.7
	With brake	1.7	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.6	3.7	3.9

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-42PI-NP-☐-0-☐ PCON-CA-42PI-PN-☐-0-☐	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-42PI-PLN-☐-0-☐ PCON-CA-42PI-PLP-☐-0-☐	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-42PI-△-0-0-☐	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-☐-~-NP-☐-0-☐ MSEP-C-☐-~-PN-☐-0-☐	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-☐-~-△-0-0-☐	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4-SA6C

RoboCylinder, Slider Type, Motor Unit Coupled, Actuator Width 58 mm, 24-V Pulse Motor

Model Specification Items	RCP4	SA6C	I	42P	☐	☐	P3	☐	☐
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	42P: Pulse motor, size 42□	20: 20mm 12: 12mm 6: 6mm 3: 3mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1 m S: 3 m M: 5 m X□□: Specified length R□□: Robot cable	Refer to the options table below.

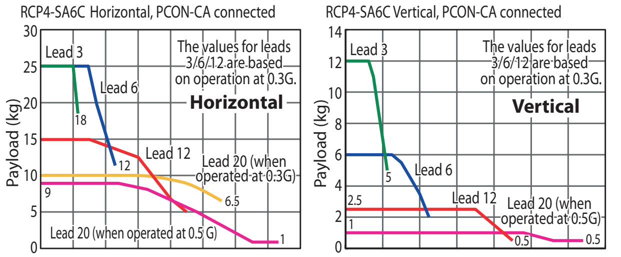
POINT

Notes on selection

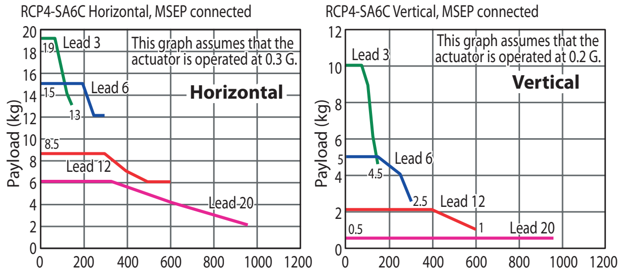
(1) The maximum payload is the value when operated at 0.3G (0.2G with some models) acceleration. The upper limit of acceleration is 1 G (*). Note that raising the acceleration causes the payload to drop.
(*)The specific value varies depending on the connected controller and actuator lead. For details, refer to "Selection References" on P. 37 to 40.

(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.)

■ Correlation Diagrams of Speed and Payload



Operated by the PCON-CA



Operated by the MSEP-C

Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload		Stroke (mm)
			Horizontal (kg)	Vertical (kg)	
RCP4-SA6C-I-42P-20-①-P3-②-③	20	PCON-CA	10	1	50~800 (every 50mm)
		MSEP-C	6	0.5 (*)	
RCP4-SA6C-I-42P-12-①-P3-②-③	12	PCON-CA	15	2.5	
		MSEP-C	8.5	2	
RCP4-SA6C-I-42P-6-①-P3-②-③	6	PCON-CA	25	6	
		MSEP-C	15	5	
RCP4-SA6C-I-42P-3-①-P3-②-③	3	PCON-CA	25	12	
		MSEP-C	19	10	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

■ Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	PCON-CA	1440 <1280>		1230	1045	905	785	690	615
	MSEP-C	960				905	785	690	615
12	PCON-CA	900	795	670	570	490	430	375	335
	MSEP-C	600			570	490	430	375	335
6	PCON-CA	450	395	335	285	245	215	185	165
	MSEP-C	300			285	245	215	185	165
3	PCON-CA	225	195	165	140	120	105	90	80
	MSEP-C	150			140	120	105	90	80

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

Cable Length

Type	Cable symbol
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)

Options

Name	Option code	See page	
Brake	B	P8	
Optional cable exit direction (top)	CJT	P8	
Optional cable exit direction (right)	CJR	P8	
Optional cable exit direction (left)	CJL	P8	
Optional cable exit direction (bottom)	CJB	P8	
Non-motor end specification	NM	P8	
Slider roller specification	SR	P8	

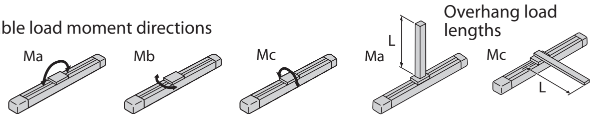
Actuator Specifications

Item	Description
Drive system	Ball screw Ø10mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*2)	Ma: 8.9 N·m, Mb: 12.7 N·m, Mc: 18.6 N·m
Allowable overhang	220mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 20 is shown in [ ]. (*2) Based on 5000km of traveling life

Allowable load moment directions

Overhang load lengths

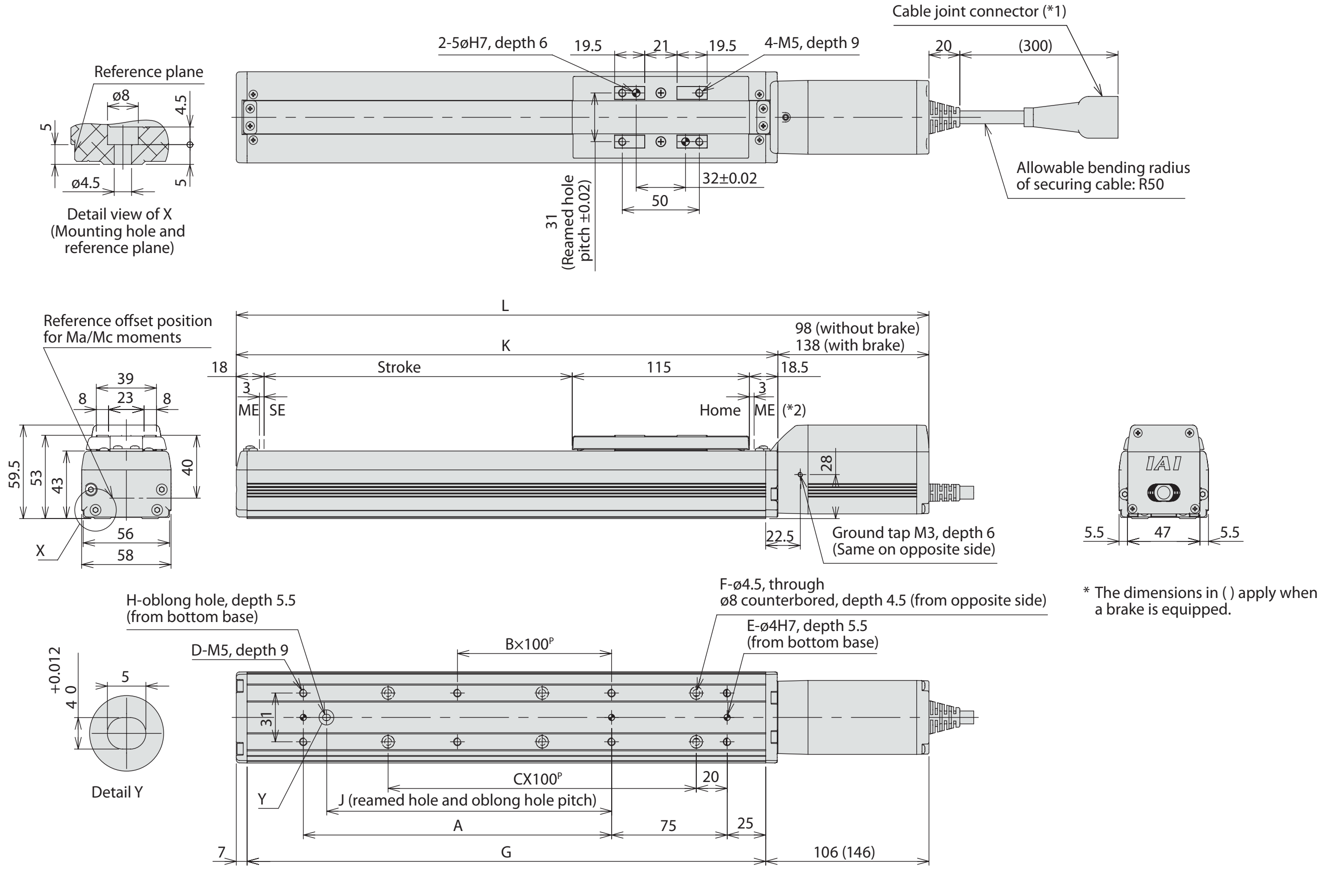


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.


Cable joint connector (*1)
2-øH7, depth 6
19.5
21
19.5
4-M5, depth 9
20
(300)
Reference plane
ø8
4.5
5
ø4.5
5
Detail view of X
(Mounting hole and reference plane)
31
(Reamed hole pitch ±0.02)
50
32±0.02
Allowable bending radius of securing cable: R50
L
98 (without brake)
138 (with brake)
K
Reference offset position for Ma/Mc moments
18
Stroke
115
18.5
39
8
23
8
3
ME
SE
Home
3
ME
(*2)
59.5
53
43
40
28
56
58
X
22.5
Ground tap M3, depth 6
(Same on opposite side)
5.5
47
5.5
F-ø4.5, through
ø8 counterbored, depth 4.5 (from opposite side)
H-oblong hole, depth 5.5
(from bottom base)
E-ø4H7, depth 5.5
(from bottom base)
D-M5, depth 9
B×100P
+0.012
4 0
5
31
Detail Y
CX100P
20
Y
J (reamed hole and oblong hole pitch)
A
75
25
7
G
106 (146)

* The dimensions in ( ) apply when a brake is equipped.

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	299.5	349.5	399.5	449.5	499.5	549.5	599.5	649.5	699.5	749.5	799.5	849.5	899.5	949.5	999.5	1049.5
	With brake	339.5	389.5	439.5	489.5	539.5	589.5	639.5	689.5	739.5	789.5	839.5	889.5	939.5	989.5	1039.5	1089.5
A		0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		201.5	251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5
Mass (kg)	Without brake	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3
	With brake	2.2	2.3	2.5	2.6	2.8	3.0	3.1	3.3	3.4	3.6	3.7	3.9	4.1	4.2	4.4	4.5

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-42PI-NP-☐-0-☐ PCON-CA-42PI-PN-☐-0-☐	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-42PI-PLN-☐-0-☐ PCON-CA-42PI-PLP-☐-0-☐	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-42PI-△-0-0-☐	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-☐-~-NP-☐-0-☐ MSEP-C-☐-~-PN-☐-0-☐	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-☐-~-△-0-0-☐	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4-SA7C

RoboCylinder, Slider Type, Motor Unit Coupled, Actuator Width 73mm, 24-V Pulse Motor

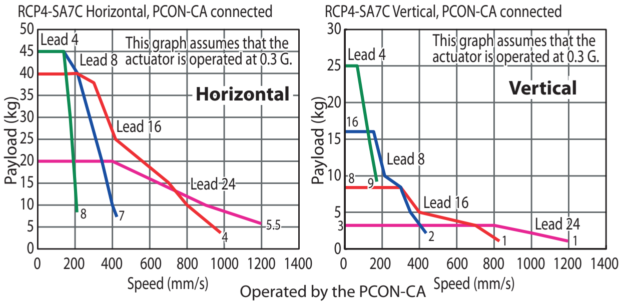
Model Specification Items	RCP4	SA7C	I	56P	☐	☐	P3	☐	☐
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	56P: Pulse motor, size 56☐	24: 24mm 16: 16mm 8: 8mm 4: 4mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1m S: 3m M: 5m X☐☐: Specified length R☐☐: Robot cable	Refer to the options table below.

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 1 G (*). 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 P. 37 to 40.

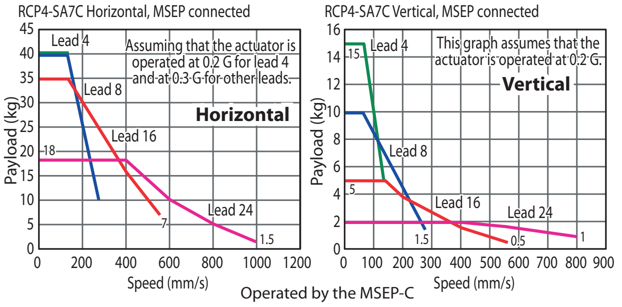
(2) Take note that the maximum payload and maximum speed vary depending on the controller connected to the RCP4. (Refer to the actuator specifications below.)

■ Correlation Diagrams of Speed and Payload


RCP4-SA7C Horizontal, PCON-CA connected

RCP4-SA7C Vertical, PCON-CA connected

Operated by the PCON-CA


RCP4-SA7C Horizontal, MSEP connected

RCP4-SA7C Vertical, MSEP connected

Operated by the MSEP-C

Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload		Stroke (mm)
			Horizontal (kg)	Vertical (kg)	
RCP4-SA7C-I-56P-24-①-P3-②-③	24	PCON-CA	20	3	50~800 (every 50mm)
		MSEP-C	18	2 (*)	
RCP4-SA7C-I-56P-16-①-P3-②-③	16	PCON-CA	40	8	
		MSEP-C	35	5 (*)	
RCP4-SA7C-I-56P-8-①-P3-②-③	8	PCON-CA	45	16	
		MSEP-C	40	10 (*)	
RCP4-SA7C-I-56P-4-①-P3-②-③	4	PCON-CA	45	25	
		MSEP-C	40 (*)	15 (*)	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

■ Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	500 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	PCON-CA	1200				1155	1010	890	790
	MSEP-C	1000<800>						890<800>	790
16	PCON-CA	980<840>			865<840>	750	655	580	515
	MSEP-C	560							515
8	PCON-CA	490			430	375	325	290	255
	MSEP-C	280							255
4	PCON-CA	245<210>			215<210>	185	160	145	125
	MSEP-C	140							125

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

Cable Length

Type	Cable symbol
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)

Options

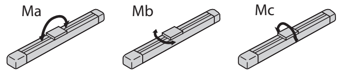
Name	Option code	See page
Brake	B	P8
Optional cable exit direction (top)	CJT	P8
Optional cable exit direction (right)	CJR	P8
Optional cable exit direction (left)	CJL	P8
Optional cable exit direction (bottom)	CJB	P8
Non-motor end specification	NM	P8
Slider roller specification	SR	P8

Actuator Specifications

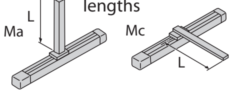
Item	Description
Drive system	Ball screw Ø12mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*2)	Ma: 13.9 N·m, Mb: 19.9 N·m, Mc: 38.3 N·m
Allowable overhang	230mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 24 is shown in [ ]. (*2) Based on 5000km of traveling life

Allowable load moment directions



Overhang load lengths

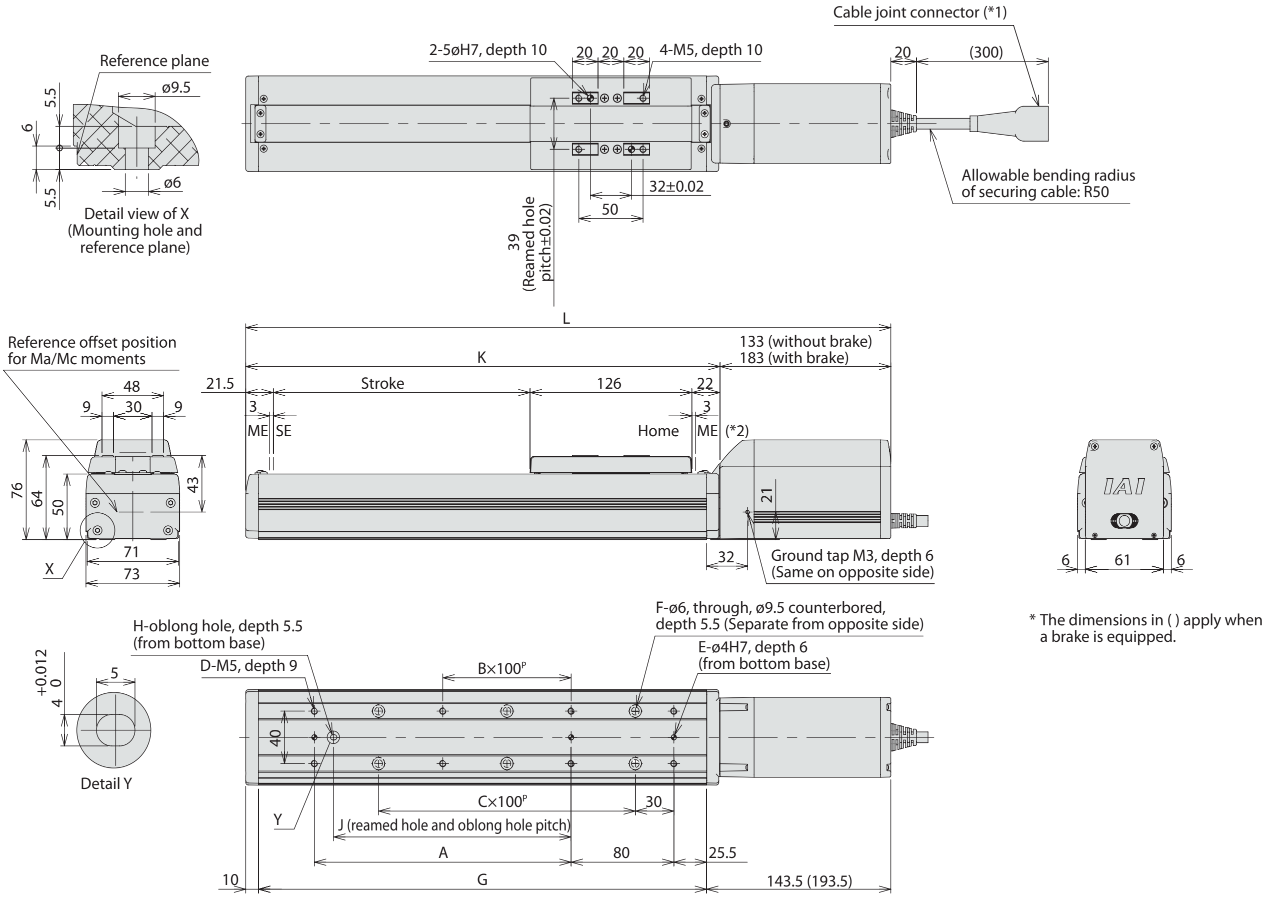


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.


Cable joint connector (*1)
2-5øH7, depth 10
20 20 20
4-M5, depth 10
20
(300)
Reference plane
ø9.5
5.5
6
ø6
5.5
Detail view of X (Mounting hole and reference plane)
32±0.02
50
39 (Reamed hole pitch±0.02)
Allowable bending radius of securing cable: R50
L
Reference offset position for Ma/Mc moments
K
133 (without brake)
183 (with brake)
48
9 30 9
21.5
Stroke
126
22
3
3
ME SE
Home
ME (*2)
76
64
50
43
21
71
73
X
32
Ground tap M3, depth 6 (Same on opposite side)
6 61 6
IAI
F-ø6, through, ø9.5 counterbored, depth 5.5 (Separate from opposite side)
H-oblong hole, depth 5.5 (from bottom base)
E-ø4H7, depth 6 (from bottom base)
D-M5, depth 9
+0.012 0
4
5
B×100P
40
Detail Y
C×100P
30
Y
J (reamed hole and oblong hole pitch)
A
80
25.5
10
G
143.5 (193.5)

* The dimensions in ( ) apply when a brake is equipped.

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	352.5	402.5	452.5	502.5	552.5	602.5	652.5	702.5	752.5	802.5	852.5	902.5	952.5	1002.5	1052.5	1102.5
	With brake	402.5	452.5	502.5	552.5	602.5	652.5	702.5	752.5	802.5	852.5	902.5	952.5	1002.5	1052.5	1102.5	1152.5
A		0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		199	249	299	349	399	449	499	549	599	649	699	749	799	849	899	949
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		219.5	269.5	319.5	369.5	419.5	469.5	519.5	569.5	619.5	669.5	719.5	769.5	819.5	869.5	919.5	969.5
Mass (kg)	Without brake	3.4	3.6	3.8	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.8	6.0	6.3	6.5	6.8	7.0
	With brake	3.9	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.8	6.1	6.3	6.5	6.8	7.0	7.3	7.5

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-56PI-NP-☐-0-☐ PCON-CA-56PI-PN-☐-0-☐	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-56PI-PLN-☐-0-☐ PCON-CA-56PI-PLP-☐-0-☐	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-56PI-△-0-0-☐	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-☐-~-NP-☐-0-☐ MSEP-C-☐-~-PN-☐-0-☐	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-☐-~-△-0-0-☐	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4-SA5R

ROBO Cylinder, Slider Type, Side-mounted Motor Type, Actuator Width 52mm, 24-V Pulse Motor

Model Specification Items	RCP4	SA5R	I	42P	☐	☐	P3	☐	☐
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	42P: Pulse motor, size 42□	20: 20mm 12: 12mm 6: 6mm 3: 3mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1m S: 3m M: 5m X□□: Specified length R□□: Robot cable	Refer to the options table below. * Be sure to specify either "ML" or "MR" as the motor side-mounted direction.

The “Motor side-mounted to the left (ML)” option is selected for the actuator shown above.

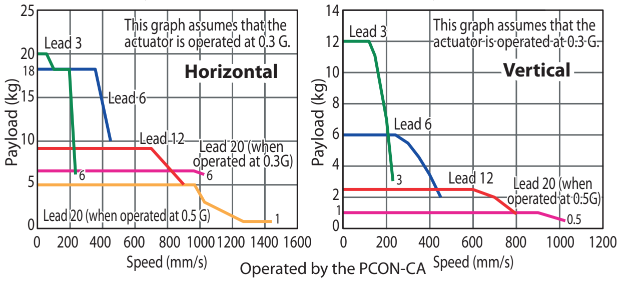
POINT Notes on selection

(1) The maximum payload is the value when operated at 0.3G (0.2G with some models) acceleration. The upper limit of acceleration is 1 G (*). 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 P. 37 to 40.

(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.)

