RCP2W
ROBO Cylinder Waterproof Type

**New RCP2 slider lineup
Eagerly awaited waterproof type!**

**First in the industry (IAI study)
Fully conforming to IEC IP67!**

**Able to withstand strong/repeated
splashes or washing processes!**

Standard type

Cover type (optional)

Features

● An **IP67**-rated structure provides strong protection against water.

The RCP2W fully conforms to IEC IP67.

IP□□

(*1) The RCP2W cannot be operated in water.

Second digit ▶ Degree of protection against water

7
- Watertight
- Even if the actuator is immersed in water under specific conditions, water does not enter. (*1)

First digit ▶ Degree of protection against human body parts and solid objects

6
- Dust does not enter
- (Complete protection)

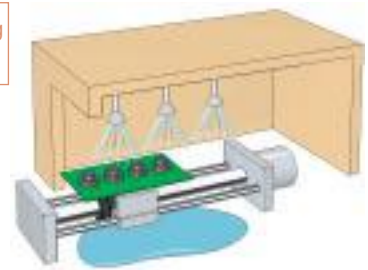● **Magnetic coupling structure (patent pending)**

Thrust is transmitted via magnetic attraction force to achieve complete sealing around the ball screw.

● **Optional cover type**

You can select the cover type that protects guides and other sliding parts.

Examples of Use

Parts cleaning equipment

Water rinsing of equipment after use

Model

Actuator Model

RCP2W – SA16 – I – PM – 8 – 600 – P1 – M – NM

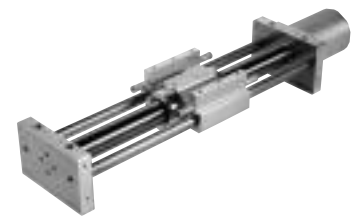| Series	Type	Encoder type	Motor type	Gear ratio	Stroke	Applicable controller	Cable length	Options
RCP2W	SA16: Actuator width 158mm	I:Incremental	PM:Pulse motor	8:Lead 8 4:Lead 4	50:50mm ~ 600:600mm	P1:RCP2-C□	N:No cable P:1m S:3m M:5m X□□:Specified length R□□:Robot cable	CO:Cover NM:Reversed-home specification

Controller Model

RCP2 – CF – SA16 – I – PM – 0 – P

Series	Type	Actuator type	Power-supply voltage	Input signal pattern
RCP2	CF:High-output type with built-in drive-source cutoff relay	Enter the (type of the actuator) – (encoder type) – (motor type)	0:DC24V	(Blank):NPN P :PNP

* Leave this space blank unless you require the PNP specification.

RCP2W-SA16

ROBO Cylinder Waterproof Type,
Actuator Width 158mm, Pulse Motor

Type	Slider (158mm wide)	Stroke	50~600mm	Load capacity	35kg (horizontal)

Model specification items

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

(Example) RCP2W–SA16– I – PM – 8 – 600 – P1 – M – NM

Models/Specifications

* The maximum speed of the RCP2 Series varies depending on the weight of the load installed on the slider (rod). Refer to the graph on the facing page for the relationship of speed and load capacity.

Model	Encoder Type	Motor output (W)	Lead (mm)	Stroke 50mm increments (mm)	Speed (mm/s)	Load capacity (Note1) Horizontal (kg)	Load capacity (Note1) Vertical (kg)
RCP2W-SA16-I-PM-8- ① -P1- ② - ③	Incremental	Pulse motor	8	50 ~ 600	5 ~ 180	25 ~ 1	Horizontal only
RCP2W-SA16-I-PM-4- ① -P1- ② - ③			4		1 ~ 133	35 ~ 3	

