RCP2-BA7/BA7U

ROBO Cylinder, Belt Type, 68mm Width, Pulse Motor, Top-mounted Motor/Bottom-mounted Motor

Model Specification Items

RCP2 — [ ] — I — 42P — 54 — [ ] — [ ] — [ ] — [ ] — [ ]

Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
	BA7 : Belt type Top-mounted motor BA7U : Belt type Bottom-mounted motor	I: Incremental * The Simple absolute encoder is also considered type "I".	42P: Pulse motor, 42□ size	54 :54mm equivalent	600: 600mm ~ 1200: 1200mm (50mm pitch increments)	P1: PCON-PL/PO/SE PSEL P3: PCON-CA PMEC/PSEP MSEP	N: None P: 1m S: 3m M: 5m X□□: Custom length R□□: Robot cable	NM: Non-motor end

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

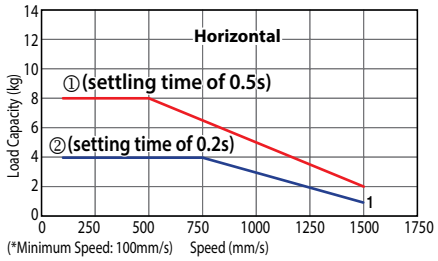
Technical References Appendix P.5

POINT Notes on selection

(1) Operating the belt type actuator at low speeds may cause vibration and/or resonance. Therefore, please set the speed at 100mm/s or faster.
(2) Since the RCP2 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph to see if your desired speed and load capacity are supported.
(3) SThe load capacity is based on operation at an acceleration of 0.5G. 0.5G is the upper limit for the acceleration.
(4) BA7/BA7U only supports horizontal-flat installation, and horizontal-ceiling- mounted installation. See page A-7 for details.
(5) 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.



Note:
Graph① is for standard specifications, with settling time of 0.5s for calculating the positioning time.
Graph② reflects some changes in the controller settings. The load capacity is lower, however the settling time is decreased to 0.2s.
If the load capacity is lower than graph②, and you want to shorten the positioning time, change the controller settings. (See the manual for details.)

(Vertical operation is not possible.)

Actuator Specifications

■ Lead and Payload

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

Model number	Motor Mounting Direction	Lead (mm)	Max. Load Capacity (Note 1) Horizontal (kg)	Max. Load Capacity (Note 1) Vertical (kg)	Stroke (mm)
RCP2-BA7-I-42P-54-①-②-③-④	Top	54 equivalent	~8	Not Allowed	600~1200 (every 50mm)
RCP2-BA7U-I-42P-54-①-②-③-④	Bottom				

■ Stroke and Maximum Speed

Lead \ Stroke	600~1200 (every 50mm)
54 equivalent	1500

(Unit: mm/s)

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

①Stroke

①Stroke (mm)	Standard price
600	—
650	—
700	—
750	—
800	—
850	—
900	—
950	—
1000	—
1050	—
1100	—
1150	—
1200	—

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

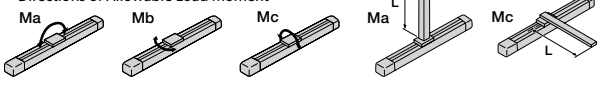
Name	Option code	See page	Standard price
Non-motor end specification	**NM**	→ A-52	—

Actuator Specifications

Item	Description
Drive System	Timing Belt
Positioning repeatability	±0.1mm
Lost Motion	0.1mm or less
Dynamic allowable moment (*)	Ma: 13.8 N·m, Mb: 19.7 N·m, Mc: 29.0 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)

