RCP2W-RA4C

ROBO Cylinder, Splash-Proof Rod Type, Actuator Width 45mm, Pulse Motor, Coupled

Model Specification Items: **RCP2W** — **RA4C** — **I** — **42P** — [Lead] — [Stroke] — [Applicable controller] — [Cable length] — [Options]

- Series: RCP2W
- Type: RA4C
- Encoder type: I: Incremental; * The Simple absolute encoder is also considered type "I".
- Motor type: 42P: Pulse motor, 42□ size
- Lead: 10 : 10mm; 5 : 5mm; 2.5 : 2.5mm
- Stroke: 50: 50mm ~ 300: 300mm (50mm pitch increments)
- Applicable controller: P1: PCON-PL/PO/SE, PSEL; P3: PCON-CA, MSEP, PMEC/PSEP
- Cable length: N: None; P: 1m; S: 3m; M: 5m; X□□: Custom Length; R□□: Robot cable
- Options: B : Brake; FL : With flange; FT : With foot bracket; NM : Non-motor end

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

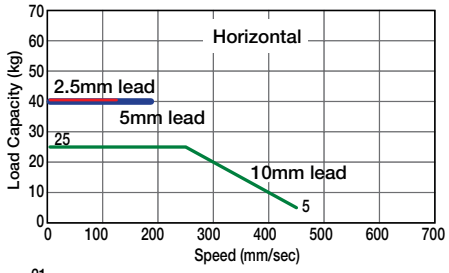
Technical References → Appendix P.5

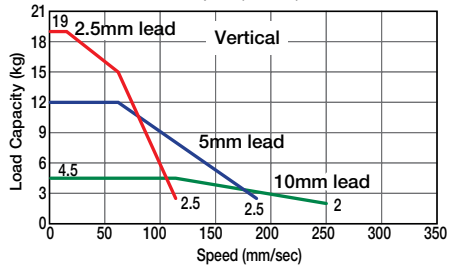
POINT Notes on selection

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching the critical rotational speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) Since the RCP2 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph on the above right to see if your desired speed and load capacity are supported.
(3) The load capacity is based on operation at an acceleration of 0.2G. 0.2G is the upper limit for the acceleration.
(4) The horizontal payload is calculated by assuming that an external guide is also used.
(5) The cable joint connector is not splash-proof; secure it in a place that is not prone to water spills.
(6) See page A-71 for details on push motion.

Speed vs. Load Capacity

Due to the characteristics of the pulse motor, the RCP2 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.





Actuator Specifications

Lead and Payload

(Note 1) Please note that the maximum load capacity decreases as the speed increases.

Model number	Lead (mm)	Max. Load Capacity (Note 1) Horizontal (kg)	Max. Load Capacity (Note 1) Vertical (kg)	Maximum Push Force (N) (Note 2)	Stroke (mm)
RCP2W-RA4C-I-42P-10-①-②-③-④	10	~25	~4.5	150	50~300 (every 50mm)
RCP2W-RA4C-I-42P-5-①-②-③-④	5	40	~12	284	
RCP2W-RA4C-I-42P-2.5-①-②-③-④	2.5	40	~19	358	

Code explanation ① Stroke ② Applicable controller ③ Cable length ④ Options *See page A-71 for details on push motion.

Stroke and Maximum Speed

Lead \ Stroke	50~200 (every 50mm)	250	300
10	450 <250>	450 <250>	350 <250>
5	190	190	175
2.5	125 <115>	115	85

*The values enclosed in < > apply to vertical settings. (Unit: mm/s)

①Stroke

①Stroke (mm)	Standard price
50	—
100	—
150	—
200	—
250	—
300	—

③Cable Length

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

* See page A-59 for cables for maintenance.

④Options

Name	Option code	See page	Standard price
With cover	**B**	→ A-42	—
With flange	**FL**	→ A-45	—
With foot bracket	**FT**	→ A-48	—
Non-motor end specification	**NM**	→ A-52	—

Actuator Specifications

Item	Description
Drive System	Ball screw, ø8mm, rolled C10
Positioning repeatability	±0.02mm
Lost Motion	0.1mm or less
Rod diameter	ø22mm
Rod non-rotational accuracy	±1.5 degrees
Protective structure	IP65
Ambient operating temperature/humidity	0 to 40°C, 85% RH max. (Non-condensing)