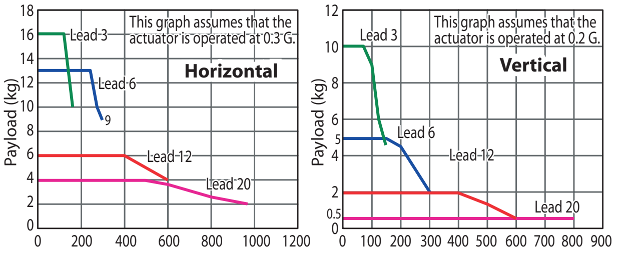
Correlation Diagrams of Speed and Payload

RCP4-SA5R Horizontal, PCON-CA connected   RCP4-SA5R Vertical, PCON-CA connected



Operated by the PCON-CA

RCP4-SA5R Horizontal, MSEP connected   RCP4-SA5R Vertical, MSEP connected



Operated by the MSEP-C

Actuator Specifications

Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload		Stroke (mm)
			Horizontal (kg)	Vertical (kg)	
RCP4-SA5R-I-42P-20-①-P3-②-③	20	PCON-CA	6.5	1	50~800 (every 50mm)
		MSEP-C	4	0.5 (*)	
RCP4-SA5R-I-42P-12-①-P3-②-③	12	PCON-CA	9	2.5	
		MSEP-C	6	2	
RCP4-SA5R-I-42P-6-①-P3-②-③	6	PCON-CA	18	6	
		MSEP-C	13	5	
RCP4-SA5R-I-42P-3-①-P3-②-③	3	PCON-CA	20	12	
		MSEP-C	16	10	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	PCON-CA	1440 <1120>		1225<1120>	1045	900	785	690	610
	MSEP-C	960<800>				900<800>	785	690	610
12	PCON-CA	900<800>	795	665	570	490	425	375	330
	MSEP-C	600			570	490	425	375	330
6	PCON-CA	450	395	335	285	245	215	185	165
	MSEP-C	300			285	245	215	185	165
3	PCON-CA	225	195	165	140	120	105	90	80
	MSEP-C	150			140	120	105	90	80

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

Cable Length

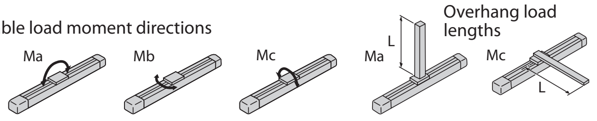
Type	Cable symbol
Standard type	P (1m)
	S (3m)
	M (5m)
Special length	X06 (6m) ~X10 (10m)
	X11 (11m) ~X15 (15m)
	X16 (16m) ~X20 (20m)
Robot cable	R01 (1m) ~R03 (3m)
	R04 (4m) ~R05 (5m)
	R06 (6m) ~R10 (10m)
	R11 (11m) ~R15 (15m)
	R16 (16m) ~R20 (20m)

Actuator Specifications

Item	Description
Drive system	Ball screw Ø10mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*2)	Ma: 4.9 N·m, Mb: 6.8 N·m, Mc: 11.7 N·m
Allowable overhang	150mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 20 is shown in [ ]. (*2) Based on 5000km of traveling life

Allowable load moment directions   Overhang load lengths



Options

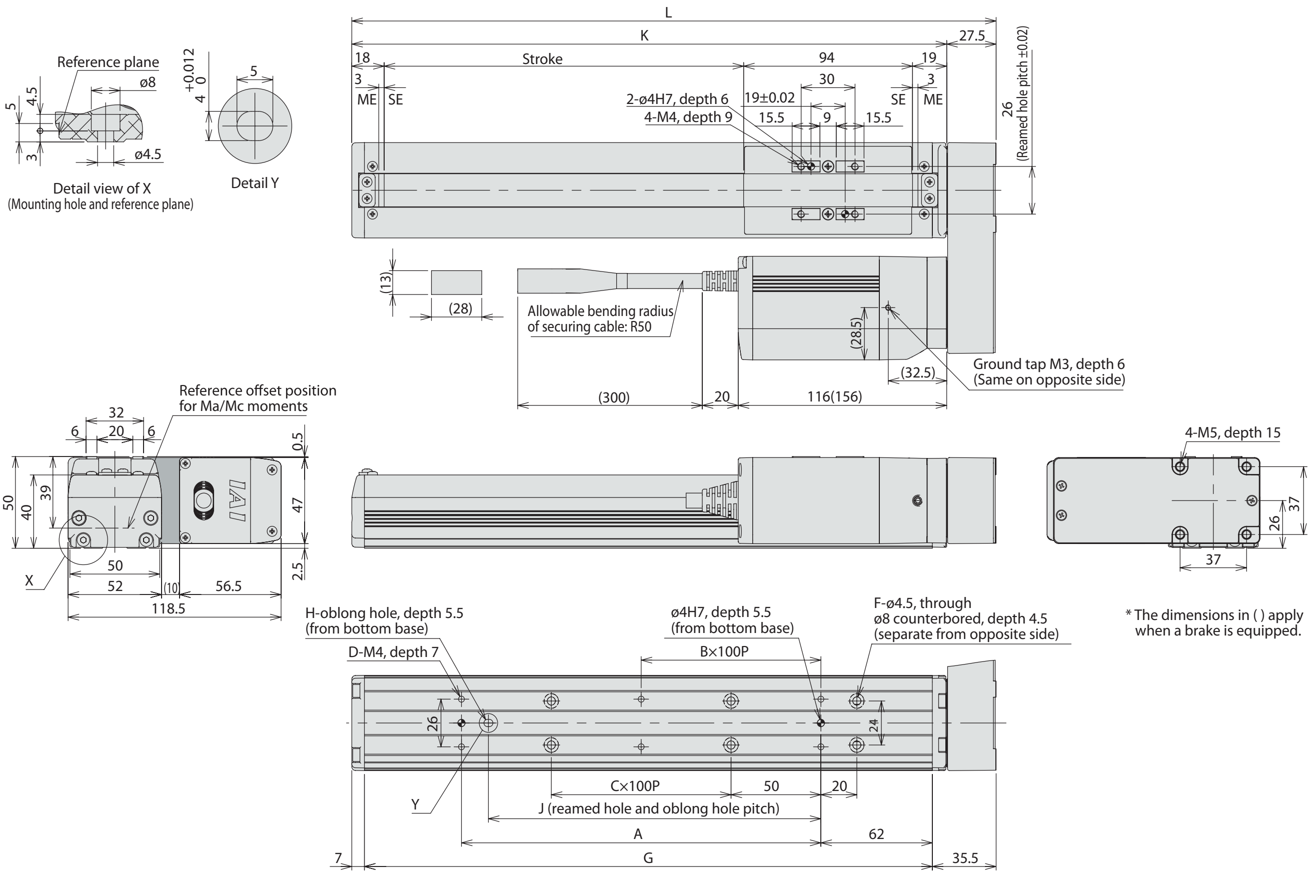
Name	Option code	See page
Brake	B	P8
Optional cable exit direction (top)	CJT	P8
Optional cable exit direction (outside)	CJO	P8
Optional cable exit direction (bottom)	CJB	P8
Motor side-mounted to the left (standard)	ML	P8
Motor side-mounted to the right	MR	P8
Non-motor end specification	NM	P8
Slider roller specification	SR	P8

Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.


Reference plane
ø8
5
4.5
3
ø4.5
Detail view of X
(Mounting hole and reference plane)
+0.012
4 0
5
Detail Y
L
K
27.5
18
Stroke
94
19
3
30
3
ME
SE
2-ø4H7, depth 6
4-M4, depth 9
19±0.02
15.5
9
15.5
SE
ME
26 (Reamed hole pitch ±0.02)
(13)
(28)
Allowable bending radius of securing cable: R50
(28.5)
(32.5)
Ground tap M3, depth 6
(Same on opposite side)
(300)
20
116(156)
Reference offset position for Ma/Mc moments
32
6
20
6
0.5
50
40
39
47
50
52
(10)
56.5
2.5
X
118.5
4-M5, depth 15
37
26
37
H-oblong hole, depth 5.5
(from bottom base)
D-M4, depth 7
ø4H7, depth 5.5
(from bottom base)
B×100P
F-ø4.5, through
ø8 counterbored, depth 4.5
(separate from opposite side)
* The dimensions in ( ) apply when a brake is equipped.
26
24
C×100P
50
20
J (reamed hole and oblong hole pitch)
Y
A
62
7
G
35.5

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
A		73	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		0	0	1	1	2	2	3	3	4	4	5	5	6	67	7	8
D		4	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		166	216	266	316	366	416	466	516	566	616	666	716	766	816	866	916
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		181	231	281	331	381	431	481	531	581	631	681	731	781	831	881	931
Mass (kg)	Without brake	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.0	3.2	3.3	3.5	3.6	3.8	3.9
	With brake	2.0	2.1	2.3	2.4	2.5	2.7	2.8	3.0	3.1	3.3	3.4	3.6	3.7	3.9	4.0	4.1

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-42PI-NP-☐-0-☐ PCON-CA-42PI-PN-☐-0-☐	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-42PI-PLN-☐-0-☐ PCON-CA-42PI-PLP-☐-0-☐	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-42PI-△-0-0-☐	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-☐-~-NP-☐-0-☐ MSEP-C-☐-~-PN-☐-0-☐	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-☐-~-△-0-0-☐	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4-SA6R

RoboCylinder, Slider Type, Side-mounted Motor Type, Actuator Width 58mm, 24-V Pulse Motor

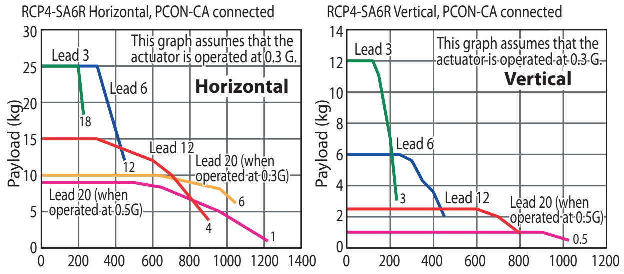
Model Specification Items	RCP4	SA6R	I	42P	☐	☐	P3	☐	☐
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	42P: Pulse motor, size 42□	20: 20mm 12: 12mm 6: 6mm 3: 3mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1m S: 3m M: 5m X□□: Specified length R□□: Robot cable	Refer to the options table below. * Be sure to specify either "ML" or "MR" as the motor side-mounted direction.

The "Motor side-mounted to the left (ML)" option is selected for the actuator shown above.

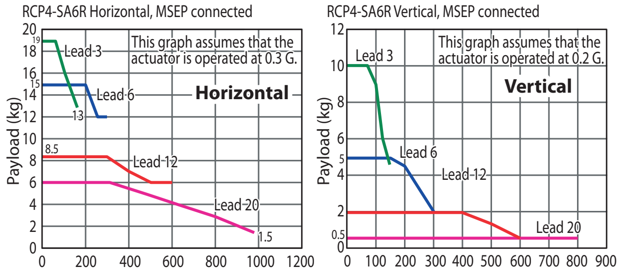
POINT
Notes on selection

(1) The maximum payload is the value when operated at 0.3G (0.2G with some models) acceleration. The upper limit of acceleration is 1 G (*). 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 P. 37 to 40.
(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.)

Correlation Diagrams of Speed and Payload



Operated by the PCON-CA



Operated by the MSEP-C

Actuator Specifications

Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Stroke (mm)
RCP4-SA6R-I-42P-20-①-P3-②-③	20	PCON-CA	10	1	50~800 (every 50mm)
		MSEP-C	6	0.5 (*)	
RCP4-SA6R-I-42P-12-①-P3-②-③	12	PCON-CA	15	2.5	
		MSEP-C	8.5	2	
RCP4-SA6R-I-42P-6-①-P3-②-③	6	PCON-CA	25	6	
		MSEP-C	15	5	
RCP4-SA6R-I-42P-3-①-P3-②-③	3	PCON-CA	25	12	
		MSEP-C	19	10	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	PCON-CA	1280		1230	1045	905	785	690	615
	MSEP-C	960				905	785	690	615
12	PCON-CA	900	795	670	570	490	430	375	335
	MSEP-C	600			570	490	430	375	335
6	PCON-CA	450	395	335	285	245	215	185	165
	MSEP-C	300			285	245	215	185	165
3	PCON-CA	225	195	165	140	120	105	90	80
	MSEP-C	150			140	120	105	90	80

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

Cable Length

Type	Cable symbol
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)

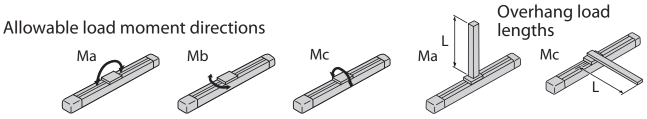
Options

Name	Option code	See page
Brake	B	P8
Optional cable exit direction (top)	CJT	P8
Optional cable exit direction (outside)	CJO	P8
Optional cable exit direction (bottom)	CJB	P8
Motor side-mounted to the left (standard)	ML	P8
Motor side-mounted to the right	MR	P8
Non-motor end specification	NM	P8
Slider roller specification	SR	P8

Actuator Specifications

Item	Description
Drive system	Ball screw Ø10mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*2)	Ma: 8.9 N·m, Mb: 12.7 N·m, Mc: 18.6 N·m
Allowable overhang	220mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 20 is shown in [ ]. (*2) Based on 5000km of traveling life

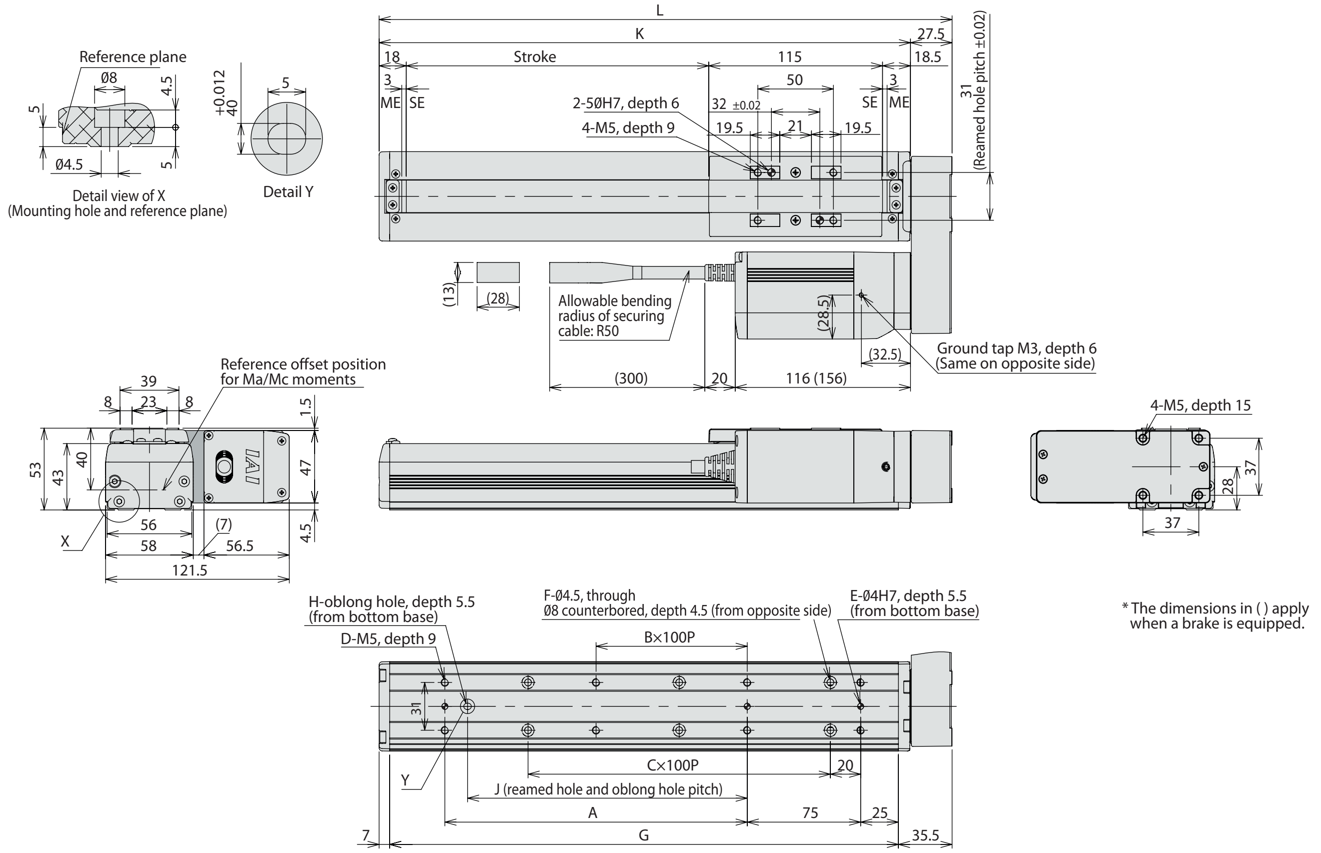


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.


Reference plane
Ø8
4.5
5
5
Ø4.5
Detail view of X
(Mounting hole and reference plane)
+0.012
40
5
Detail Y
L
K
27.5
18
Stroke
115
18.5
3
50
3
ME SE
2-5ØH7, depth 6
32 ±0.02
SE ME
4-M5, depth 9
19.5
21
19.5
31 (Reamed hole pitch ±0.02)
(13)
(28)
Allowable bending radius of securing cable: R50
(28.5)
(32.5)
Ground tap M3, depth 6 (Same on opposite side)
(300)
20
116 (156)
Reference offset position for Ma/Mc moments
39
8
23
8
1.5
53
43
40
47
4.5
X
56
58
(7)
56.5
121.5
4-M5, depth 15
28
37
37
H-oblong hole, depth 5.5 (from bottom base)
D-M5, depth 9
F-Ø4.5, through
Ø8 counterbored, depth 4.5 (from opposite side)
E-Ø4H7, depth 5.5 (from bottom base)
B×100P
31
Y
C×100P
20
J (reamed hole and oblong hole pitch)
A
75
25
7
G
35.5

* The dimensions in ( ) apply when a brake is equipped.

■ Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	229	279	329	379	429	479	529	579	629	679	729	779	829	879	929	979
A	0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B	0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
H	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J	0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K	201.5	251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5
Mass (kg) Without brake	2.2	2.4	2.5	2.7	2.8	3.0	3.1	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	4.6
Mass (kg) With brake	2.4	2.6	2.7	2.9	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.2	4.3	4.5	4.6	4.8

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-42PI-NP-□-0-□ PCON-CA-42PI-PN-□-0-□	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-42PI-PLN-□-0-□ PCON-CA-42PI-PLP-□-0-□	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-42PI-△-0-0-□	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-□-~-NP-□-0-□ MSEP-C-□-~-PN-□-0-□	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-□-~-△-0-0-□	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △ indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4-SA7R

RoboCylinder, Slider Type, Side-mounted Motor Type, Actuator Width 73mm, 24-V Pulse Motor

Model Specification Items

RCP4	SA7R	I	56P	☐	☐	P3	☐	☐
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		I: Incremental specification	56P: Pulse motor, size 56□	24: 24mm 16: 16mm 8: 8mm 4: 4mm	50: 50mm ~ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1m S: 3m M: 5m X□□: Specified length R□□: Robot cable	Refer to the options table below. * Be sure to specify either "ML" or "MR" as the motor side-mounted direction.

The "Motor side-mounted to the left (ML)" option is selected for the actuator shown above.

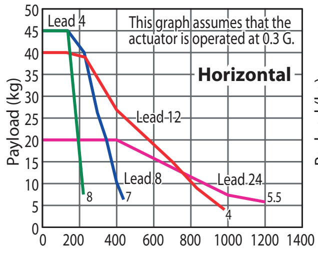
POINT Notes on selection

(1) The maximum payload is the value when operated at 0.3G (0.2G with some models) acceleration. The upper limit of acceleration is 1 G (*). 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 P. 37 to 40.

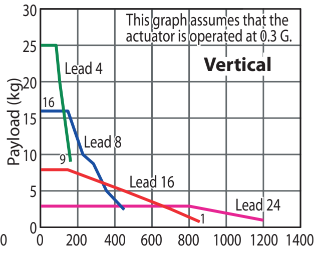
(2) Take note that the maximum payload and maximum speed vary depending on the controller connected to the RCP4. (Refer to the actuator specifications below.)

■ Correlation Diagrams of Speed and Payload

RCP4-SA7R Horizontal, PCON-CA connected

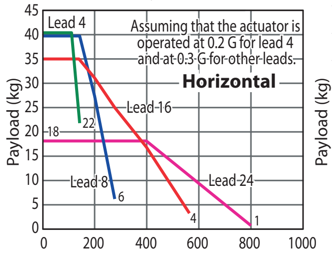


RCP4-SA7R Vertical, PCON-CA connected

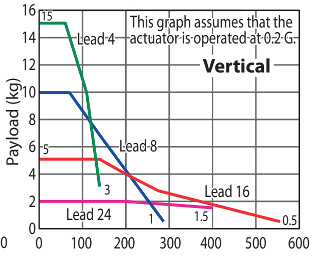


Operated by the PCON-CA

RCP4-SA7R Horizontal, MSEP connected



RCP4-SA7R Vertical, MSEP connected



Operated by the MSEP-C

Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload		Stroke (mm)
			Horizontal (kg)	Vertical (kg)	
RCP4-SA7R-I-56P-24-①-P3-②-③	24	PCON-CA	20	3	50~800 (every 50mm)
		MSEP-C	18	2 (*)	
RCP4-SA7R-I-56P-16-①-P3-②-③	16	PCON-CA	40	8	
		MSEP-C	35	5 (*)	
RCP4-SA7R-I-56P-8-①-P3-②-③	8	PCON-CA	45	16	
		MSEP-C	40	10 (*)	
RCP4-SA7R-I-56P-4-①-P3-②-③	4	PCON-CA	45	25	
		MSEP-C	40 (*)	15 (*)	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

■ Stroke and Maximum Speed

Lead (mm	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	PCON-CA	1000						890	790
	MSEP-C	800<600>							790<600>
16	PCON-CA	840<700>				750<700>	655	580	515
	MSEP-C	560							515
8	PCON-CA	490			430	375	325	290	255
	MSEP-C	280							255
4	PCON-CA	210				185	160	145	125
	MSEP-C	140							125

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

Cable Length

Type	Cable symbol
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)

Options

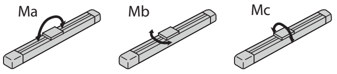
Name	Option code	See page
Brake	B	P8
Optional cable exit direction (top)	CJT	P8
Optional cable exit direction (outside)	CJO	P8
Optional cable exit direction (bottom)	CJB	P8
Motor side-mounted to the left (standard)	ML	P8
Motor side-mounted to the right	MR	P8
Non-motor end specification	NM	P8
Slider roller specification	SR	P8

Actuator Specifications

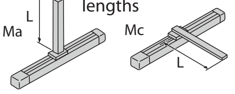
Item	Description
Drive system	Ball screw Ø12mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*2)	Ma: 13.9 N·m, Mb: 19.9 N·m, Mc: 38.3 N·m
Allowable overhang	230mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 24 is shown in [ ]. (*2) Based on 5000km of traveling life

Allowable load moment directions



Overhang load lengths

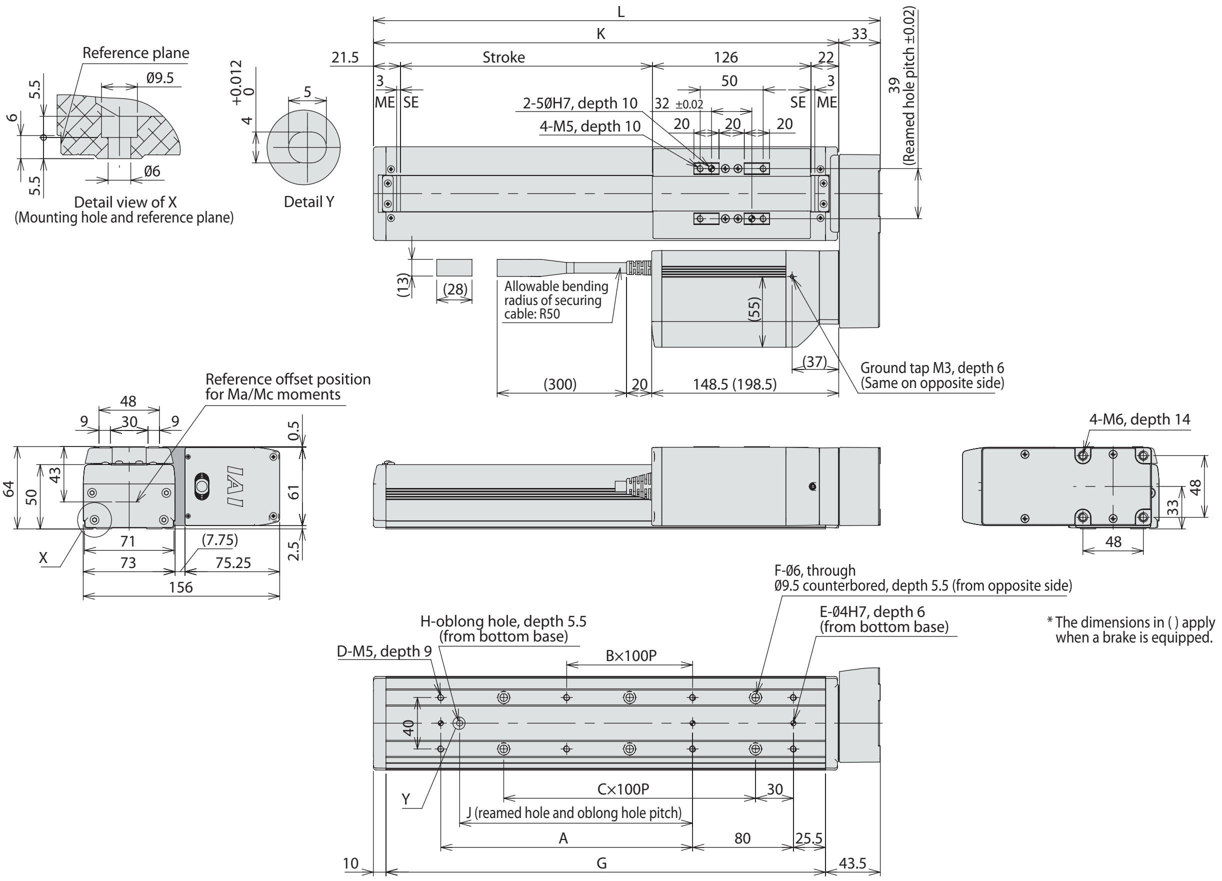


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.