* In the above model names, ① indicates the stroke, ② the cable length, and ③ the applicable option(s).
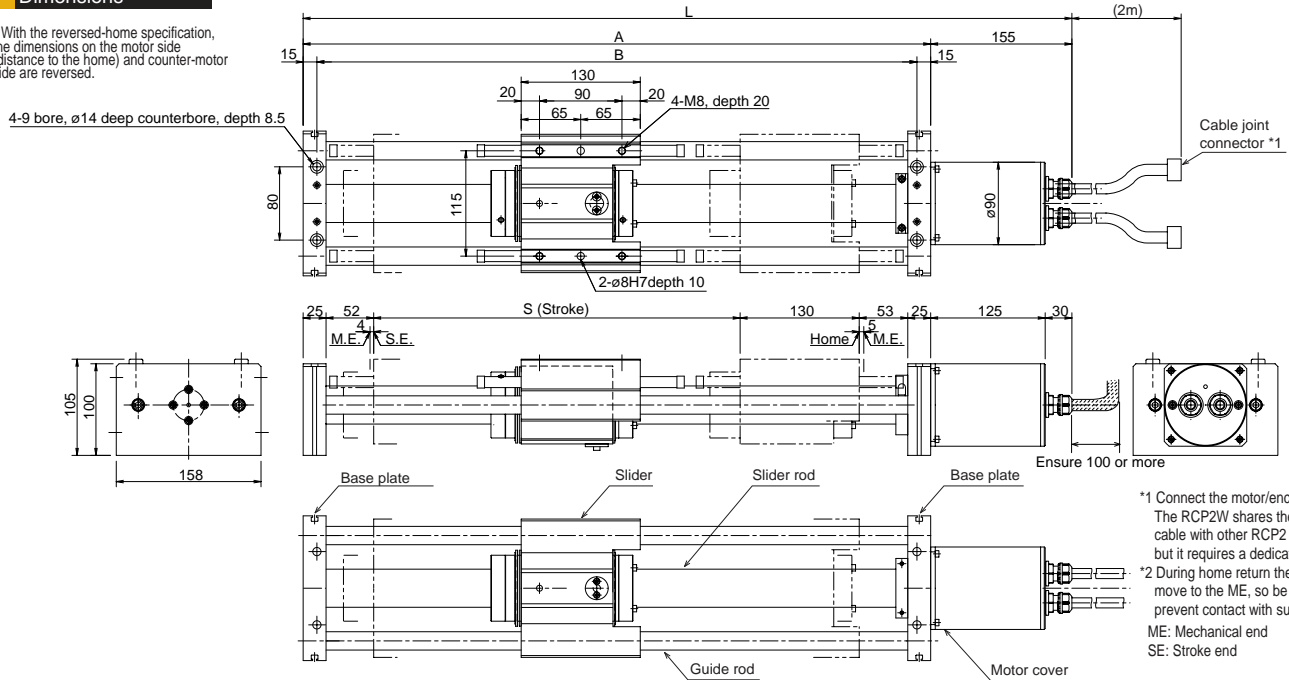
Options

Name	Code	Page
Cover type	CO	→P2
Reversed-home specification	NM	–

Common Specifications

Drive system	Ball screw ø12mm, rolled C10
Positioning repeatability	±0.08mm
Backlash	0.1mm or less
Guide	ø20 non-lubricated, direct-coupled sliding guide
Static allowable load moment (Note 2)	20.0N • m
Overhung load length (Note 3)	Ma direction: 200mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 4)	N: No cable, P: 1m, S: 3m, M: 5m, X□□: Length specification, R□□: Robot cable
Ambient operating temperature/humidity	0~40°C, 85% RH or less (non-condensing)

Dimensions

* With the reversed-home specification, the dimensions on the motor side (distance to the home) and counter-motor side are reversed.

4-9 bore, ø14 deep counterbore, depth 8.5

4-M8, depth 20

2-ø8H7depth 10

Cable joint connector *1

M.E. S.E.   S (Stroke)   Home M.E.

Ensure 100 or more

Base plate   Slider   Slider rod   Base plate

Guide rod   Motor cover

*1 Connect the motor/encoder cables. The RCP2W shares the same motor cable with other RCP2 Series models, but it requires a dedicated encoder cable.
*2 During home return the slider will move to the ME, so be careful to prevent contact with surrounding parts.
ME: Mechanical end
SE: Stroke end

Stroke	50	100	150	200	250	300	350	400	450	500	550	600
L	490	540	590	640	690	740	790	840	890	940	990	1040
A	335	385	435	485	535	585	635	685	735	785	835	885
B	305	355	405	455	505	555	605	655	705	755	805	855
S	50	100	150	200	250	300	350	400	450	500	550	600
Weight (kg)	9	9.4	9.9	10.4	10.9	11.3	11.8	12.3	12.7	13.2	13.7	15.1
Maximum speed (mm/s) Lead 8	180											
Maximum speed (mm/s) Lead 4	133											

[Materials of Key Components]

- Base plate : Aluminum (A6063S-T5 or equivalent) with white alumite treatment
- Slider : Aluminum (A6063S-T5 or equivalent) with white alumite treatment
- Slider rod : SUS304
- Guide rod : SUS304
- Motor cover : Aluminum (A6063S-T5 or equivalent) with white alumite treatment

