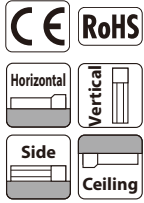# RCP6 ROBO Cylinder®

RCP6(S)-SA4R

| ±10µm Standard | Simple Dust-proof | Battery-less Absolute | Motor Unit Type | Side-mounted Motor | Body Width 40* mm | 24v Stepper Motor |

■ Model Specification Items

☐ — **SA4R** — **WA** — **35P** — ☐ — ☐ — ☐ — ☐ — ☐

* Body width does not include the width of the side-mounted motor.

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable Controller/I/O Type	Cable Length	Options
RCP6: Separate Controller RCP6S: Built-in Controller		WA: Battery-less Absolute	35P: Stepper Motor 35☐ Size	16:16mm 10:10mm 5: 5mm 2.5:2.5mm	50: 50mm ≀ 500: 500mm (50mm increments)	[RCP6] P3: PCON MCON MSEL [RCP6S] SE: SIO Type	N : None P : 1m S : 3m M : 5m X☐☐ : Specified Length R☐☐ : Robot Cable	Please refer to the options table below.

* RCP6 does not include a controller. RCP6S includes a built-in controller.
* Please refer to P.10 for more information about the model specification items.

*Please make sure to specify either ML or MR when ordering the side-mounted motor type.

CE RoHS

Horizontal Vertical Side Ceiling

Depending on the model, there may be some limitations to using the vertical, side, and ceiling mount positions. Please contact IAI for more information regarding mounting positions.
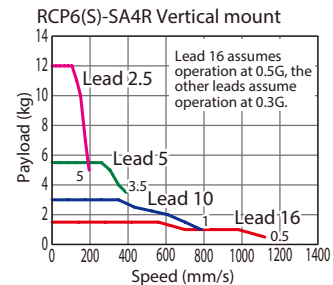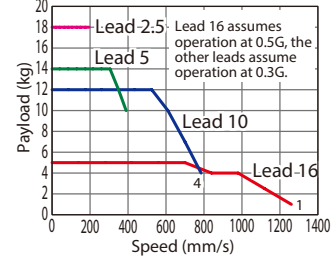
The figure above is the motor side-mounted to the left (ML).

POINT Selection Notes

(1) The maximum acceleration/deceleration is 1G for horizontal, and 0.5G for vertical use.
(2) The actuator specification displays the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to the "Selection Guidelines" (RCP6 Tables of Payload by Speed/Acceleration) on P.115 for more details.
(3) When performing push-motion operation, please confirm the push force of each model by checking the "Correlation diagram of push force and current limit" on P.113.

■ Correlation Diagrams of Speed and Payload

High-output enabled with PCON/MCON/MSEL connected.

RCP6(S)-SA4R Horizontal mount

Lead 16 assumes operation at 0.5G, the other leads assume operation at 0.3G.

RCP6(S)-SA4R Vertical mount

Lead 16 assumes operation at 0.5G, the other leads assume operation at 0.3G.

Actuator Specifications

■ Lead and Payload

Model Number	Lead (mm)	Connected Controller	Max. Payload Horizontal (kg)	Max. Payload Vertical (kg)	Stroke (mm)
RCP6(S)-SA4R-WA-35P-16-①-②-③-④	16	High-output Enabled	7	1.5	50~500 (The increment of stroke is 50mm)
RCP6(S)-SA4R-WA-35P-10-①-②-③-④	10	High-output Enabled	12	3	
RCP6(S)-SA4R-WA-35P-5-①-②-③-④	5	High-output Enabled	14	5.5	
RCP6(S)-SA4R-WA-35P-2.5-①-②-③-④	2.5	High-output Enabled	18	12	

Legend: ① Stroke ② Applicable controller/I/O type ③ Cable length ④ Options

■ Stroke and Max. Speed (Unit: mm/s)

Lead (mm)	Connected Controller	50~400 (Every 50mm)	450 (mm)	500 (mm)
16	High-output Enabled	1,260	1,060	875
10	High-output Enabled	785	675	555
5	High-output Enabled	390	330	275
2.5	High-output Enabled	195	165	135

Values in brackets < > are for vertical use.

① Stroke

Stroke (mm)	RCP6	RCP6S	Stroke (mm)	RCP6	RCP6S
50	○	○	300	○	○
100	○	○	350	○	○
150	○	○	400	○	○
200	○	○	450	○	○
250	○	○	500	○	○

③ Cable Length

Cable Type	Cable Code	RCP6	RCP6S
Standard	**P** (1m)	○	○
	S (3m)	○	○
	M (5m)	○	○
Specified 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)	○	○

* Please refer to P.144 for more information regarding the maintenance cables.