Reference plane
Ø9.5
5.5
6
5.5
Ø6
Detail view of X
(Mounting hole and reference plane)
+0.012
0
4
5
Detail Y
L
K
33
21.5
Stroke
126
22
3
ME
SE
50
3
SE
ME
2-ØH7, depth 10
4-M5, depth 10
32 ±0.02
20
20
20
39
(Reamed hole pitch ±0.02)
(13)
(28)
Allowable bending radius of securing cable: R50
(55)
(37)
(300)
20
148.5 (198.5)
Ground tap M3, depth 6
(Same on opposite side)
Reference offset position for Ma/Mc moments
48
9
30
9
0.5
64
50
43
61
X
71
73
(7.75)
75.25
2.5
156
4-M6, depth 14
48
33
48
F-Ø6, through
Ø9.5 counterbored, depth 5.5 (from opposite side)
E-Ø4H7, depth 6
(from bottom base)
H-oblong hole, depth 5.5
(from bottom base)
D-M5, depth 9
B×100P
40
C×100P
30
Y
J (reamed hole and oblong hole pitch)
A
80
25.5
10
G
43.5

*The dimensions in ( ) apply when a brake is equipped.

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		252.5	302.5	352.5	402.5	452.5	502.5	552.5	602.5	652.5	702.5	752.5	802.5	852.5	902.5	952.5	1002.5
A		0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		199	249	299	349	399	449	499	549	599	649	699	749	799	849	899	949
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		219.5	269.5	319.5	369.5	419.5	469.5	519.5	569.5	619.5	669.5	719.5	769.5	819.5	869.5	919.5	969.5
Mass (kg)	Without brake	3.8	4.0	4.3	4.5	4.8	5.0	5.3	5.5	5.7	6.0	6.2	6.5	6.7	7.0	7.2	7.4
	With brake	4.3	4.5	4.8	5.0	5.3	5.5	5.8	6.0	6.2	6.5	6.7	7.0	7.2	7.5	7.7	8.0

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-56PI-NP-□-0-□ PCON-CA-56PI-PN-□-0-□	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-56PI-PLN-□-0-□ PCON-CA-56PI-PLP-□-0-□	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-56PI-△-0-0-□	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-□-~-NP-□-0-□ MSEP-C-□-~-PN-□-0-□	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-□-~-△-0-0-□	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △ indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4CR-SA5C

Cleanroom RoboCylinder, Slider Type, Motor Unit Coupled, Actuator Width 52mm, 24-V Pulse Motor

Model Specification Items

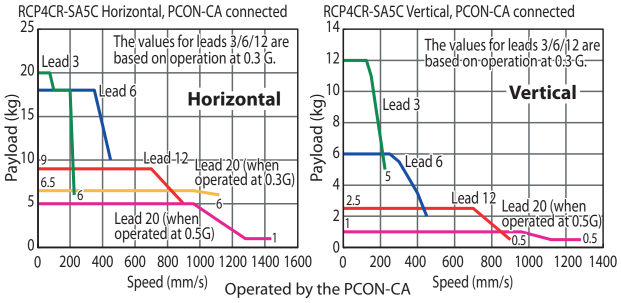
RCP4CR	SA5C	I	42P	☐	☐	P3	☐	☐
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		I: Incremental specification	42P: Pulse motor, size 42☐	20: 20mm 12: 12mm 6: 6mm 3: 3mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1 m S: 3 m M: 5 m X☐☐: Specified length R☐☐: Robot cable	Refer to the options table below.

POINT
Notes on selection

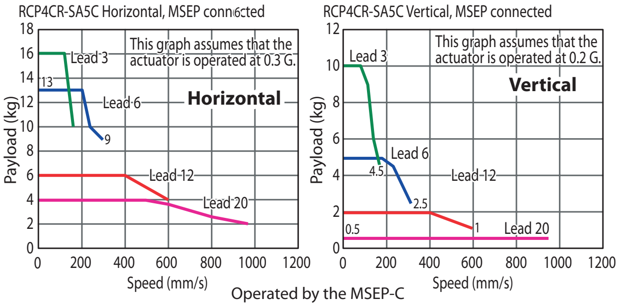
(1) The maximum payload is the value when operated at 0.3G (0.2G with some models) acceleration. The upper limit of acceleration is 1 G (*). Note that raising the acceleration causes the payload to drop.
(*)The specific value varies depending on the connected controller and actuator lead. For details, refer to "Selection References" on P. 37 to 40.

(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.)

■ Correlation Diagrams of Speed and Payload



Operated by the PCON-CA



Operated by the MSEP-C

Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload		Stroke (mm)
			Horizontal (kg)	Vertical (kg)	
RCP4CR-SA5C-I-42P-20-①-P3-②-③	20	PCON-CA	6.5	1	50~800 (every 50mm)
		MSEP-C	4	0.5 (*)	
RCP4CR-SA5C-I-42P-12-①-P3-②-③	12	PCON-CA	9	2.5	
		MSEP-C	6	2	
RCP4CR-SA5C-I-42P-6-①-P3-②-③	6	PCON-CA	18	6	
		MSEP-C	13	5	
RCP4CR-SA5C-I-42P-3-①-P3-②-③	3	PCON-CA	20	12	
		MSEP-C	16	10	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

■ Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)	Suction amount (Nl/min)
20	PCON-CA	1440 <1280>		1225	1045	900	785	690	610	80
	MSEP-C	960				900	785	690	610	
12	PCON-CA	900	795	665	570	490	425	375	330	50
	MSEP-C	600			570	490	425	375	330	
6	PCON-CA	450	395	335	285	245	215	185	165	30
	MSEP-C	300			285	245	215	185	165	
3	PCON-CA	225	195	165	140	120	105	90	80	15
	MSEP-C	150			140	120	105	90	80	

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

Cable Length

Type	Cable symbol
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)

Options

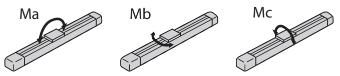
Name	Option code	See page
Brake	B	P8
Optional cable exit direction (top)	CJT	P8
Optional cable exit direction (right)	CJR	P8
Optional cable exit direction (left)	CJL	P8
Optional cable exit direction (bottom)	CJB	P8
Non-motor end specification	NM	P8
Vacuum joint on opposite side	VR	P8

Actuator Specifications

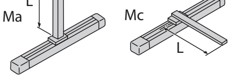
Item	Description
Drive system	Ball screw Ø10 mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Dynamic allowable moment (*2)	Ma: 4.9 N•m, Mb: 6.8 N•m, Mc: 11.7 N•m
Allowable overhang	150 mm or less in Ma, Mb and Mc directions
Grease	Low dust generation grease (urea grease) is used for both ball screws and guides.
Cleanness	ISO class 4 (US FED STD class 10)
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 20 is shown in [ ]. (*2) Based on 5000 km of traveling life.

Allowable load moment directions



Overhang load lengths

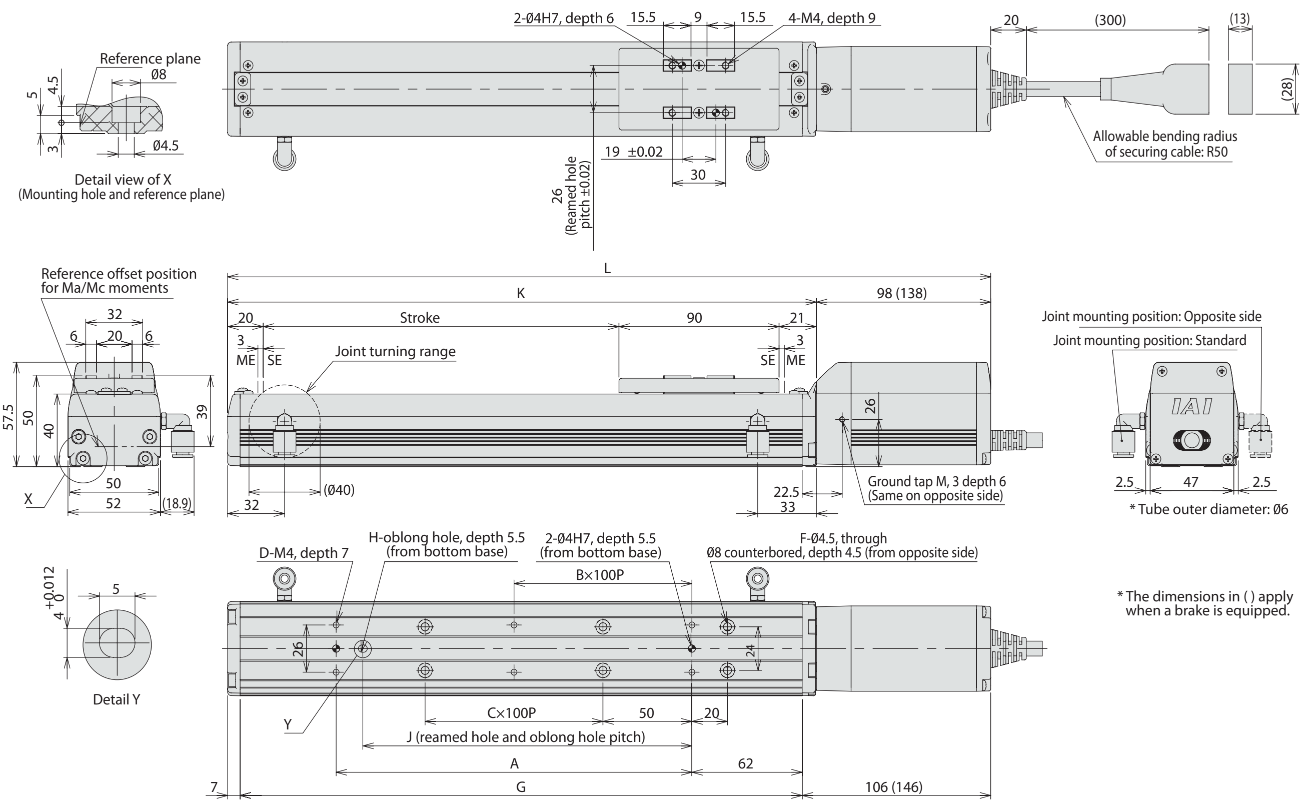


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.



2-Ø4H7, depth 6
15.5
9
15.5
4-M4, depth 9
20
(300)
(13)
(28)
Allowable bending radius of securing cable: R50
Reference plane
Ø8
5
4.5
3
Ø4.5
Detail view of X
(Mounting hole and reference plane)
19 ±0.02
30
26 (Reamed hole pitch ±0.02)
Reference offset position for Ma/Mc moments
32
6
20
6
57.5
50
40
39
50
52
(18.9)
X
L
K
98 (138)
20
Stroke
90
21
3
ME
SE
Joint turning range
SE
ME
3
26
32
(Ø40)
22.5
33
Ground tap M, 3 depth 6 (Same on opposite side)
Joint mounting position: Opposite side
Joint mounting position: Standard
2.5
47
2.5
* Tube outer diameter: Ø6
D-M4, depth 7
H-oblong hole, depth 5.5 (from bottom base)
2-Ø4H7, depth 5.5 (from bottom base)
F-Ø4.5, through Ø8 counterbored, depth 4.5 (from opposite side)
B×100P
26
24
+0.012
4 0
5
Detail Y
Y
C×100P
50
20
J (reamed hole and oblong hole pitch)
A
62
7
G
106 (146)
* The dimensions in ( ) apply when a brake is equipped.

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	279	329	379	429	479	529	579	629	679	729	779	829	879	929	979	1029
	With brake	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069
A		73	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
D		4	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		166	216	266	316	366	416	466	516	566	616	666	716	766	816	866	916
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		181	231	281	331	381	431	481	531	581	631	681	731	781	831	881	931
Mass (kg)	Without brake	1.5	1.6	1.8	1.9	2.1	2.2	2.4	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.7
	With brake	1.7	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.6	3.7	3.9

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-42PI-NP-☐-0-☐ PCON-CA-42PI-PN-☐-0-☐	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-42PI-PLN-☐-0-☐ PCON-CA-42PI-PLP-☐-0-☐	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-42PI-△-0-0-☐	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-☐-~-NP-☐-0-☐ MSEP-C-☐-~-PN-☐-0-☐	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-☐-~-△-0-0-☐	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4CR-SA6C

Cleanroom RoboCylinder, Slider Type, Motor Unit Coupled, Actuator Width 58mm, 24-V Pulse Motor

Model Specification Items

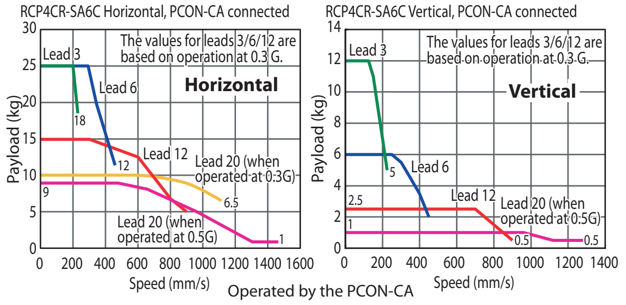
RCP4CR	SA6C	I	42P	☐	☐	P3	☐	☐
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		I: Incremental specification	42P: Pulse motor, size 42□	20: 20mm 12: 12mm 6: 6mm 3: 3mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1 m S: 3 m M: 5 m X□□: Specified length R□□: Robot cable	Refer to the options table below.

Notes on selection

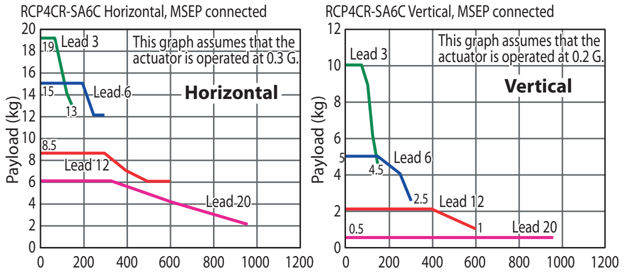
(1) The maximum payload is the value when operated at 0.3G (0.2G with some models) acceleration. The upper limit of acceleration is 1 G (*). Note that raising the acceleration causes the payload to drop.
(*)The specific value varies depending on the connected controller and actuator lead. For details, refer to "Selection References" on P. 37 to 40.

(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.)

■ Correlation Diagrams of Speed and Payload



Operated by the PCON-CA



Operated by the MSEP-C

Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Stroke (mm)
RCP4CR-SA6C-I-42P-20-①-P3-②-③	20	PCON-CA	10	1	50~800 (every 50mm)
		MSEP-C	6	0.5 (*)	
RCP4CR-SA6C-I-42P-12-①-P3-②-③	12	PCON-CA	15	2.5	
		MSEP-C	8.5	2	
RCP4CR-SA6C-I-42P-6-①-P3-②-③	6	PCON-CA	25	6	
		MSEP-C	15	5	
RCP4CR-SA6C-I-42P-3-①-P3-②-③	3	PCON-CA	25	12	
		MSEP-C	19	10	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

■ Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)	Suction amount (Nl/min)
20	PCON-CA	1440<1280>		1230	1045	905	785	690	615	80
	MSEP-C	960				905	785	690	615	
12	PCON-CA	900	795	670	570	490	430	375	335	50
	MSEP-C	600			570	490	430	375	335	
6	PCON-CA	450	395	335	285	245	215	185	165	30
	MSEP-C	300			285	245	215	185	165	
3	PCON-CA	225	195	165	140	120	105	90	80	15
	MSEP-C	150			140	120	105	90	80	

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

Cable Length

Type	Cable symbol
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)

Options

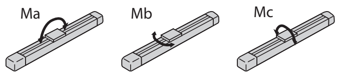
Name	Option code	See page
Brake	B	P8
Optional cable exit direction (top)	CJT	P8
Optional cable exit direction (right)	CJR	P8
Optional cable exit direction (left)	CJL	P8
Optional cable exit direction (bottom)	CJB	P8
Non-motor end specification	NM	P8
Vacuum joint on opposite side	VR	P8

Actuator Specifications

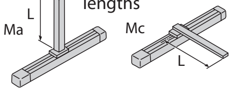
Item	Description
Drive system	Ball screw Ø10 mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Dynamic allowable moment (*2)	Ma: 8.9 N•m, Mb: 12.7 N•m, Mc: 18.6 N•m
Allowable overhang	220 mm or less in Ma, Mb and Mc directions
Grease	Low dust generation grease (urea grease) is used for both ball screws and guides.
Cleanness	ISO class 4 (US FED STD class 10)
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 20 is shown in [ ]. (*2) Based on 5000 km of traveling life.

Allowable load moment directions



Overhang load lengths

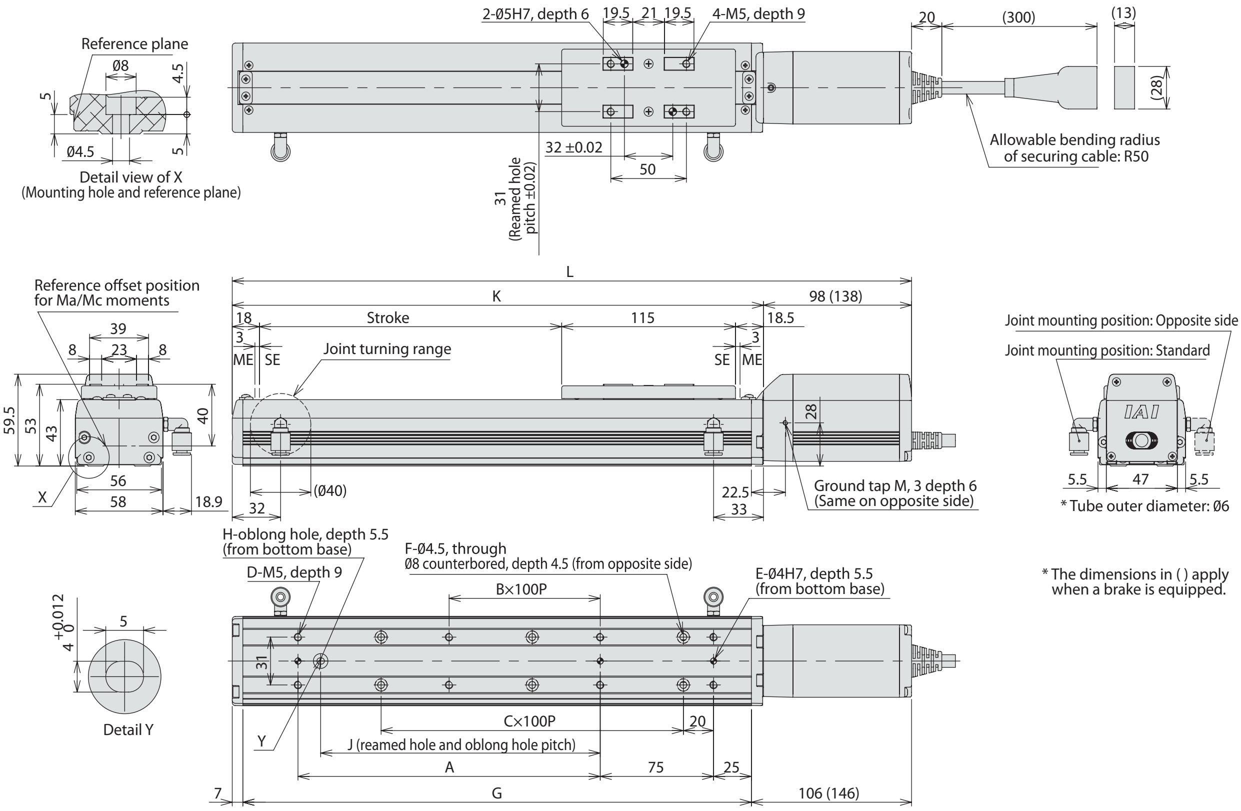


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.



2-Ø5H7, depth 6
19.5
21
19.5
4-M5, depth 9
20
(300)
(13)
(28)
Reference plane
Ø8
4.5
5
Ø4.5
5
Detail view of X
(Mounting hole and reference plane)
32 ±0.02
50
31
(Reamed hole pitch ±0.02)
Allowable bending radius of securing cable: R50
L
K
98 (138)
18
Stroke
115
18.5
3
3
ME
SE
SE
ME
Joint turning range
Reference offset position for Ma/Mc moments
39
8
23
8
59.5
53
43
40
56
58
18.9
X
28
(Ø40)
32
22.5
33
Ground tap M, 3 depth 6
(Same on opposite side)
Joint mounting position: Opposite side
Joint mounting position: Standard
5.5
47
5.5
* Tube outer diameter: Ø6
H-oblong hole, depth 5.5
(from bottom base)
D-M5, depth 9
F-Ø4.5, through
Ø8 counterbored, depth 4.5 (from opposite side)
B×100P
E-Ø4H7, depth 5.5
(from bottom base)
* The dimensions in ( ) apply when a brake is equipped.
4 +0.012 0
5
Detail Y
31
C×100P
20
Y
J (reamed hole and oblong hole pitch)
A
75
25
7
G
106 (146)

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	299.5	349.5	399.5	449.5	499.5	549.5	599.5	649.5	699.5	749.5	799.5	849.5	899.5	949.5	999.5	1049.5
	With brake	339.5	389.5	439.5	489.5	539.5	589.5	639.5	689.5	739.5	789.5	839.5	889.5	939.5	989.5	1039.5	1089.5
A		0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		201.5	251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5
Mass (kg)	Without brake	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3
	With brake	2.2	2.3	2.5	2.6	2.8	3.0	3.1	3.3	3.4	3.6	3.7	3.9	4.1	4.2	4.4	4.5

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-42PI-NP-☐-0-☐ PCON-CA-42PI-PN-☐-0-☐	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-42PI-PLN-☐-0-☐ PCON-CA-42PI-PLP-☐-0-☐	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-42PI-△-0-0-☐	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-☐-~-NP-☐-0-☐ MSEP-C-☐-~-PN-☐-0-☐	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-☐-~-△-0-0-☐	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

* In the model numbers shown above, △indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

RCP4CR-SA7C

Cleanroom RoboCylinder, Slider Type, Motor Unit Coupled, Actuator Width 73mm, 24-V Pulse Motor

Model Specification Items	RCP4CR	SA7C	I	56P	☐	☐	P3	☐	☐
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	56P: Pulse motor, size 56□	24: 24mm 16: 16mm 8: 8mm 4: 4mm	50: 50mm ~ 800: 800mm (every 50mm)	P3: PCON-CA MSEP-C	N: None P: 1 m S: 3 m M: 5 m X□□: Specified length R□□: Robot cable	Refer to the options table below.