Dimensional Drawings

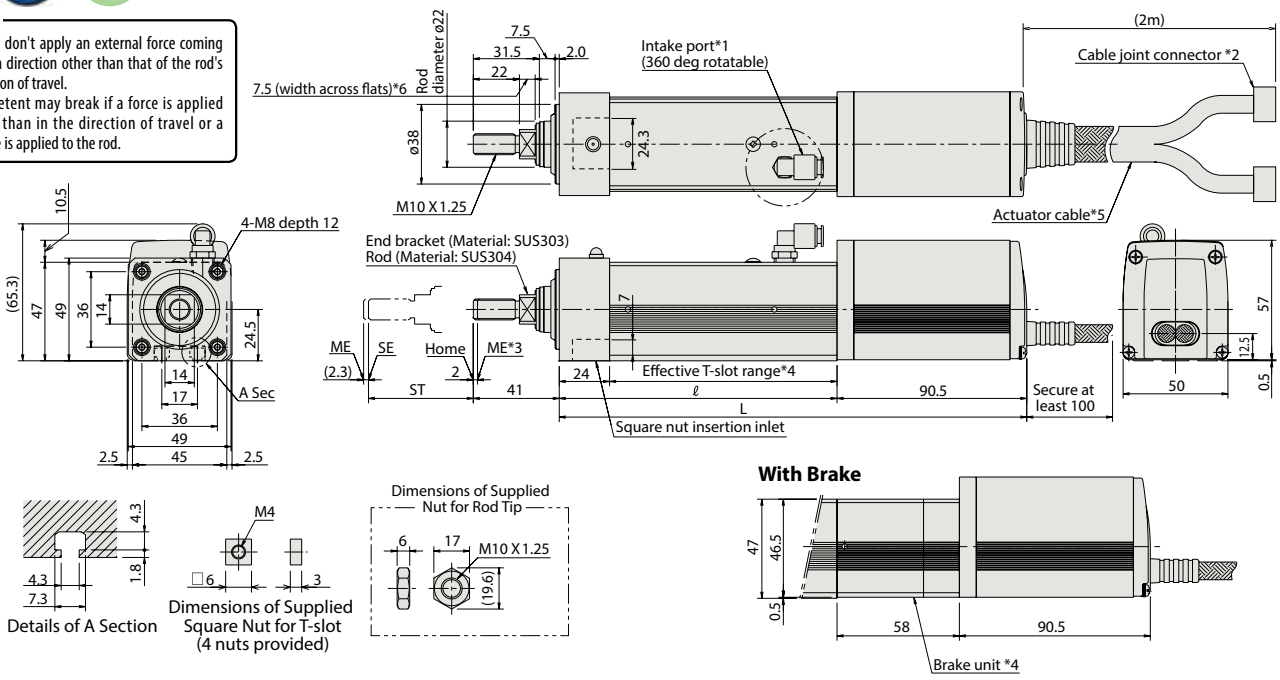
CAD drawings can be downloaded from the website. www.intelligentactuator.com

For Special Orders Appendix P.15

2D CAD 3D CAD

Note

Please don't apply an external force coming from a direction other than that of the rod's direction of travel.
The detent may break if a force is applied other than in the direction of travel or a torque is applied to the rod.



With Brake

*Adding a brake increases overall length by 58mm and its weight by 0.4kg.

(*1) Intake/exhaust port is the air exhaust tube in the main body. Insert OD ø6 mm tube and use it extended to a place that is not prone to water spills or intake.
(*2) Connect the motor and encoder cables here. See page A-59 for details on cables.
The cable joint connector is not splash-proof; therefore, please secure it in a place that is not prone to water spills.
(*3) When homing, the rod moves to the ME; therefore, please watch for any interference with the surrounding objects.
ME: Mechanical End
SE: Stroke end
The dimensions enclosed in "( )" are reference dimensions.
(*4) Please note that there is no T-slot in the bottom of brake unit.
(*5) The actuator cable is not a robot cable (flex resistant cable); therefore, please don't use it for movable parts such as cable track.
(*6) The orientation of the bolt varies depending on the product.

■ Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300
ℓ	132.5	182.5	232.5	282.5	332.5	382.5
L	223	273	323	373	423	473
Weight (kg)	1.9	2.1	2.2	2.5	2.9	3.1

②Applicable Controllers

RCP2W series actuators can be operated with the controllers indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
Solenoid Valve Type		PMEC-C-42PI-Ⓘ-2-Ⓘⅰ	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	Refer to P541	—	→ P537
		PSEP-C-42PI-Ⓘ-2-0	Simple controller operable with the same signal as a solenoid valve		DC24V	Refer to P555	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-Ⓘⅲ-~-Ⓘ-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected			Refer to P572	—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-Ⓘⅲ-~-Ⓥ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type High-output specification		PCON-CA-42PI-Ⓘ-2-0	Equipped with a high-output driver Positioner type based on PIO control	512 points		Refer to P618	—	→ P607
Pulse-train type High-output specification		PCON-CA-42PI-PL□-2-0	Equipped with a high-output driver Pulse-train input type	(—)			—	
Field network type High-output specification		PCON-CA-42PI-Ⓥ-0-0	Equipped with a high-output driver Supporting 7 major field networks	768 points			—	
Pulse Train Input Type (Differential Line Driver)		PCON-PL-42PI-Ⓘ-2-0	Pulse train input type with differential line driver support	(—)		Refer to P628	—	→ P623
Pulse Train Input Type (Open Collector)		PCON-PO-42PI-Ⓘ-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		PCON-SE-42PI-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		PSEL-CS-1-42PI-Ⓘ-2-0	Programmed operation is possible. Can operate up to 2 axes	1, 500 points		Refer to P671	—	→ P665

* This is for the single-axis PSEL. * Ⓘ indicates I/O type (NP/PN). * Ⓘⅲ indicates power supply voltage (1: 100V / 2: 100~240V).
* Ⓘⅲ indicates number of axes (1 to 8). * Ⓥ indicates field network specification symbol. * □ indicates N (NPN specification) or P (PNP specification) symbol.