④ Options

Name	Option Code	Reference Page
Brake	**B**	See P.105
Cable exit direction (Outside)	**CJO**	See P.105
Motor side-mounted to the left	**ML**	See P.109
Motor side-mounted to the right	**MR**	See P.109
Non-motor end specification	**NM**	See P.110

\# When selecting multiple options, please list them in alphabetical order. (e.g. B-CJB-NM)

Actuator Specifications

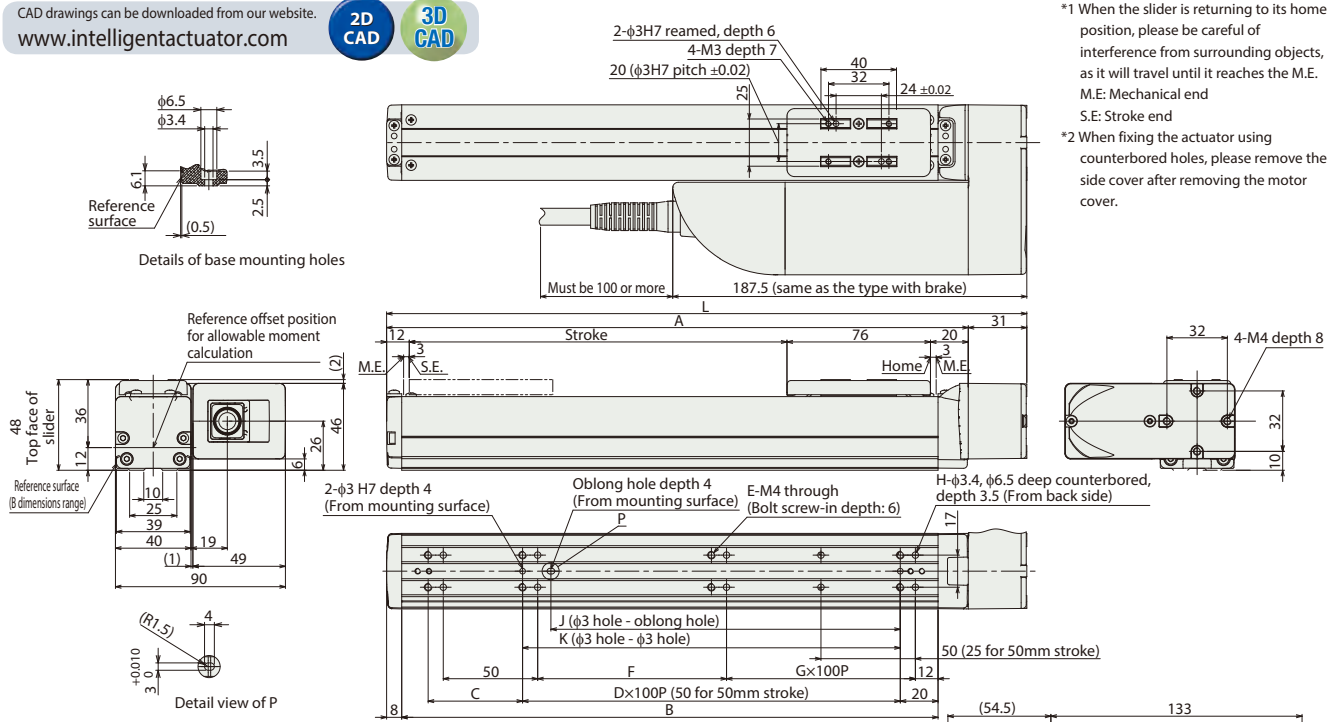| Item	Description
Drive system	Ball screw φ8mm, rolled C10
Positioning repeatability	±0.01mm
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Static allowable moment	Ma: 13.0N•m, Mb: 18.6N•m, Mc: 25.3N•m
Dynamic allowable moment (*)	Ma: 5.0N•m, Mb: 7.1N•m, Mc: 9.7N•m
Ambient operating temp. & humidity	0~40°C, 85% RH or less (Non-condensing)

* Reference for overhang load length: Ma: 150mm or less, Mb, Mc: 150mm or less

(*) Assumes a standard rated life of 5,000km. The service life will vary depending on operation and installation conditions.
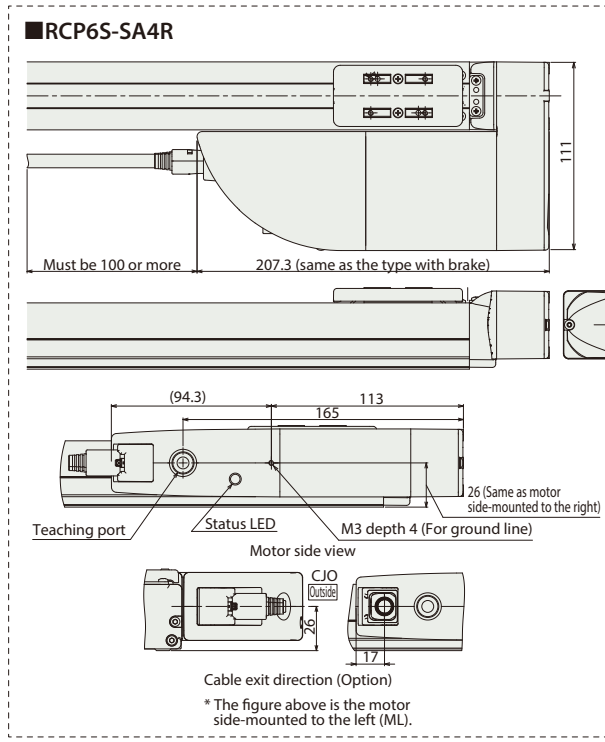
Please refer to our website for more information regarding the directions of the allowable moment and overhang load length.