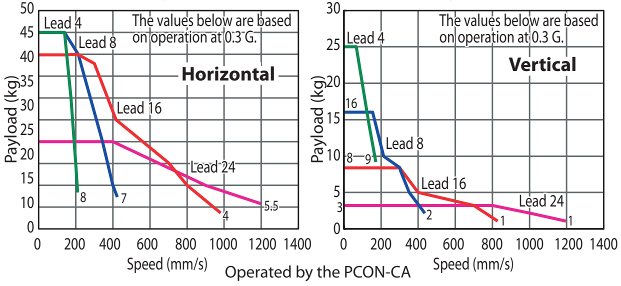
POINT

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 1 G (*). 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 P. 37 to 40.

(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.)

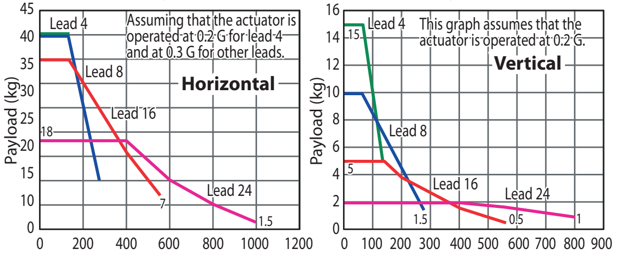
■ Correlation Diagrams of Speed and Payload



RCP4CR-SA7C Horizontal, PCON-CA connected

RCP4CR-SA7C Vertical, PCON-CA connected

Operated by the PCON-CA



RCP4CR-SA7C Horizontal, MSEP connected

RCP4CR-SA7C Vertical, MSEP connected

Operated by the MSEP-C

Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Connected controller	Maximum payload		Stroke (mm)
			Horizontal (kg)	Vertical (kg)	
RCP4CR-SA7C-I-56P-24-①-P3-②-③	24	PCON-CA	20	3	50~800 (every 50mm)
		MSEP-C	18	2 (*)	
RCP4CR-SA7C-I-56P-16-①-P3-②-③	16	PCON-CA	40	8	
		MSEP-C	35	5 (*)	
RCP4CR-SA7C-I-56P-8-①-P3-②-③	8	PCON-CA	45	16	
		MSEP-C	40	10 (*)	
RCP4CR-SA7C-I-56P-4-①-P3-②-③	4	PCON-CA	45	25	
		MSEP-C	40 (*)	15 (*)	

Code explanation ① Stroke ② Cable length ③ Options (*) When operated at 0.2 G

■ Stroke and Maximum Speed

Lead (mm)	Connected controller	50~450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)	Suction amount (Nl/min)
24	PCON-CA	1200				1155	1010	890	790	90
	MSEP-C	1000<800>						890<800>	790	
16	PCON-CA	980<840>			865<840>	750	655	580	515	70
	MSEP-C	560							515	
8	PCON-CA	490			430	375	325	290	255	40
	MSEP-C	280							255	
4	PCON-CA	245<210>			215<210>	185	160	145	125	30
	MSEP-C	140							125	

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

Cable Length

Type	Cable symbol
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)

Options

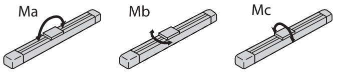
Name	Option code	See page	
Brake	B	P8	
Optional cable exit direction (top)	CJT	P8	
Optional cable exit direction (right)	CJR	P8	
Optional cable exit direction (left)	CJL	P8	
Optional cable exit direction (bottom)	CJB	P8	
Non-motor end specification	NM	P8	
Vacuum joint on opposite side	VR	P8	

Actuator Specifications

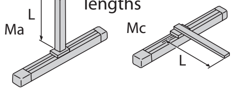
Item	Description
Drive system	Ball screw Ø12 mm, rolled C10
Positioning repeatability (*1)	±0.02mm [±0.03mm]
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Dynamic allowable moment (*2)	Ma: 13.9 N•m, Mb: 19.9 N•m, Mc: 38.3 N•m
Allowable overhang	230 mm or less in Ma, Mb and Mc directions
Grease	Low dust generation grease (urea grease) is used for both ball screws and guides.
Cleanness	ISO class 4 (US FED STD class 10)
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) The value at lead 24 is shown in [ ]. (*2) Based on 5000 km of traveling life.

Allowable load moment directions



Overhang load lengths

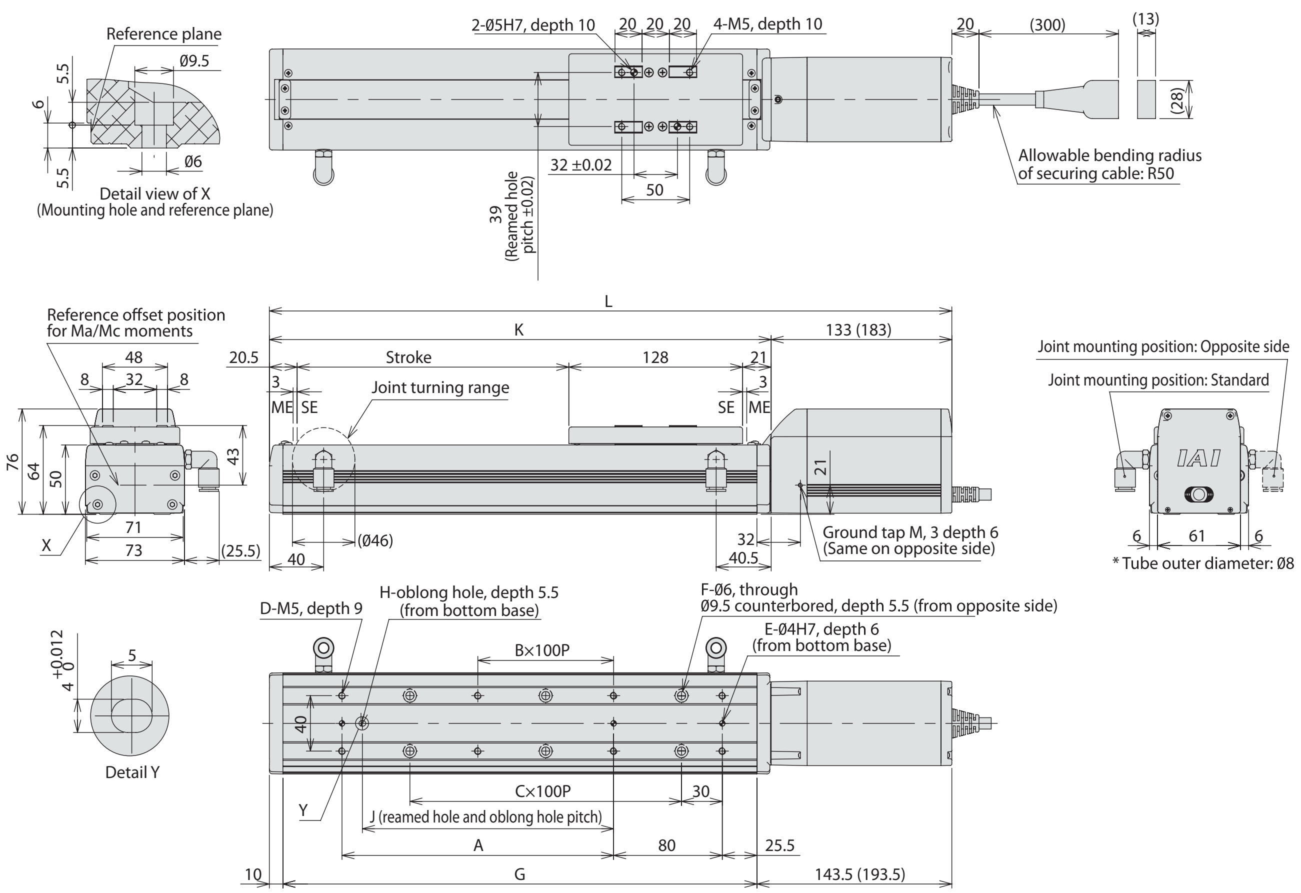


Dimensional Drawings

CAD drawings can be downloaded from the website. **www.robocylinder.de**

2/3D CAD

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.



Reference plane
Ø9.5
5.5
6
5.5
Ø6
Detail view of X
(Mounting hole and reference plane)
2-Ø5H7, depth 10
20 20 20
4-M5, depth 10
20
(300)
(13)
(28)
32 ±0.02
50
39 (Reamed hole pitch ±0.02)
Allowable bending radius of securing cable: R50
L
K
133 (183)
Stroke
128
20.5
21
3
3
ME SE
SE ME
Joint turning range
Reference offset position for Ma/Mc moments
48
8 32 8
76
64
50
43
21
71
73
X
(25.5)
(Ø46)
40
32
40.5
Ground tap M, 3 depth 6 (Same on opposite side)
Joint mounting position: Opposite side
Joint mounting position: Standard
IAI
6 61 6
* Tube outer diameter: Ø8
D-M5, depth 9
H-oblong hole, depth 5.5 (from bottom base)
F-Ø6, through Ø9.5 counterbored, depth 5.5 (from opposite side)
E-Ø4H7, depth 6 (from bottom base)
B×100P
+0.012 0
4
5
Detail Y
40
C×100P
30
Y
J (reamed hole and oblong hole pitch)
A
80
25.5
10
G
143.5 (193.5)

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	352.5	102.5	452.5	502.5	552.5	602.5	652.5	702.5	752.5	802.5	852.5	902.5	952.5	1002.5	1052.5	1102.5
	With brake	402.5	452.5	502.5	552.5	602.5	652.5	702.5	752.5	802.5	852.5	902.5	952.5	1002.5	1052.5	1102.5	1152.5
A		0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		199	249	299	349	399	449	499	549	599	649	699	749	799	849	899	949
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		219.5	269.5	319.5	369.5	419.5	469.5	519.5	569.5	619.5	669.5	719.5	769.5	819.5	869.5	919.5	969.5
Mass (kg)	Without brake	3.4	3.6	3.8	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.8	6.0	6.3	6.5	6.8	7.0
	With brake	3.9	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.8	6.1	6.3	6.5	6.8	7.0	7.3	7.5

Applicable Controller

RCP4 series actuators can be operated with the controller 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		Reference page
Positioner type		PCON-CA-56PI-NP-☐-0-☐ PCON-CA-56PI-PN-☐-0-☐	Equipped with a high-output driver Positioner type based on PIO control	512 points	DC24V	Refer to P. 48		Refer to P. 41
Pulse-train type		PCON-CA-56PI-PLN-☐-0-☐ PCON-CA-56PI-PLP-☐-0-☐	Equipped with a high-output driver Pulse-train input type	—				
Field network type		PCON-CA-56PI-△-0-0-☐	Equipped with a high-output driver Supporting 7 major field networks	768 points				
Positioner multi-axis specification PIO type		MSEP-C-☐-~-NP-☐-0-☐ MSEP-C-☐-~-PN-☐-0-☐	Positioner type based on PIO control, allowing up to 8 axes to be connected (high-output driver not supported)	3 points		Refer to the MSEP catalog.		Refer to the MSEP catalog.
Positioner multi-axis specification Network type		MSEP-C-☐-~-△-0-0-☐	Field network-ready positioner type, allowing up to 8 axes to be connected (high-output driver not supported)	256 points				

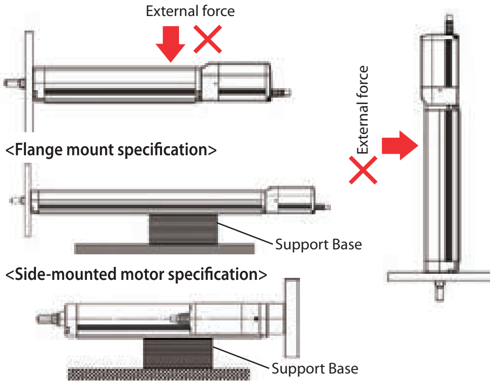
* In the model numbers shown above, △indicates the field network specification (DV, CC, PR, CN, ML, EC, EP or PT).

Notes on Installing Rod Actuators

When installing the actuator using the front housing or with a flange (optional), make sure the actuator will not receive external forces. (External forces may cause malfunction or damaged parts.) If the actuator will receive external forces or when the actuator is combined with a Cartesian robot, etc., use the mounting holes on the actuator base to secure the actuator.

……

Even when the actuator does not receive any external force, provide a support base to support the actuator, as shown in the figure on the right, if the actuator is installed horizontally and secured using a flange or through the bracket mounting holes of the side-mounted motor specification.

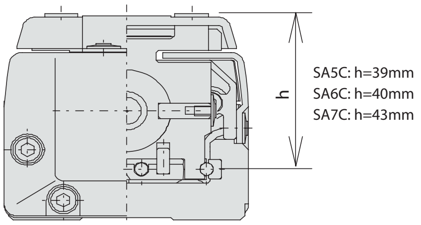

External force
<Flange mount specification>
Support Base
<Side-mounted motor specification>
Support Base
External force

Selection Guideline

(Correlation Diagram of Push Force and Current-limiting Value)

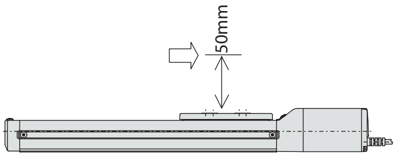
In push-motion operation, the push force can be used by changing the current-limiting value of the controller over a range of 20% to 70%. The maximum push-force varies depending on the model, so check the required push force from the table below and select an appropriate type meeting the purpose of use.

When performing push-motion operation using a slider actuator, limit the push current so that the reactive force moment generated by the push force will not exceed 80% of the rated moment (Ma, Mb) specified in the catalog. To help with the moment calculations, the application position of the guide moment is shown in the figure below. Calculate the necessary moment by considering the offset of the push force application position.



Note that if an excessive force exceeding the rated moment is applied, the guide may be damaged and the life may become shorter. Accordingly, include a sufficient safety factor when deciding on the push force.

Calculation example:
If push-motion operation is performed with a RCP4-SA7C by applying 100 N at the position shown to the right, the moment received by the guide, or Ma, is calculated as (43 + 50) x 100 = 9300 (N•mm) = 9.3 (N•m).

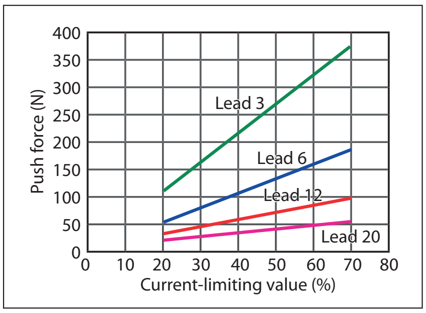


Since the rated moment Ma of the SA7C is 13.9 (N•m),
13.9 x 0.8 = 11.12 > 9.3, suggesting that this selection is acceptable.
If a Mb moment generates due to push-motion operation, calculate the moment from the overhang and confirm, in the same way, that the calculated moment is within 80% of the rated moment.

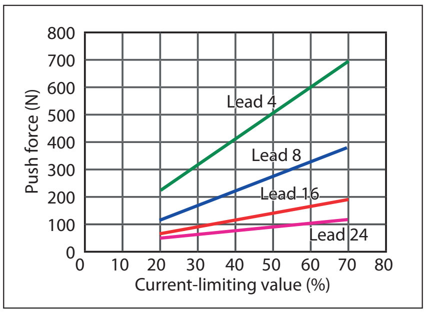
Correlation Diagrams of Push Force and Current-limiting value

The table below is only a reference, and the graphs may vary slightly from the actual values.

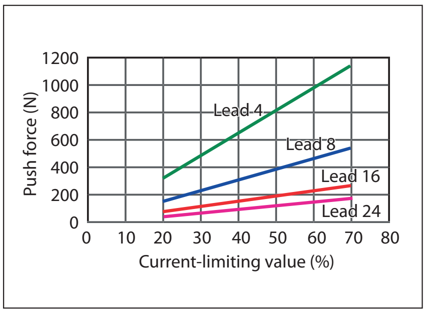
SA5C/SA6C/RA5C type



SA7C type



RA6C type



Notes on Use

- The relationship of push force and current-limiting value is only a reference, and the graphs may vary slightly from the actual values.
- If the current-limiting value is less than 20%, the push force may vary. Make sure the current-limiting value remains 20% or more.
- The graphs assume a traveling speed of 20 mm/s during push-motion operation.

Selection Guideline (Table of RCP4 Payload by Speed/Acceleration)

The tables on P. 37 to P. 40 show payloads by acceleration and speed. Since the payload drops as the acceleration and speed increase, select from the tables and use a model that meets the required conditions. The applicable payload table varies depending on the actuator model and connected controller, so select and check the table for the model you will be using.

1 RCP4 motor coupling specification + PCON-CA

* The same tables apply when the RCP4CR is used.

RCP4-SA5C, Lead 20

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	6.5	6.5	5	5	4	1	1	1
160	6.5	6.5	5	5	4	1	1	1
320	6.5	6.5	5	5	4	1	1	1
480	6.5	6.5	5	5	4	1	1	1
640	6.5	6.5	5	5	4	1	1	1
800	6.5	6.5	5	4	3	1	1	1
960		6.5	5	3	2		1	1
1120		6	3	2	1.5		0.5	0.5
1280			1	1	1			0.5
1440			1	0.5				

(Unit: kg)

RCP4-SA5C, Lead 12

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	9	9	9	9	8	2.5	2.5	2.5
100	9	9	9	9	8	2.5	2.5	2.5
200	9	9	9	9	8	2.5	2.5	2.5
300	9	9	9	9	8	2.5	2.5	2.5
400	9	9	9	9	8	2.5	2.5	2.5
500	9	9	9	8	6.5	2.5	2.5	2.5
600	9	9	9	6	4	2.5	2.5	2.5
700	9	9	8	4	2.5	2.5	2.5	2
800		7	5	2	1		1.5	1
900		5	3	1	1		0.5	0.5

(Unit: kg)

RCP4-SA5C, Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	18	18	14	14	12	6	6	6
50	18	18	14	14	12	6	6	6
100	18	18	14	14	12	6	6	6
150	18	18	14	14	12	6	6	6
200	18	18	14	14	12	6	6	6
250	18	18	14	14	12	6	6	5.5
300	18	18	14	14	10	6	5.5	5
350	18	18	12	11	8	6	4.5	4
400	18	14	10	7	6	4.5	3.5	3
450	16	10	6	4	2	3.5	2	2

(Unit: kg)

RCP4-SA5C, Lead 3

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	20	20	18	18	14	12	12	12
25	20	20	18	18	14	12	12	12
50	20	20	18	18	14	12	12	12
75	20	20	18	18	14	12	12	12
100	20	18	18	16	12	12	12	12
125	20	18	18	16	12	12	12	12
150	20	18	18	12	10	12	11	10
175	20	18	14	10	6	11	9	8
200	20	18	8			9	7	6
225	20	6				6	5	

(Unit: kg)

RCP4-SA6C, Lead 20

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	10	10	9	7	6	1	1	1
160	10	10	9	7	6	1	1	1
320	10	10	9	7	6	1	1	1
480	10	10	9	7	6	1	1	1
640	10	10	8	6	5	1	1	1
800	10	9	6.5	4.5	3	1	1	1
960		8	5	3.5	2		1	1
1120		6.5	3	2	1.5		0.5	0.5
1280			1	1	1			0.5
1440			1	0.5				

(Unit: kg)

RCP4-SA6C, Lead 12

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	15	15	12.5	11	10	2.5	2.5	2.5
100	15	15	12.5	11	10	2.5	2.5	2.5
200	15	15	12.5	11	10	2.5	2.5	2.5
300	15	15	12.5	11	10	2.5	2.5	2.5
400	15	14	11	10	8.5	2.5	2.5	2.5
500	15	13	10	8	6.5	2.5	2.5	2.5
600	15	12	9	6	4	2.5	2.5	2.5
700	12	10	8	4	2.5	2.5	2.5	2
800	10	7	5	2	1	2	1.5	1
900		5	3	1	1		0.5	0.5

(Unit: kg)

RCP4-SA6C, Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	25	25	20	16	14	6	6	6
50	25	25	20	16	14	6	6	6
100	25	25	20	16	14	6	6	6
150	25	25	20	16	14	6	6	6
200	25	25	20	16	14	6	6	6
250	25	25	20	16	14	6	6	5.5
300	25	25	20	15	11	6	5.5	5
350	25	20	14	12	9	6	4.5	4
400	25	16	10	8	6.5	4.5	3.5	3
450	18	12	6	5	2.5	3.5	2	2

(Unit: kg)

RCP4-SA6C, Lead 3

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	25	25	25	25	25	12	12	12
25	25	25	25	25	25	12	12	12
50	25	25	25	25	25	12	12	12
75	25	25	25	25	25	12	12	12
100	25	25	25	25	25	12	12	12
125	25	25	25	25	25	12	12	12
150	25	25	25	25	22.5	12	11	10
175	25	25	25	20	19	11	9	8
200	25	25	20	18	16	9	7	6
225	25	18	16	15	12	6	5	

(Unit: kg)

RCP4-SA7C, Lead 24

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	20	20	18	16	14	3	3	3
200	20	20	18	16	14	3	3	3
400	20	20	18	16	14	3	3	3
600	20	16	15	10	9	3	3	3
800	16	12	10	7	4		3	2.5
1000		8	4.5	4	2		2	1.5
1200		5.5	2	2	1		1	1

(Unit: kg)

RCP4-SA7C, Lead 16

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	40	40	35	28	27	8	8	8
140	40	40	35	28	27	8	8	8
280	40	38	35	25	24	8	8	8
420	35	25	20	15	10	6	5	4.5
560	25	20	15	10	6	5	4	3
700	20	15	10	5	3	4	3	2
840		9	4	2	2		1	
980		4						

(Unit: kg)

RCP4-SA7C, Lead 8

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	45	45	45	40	40	16	16	16
70	45	45	45	40	40	16	16	16
140	45	45	40	38	35	16	16	16
210	45	40	35	30	24	11	10	9.5
280	40	30	25	20	15	9	8	7
350	35	20	9	4		7	5	4
420	25	7				5	2	
490	15					2		

(Unit: kg)

RCP4-SA7C, Lead 4

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	45	45	45	40	40	25	25	25
35	45	45	45	40	40	25	25	25
70	45	45	45	40	40	25	25	25
105	45	45	45	40	35	22	20	19
140	45	45	35	30	25	16	14	12
175	45	30	18			11	9	7.5
210	40	8				8		
245	35							

(Unit: kg)

RCP4-RA5C, Lead 20

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	6	6	6	5	5	1.5	1.5	1.5
160	6	6	6	5	5	1.5	1.5	1.5
320	6	6	6	5	3	1.5	1.5	1.5
480	6	6	6	5	3	1.5	1.5	1.5
640		6	4	3	2		1.5	1.5
800		4	3				1	1

(Unit: kg)

RCP4-RA5C, Lead 12

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	25	25	18	16	12	4	4	4
100	25	25	18	16	12	4	4	4
200	25	25	18	16	10	4	4	4
300	25	25	18	12	8	4	4	4
400	20	20	14	10	6	4	4	4
500	15	15	8	6	4	4	3.5	3
600	10	10	6	3	2	4	3	2
700		6	2				2	1

(Unit: kg)

RCP4-RA5C, Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	40	40	35	30	25	10	10	10
50	40	40	35	30	25	10	10	10
100	40	40	35	30	25	10	10	10
150	40	40	35	25	25	10	10	10
200	40	40	30	25	20	10	10	10
250	40	40	27.5	22.5	18	10	9	8
300	40	35	25	20	14	6	6	6
350	40	30	14	12	10	5	5	5
400	30	18	10	6	5	4	3	3
450	25	8	3			2	2	1

(Unit: kg)

RCP4-RA5C, Lead 3

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	60	60	50	45	40	20	20	20
25	60	60	50	45	40	20	20	20
50	60	60	50	45	40	20	20	20
75	60	60	50	45	40	20	20	20
100	60	60	50	45	40	20	20	20
125	60	60	50	40	30	18	14	10
150	60	50	40	30	25	14	10	6
175	60	40	35	25	20	12	6	5
200	60	35	30	20	14	8	5	4.5
225	40	16	16	10	6	5	5	4

(Unit: kg)

Find the RCP4-SA3 series at the back of this catalogue

2 RCP4 motor coupled specification + MSEP-C

* The same tables apply when the RCP4CR is used.

