RCP2-BA7/BA7U

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

■ Configuration:

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

| Series | Type | Encoder | Motor | Lead | Stroke | Compatible Controllers | Cable Length | Option |

- **Type**
  - BA7 : Belt type Top-mounted motor
  - BA7U: Belt type Bottom-mounted motor
- **Encoder**
  - I : Incremental
  - * The Simple absolute encoder models are labeled as "I".
- **Motor**
  - 42P: Pulse motor
  - 42 □ size
- **Lead**
  - 54:54mm
- **Stroke**
  - 600: 600mm
  - ≀
  - 1200:1200mm (50mm pitch increments)
- **Compatible Controllers**
  - P1: PCON RPCON PSEL
  - P3: PMEC PSEP
- **Cable Length**
  - N : None
  - P : 1m
  - S : 3m
  - M : 5m
  - X□□ : Custom Length
  - R□□ : Robot cable
- **Option**
  - NM: Reversed-home

* See page Pre-35 for explanation of each code that makes up the configuration name.

■ 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.

Horizontal
① (settling time of 0.5s)
② (setting time of 0.2s)

(*Minimum Speed: 100mm/s)   Speed (mm/s)
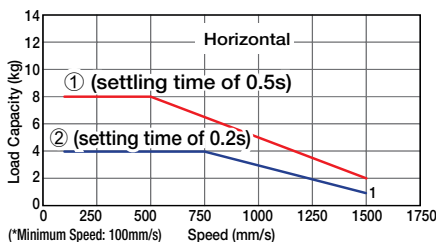
Note:

Graph ① is for standard specifications, with settling time of 0.5s for calculating the positioning time.

Graph ② 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 graph ②, and you want to shorten the positioning time, change the controller settings. (See the manual for details.)

(Vertical operation is not possible.)

Technical References ☞ A-5

P.O.I.N.T 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) The load capacity is based on operation at an acceleration of 0.5G. 0.5G is the upper limit for the acceleration.

■ Actuator Specifications

■ Lead and Load Capacity

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

Model	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 (50mm increments)
RCP2-BA7U-I-42P-54-①-②-③-④	Bottom	54 equivalent	～ 8	Not Allowed	600 ～ 1200 (50mm increments)

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

■ Stroke and Maximum Speed

Stroke / Lead	600 ～ 1200 (50mm increments)
54 equivalent	1500

(Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
600	–
650	–
700	–
750	–
800	–
850	–
900	–
950	–
1000	–
1050	–
1100	–
1150	–
1200	–

③ Cable List

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

* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Reversed-home	NM	→ A-33	–

■ Actuator Specifications

Item	Description
Drive System	Timing Belt
Positioning Repeatability	±0.1mm
Lost Motion	0.1mm or less
Allowable Dynamic Moment (*)	Ma: 13.8 N·m Mb: 19.7 N·m Mc: 29.0 N·m
Overhang Load Length	Ma direction: 150mm or less; Mb·Mc direction: 150mm or less
Ambient Operating Temp./Humidity	0～40°C, 85% RH or less (Non-condensing)