(*) Based on 5,000km of traveling life

Directions of Allowable Load Moment



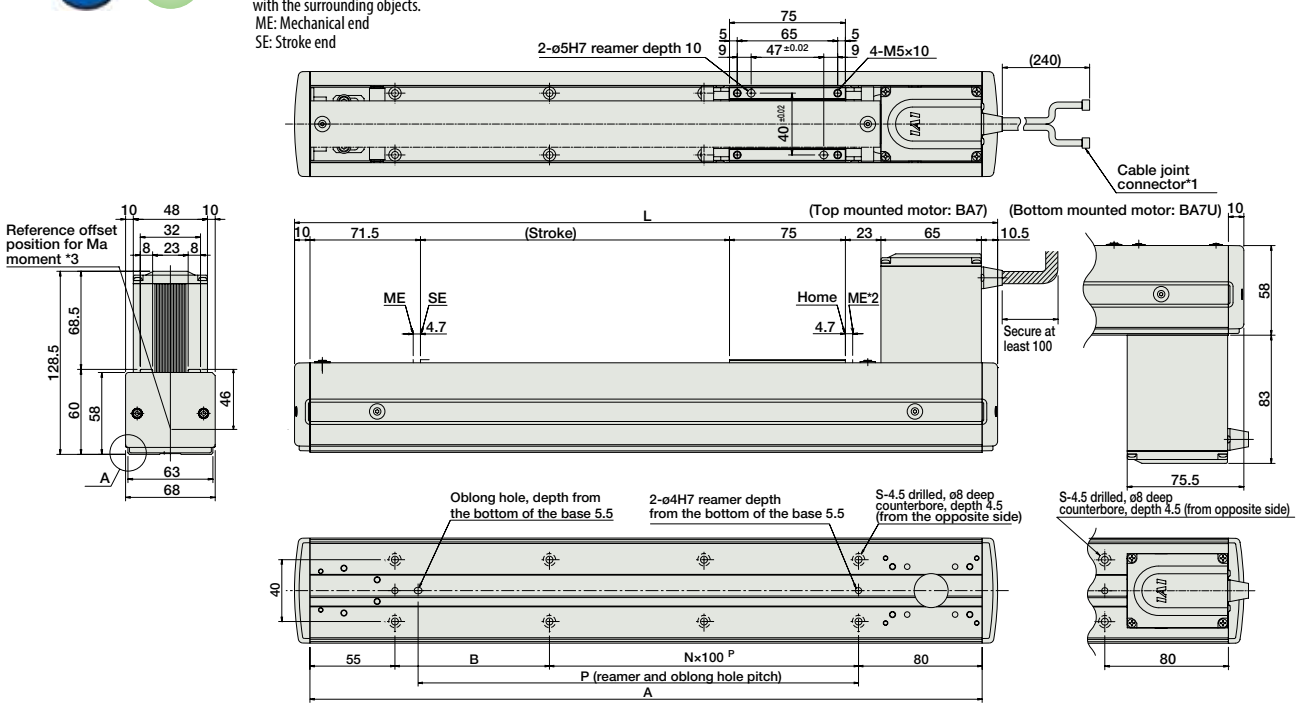
Dimensional Drawings

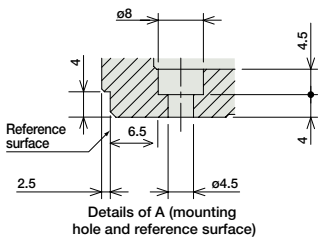
CAD drawings can be downloaded from the website. www.intelligentactuator.com

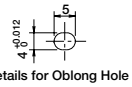
For Special Orders Appendix P.15

2D CAD 3D CAD

*1: Connect the motor and encoder cables here. See page A-59 for details on cables.
*2: When homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
ME: Mechanical end
SE: Stroke end
*3: Reference offset position used when calculating the Ma moment.







■ Dimensions and Mass by Stroke

Stroke	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
L	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455
A	835	885	935	985	1035	1085	1135	1185	1235	1285	1335	1385	1435
B	100	50	100	50	100	50	100	50	100	50	100	50	100
N	6	7	7	8	8	9	9	10	10	11	11	12	12
P	685	735	785	835	885	935	985	1035	1085	1135	1185	1235	1285
S	16	18	18	20	20	22	22	24	24	26	26	28	28
Weight (kg)	3.6	3.7	3.9	4.0	4.2	4.3	4.4	4.6	4.7	4.9	5.0	5.2	5.3

②Applicable Controllers

RCP2 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-~-Ⓘⅳ-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-Ⓘⅳ-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). * Ⓘⅰ indicates power supply voltage (1: 100V / 2: 100~240V).
* Ⓘⅲ indicates number of axes (1 to 8). * Ⓘⅳ indicates field network specification symbol. * □ indicates N (NPN specification) or P (PNP specification) symbol.