RCP4-SA5C, Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.2	0.3	0.5	0.7	0.1	0.2
0	5	4	3	3	0.5	0.5
160	5	4	3	3	0.5	0.5
320	5	4	3	3	0.5	0.5
480	4.5	4	3	3	0.5	0.5
640	4	3.5	2	2	0.5	0.5
800	3	2.5	1	1	0.5	0.5
960	2	2	1	0.5		0.5

(Unit: kg)

RCP4-SA5C, Lead 12

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	8	6	5.5	5	2	2	2
100	8	6	5.5	5	2	2	2
200	8	6	5.5	5	2	2	2
300	8	6	5.5	5	2	2	2
400	8	6	4	3.5	2	2	1.5
500	7	5	2	1.5	1.5	1.5	1
600	5	4	2	1.5	1	1	0.5

(Unit: kg)

RCP4-SA5C, Lead 6

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	13	13	13	12	5	5	5
50	13	13	13	12	5	5	5
100	13	13	13	12	5	5	5
150	13	13	13	12	5	5	5
200	13	13	13	12	5	4.5	4
250	13	10	8	7	4	4	3
300	13	9	5	4	3	2.5	2

(Unit: kg)

RCP4-SA5C, Lead 3

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	16	16	16	16	10	10	10
25	16	16	16	16	10	10	10
50	16	16	16	16	10	10	10
75	16	16	16	14	10	10	10
100	16	16	14	12	10	9	8
125	16	13	11	10	7	6	6
150	16	10	9	8	5	4.5	3

(Unit: kg)

RCP4-SA6C, Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.2	0.3	0.5	0.7	0.1	0.2
0	6	6	4	4	0.5	0.5
160	6	6	4	4	0.5	0.5
320	6	6	4	4	0.5	0.5
480	5	5	3	3	0.5	0.5
640	4	4	2	2	0.5	0.5
800	3	3	1	1	0.5	0.5
960	2	2	1	0.5		0.5

(Unit: kg)

RCP4-SA6C, Lead 12

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	8.5	8.5	7	6	2	2	2
100	8.5	8.5	7	6	2	2	2
200	8.5	8.5	7	6	2	2	2
300	8.5	8.5	7	6	2	2	2
400	8	7	4	3.5	2	2	1.5
500	7	6	3	2	1.5	1.5	1
600	6	6	2	1.5	1	1	0.5

(Unit: kg)

RCP4-SA6C, Lead 6

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	16	15	13	12	5	5	5
50	16	15	13	12	5	5	5
100	16	15	13	12	5	5	5
150	16	15	13	12	5	5	5
200	16	15	13	12	5	4.5	4
250	15	12	10	7	4	4	3
300	13	12	6	4	3	2.5	2

(Unit: kg)

RCP4-SA6C, Lead 3

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	19	19	19	19	10	10	10
25	19	19	19	19	10	10	10
50	19	19	19	19	10	10	10
75	19	19	19	19	10	10	10
100	19	16	14	12	10	9	8
125	18	14	11	10	7	6	6
150	16	13	10	9	5	4.5	3

(Unit: kg)

RCP4-SA7C, Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.2	0.3	0.5	0.7	0.1	0.2
0		18				2
200		18				2
400		18				2
600		10				1.5
800		5				1
1000		1.5				

(Unit: kg)

RCP4-SA7C, Lead 16

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0		35				5	
140		35				5	
280		25				3	
420		15				1.5	
560		7				0.5	

(Unit: kg)

RCP4-SA7C, Lead 8

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0		40				10	
70		40				10	
140		40				7	
210		25				4	
280		10				1.5	

(Unit: kg)

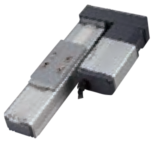
RCP4-SA7C, Lead 4

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	40					15	
35	40					15	
70	40					15	
105	40					10	
140	40					5	

(Unit: kg)

Find the RCP4-3 series at the back of this catalogue

4 RCP4 side-mounted motor specification + MSEP-C



RCP4-SA5R, Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.2	0.3	0.5	0.7	0.1	0.2
0	5	4	3	3	0.5	0.5
160	5	4	3	3	0.5	0.5
320	5	4	3	3	0.5	0.5
480	4.5	4	3	3	0.5	0.5
640	4	3.5	2	2	0.5	0.5
800	3	2.5	1	1	0.5	0.5
960	2	2	1	0.5		

(Unit: kg)

RCP4-SA5R, Lead 12

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	8	6	5.5	5	2	2	2
100	8	6	5.5	5	2	2	2
200	8	6	5.5	5	2	2	2
300	8	6	5.5	5	2	2	2
400	8	6	4	3.5	2	2	1.5
500	7	5	2	1.5	1.5	1.5	1
600	5	4	2	1.5	1	0.5	0.5

(Unit: kg)

RCP4-SA5R, Lead 6

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	13	13	13	12	5	5	5
50	13	13	13	12	5	5	5
100	13	13	13	12	5	5	5
150	13	13	13	12	5	5	5
200	13	13	13	12	5	4.5	4
250	13	10	8	7	4	4	3
300	13	9	5	4	2.5	2	1.5

(Unit: kg)

RCP4-SA5R, Lead 3

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	16	16	16	16	10	10	10
25	16	16	16	16	10	10	10
50	16	16	16	16	10	10	10
75	16	16	16	14	10	10	10
100	16	16	14	12	10	9	8
125	16	13	11	10	7	6	6
150	16	10	9	8	5	4.5	3

(Unit: kg)

RCP4-SA6R, Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.2	0.3	0.5	0.7	0.1	0.2
0	6	6	4	4	0.5	0.5
160	6	6	4	4	0.5	0.5
320	6	6	4	4	0.5	0.5
480	5	5	3	3	0.5	0.5
640	4	4	2	2	0.5	0.5
800	3	3	1	1	0.5	0.5
960	2	1.5	0.5			

(Unit: kg)

RCP4-SA6R, Lead 12

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	8.5	8.5	7	6	2	2	2
100	8.5	8.5	7	6	2	2	2
200	8.5	8.5	7	6	2	2	2
300	8.5	8.5	7	6	2	2	2
400	8	7	4	3.5	2	2	1.5
500	7	6	3	2	1.5	1.5	1
600	6	6	2	1.5	1	0.5	0.5

(Unit: kg)

RCP4-SA6R, Lead 6

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	16	15	13	12	5	5	5
50	16	15	13	12	5	5	5
100	16	15	13	12	5	5	5
150	16	15	13	12	5	5	5
200	16	15	13	12	5	4.5	4
250	15	12	10	7	4	4	3
300	13	12	6	4	2.5	2	1.5

(Unit: kg)

RCP4-SA6R, Lead 3

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	19	19	19	19	10	10	10
25	19	19	19	19	10	10	10
50	19	19	19	19	10	10	10
75	19	19	19	19	10	10	10
100	19	16	14	12	10	9	8
125	18	14	11	10	7	6	6
150	16	13	10	9	5	4.5	3

(Unit: kg)

RCP4-SA7R, Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.2	0.3	0.5	0.7	0.1	0.2
0		18				2
200		18				2
400		18				2
600		9				1.5
800		1				

(Unit: kg)

RCP4-SA7R, Lead 16

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0		35				5	
140		35				5	
280		25				3	
420		15				1.5	
560		4				0.5	

(Unit: kg)

RCP4-SA7R, Lead 8

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0		40				10	
70		40				10	
140		40				7	
210		25				4	
280		6				1	

(Unit: kg)

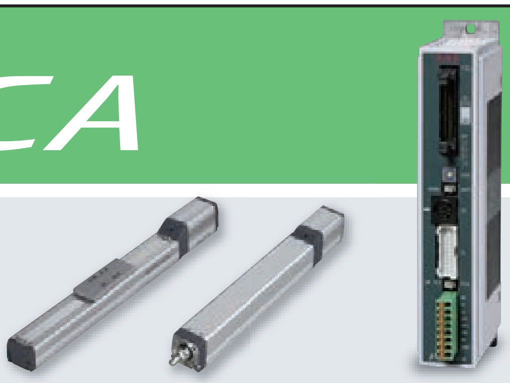
RCP4-SA7R, Lead 4

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.2	0.3	0.5	0.7	0.1	0.2	0.3
0	40					15	
35	40					15	
70	40					15	
105	40					10	
140	22					3	

(Unit: kg)

Find the RCP4-SA3 series at
the back of this catalogue

PCON-CA

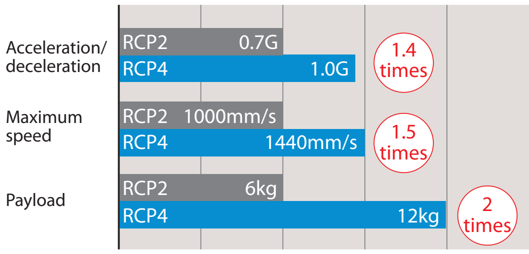


Positioner / Field network / Pulse-train Type
Controller with High-output Driver for RCP4
<PowerCon 150>

1 Built-in high-output driver designed exclusively for RCP4 generates greater torque at high speed

The newly developed high-output driver (patent pending) achieves significantly improved specifications compared to conventional models (RCP2 series), with the acceleration/deceleration higher by 1.4 times, maximum speed by 1.5 times, and payload twice as large.

(*) The rates of improvement vary depending on the type.



2 DeviceNet, CC-Link, PROFIBUS-DP, CompoNet, MECHATROLINK (I, II), EtherCAT, EtherNet/IP, PROFINET are supported

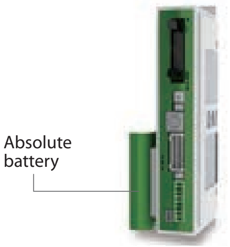
Features include wire-saving design, as well as the abilities to support direct numerical specification, position number specification, current position read, etc.

3 Incremental specification and simple absolute specification to choose from

You can choose one of the two types: the incremental specification and the simple absolute specification. The simple absolute specification is available in three types, including the specification having only the absolute battery attached on the side face of the actuator, specification equipped with the absolute battery unit where screw stopper/DIN rail mounting is possible, and controller-only specification without absolute battery.

(Note) All pulse-train PowerCon controllers are of the incremental specification.

Incremental specification

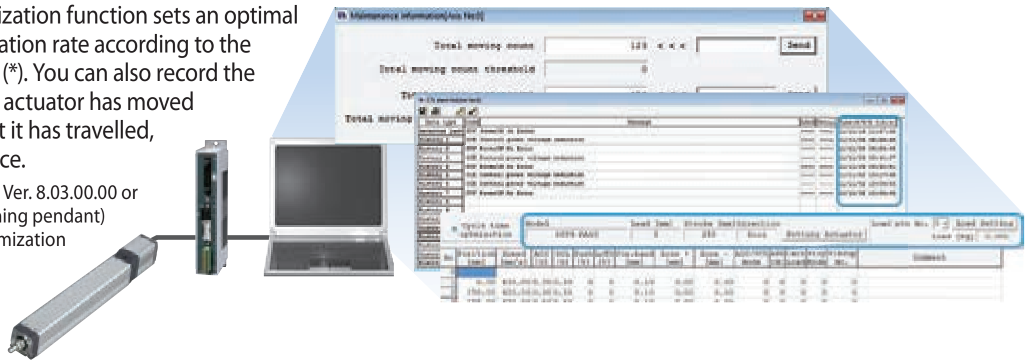


Simple absolute specification

4 Smart tuning function, maintenance information, calendar function

The takt time minimization function sets an optimal acceleration/deceleration rate according to the load that is available (*). You can also record the number of times the actuator has moved and the distance that it has travelled, for use in maintenance.

(*) You need PC software Ver. 8.03.00.00 or later or a CON-PTA (teaching pendant) to use the takt time minimization function.



List of Models

RoboCylinder Position Controller PowerCon 150 <PCON-CA>

External view										
I/O type		Positioner type	Pulse-train type	Field network type (*)						
				DeviceNet connection specification	CC-Link connection specification	PROFIBUS-DP connection specification	CompoNet connection specification	MECHATROLINK connection specification	EtherCAT connection specification	EtherNet/IP connection specification
I/O type model number		NP/PN	PLN/PLP	DV	CC	PR	CN	ML	EC	EP
Incremental specification		○	○	○	○	○	○	○	○	○
Simple absolute specification	With absolute battery	○	–	○	○	○	○	○	○	○
	With absolute battery unit	○	–	○	○	○	○	○	○	○
	No absolute battery	○	–	○	○	○	○	○	○	○

(*) PROFINET connection specification is planned.

Model Number

PCON — **CA** — ☐ **I** — ☐ — ☐ — **0** — ☐ — ☐

Series / Type / Motor type / Encoder type / I/O type / I/O cable length / Power supply voltage / Simple absolute specification / Actuator mounting specification

Type	
CA	Controller with high-output driver

Encoder type	
I	Incremental

I/O cable length	
0	No cable
2	2m
3	3m
5	5m

*If a network connection specification (I/O type- DV, CC, PR, CN, ML, EC, EP or PT) is selected, the I/O cable length becomes "0" (no cable).

Power supply voltage	
0	DC24V

Motor type	
20P	20 frame pulse motor
20SP	20 frame pulse motor (RCP3-RA2A high-thrust type dedicated)
28P	28 frame pulse motor
28SP	28 frame pulse motor (RCP2-RA3C dedicated)
35P	35 frame pulse motor
42P	42 frame pulse motor
56P	56 frame pulse motor

I/O type	
NP	PIO (NPN) specification
PLN	Pulse-train (NPN) specification
PN	PIO (PNP) specification
PLP	Pulse-train (PNP) specification
DV	DeviceNet connection specification
CC	CC-Link connection specification
PR	PROFIBUS-DP connection specification
CN	CompoNet connection specification
ML	MECHATROLINK connection specification
EC	EtherCAT connection specification
EP	EtherNet/IP connection specification
PT	PROFINET connection specification

*Profinet interface ("PT") is planned.

Simple absolute specification	
(Blank)	Incremental specification
AB	Simple absolute specification (With absolute battery)
ABU	Simple absolute specification (With absolute battery unit)
ABUN	Simple absolute specification (No absolute battery / battery unit)

Actuator mounting specification	
(Blank)	Screw fastening specification
DN	DIN rail mounting specification

*The mounting specification for the absolute battery unit (screws mounting or DIN rail mounting) conforms to the mounting specification for the controller.

Note: The PCON-CA controller can achieve high-speed, high-payload operations only when combined with RCP4 actuators. RCP2/RCP3 actuators also work with the PCON-CA controller, but only according to their original actuator specifications.

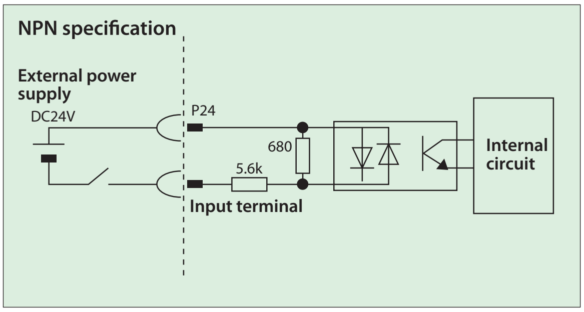
PIO I/O Interface

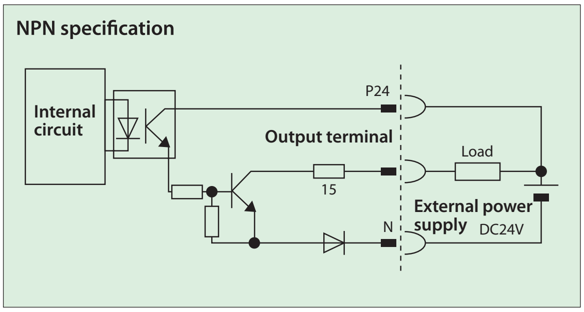
Input Part External Input Specifications

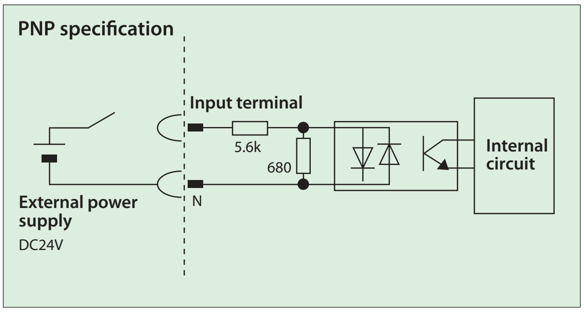
Item	Specification
Input voltage	24 VDC ± 10%
Input current	5mA, 1 circuit
ON/OFF voltage	ON voltage: 18 VDC min. OFF voltage: 6 VDC max.

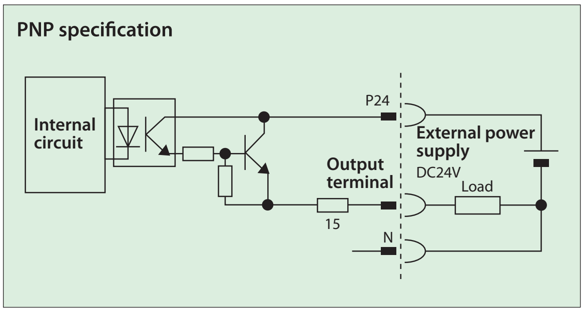
Output Part External Output Specifications

Item	Specification
Load voltage	24 VDC
Maximum load current	50mA, 1 circuit
Leak current	2mA max. per point


NPN specification
External power supply
DC24V
P24
680
5.6k
Input terminal
Internal circuit


NPN specification
Internal circuit
P24
Output terminal
Load
15
External power supply
DC24V
N


PNP specification
Input terminal
5.6k
680
Internal circuit
External power supply
DC24V
N


PNP specification
Internal circuit
P24
External power supply
DC24V
Output terminal
Load
15
N

Types of PIO Patterns (Control Patterns)

This controller supports seven types of control methods. Select in Parameter No. 25, "PIO pattern selection" the PIO pattern that best suits your purpose of use.

Type	Set value of Parameter No. 25	Mode	Overview
PIO pattern 0	0 (factory setting)	Positioning mode (standard type)	• Number of positioning points: 64 points • Position number command: Binary Coded Decimal (BCD) • Zone signal output[*1]: 1 point • Position zone signal output[*2]: 1 point
PIO pattern 1	1	Teaching mode (teaching type)	• Number of positioning points: 64 points • Position number command: Binary Coded Decimal (BCD) • Position zone signal output[*2]: 1 point • Jog (inching) operation using PIO signals is supported. • Current position data can be written to the position table using PIO signals.
PIO pattern 2	2	256-point mode (256 positioning points)	• Number of positioning points: 256 points • Position number command: Binary Coded Decimal (BCD) • Position zone signal output[*2]: 1 point
PIO pattern 3	3	512-point mode (512 positioning points)	• Number of positioning points: 512 points • Position number command: Binary Coded Decimal (BCD) • No zone signal output
PIO pattern 4	4	Solenoid valve mode 1 (7-point type)	• Number of positioning points: 7 points • Position number command: Individual number signal ON • Zone signal output[*1]: 1 point • Position zone signal output[*2]: 1 point
PIO pattern 5	5	Solenoid valve mode 2 (3-point type)	• Number of positioning points: 3 points • Position number command: Individual number signal ON • Completion signal: A signal equivalent to a LS (limit switch) signal can be output. • Zone signal output[*1]: 1 point • Position zone signal output[*2]: 1 point
PIO pattern 6 (Note)	6	Pulse-train control mode	• Differential pulse input (200 kpps max.) • Home return function • Zone signal output[*1]: 2 points • No feedback pulse output

* 1 Zone signal output: A desired zone is set by Parameter Nos. 1 and 2 or 23 and 24, and the set zone always remains effective once home return has completed.

* 2 Position zone signal output: This function is available as part of a position number. A desired zone is set in the position table and becomes effective only when the corresponding position is specified, but not with commands specifying other positions.

(Note) Pulse Train Control Model is available only if the pulse train control type is indicated (from PCON-CA-*-PLN and PLP) at the time of purchase.

PIO Patterns and Signal Assignments

The table below lists the signal assignments for the I/O flat cable under different PIO patterns. Connect an external device (such as a PLC) according to this table.