Applicable Controller Specifications

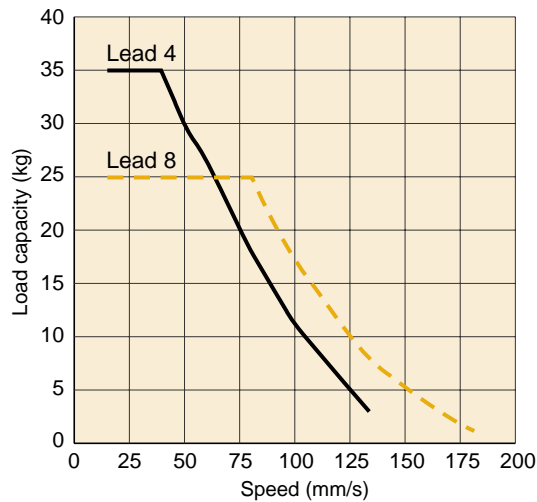| Applicable controller	Maximum number of controlled axes	Compatible encoder type	Operating method	Power supply voltage	Page
RCP2-CF-SA16	1 axis	Incremental	Positioner	DC24V	Back cover

⚠ Caution

(Note 1) The load capacity is based on operation at an acceleration of 0.2 G.
(Note 2) The allowable load moment when the actuator is stationary.
(Note 3) The actuator cannot accommodate overhung loads in the Mb or Mc direction. (Refer to "Notes on Use" on the facing page.)
(Note 4) The maximum cable length is 18 m. Specify a desired length in meters. (Example: X08 = 8 m)

RCP2W-SA16

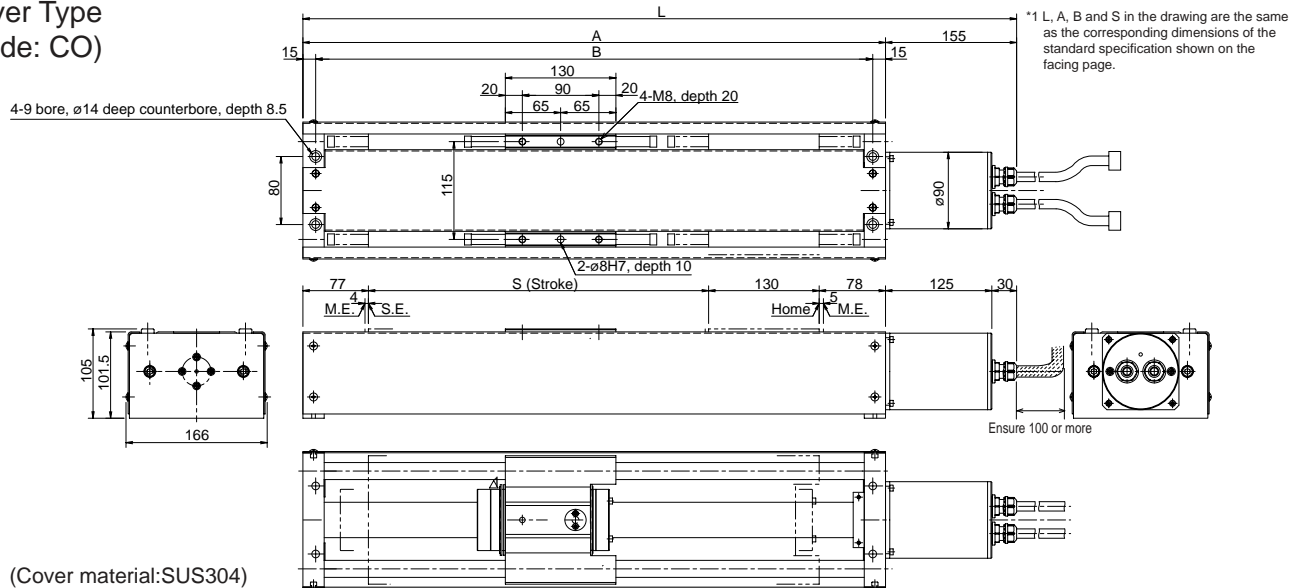## Correlation Diagram of Speed and Load Capacity

The specification data shown to the right is based on operation at an acceleration of 0.2 G with the payload uniformly distributed over the slider.
If the actuator receives any moment load, different values will apply because the effect of slide resistance must be considered.

Load capacity (kg) vs Speed (mm/s)

Lead 4

Lead 8

Option

Cover Type (Code: CO)

*1 L, A, B and S in the drawing are the same as the corresponding dimensions of the standard specification shown on the facing page.

L
A
B
155
15
130
20 90 20
65 65
4-M8, depth 20
15
80
115
4-9 bore, ø14 deep counterbore, depth 8.5
2-ø8H7, depth 10
ø90

77
4
M.E. S.E.
S (Stroke)
130
Home
5
M.E.
78
125
30

105
101.5
166

Ensure 100 or more

(Cover material:SUS304)

Stroke	50	100	150	200	250	300	350	400	450	500	550	600
Weight (kg)	10.5	11.1	11.8	12.5	13.2	13.8	14.6	15.3	15.9	16.6	17.3	18.9

Notes on Use

● This actuator cannot be used in vertical applications. It cannot perform push operation, either.