(*) Based on 5,000km travel life.
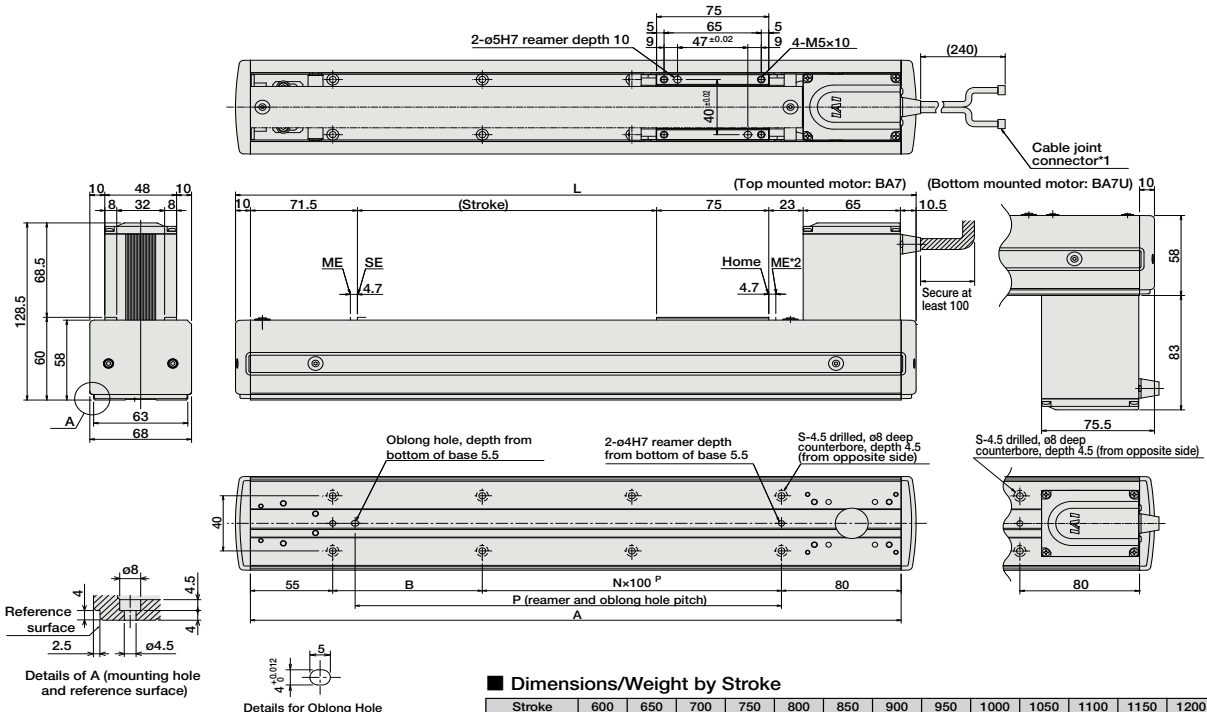
Directions of Allowable Load Moments   Overhang Load Length

Ma   Mb   Mc   Ma   Mc
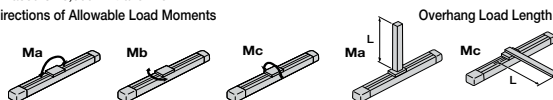
■ Dimensions

For Special Orders 👉 A-**9**

*1 The motor-encoder cable is connected here.
  See page A-39 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

2-ø5H7 reamer depth 10   4-M5×10   (240)

Cable joint connector*1

(Top mounted motor: BA7)   (Bottom mounted motor: BA7U)

ME SE   Home ME*2   Secure at least 100

Oblong hole, depth from bottom of base 5.5
2-ø4H7 reamer depth from bottom of base 5.5
S-4.5 drilled, ø8 deep counterbore, depth 4.5 (from opposite side)
S-4.5 drilled, ø8 deep counterbore, depth 4.5 (from opposite side)

N×100 P
P (reamer and oblong hole pitch)
A

Reference surface
Details of A (mounting hole and reference surface)

Details for Oblong Hole

■ Dimensions/Weight 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

② Compatible Controllers

The RCP2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-42PI-NP-2-①	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481	–	→ P477
		PSEP-C-42PI-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.	3 points	DC24V	2A max.	–	→ P487
Splash-Proof Solenoid Valve Type		PSEP-CW-42PI-NP-2-0					–	
Positioner Type		PCON-C-42PI-NP-2-0	Positioning is possible for up to 512 points	512 points			–	
Safety-Compliant Positioner Type		PCON-CG-42PI-NP-2-0					–	
Pulse Train Input Type (Differential Line Driver)		PCON-PL-42PI-NP-2-0	Pulse train input type with differential line driver support	(–)			–	→ P525
Pulse Train Input Type (Open Collector)		PCON-PO-42PI-NP-2-0	Pulse train input type with open collector support				–	
Serial Communication Type		PCON-SE-42PI-N-0-0	Dedicated to serial communication	64 points			–	
Field Network Type		RPCON-42P	Dedicated to field network	768 points			–	→ P503
Program Control Type		PSEL-C-1-42PI-NP-2-0	Programmed operation is possible Can operate up to 2 axes	1500 points			–	→ P557

* This is for the single-axis PSEL.
* ① is a placeholder for the power supply voltage (1: 100V / 2: 100～240V).

IAI

Slider Type
Mini
Standard
Controllers Integrated
Rod Type
Mini
Standard
Controllers Integrated
Table/Arm /Flat Type
Mini
Standard
Gripper/ Rotary Type
Linear Servo Type
Cleanroom Type
Splash-Proof
Controllers
PMEC /AMEC
PSEP /ASEP
ROBO NET
ERC2
PCON
ACON
SCON
PSEL
ASEL
SSEL
XSEL
Pulse Motor
Servo Motor (24V)
Servo Motor (200V)
Linear Servo Motor