Pin number	Category	PIO function	Parameter No. 25, “PIO pattern selection”					
			0	1	2	3	4	5
			Positioning mode	Teaching mode	256-point mode	512-point mode	Solenoid valve mode 1	Solenoid valve mode 2
	Input	Number of positioning points	64 points	64 points	256 points	512 points	7 points	3 points
		Home return signal	○	○	○	○	○	—
		Jog signal	—	○	—	—	—	—
		Teaching signal (writing of current position)	—	○	—	—	—	—
		Brake release	○	—	○	○	○	○
	Output	Moving signal	○	○	—	—	—	—
		Zone signal	○	△ (Note 1)	△ (Note 1)	—	○	○
		Position zone signal	○	○	○	—	○	○
1A	24V	P24						
2A	24V	P24						
3A	Pulse input	—						
4A		—						
5A	Input	IN0	PC1	PC1	PC1	PC1	ST0	ST0
6A		IN1	PC2	PC2	PC2	PC2	ST1	ST1(JOG+)
7A		IN2	PC4	PC4	PC4	PC4	ST2	ST2(-)
8A		IN3	PC8	PC8	PC8	PC8	ST3	—
9A		IN4	PC16	PC16	PC16	PC16	ST4	—
10A		IN5	PC32	PC32	PC32	PC32	ST5	—
11A		IN6	—	MODE	PC64	PC64	ST6	—
12A		IN7	—	JISL	PC128	PC128	—	—
13A		IN8	—	JOG+	—	PC256	—	—
14A		IN9	BKRL	JOG-	BKRL	BKRL	BKRL	BKRL
15A		IN10	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD
16A		IN11	HOME	HOME	HOME	HOME	HOME	—
17A		IN12	*STP	*STP	*STP	*STP	*STP	—
18A		IN13	CSTR	CSTR/PWRT	CSTR	CSTR	—	—
19A		IN14	RES	RES	RES	RES	RES	RES
20A		IN15	SON	SON	SON	SON	SON	SON
1B	Output	OUT0	PM1(ALM1)	PM1(ALM1)	PM1(ALM1)	PM1(ALM1)	PE0	LSO
2B		OUT1	PM2(ALM2)	PM2(ALM2)	PM2(ALM2)	PM2(ALM2)	PE1	LS1(TRQS)
3B		OUT2	PM4(ALM4)	PM4(ALM4)	PM4(ALM4)	PM4(ALM4)	PE2	LS2 (Note 2)
4B		OUT3	PM8(ALM8)	PM8(ALM8)	PM8(ALM8)	PM8(ALM8)	PE3	—
5B		OUT4	PM16	PM16	PM16	PM16	PE4	—
6B		OUT5	PM32	PM32	PM32	PM32	PE5	—
7B		OUT6	MOVE	MOVE	PM64	PM64	PE6	—
8B		OUT7	ZONE1	MODES	PM128	PM128	ZONE1	ZONE1
9B		OUT8	PZONE/ZONE2	PZONE/ZONE1	PZONE/ZONE1	PM256	PZONE/ZONE2	PZONE/ZONE2
10B		OUT9	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS
11B		OUT10	HEND	HEND	HEND	HEND	HEND	HEND
12B		OUT11	PEND	PEND/WEND	PEND	PEND	PEND	—
13B		OUT12	SV	SV	SV	SV	SV	SV
14B		OUT13	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS
15B		OUT14	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM
16B		OUT15	LOAD/TRQS *ALML	*ALML	LOAD/TRQS *ALML	LOAD/TRQS *ALML	LOAD/TRQS *ALML	*ALML
17B	Pulse input	—						
18B		—						
19B	0V	N						
20B	0V	N						

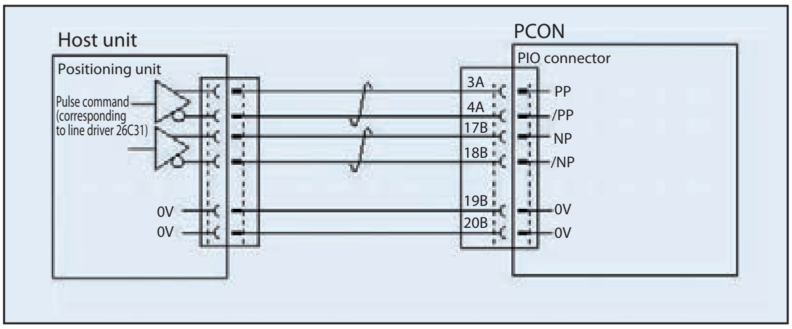
(Note) In the table above, asterisk * symbol accompanying each code indicates a negative logic signal. PM1 to PM8 are alarm binary code output signals that are used when an alarm generates.
(Note 1) In all PIO patterns other than 3, this signal can be switched with PZONE by setting Parameter No. 149 accordingly.
(Note 2) The setting will not become effective until the origin return is completed.

Reference) Negative logic signal
Signals denoted by * are negative logic signals. Negative logic input signals are processed when turned OFF. Negative logic output signals normally remain ON while the power is supplied, and turn OFF when the signal is output.

Note: The names of the signals above inside () are functions before the unit returns home.

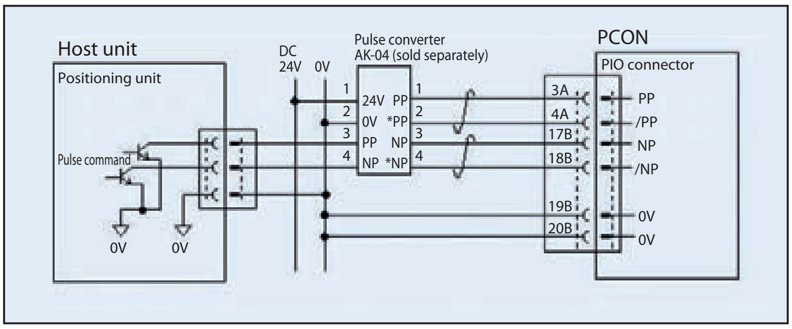
Pulse-train Control Circuit

■Host Unit = Differential Type


Host unit
Positioning unit
Pulse command (corresponding to line driver 26C31)
0V
0V
PCON
PIO connector
3A
4A
17B
18B
19B
20B
PP
/PP
NP
/NP
0V
0V

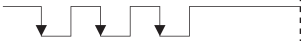
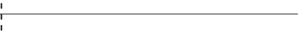
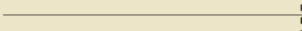
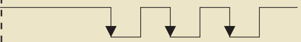
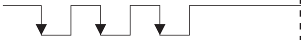
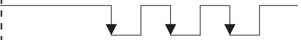
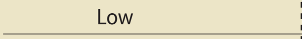
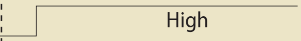
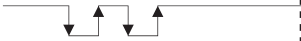
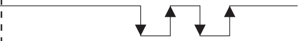
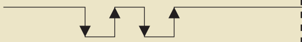
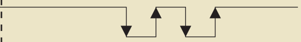
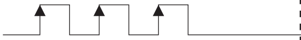
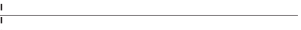
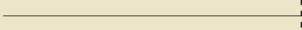
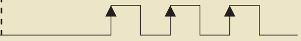
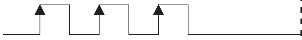
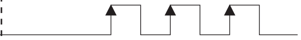
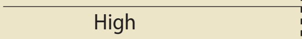
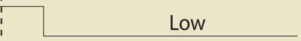
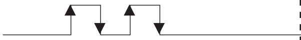
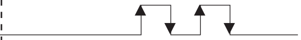
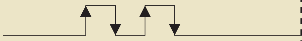
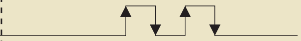
■Host Unit = Open Collector Type

The AK-04 (optional) is needed to input pulses.


Host unit
Positioning unit
Pulse command
0V
0V
DC 24V 0V
Pulse converter AK-04 (sold separately)
1
2
3
4
24V PP
0V *PP
PP NP
NP *NP
PCON
PIO connector
3A
4A
17B
18B
19B
20B
PP
/PP
NP
/NP
0V
0V

Caution: Use the same power supply for open collector input/output to/from the host and for the AK-04.

Command Pulse Input Patterns

	Command pulse-train pattern	Input terminal	Forward	Reverse
Negative logic	Forward pulse-train	PP·/PP		
	Reverse pulse-train	NP·/NP		
	A forward pulse-train indicates the amount of motor rotation in the forward direction, while a reverse pulse-train indicates the amount of motor rotation in the reverse direction.			
	Pulse-train	PP·/PP		
	Sign	NP·/NP	 Low	 High
	The command pulses indicate the amount of motor rotation, while the sign indicates the rotating direction.			
	Phase A/B pulse-train	PP·/PP		
		NP·/NP		
	Command phases A and B having a 90° phase difference (multiplier is 4) indicate the amount of rotation and the rotating direction.			
Positive logic	Forward pulse train	PP·/PP		
	Reverse pulse-train	NP·/NP		
	Pulse-train	PP·/PP		
	Sign	NP·/NP	 High	 Low
	Phase A/B pulse-train	PP·/PP		
		NP·/NP		

I/O Signals in Pulse-train Control Mode

The table below lists the signal assignments for the flat cable in the pulse-train control mode. Connect an external device (such as PLC) according to this table.

Pin number	Category	I/O number	Signal abbreviation	Signal name	Parameter No. 25, "PIO pattern 6"
1A	24V		P24	Power supply	I/O power supply +24 V
2A	24V		P24	Power supply	I/O power supply +24 V
3A	Pulse input		PP	Differential pulse-train input (+)	Differential pulses are input from the host. Up to 200 kpps can be input.
4A			/PP	Differential pulse-train input (-)	
5A	Input	IN0	SON	Servo ON	The servo is ON while this signal is ON, and OFF while the signal is OFF.
6A		IN1	RES	Reset	Present alarms are reset when this signal is turned ON.
7A		IN2	HOME	Home return	Home return operation is performed when this signal is turned ON.
8A		IN3	TL	Torque limit selection	When this signal is turned ON, the motor torque is limited to the value set by the parameter.
9A		IN4	CSTP	Forced stop	The actuator is forcibly stopped when this signal has remained ON for 16 ms or more. The actuator decelerates to a stop at the torque set in the controller and the servo turns OFF.
10A		IN5	DCLR	Deviation counter clear	This signal clears the deviation counter.
11A		IN6	BKRL	Forced brake release	The brake is forcibly released.
12A		IN7	RMOD	Operation mode switching	The operation mode can be switched when the MODE switch on the controller is set to AUTO. (AUTO when this signal is OFF, and to MANU when the signal is ON.)
13A		IN8	NC	—	Not used
14A		IN9	NC	—	Not used
15A		IN10	NC	—	Not used
16A		IN11	NC	—	Not used
17A		IN12	NC	—	Not used
18A		IN13	NC	—	Not used
19A		IN14	NC	—	Not used
20A		IN15	NC	—	Not used
1B	Output	OUT0	PWR	System ready	This signal turns ON when the controller becomes ready after the main power has been turned on.
2B		OUT1	SV	Servo ON status	This signal turns ON when the servo is ON.
3B		OUT2	INP	Positioning complete	This signal turns ON when the amount of remaining travel pulses in the deviation counter falls within the in-position band.
4B		OUT3	HEND	Home return complete	This signal turns ON upon completion of home return.
5B		OUT4	TLR	Torque limited	This signal turns ON upon reaching the torque limit while the torque is limited.
6B		OUT5	*ALM	Controller alarm status	This signal turns ON when the controller is normal, and turns OFF when an alarm generates.
7B		OUT6	*EMGS	Emergency stop status	This signal turns ON when the emergency stop of the controller is cancelled, and turns OFF when an emergency stop is actuated.
8B		OUT7	RMDS	Operation mode status	The operation mode status is output. This signal turns ON when the controller is in the manual mode.
9B		OUT8	ALM1	Alarm code output signal	An alarm code is output when an alarm generates. For details, refer to the operation manual.
10B		OUT9	ALM2		
11B		OUT10	ALM4		
12B		OUT11	ALM8		
13B		OUT12	*ALML	Minor failure alarm	This signal is output when a message-level alarm generates.
14B		OUT13	NC	—	Not used
15B		OUT14	ZONE1	Zone signal 1	This signal turns ON when the current position of the actuator falls within the parameter-set range.
16B		OUT15	ZONE2	Zone signal 2	
17B	Pulse input		NP	Differential pulse-train input (+)	Differential pulses are input from the host. Up to 200 kpps can be input.
18B			/NP	Differential pulse-train input (-)	
19B	0V		N	Power supply	I/O power supply 0 V
20B	0V		N	Power supply	I/O power supply 0 V

Note) * indicates a negative logic signal. Negative logic signals are normally ON while the power is supplied, and turn OFF when the signal is output.

(Note) The number of encoder pulses is 800 with all RCP4 series models. For details, refer to the operation manual.

Field Network Specification: Explanation of Operation Modes

If the PCON-CA is controlled via a field network, you can select one of the following five modes to operate the actuator. Take note that the required data areas on the PLC side vary depending on the mode.

■ Explanation of Modes

	Mode	Description
0	Remote I/O mode	In this mode, the actuator is operated by controlling the ON/OFF of bits via the network, just like with the PIO specification. The number of positioning points and functions vary with each of the operation patterns (PIO patterns) that can be set by the controller's parameter.
1	Position/simple direct numerical mode	The target position is specified by directly entering a value, while other operating conditions (speed, acceleration, etc.) are set by specifying the desired position number corresponding to the desired operating conditions already input to the position data table.
2	Half direct numerical mode	The actuator is operated by specifying the speed, acceleration/deceleration and push current, in addition to the target position, by directly entering values.
3	Full direct numerical mode	The actuator is operated by specifying the target position, speed, acceleration/deceleration, push current control value, etc., by directly entering values. The current position, current speed, command current, etc., can also be read.
4	Remote I/O mode 2	Same as the above remote I/O mode, plus the current position read function and command current read function.

■ Required Data Size for Each Network

		DeviceNet	CC-Link	PROFIBUS-DP	CompoNet	EtherCAT	EtherNet/IP	PROFINET
0	Remote I/O mode	1CH	1 station	2 bytes	2 bytes	2 bytes	2 bytes	2 bytes
1	Position/simple direct numerical mode	4CH	1 station	8 bytes	8 bytes	8 bytes	8 bytes	8 bytes
2	Half direct numerical mode	8CH	2 stations	16 bytes	16 bytes	16 bytes	16 bytes	16 bytes
3	Full direct numerical mode	16CH	4 stations	32 bytes	32 bytes	32 bytes	32 bytes	32 bytes
4	Remote I/O mode 2	6CH	1 station	12 bytes	12 bytes	12 bytes	12 bytes	12 bytes

* No required data size is set for MECHATROLINK I and II.

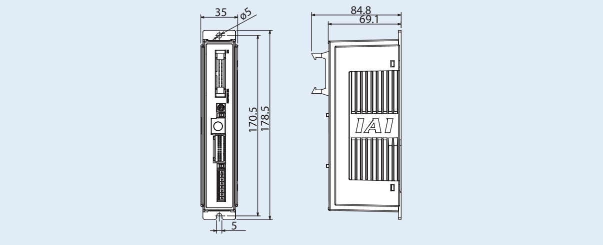
■ List of Functions by Operation Mode

	Remote I/O mode	Position/simple direct numerical mode	Half direct numerical mode	Full direct numerical mode	Remote I/O mode 2
Number of positioning points	512 points	768 points	Not limited	Not limited	512 points
Operation by direct position data specification	–	○	○	○	–
Direct speed/acceleration specification	–	–	○	○	–
Push-motion operation	○	○	○	○	○
Current position read	–	○	○	○	○
Current speed read	–	–	○	○	–
Operation by position number specification	○	○	–	–	○
Completed position number read	○	○	–	–	○

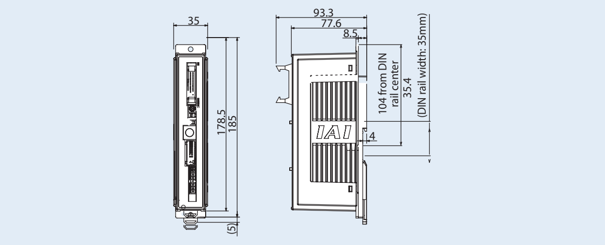
* O indicates that the operation is supported, and "—" indicates that it is not supported.
(Note 1) Take note that the MECHATROLINK specification does not support the full direct numerical mode.

External Dimensions

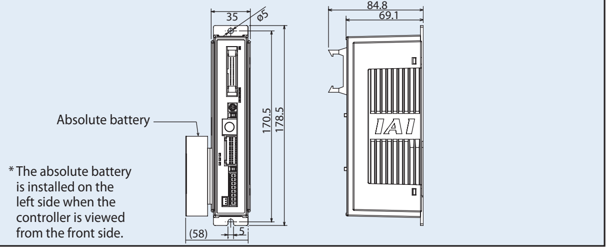
Incremental specification | Screw fastening specification


35
φ5
84.8
69.1
170.5
178.5
5
IAI

Incremental specification | DIN rail mounting specification

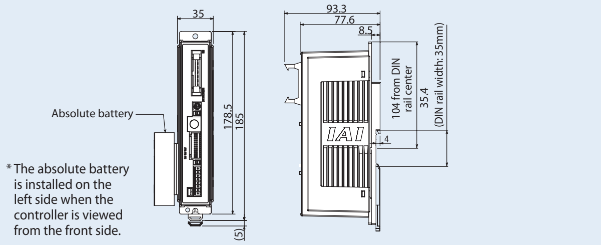

35
93.3
77.6
8.5
178.5
185
(5)
104 from DIN rail center
35.4
(DIN rail width: 35mm)
4
IAI

Simple absolute specification With absolute battery | Screw fastening specification


35
φ5
84.8
69.1
Absolute battery
170.5
178.5
(58)
5
IAI

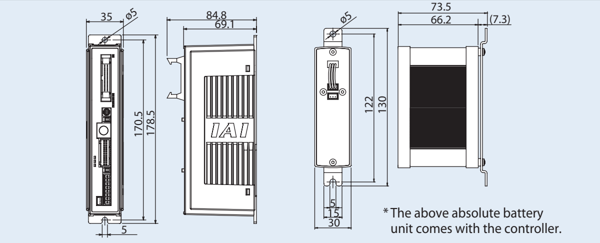
* The absolute battery is installed on the left side when the controller is viewed from the front side.

Simple absolute specification With absolute battery | DIN rail mounting specification


35
93.3
77.6
8.5
Absolute battery
178.5
185
(5)
104 from DIN rail center
35.4
(DIN rail width: 35mm)
4
IAI

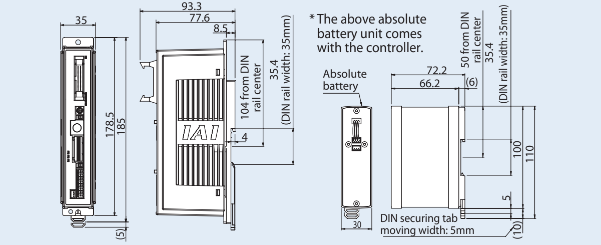
* The absolute battery is installed on the left side when the controller is viewed from the front side.

Simple absolute specification With absolute battery unit | Screw fastening specification


35
φ5
84.8
69.1
170.5
178.5
5
IAI
φ5
122
130
5
15
30
73.5
66.2
(7.3)

* The above absolute battery unit comes with the controller.

Simple absolute specification With absolute battery unit | DIN rail mounting specification


35
93.3
77.6
8.5
104 from DIN rail center
35.4
(DIN rail width: 35mm)
178.5
185
(5)
4
IAI
Absolute battery
72.2
66.2
(6)
50 from DIN rail center
35.4
(DIN rail width: 35mm)
100
110
5
30
(10)
DIN securing tab moving width: 5mm

* The above absolute battery unit comes with the controller.

Specification Table

Item				Description
				PCON-CA
Number of controlled axes				1 axis
Power supply voltage				24VDC ± 10%
Load capacity (Current consumption of controlled axes included) (Note 1)	RCP2 RCP3	Motor type	20P, 28P, 20SP, 28SP	1A max.
			35P, 42P, 56P	2.2A max.
			60P, 86P	
	RCP4	Motor type	42P, 56P	High-output setting disabled: 2.0A max.
				High-output setting enabled: 3.5A rated / 4.2 max.
Power supply for electromagnetic brake (for actuators with brake)				24VDC ± 10%, 0.15A (max.)
Rush current (Note 1)				8.3A
Momentary power failure resistance				500μs max.
Applicable encoder				Incremental encoder of 800 pulses/rev in resolution
Actuator cable length				20m max.
External interface			PIO specification	Dedicated 24-VDC signal input/output (NPN or PNP selected) --- Up to 16 input points, up to 16 output points / Cable length: 10m max.
			Field network specification	DeviceNet, CC-Link, PROFIBUS, CompoNET, MECHATROLINK, EtherCAT, EtherNet/IP, PROFINET
Data setting/input method				PC software, touch-panel teaching pendant
Data retention memory				Position data and parameters are saved in the non-volatile memory (The memory can be written an unlimited number of times.)
Operation modes				Positioner mode / Pulse-train control mode (Selectable by parameter setting)
Number of positions in positioner mode				Up to 512 points for the positioner type, up to 768 points for the network type (Note) The number of positioning points varies depending on the PIO pattern selected.
Pulse-train interface			Input pulse	Differential method (line driver method): 200kpps max. / Cable length: 10m max.
				Open collector method: Not supported * If the host uses open-collector output, convert the open-collector pulses todifferential pulses using the AK-04 (available as an option).
			Command pulse magnification (electronic gear ratio: A/B)	1/50 < A/B < 50/1 Setting range of A and B (set by parameters): 1 to 4096
			Feedback pulse output	None
Isolation resistance				500-VDC 10 MΩ or more
Electric shock protection mechanism				Class I basic isolation
Mass (Note 3)	Incremental specification			Screw fastening type: 250g or less DIN rail mounting type: 285g or less
	Simple absolute specification (190g of battery weight included)			Screw fastening type: 450g or less DIN rail mounting type: 485g or less
Cooling method				Natural air cooling
Environment	Ambient operating temperature			0 to 40°C
	Ambient operating humidity			85%RH or less (non-condensing)
	Operating ambience			Not exposed to corrosive gases
	Protection degree			IP20

(Note 1) The value increases by 0.3 A for the field network specification.
(Note 2) After the power is turned on, rush current will flow for approx. 5msec (at 40°C). Take note that the rush current varies depending on the impedance of the power-supply line.
(Note 3) The value increases by 30g for the field network specification.

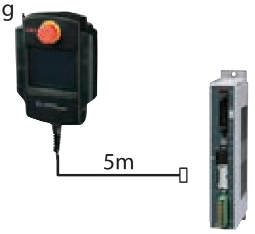
Option

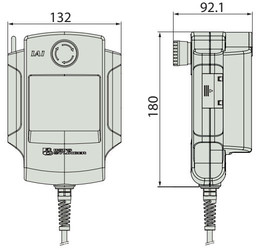
Teaching pendant

▮ Summary Teaching device for positioning input, test operation, and monitoring.

▮ Model **CON-PTA-C-ENG** (Touch panel teaching pendant)

▮ Setting





▮ Specification

Item	CON-PTA-C-ENG
Data input	○
Actuator motion	○
Operating ambient temperature/humidity	Temperature 0 to 40°C, humidity 85% RH or less
Operating environment	Free from corrosive gas and especially, considerably dusty condition
Protection degree	IP40
Weight	Approximately 570g
Cable length	5m
Display	65536 color White LED back light

PC software (Windows only)

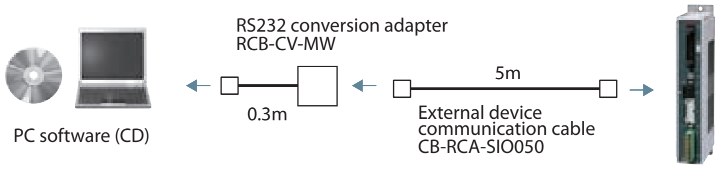
* For the 8-axis controller MSEP with field network specification, the PC software is required.

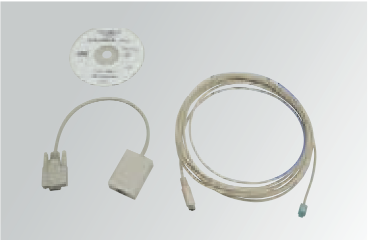
▮ Summary A startup support software for inputting positions, performing test runs, and monitoring. With enhancements for adjustment functions, the startup time is shortened.