Dimensions

CAD drawings can be downloaded from our website.
www.intelligentactuator.com
2D CAD **3D CAD**

*1 When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
M.E: Mechanical end
S.E: Stroke end

*2 When fixing the actuator using counterbored holes, please remove the side cover after removing the motor cover.

φ6.5
φ3.4
6.1
3.5
2.5
(0.5)
Reference surface

Details of base mounting holes

2-φ3H7 reamed, depth 6
4-M3 depth 7
20 (φ3H7 pitch ±0.02)
40
32
24 ±0.02
25

Must be 100 or more
187.5 (same as the type with brake)

Reference offset position for allowable moment calculation
(2)
48 Top face of slider
36
46
26
6
12
M.E.
S.E.
12
3
Stroke
Home
76
20
3
M.E.
A
L
31
Reference surface (B dimensions range)
10
25
39
40
19
49
(1)
90

2-φ3 H7 depth 4 (From mounting surface)
Oblong hole depth 4 (From mounting surface)
E-M4 through (Bolt screw-in depth: 6)
H-φ3.4, φ6.5 deep counterbored, depth 3.5 (From back side)
P
17
32
4-M4 depth 8
32
10

(R1.5)
4
+0.010
3 0
Detail view of P

J (φ3 hole - oblong hole)
K (φ3 hole - φ3 hole)
50
C
50
F
G×100P
12
50 (25 for 50mm stroke)
D×100P (50 for 50mm stroke)
B
8
20

■RCP6S-SA4R

111

Must be 100 or more
207.3 (same as the type with brake)

32
4-M4 depth 8
32
10

(94.3)
165
113
26 (Same as motor side-mounted to the right)

Teaching port
Status LED
M3 depth 4 (For ground line)
Motor side view

CJO Outside
26
17
Cable exit direction (Option)

* The figure above is the motor side-mounted to the left (ML).

(54.5)
133
M3 depth 4 (For ground line)
35.5 (Motor side-mounted to the left)
16.5 (Motor side-mounted to the right)
Motor side view

CJO Outside
26
16
Cable exit direction (Option)

* The figure above is the motor side-mounted to the left (ML).

■ Dimensions and Mass by Stroke

Stroke			50	100	150	200	250	300	350	400	450	500
L			189	239	289	339	389	439	489	539	589	639
A			158	208	258	308	358	408	458	508	558	608
B			134	184	234	284	334	384	434	484	534	584
C			50	50	100	50	100	50	100	50	100	50
D			-	1	1	2	2	3	3	4	4	5
E			6	6	6	8	8	10	10	12	12	14
F			50	100	50	100	50	100	50	100	50	100
G			0	0	1	1	2	2	3	3	4	4
H			8	8	10	10	12	12	14	14	16	16
J			35	85	85	185	185	285	285	385	385	485
K			50	100	100	200	200	300	300	400	400	500
Mass (kg)	RCP6	w/o brake	1.3	1.4	1.5	1.6	1.7	1.7	1.8	1.9	2.0	2.1
		w/ brake	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
	RCP6S	w/o brake	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.0	2.1	2.2
		w/ brake	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3

② Applicable Controllers

The RCP6 series actuators can be operated by the controllers indicated below. Please select the type depending on your intended use. * Please refer to P.147 for more information about the built-in controller of RCP6S series.

Name	External view	Max. number of controlled axes	Input power	Control method				Maximum number of positioning points	Reference page
				Positioner	Pulse train	Program	Network *Option		
PCON-CB/CGB		1	DC24V	● *Option	● *Option	-	DeviceNet MECHATROLINK CC-Link EtherCAT PROFIBUS EtherNet/IP CompoNet PROFINET	512 (768 for network spec.)	Please see P.131
MCON-C/CG		4		This model is network-compatible only.			Note: · The type of compatible networks will vary depending on the controller. Please refer to reference page for more information.	256	Please see the MCON catalog.
MSEL-PC/PG		4	Single-phase 100~230VAC	-	-	●		30,000	Please see the MSEL-PC/PG catalog.

* Please select "high-output specification" as an option for the MCON. With the MCON, operation is possible only when the high-output specification is selected.