● Keep the duty (%) <operating time / (operating time + stopped time) x 100> at 50% or below.

● Operate the actuator in conditions where it does not receive any moment load in the Mb or Mc direction.
If any implement is to be attached to the slider, install the implement so that its center of gravity stays within the slider dimension and its height is kept within 200 mm from the top surface of the slider.

Directions of load moments on the slider type

Ma   Mb   Mc
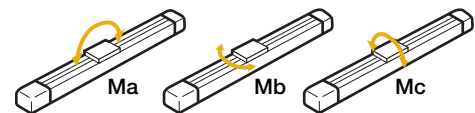
● This actuator is IP67-rated. However, the user must heed the following precautions:
  • The cable leading from the actuator (actuator cable) is 2 m long.
    The connector at the end of the cable is not waterproof, so lay the cable in such a way that its end does not come in contact with water.
  • The actuator cannot be operated in water.
  • If the actuator is to be used in an environment where it will be exposed to splashed liquids other than water, consult IAI beforehand.
  • The actuator cannot be used in an environment where air contains scattered or suspended dust including magnetic particles.
  • The actuator cannot be used in an environment where air contains scattered or suspended abrasive particles or dust.

● The ball screw and slider are coupled via magnetic attraction force and will therefore separate if an excessive force is applied. To prevent their accidental decoupling, the actuator has a built-in torque limiter. Should the ball screw and slider be displaced due to impact, etc., they will return to their original positions once home return is performed.

● The encoder cable is different from the one used with the standard RCP2 models. (The motor cable is the same.)

RCP2W-SA16

2

Controller

RCP2-CF-SA16

Model

RCP2 – CF – SA16–I–PM – 0 – P

Series	Type	Actuator type	Power-supply voltage	Input signal pattern
RCP2	CF:High-output type with built-in drive-source cutoff relay	Enter the (type of the actuator) – (encoder type) – (motor type)	0:DC24V	(Blank):NPN P :PNP

Specification Table

Item	Specification
Controller series/type	RCP2-CF-SA16
Connected actuator	RCP2-SA16
Input power supply	DC24V±10%
Power-supply capacity	6A max. (peak rush current: 8A)
Number of controlled axes	1 axis
Control method	Field-weakening vector control (patent pending)
Positioning command	Position number specification
Position numbers	Standard 16 points, maximum 64 points
Backup memory	Position number data and parameters are saved in non-volatile memory. Serial EEPROM rewritable up to 100,000 times.
PIO	10 dedicated input points / 10 dedicated output points; selectable from 5 patterns.
LED indicators	RDY (green), RUN (green), ALM (red)
I/F power supply	External power supply 24V±10% / 0.3A; insulated
Communication	RS485, 1 channel (terminated externally)
Encoder interface	Incremental interface conforming to EIA RS-422A/423A
Forced release of electromagnetic brake	Toggle switch on front panel of enclosure
Cable length	Motor/encoder cables: 18m max.
	PIO cable: 5m max.
Withstand voltage	DC500V 10MΩ
Vibration resistance	10~57Hz in XYZ directions / Single amplitude 0.035mm (continuous), 0.075mm (intermittent)
Ambient operating temperature	0~40℃
Ambient operating humidity	85% RH or less (non-condensing)
Operating ambience	Free from corrosive gases
Protection class	IP20
Weight	300g
Accessory	PIO flat cable (2m)

External Dimensions

Unit:mm
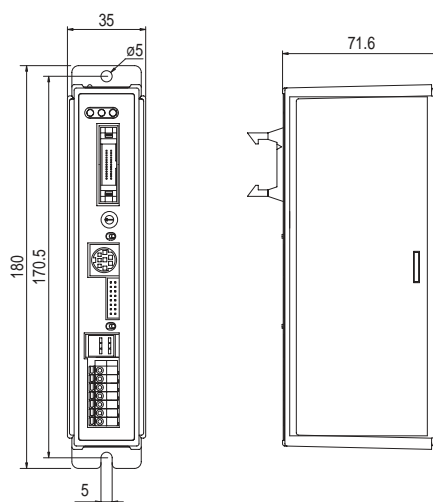
Options/Spare Parts

Item	Model
Teaching pendant	RCA-T
Teaching pendant (deadman specification)	RCA-TD
Simple teaching pendant	RCA-E
Data setting unit	RCA-P
PC software	RCB-101-MW
Motor cable	CB-RCP2-MA □□□
Encoder cable	CB-RFA-PA □□□
Encoder robot cable	CB-RFA-PA□□□-RB

* The standard motor cable is a robot cable.
* The encoder cable is different from the one used with the standard RCP2 models.

Website: www.intelligentactuator.com
The information contained in this catalog is subject to change without notice for the purpose of product improvement.