▮ Model **RCM-101-MW-ENG** (External device communication cable + RS232 conversion unit)

▮ Setting

MSEP is supported by Ver.9.01.00.00 or later

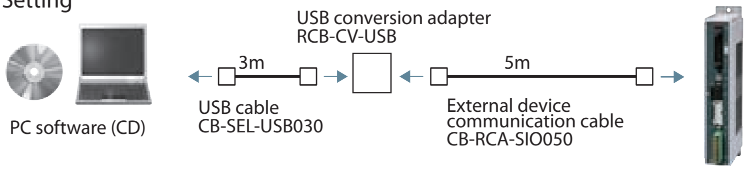

RS232 conversion adapter
RCB-CV-MW
5m
0.3m
External device communication cable
CB-RCA-SIO050
PC software (CD)

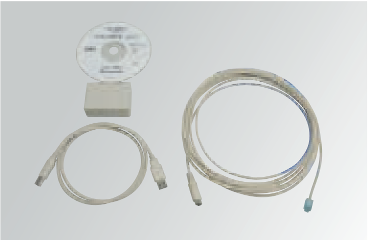


▮ Model **RCM-101-USB-ENG** (External device communication cable + USB converter adaptor + USB cable)

▮ Setting

MSEP is supported by Ver.9.01.00.00 or later


USB conversion adapter
RCB-CV-USB
3m
5m
USB cable
CB-SEL-USB030
External device communication cable
CB-RCA-SIO050
PC software (CD)



Absolute Battery Unit

▮ Summary Battery unit that comes with a simple absolute controller, used to back up the current controller position.

▮ Model **SEP-ABU(-W)*** (DIN rail mounting specification)

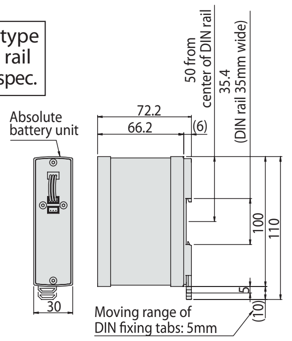
SEP-ABUS(-W)* (screw fastening specification)

* SEP-ABU-W/SEP-ABUS-W: Dust-proof type

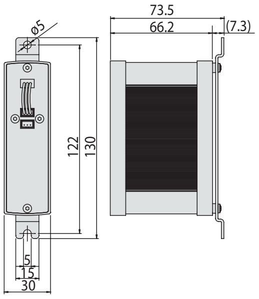
▮ Specifications

Item	Specification
Ambient operating temperature, humidity	0 to 40°C (desirably around 20°C), 95% RH or below (non-condensing)
Operating ambience	Free from corrosive gases
Absolute battery	Model number: AB-7 (Ni-MH battery / Life: Approx. 3 years)
Controller/absolute battery unit link cable	Model number: CB-APSEP-AB005 (Length: 0.5m)
Mass	Standard type: Approx. 230g / Dust-proof type (IP53): Approx. 260g

Standard type with DIN rail mounting spec.


Absolute battery unit
72.2
66.2
(6)
50 from center of DIN rail
35.4
(DIN rail 35mm wide)
100
110
5
(10)
30
Moving range of DIN fixing tabs: 5mm

Standard type with screw fastening spec.


φ5
73.5
66.2
(7.3)
122
130
5
15
30

Replacement battery

▮ Summary The replacement battery for the absolute data backup battery box.

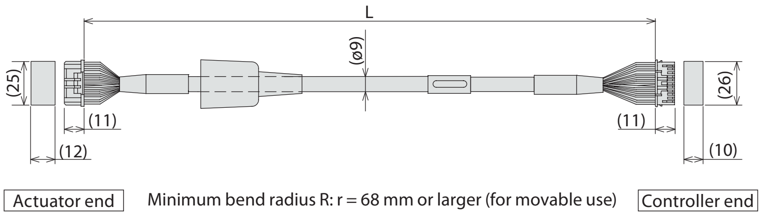
▮ Model **AB-7**

Service parts

Integrated Motor-Encoder Cable/ Motor-Encoder Robot Cable for RCP4

Model number **CB-CA-MPA☐☐☐/CB-CA-MPA☐☐☐-RB**

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



Minimum bend radius R: r = 68 mm or larger (for movable use)

* Robot cables are cables resistant to flexing forces.
If the cable must be guided in a cable track, use a robot cable.

Actuator end
1-1827863-1 (AMP)

Pin No.	Signal name	Color
A1	ØA/U	Blue(Black)
B1	VMM/V	Orange (White)
A2	Ø_A/W	Green (Brown)
B2	ØB/-	Brown (Green)
A3	VMM/-	Gray (Yellow)
B3	Ø_B/-	Red (Red)
A4	LS+/BK+	Black (Orange)
B4	LS-/BK-	Yellow (Gray)
A6	-/A+	Blue (White)
B6	-/A-	Orange (Yellow)
A7	A+/B+	Green (Red)
B7	A-/B-	Brown (Green)
A8	B+/Z+	Gray (Black)
B8	B-/Z-	Red (Brown)
A5	BK+/LS+	Blue (Black)
B5	BK-/LS-	Orange (Brown)
A9	LS_GND	Green (Green)
B9	VPS	Brown (Red)
A10	VCC	Gray (White)
B10	GND	Red (Yellow)
A11	—	—
B11	FG	Black (—)

* Colors of robot cables are shown in ( ).

Controller end
PADP-24V-1-S (JST)

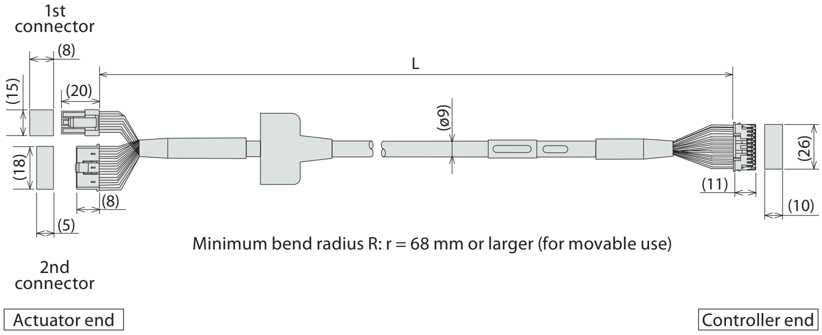
Pin No.	Signal name	Color
1	ØA/U	Blue (Black)
2	VMM/V	Orange (White)
5	Ø_A/W	Green (Brown)
3	ØB/-	Brown (Green)
4	VMM/-	Gray (Yellow)
6	Ø_B/-	Red (Red)
7	LS+/BK+	Black (Orange)
8	LS-/BK-	Yellow (Gray)
11	-/A+	Blue (White)
12	-/A-	Orange (Yellow)
13	A+/B+	Green (Red)
14	A-/B-	Brown (Green)
15	B+/Z+	Gray (Black)
16	B-/Z-	Red (Brown)
9	BK+/LS+	Blue (Black)
10	BK-/LS-	Orange (Brown)
20	LS_GND	Green (Green)
18	VPS	Brown (Red)
17	VCC	Gray (White)
19	GND	Red (Yellow)
21	—	—
22	—	—
23	—	—
24	FG	Black (—)

Integrated Motor-Encoder Cable for RCP2

Model number **CB-PSEP-MPA☐☐☐**

* The default specification of this cable is robot cable.

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



Minimum bend radius R: r = 68 mm or larger (for movable use)

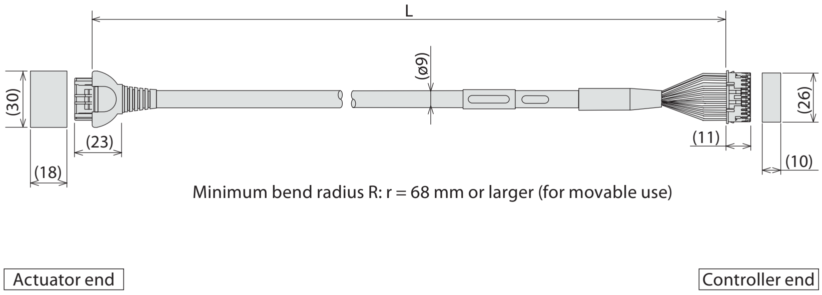
	Actuator end Pin number		Controller end Pin number
1st connector	1	Black [ØA]	1
	2	White [VMM]	2
	4	Red [ØB]	3
	5	Green [VMM]	4
	3	Brown [Ø/A]	5
	6	Yellow [Ø/B]	6
2nd connector	16	Orange [BK+]	9
	17	Gray [BK-]	10
	5	NC	11
	6	NC	12
	13	Black [LS+]	7
	14	Brown [LS-]	8
	1	White [A+]	13
	2	Yellow [A-]	14
	3	Red [B+]	15
	4	Green [B-]	16
	10	White (identification tape) [VCC]	17
	11	Yellow (identification tape) [VPS]	18
	9	Red (identification tape) [GND]	19
	12	Green (identification tape) [(spare)]	20
	15	NC	21
	7	NC	22
	8	NC	23
	18	Shield [FG]	24

Integrated Motor-Encoder Cable for RCP3

Model number **CB-APSEP-MPA☐☐☐**

* The default specification of this cable is robot cable.

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



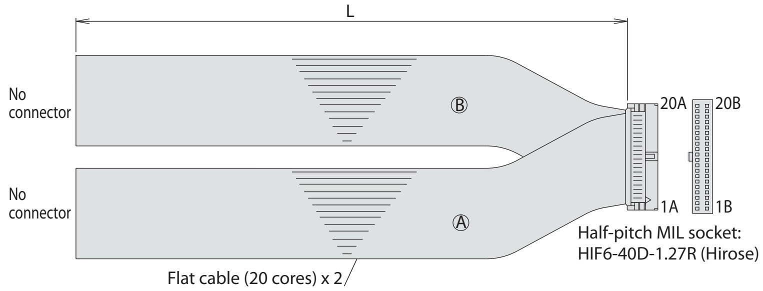
Minimum bend radius R: r = 68 mm or larger (for movable use)

Actuator end Pin number	[PCON] (ACON)	Controller end Pin number
A1	Black [ØA] (U)	1
B2	White [VMM] (V)	2
A2	Brown [Ø/A] (W)	5
B2	Green [ØB] (-)	3
A3	Yellow [VMM] (-)	4
B3	Red [Ø/B] (-)	6
A4	Orange [LS+] (BK+)	7
B4	Gray [LS-] (BK-)	8
A6	White [-] (A+)	11
B6	Yellow [-] (A-)	12
A7	Red [A+] (B+)	13
B7	Green [A-] (B-)	14
A8	Black [B+] (Z+)	15
B8	Brown [B-] (Z-)	16
A5	Black (identification tape) [BK+] (LS+)	9
B5	Brown (identification tape) [BK-] (LS-)	10
A9	Green (identification tape) [GNDLS] (GNDLS)	20
B9	Red (identification tape) [VPS] (VPS)	18
	White (identification tape) [VCC] (VCC)	17
	Yellow (identification tape) [GND] (GND)	19
A10	NC	21
B10	Shield [FG] (FG)	24
A11	NC	22
B11	NC	23

I/O Flat Cable

Model number **CB-PAC-PIO☐☐☐**

* Please indicate cable length (L) in ☐☐☐, maximum 10m.
e.g.) 080=8m



HIF6-40D-1.27R

No.	Signal name	Cable color	Wiring
1A	24V	Brown - 1	Flat cable Ⓐ (crimped)
2A	24V	Red - 1	
3A	Pulse input	Orange - 1	
4A		Yellow - 1	
5A	IN0	Green - 1	
6A	IN1	Blue - 1	
7A	IN2	Purple - 1	
8A	IN3	Gray - 1	
9A	IN4	White - 1	
10A	IN5	Black - 1	
11A	IN6	Brown - 2	
12A	IN7	Red - 2	
13A	IN8	Orange - 2	
14A	IN9	Yellow - 2	
15A	IN10	Green - 2	
16A	IN11	Blue - 2	
17A	IN12	Purple - 2	
18A	IN13	Gray - 2	
19A	IN14	White - 2	
20A	IN15	Black - 2	

No.	Signal name	Cable color	Wiring
1B	OUT0	Brown - 3	Flat cable Ⓑ (crimped) AWG 28
2B	OUT1	Red - 3	
3B	OUT2	Orange - 3	
4B	OUT3	Yellow - 3	
5B	OUT4	Green - 3	
6B	OUT5	Blue - 3	
7B	OUT6	Purple - 3	
8B	OUT7	Gray - 3	
9B	OUT8	White - 3	
10B	OUT9	Black - 3	
11B	OUT10	Brown - 4	
12B	OUT11	Red - 4	
13B	OUT12	Orange - 4	
14B	OUT13	Yellow - 4	
15B	OUT14	Green - 4	
16B	OUT15	Blue - 4	
17B	Pulse input	Purple - 4	
18B		Gray - 4	
19B	0V	White - 4	
20B	0V	Black - 4	

IAI
Quality and Innovation

Slider Type **Rod Type**

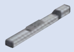
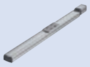
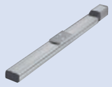
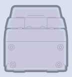
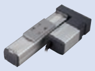
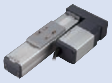
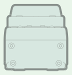
ROBO Cylinder® RCP4-SA3/RA3

ROBO CYLINDER
RCP4
series

www.intelligentactuator.com

SA3 Types with body width 32mm added to RCP4 Series

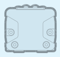
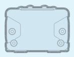
RCP4 Series

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	Slider Type	NEW **SA3C**		 32mm	25 ~ 300	6	420	3	1.5
							4	280	5	2.5
							2	140	8	3.5
			SA5C		 52mm	50 ~ 800	20	1440	6.5	1
							12	900	9	2.5
							6	450	18	6
							3	225	20	12
			SA6C		 58mm		20	1440	10	1
							12	900	15	2.5
							6	450	25	6
							3	225	25	12
			SA7C		 73mm		24	1200	20	3
							16	980	40	8
							8	490	45	16
							4	245	45	25
	Side-mounted Motor Specification	Slider Type	**SA5R**		 52mm	50 ~ 800	20	1440	6.5	1
							12	900	9	2.5
							6	450	18	6
							3	225	20	12
			SA6R		 58mm		20	1280	10	1
							12	900	15	2.5
							6	450	25	6
							3	225	25	12
			SA7R		 73mm		24	1000	20	3
							16	840	40	8
							8	490	45	16
							4	210	45	25
RCP4CR	Cleanroom Specification	Slider Type	**SA5C**		 52mm	50 ~ 800	20	1440	6.5	1
							12	900	9	2.5
							6	450	18	6
							3	225	20	12
			SA6C		 58mm		20	1440	10	1
							12	900	15	2.5
							6	450	25	6
							3	225	25	12
			SA7C		 73mm		24	1200	20	3
							16	980	40	8
							8	490	45	16
							4	245	45	25

●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**		 40mm	50 ~ 500	16	1260	4	1
							10	785	10	2.25
							5	390	12	4.5
							2.5	195	12	9
			SA6C		 58mm	50 ~ 800	20	1440<1280>	10	1
							12	900	15	2.5
							6	450	25	6
							3	225	25	16
			SA7C		 73mm	50 ~ 800	24	1200	20	3
							16	980<840>	40	8
							8	490	45	16
							4	245<210>	45	25
							16	1120<840>	6	1.5

●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-28P(Ⅰ)-NP-2-0 PCON-CA-28P(Ⅰ)-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-28P(Ⅰ)-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-(Ⅱ)-(Ⅲ)- ~ -NP-2-0 MSEP-(Ⅱ)-(Ⅲ)- ~ -PN-2-0	Positioner type with PIO control available to connect 8 axes at maximum	3 points			—	
Positioner Multiple Axes Specification network type		MSEP-(Ⅱ)-(Ⅲ)- ~ -①-0-0	Positioner type applicable for field network available to connect 8 axes at maximum	256 points				

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

RCP4-SA3C

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

Model Specification Items

RCP4	SA3C	I	28P	☐	☐	P3	☐	☐
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.

CE RoHS

POINT Note on selection

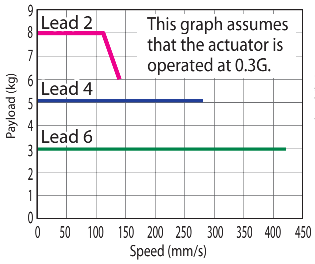
(1) Even though the payload described in the actuator specifications is the maximum value, it may vary depending on the acceleration. Refer to "Tables for Payload by Acceleration and Speed" on pg. 4 for details.

(2) Refer to "Relative Graph for Pressing Force and Current Limit" at the back of the catalog for the pressing operation.

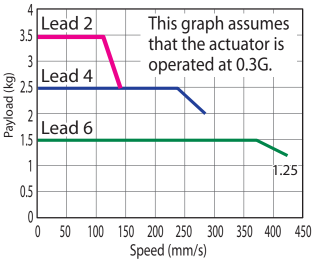
■Correlation Diagrams of Speed and Payload

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

RCP4-SA3C Horizontal

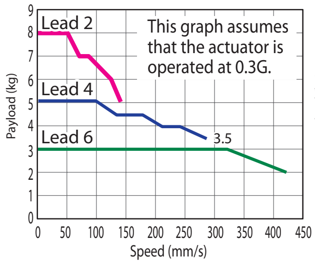


RCP4-SA3C Vertical

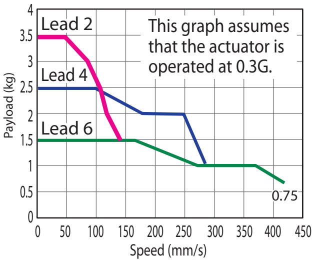


②High output disabled PCON-CA•MSEP-C/LC connected

RCP4-SA3C Horizontal



RCP4-SA3C Vertical



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.

Dimensional Drawings

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

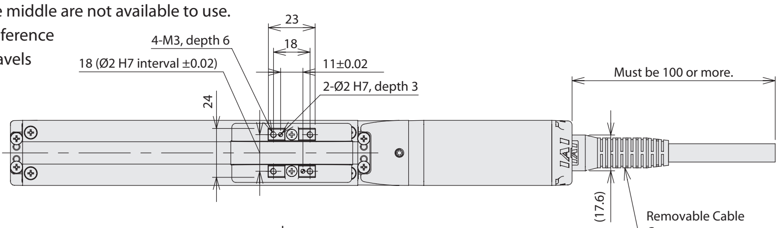
2D CAD

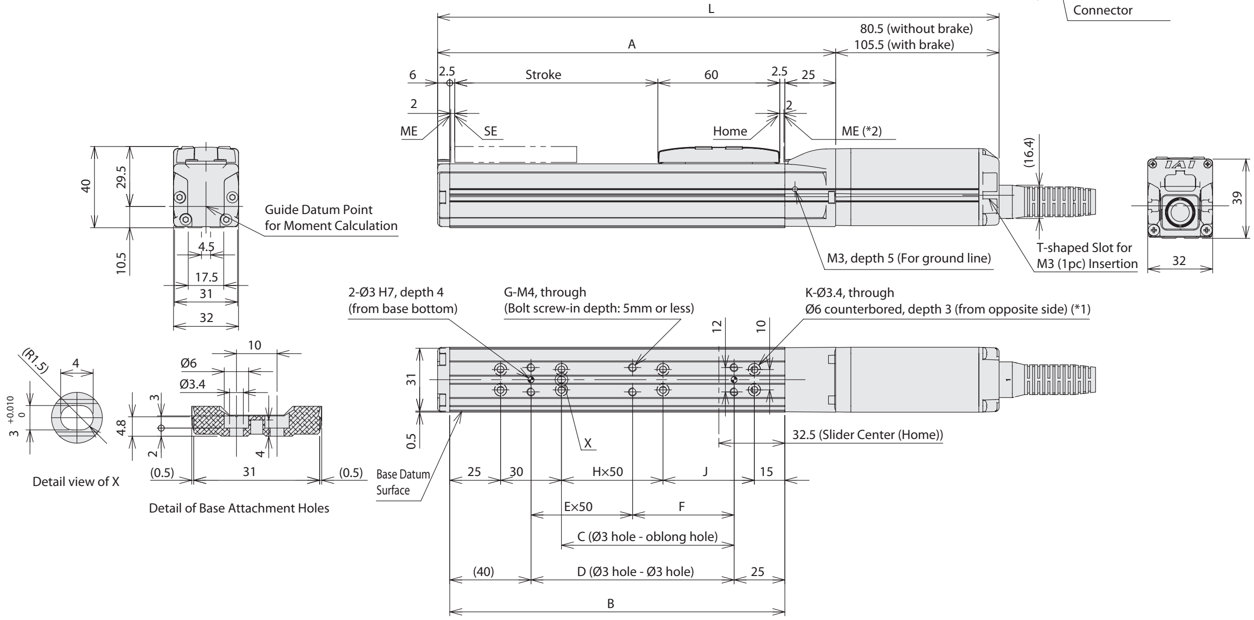
*1 On the 25mm stroke type, there are six counterbored mounting holes on the bottom of the base.
The two counterbored mounting holes in the middle are not available to use.

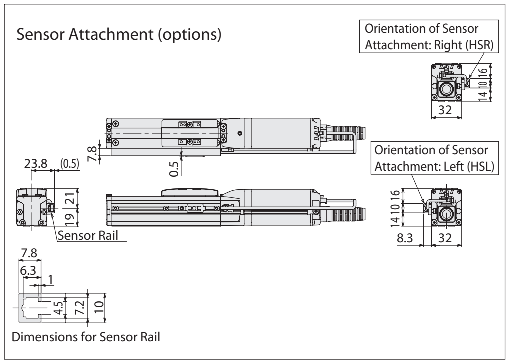
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.

ME : Mechanical end

SE : Stroke end


23
18
4-M3, depth 6
18 (Ø2 H7 interval ±0.02)
11±0.02
2-Ø2 H7, depth 3
24
Must be 100 or more.
(17.6)
Removable Cable Connector


L
80.5 (without brake)
105.5 (with brake)
A
6
2.5
Stroke
60
2.5
25
2
2
ME
SE
Home
ME (*2)
(16.4)
40
29.5
10.5
4.5
17.5
31
32
Guide Datum Point for Moment Calculation
M3, depth 5 (For ground line)
T-shaped Slot for M3 (1pc) Insertion
39
32
2-Ø3 H7, depth 4 (from base bottom)
G-M4, through (Bolt screw-in depth: 5mm or less)
K-Ø3.4, through Ø6 counterbored, depth 3 (from opposite side) (*1)
12
10
31
0.5
X
32.5 (Slider Center (Home))
Base Datum Surface
25
30
H×50
J
15
E×50
F
C (Ø3 hole - oblong hole)
(40)
D (Ø3 hole - Ø3 hole)
25
B
(R1.5)
4
3 +0.010 0
Detail view of X
10
Ø6
Ø3.4
3
4.8
2
4
(0.5)
31
(0.5)
Detail of Base Attachment Holes


Sensor Attachment (options)
Orientation of Sensor Attachment: Right (HSR)
14 10 16
32
7.8
23.8
(0.5)
0.5
19
21
Sensor Rail
Orientation of Sensor Attachment: Left (HSL)
14 10 16
8.3
32
7.8
6.3
1
4.5
7.2
10
Dimensions for Sensor Rail

■Dimensions and Mass by Stroke

Stroke		25	50	75	100	125	150	175	200	225	250	275	300
L	without brake	201.5	226.5	251.5	276.5	301.5	326.5	351.5	376.5	401.5	426.5	451.5	476.5
	with brake	226.5	251.5	276.5	301.5	326.5	351.5	376.5	401.5	426.5	451.5	476.5	501.5
A		121	146	171	196	221	246	271	296	321	346	371	396
B		90	115	140	165	190	215	240	265	290	315	340	365
C		10	35	60	85	110	135	160	185	210	235	260	285
D		25	50	75	100	125	150	175	200	225	250	275	300
E		0	0	0	1	1	2	2	3	3	4	4	5
F		25	50	75	50	75	50	75	50	75	50	75	50
G		4	4	4	6	6	8	8	10	10	12	12	14
H		0	0	0	1	1	2	2	3	3	4	4	5
J		(20)	45	70	45	70	45	70	45	70	45	70	45
K		(6)	6	6	8	8	10	10	12	12	14	14	16
Mass (kg)	without brake	0.51	0.55	0.58	0.61	0.65	0.68	0.71	0.75	0.78	0.81	0.85	0.88
	with brake	0.6	0.64	0.67	0.7	0.74	0.77	0.8	0.84	0.87	0.9	0.94	0.97

Tables for Payload by Acceleration and Speed

High output enabled Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	3	3	3	3	3	1.5	1.5	1.5
50	3	3	3	3	3	1.5	1.5	1.5
105	3	3	3	3	3	1.5	1.5	1.5
155	3	3	3	3	3	1.5	1.5	1.5
210	3	3	3	3	3	1.5	1.5	1.5
260	3	3	3	3	3	1.5	1.5	1.5
315	3	3	3	3	3	1.5	1.5	1.5
365	3	3	3	3	3	1.5	1.5	1.25
420	3	3	3	3	3	1.5	1.25	1

High output enabled Lead 4

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	5	5	5	5	4.5	2.5	2.5	2.5
35	5	5	5	5	4.5	2.5	2.5	2.5
70	5	5	5	5	4.5	2.5	2.5	2.5
105	5	5	5	5	4.5	2.5	2.5	2.5
140	5	5	5	5	4.5	2.5	2.5	2.5
175	5	5	5	5	4.5	2.5	2.5	2.5
210	5	5	5	5	4.5	2.5	2.5	2.5
245	5	5	5	5	4.5	2.5	2.5	2
280	5	5	5	5	4.5	2	2	1.75

High output enabled Lead 2

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	8	8	7	6	5	3.5	3.5	3.5
15	8	8	7	6	5	3.5	3.5	3.5
35	8	8	7	6	5	3.5	3.5	3.5
50	8	8	7	6	5	3.5	3.5	3.5
70	8	8	7	6	5	3.5	3.5	3.5
85	8	8	7	6	5	3.5	3.5	3.5
105	8	8	7	6	5	3.5	3.5	3.5
120	7	7	6	6	5	3	3	2.5
140	6	6	6	5	5	2.5	2.5	2

High output disabled Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	3	3	3	3	3	1.5	1.5	1.5
50	3	3	3	3	3	1.5	1.5	1.5
105	3	3	3	3	3	1.5	1.5	1.5
155	3	3	3	3	3	1.5	1.5	1.5
210	3	3	3	3	3	1.25	1.25	1.25
260	3	3	3	3	3	1	1	1
315	3	3	3	3	3	1	1	1
365	2.5	2.5	2.5	2.5	2.5	1	1	0.75
420	2	2	2	2	2	1	0.75	0.5

High output disabled Lead 4

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	5	5	5	5	4.5	2.5	2.5	2.5
35	5	5	5	5	4.5	2.5	2.5	2.5
70	5	5	5	5	4.5	2.5	2.5	2.5
105	5	5	5	5	4.5	2.5	2.5	2.5
140	4.5	4.5	4.5	4.5	4	2.25	2.25	2.25
175	4.5	4.5	4.5	4.5	4	2	2	2
210	4	4	4	4	3.5	2	2	2
245	4	4	4	3.5	3	2	2	1.5
280	3.5	3.5	3.5	3	2.5	1	1	0.75

High output disabled Lead 2

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	8	8	7	6	5	3.5	3.5	3.5
15	8	8	7	6	5	3.5	3.5	3.5
35	8	8	7	6	5	3.5	3.5	3.5
50	8	8	7	6	5	3.5	3.5	3.5
70	7.5	7	6	5	4.5	3.25	3.25	3.25
85	7.5	7	6	5	4.5	3	3	3
105	7	6.5	6	5	4.5	2.5	2.5	2
120	6.5	6	5	4.5	4	2	2	1.5
140	5.5	5	4.5	4	3.5	1.5	1.5	1

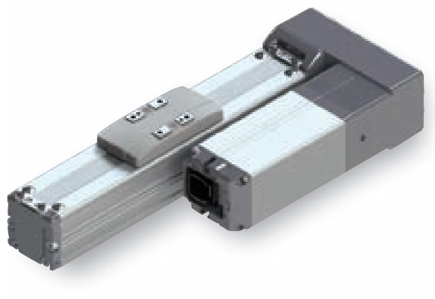
Note) MSEP-C/LC is available for high output only if "High-Output Specification" is selected in the options.

RCP4-SA3R

RoboCylinder, Slider Type, Side-mounted Motor Type, Actuator Width 32mm, 24-V Pulse Motor

Model Specification Items	RCP4	SA3R	I	28P	☐	☐	P3	☐	☐
	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 MSEL	N : None P : 1m S : 3m M : 5m X □□: Specified length R □□: Robot cable	Refer to the option list below.

CE RoHS



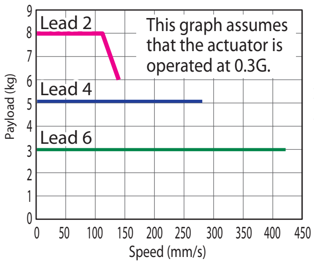
Pictured: Left-mounted motor model (ML).

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. 4-2 for details. (2) Refer to "Relative Graph for Pressing Force and Current Limit" on pg. 10 of RCP4-SA3/RA3 straight motor type catalogue for the pressing operation.

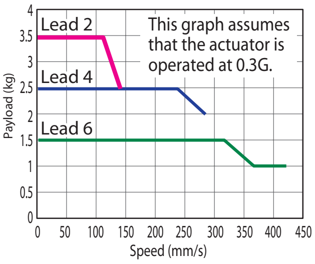
■Correlation Diagrams of Speed and Payload

①High output enabled (PowerCon) - PCON-CA•MSEP•MSEL connected

RCP4-SA3R Horizontal

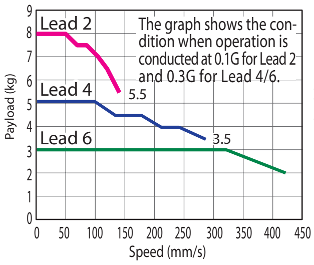


RCP4-SA3R Vertical

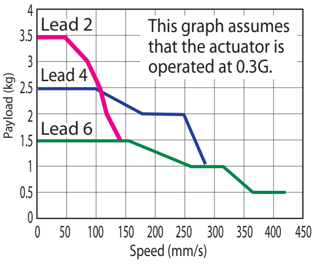


②High output disabled (standard) - PCON-CA•MSEP connected

RCP4-SA3R Horizontal



RCP4-SA3R Vertical



Actuator Specifications

■Leads and Payloads

Model number	Lead (mm)	Maximum payload		Stroke (mm)
		Horizontal (kg)	Vertical (kg)	
RCP4-SA3R-I-28P-6- ① -P3- ② - ③	6	3	1.5	25 ~ 300 (every 25mm)
RCP4-SA3R-I-28P-4- ① -P3- ② - ③	4	5	2.5	
RCP4-SA3R-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 25mm)
6	Enabled	420
	Disabled	
4	Enabled	280
	Disabled	
2	Enabled	140
	Disabled	

Cable Length

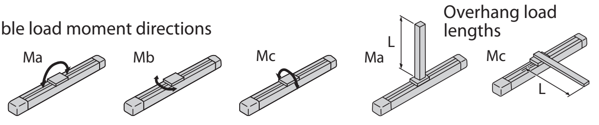
Type	Cable symbol
Standard type	**P** (1m)
	S (3m)
	M (5m)
Special length	**X06** (6m) ~ **X10** (10m)
	X11 (11m) ~ **X15** (15m)
	X16 (16m) ~ **X20** (20m)
Robot cable	**R01** (1m) ~ **R03** (3m)
	R04 (4m) ~ **R05** (5m)
	R06 (6m) ~ **R10** (10m)
	R11 (11m) ~ **R15** (15m)
	R16 (16m) ~ **R20** (20m)

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
Dynamic allowable moment (*1)	Ma: 3.82 N•m, Mb: 5.45 N•m, Mc: 6.10 N•m
Static allowable moment	Ma: 6.3 N•m, Mb: 8.9 N•m, Mc: 10.0 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 5000km of traveling life.

Allowable load moment directions



Options

Name	Option code	Reference page
Brake	**B**	Refer to RoboCylinder General Catalog
Left-mounted motor	**ML**	
Right-mounted motor	**MR**	
Home-position check sensor (on right)	**HSR** (Note1)	
Home-position check sensor (on left)	**HSL** (Note1)	
Non-motor end specification	**NM**	
Slider roller specification	**SR**	
Back-mounting plate	**RP**	-> P4-2

(Note 1)
For the left-mounted motor type "ML" the home-position check sensor is mounted on the right ("HSR"), and for the right-mounted motor type "MR" on the left ("HSL").

Dimensions

CAD drawings can be downloaded from the website. www.robocylinder.de

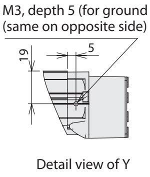
2D CAD

*1 On the 25mm stroke type, there are six counterbored mounting holes on the bottom of the base. The two counterbored mounting holes in the middle are not available to use.

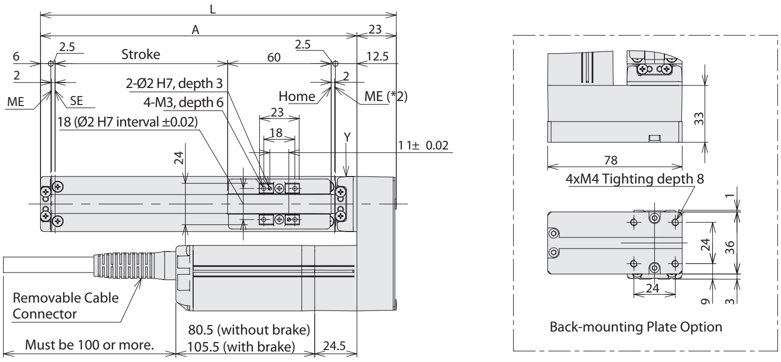
*2 During home return, be sure to avoid interference from peripheral objects because the slider travels until reaching the mechanical end.

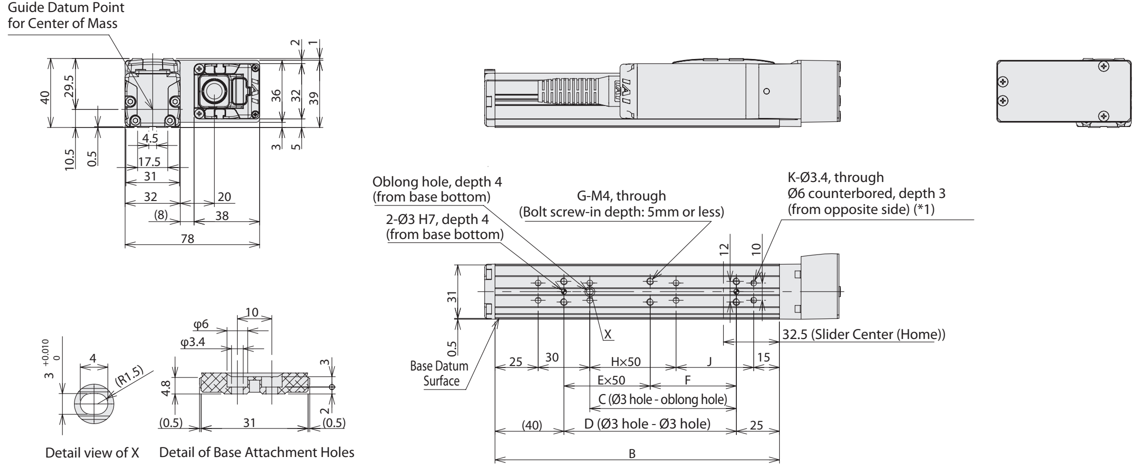
ME : Mechanical end

SE : Stroke end

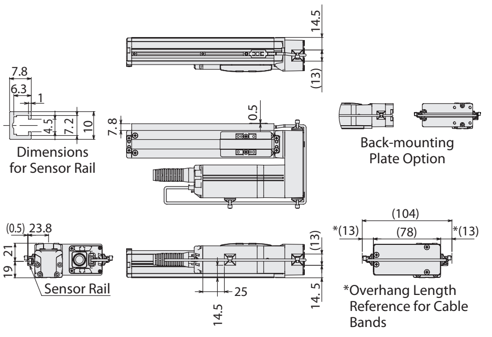

M3, depth 5 (for ground line)
(same on opposite side)
5
19

Detail view of Y


L
A
23
2.5
Stroke
60
2.5
12.5
6
2
2
2-Ø2 H7, depth 3
4-M3, depth 6
Home
ME
SE
ME (*2)
18 (Ø2 H7 interval ±0.02)
23
18
Y
11± 0.02
24
Removable Cable Connector
Must be 100 or more.
80.5 (without brake)
105.5 (with brake)
24.5
33
78
4xM4 Tighting depth 8
1
24
36
24
9
3
Back-mounting Plate Option


Guide Datum Point for Center of Mass
40
29.5
10.5
0.5
4.5
17.5
31
32
20
(8)
38
78
36
32
39
2
1
3
5
Oblong hole, depth 4 (from base bottom)
2-Ø3 H7, depth 4 (from base bottom)
G-M4, through (Bolt screw-in depth: 5mm or less)
K-Ø3.4, through Ø6 counterbored, depth 3 (from opposite side) (*1)
12
10
31
0.5
Base Datum Surface
X
32.5 (Slider Center (Home))
25
30
H×50
J
15
E×50
F
C (Ø3 hole - oblong hole)
(40)
D (Ø3 hole - Ø3 hole)
25
B
3 +0.010 0
4
(R1.5)
φ6
φ3.4
10
4.8
3
2
(0.5)
31
(0.5)
Detail view of X
Detail of Base Attachment Holes

Sensor Attachment (options)


14.5
(13)
7.8
6.3
1
4.5
7.2
10
7.8
0.5
Dimensions for Sensor Rail
Back-mounting Plate Option
(0.5) 23.8
19
21
Sensor Rail
25
14.5
(13)
*(13)
(104)
(78)
*(13)
14.5
*Overhang Length Reference for Cable Bands

■Dimensions and Mass by Stroke

Stroke		25	50	75	100	125	150	175	200	225	250	275	300
L	Standard	131.5	156.5	181.5	206.5	231.5	256.5	281.5	306.5	331.5	356.5	381.5	406.5
	with backside holes	141.5	166.5	191.5	216.5	241.5	266.5	291.5	316.5	341.5	366.5	391.5	416.5
A		108.5	133.5	158.5	183.5	208.5	233.5	258.5	283.5	308.5	333.5	358.5	383.5
B		90	115	140	165	190	215	240	265	290	315	340	365
C		10	35	60	85	110	135	160	185	210	235	260	285
D		25	50	75	100	125	150	175	200	225	250	275	300
E		0	0	0	1	1	2	2	3	3	4	4	5
F		25	50	75	50	75	50	75	50	75	50	75	50
G		4	4	4	6	6	8	8	10	10	12	12	14
H		0	0	0	1	1	2	2	3	3	4	4	5
J		(20)	45	70	45	70	45	70	45	70	45	70	45
K		(6)	6	6	8	8	10	10	12	12	14	14	16
Mass (kg)	without brake	0.64	0.68	0.71	0.74	0.78	0.81	0.84	0.88	0.91	0.94	0.98	1.01
	with brake	0.73	0.77	0.80	0.83	0.87	0.90	0.93	0.97	1.00	1.03	1.07	1.10

Tables for Payload by Acceleration and Speed

High output enabled (PowerCon spec.) Lead 6

Orientation	Horizontal					Vertical		
Speed	Acceleration							
(mm/s)	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	3	3	3	3	3	1.5	1.5	1.5
50	3	3	3	3	3	1.5	1.5	1.5
105	3	3	3	3	3	1.5	1.5	1.5
155	3	3	3	3	3	1.5	1.5	1.5
210	3	3	3	3	3	1.5	1.5	1.5
260	3	3	3	3	3	1.5	1.5	1.5
315	3	3	3	3	3	1.5	1.5	1.5
365	3	3	3	3	3	1	1	1
420	3	3	3	3	3	1	1	1

High output enabled (PowerCon spec.) Lead 4

Orientation	Horizontal					Vertical		
Speed	Acceleration							
(mm/s)	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	5	5	5	5	4.5	2.5	2.5	2.5
35	5	5	5	5	4.5	2.5	2.5	2.5
70	5	5	5	5	4.5	2.5	2.5	2.5
105	5	5	5	5	4.5	2.5	2.5	2.5
140	5	5	5	5	4.5	2.5	2.5	2.5
175	5	5	5	5	4.5	2.5	2.5	2.5
210	5	5	5	5	4.5	2.5	2.5	2
245	5	5	5	5	4.5	2.5	2.5	2
280	5	5	5	5	4.5	2	2	1.75

High output enabled (PowerCon spec.) Lead 2

Orientation	Horizontal					Vertical		
Speed	Acceleration							
(mm/s)	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	8	8	7	6	5	3.5	3.5	3.5
15	8	8	7	6	5	3.5	3.5	3.5
35	8	8	7	6	5	3.5	3.5	3.5
50	8	8	7	6	5	3.5	3.5	3.5
70	8	8	7	6	5	3.5	3.5	3.5
85	8	8	7	6	5	3.5	3.5	3.5
105	8	8	7	6	5	3.5	3.5	3.5
120	7	7	6	6	5	3	3	2.5
140	6	6	6	5	5	2.5	2.5	2

High output disabled (standard spec.) Lead 6

Orientation	Horizontal					Vertical		
Speed	Acceleration							
(mm/s)	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	3	3	3	3	3	1.5	1.5	1.5
50	3	3	3	3	3	1.5	1.5	1.5
105	3	3	3	3	3	1.5	1.5	1.5
155	3	3	3	3	3	1.5	1.5	1.5
210	3	3	3	3	3	1.25	1.25	1.25
260	3	3	3	3	3	1	1	1
315	3	3	3	3	3	1	1	1
365	2.5	2.5	2.5	2.5	2.5	0.5	0.5	0.5
420	2	2	2	2	2	0.5	0.5	0.5

High output disabled (standard spec.) Lead 4

Orientation	Horizontal					Vertical		
Speed	Acceleration							
(mm/s)	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	5	5	5	5	4.5	2.5	2.5	2.5
35	5	5	5	5	4.5	2.5	2.5	2.5
70	5	5	5	5	4.5	2.5	2.5	2.5
105	5	5	5	5	4.5	2.5	2.5	2.5
140	4.5	4.5	4.5	4.5	4	2.25	2.25	2.25
175	4.5	4.5	4.5	4.5	4	2	2	2
210	4	4	4	4	3.5	2	2	1.5
245	4	4	4	3.5	3	2	2	1.5
280	3.5	3.5	3.5	3	2.5	1	1	0.75

High output disabled (standard spec.) Lead 2

Orientation	Horizontal					Vertical		
Speed	Acceleration							
(mm/s)	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	8	8	7	6	5	3.5	3.5	3.5
15	8	8	7	6	5	3.5	3.5	3.5
35	8	8	7	6	5	3.5	3.5	3.5
50	8	8	7	6	5	3.5	3.5	3.5
70	7.5	7	6	5	4.5	3.25	3.25	3.25
85	7.5	7	6	5	4.5	3	3	3
105	7	6.5	6	5	4.5	2.5	2.5	2
120	6.5	6	5	4.5	4	2	2	1.5
140	5.5	5	4.5	4	3.5	1.5	1.5	1

(Note) MSEP is available for high output only if “High-Output Specification” (PowerCon) is selected in the options.

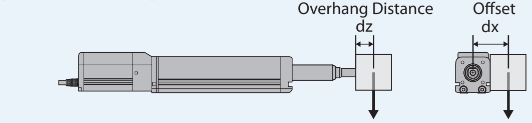
Criteria for Selection

●Document for Selection of Radial Cylinder Allowable Load

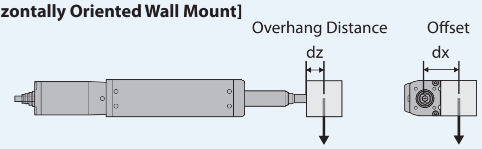
Because the Radial Cylinder is equipped with a built-in guide structure, a certain amount of load can be applied to the rod even without an external guide.
Refer to the graphs below for the allowable load mass.
Please note that it is necessary to apply an external guide feature when the operational condition exceeds the allowable load.

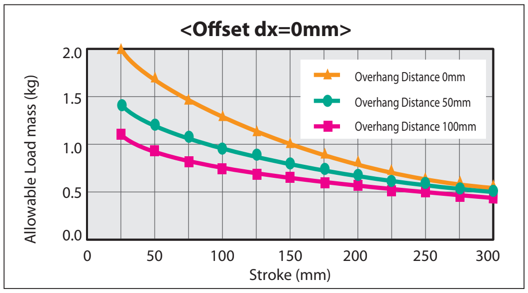
■Allowable Load Mass in Horizontal Mount

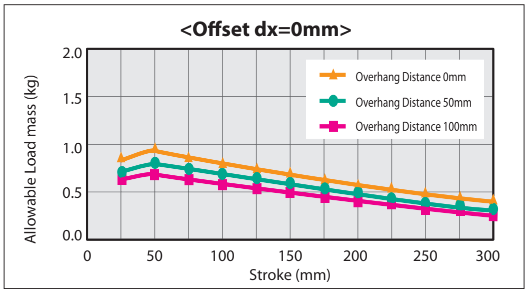
[Horizontal Mount]



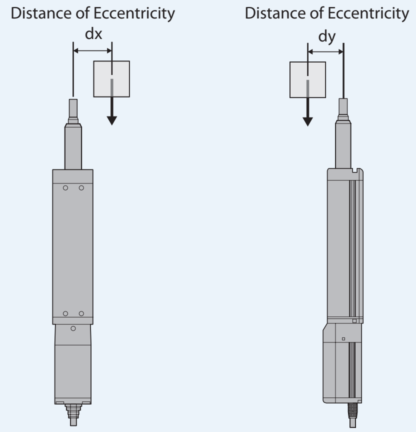
[Horizontally Oriented Wall Mount]

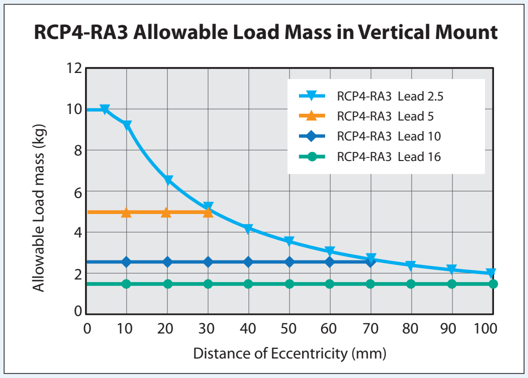






■Allowable Load Mass in Vertical Mount

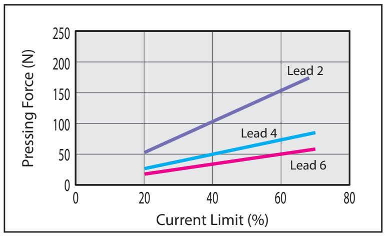




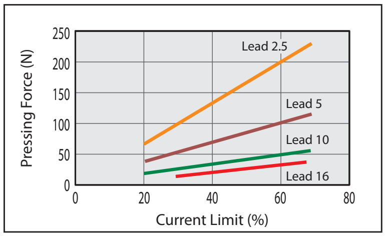
●Relative Graph for Pressing Force and Current Limit

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.

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