RCP6(S)-RRA7R

Battery-less Absolute | Motor Unit Type | Side-mounted Motor | Body Width 70* mm | 24v Stepper Motor

■ Model Specification Items

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable Controller/I/O Type	Cable Length	Options
RCP6: Separate Controller RCP6S: Built-in Controller	RRA7R	WA: Battery-less Absolute	56P: Stepper Motor 56□ Size	24: 24mm 16: 16mm 8: 8mm 4: 4mm	70: 70mm ~ 520: 520mm (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. *Please make sure to specify either ML or MR when ordering the side-mounted motor type.

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

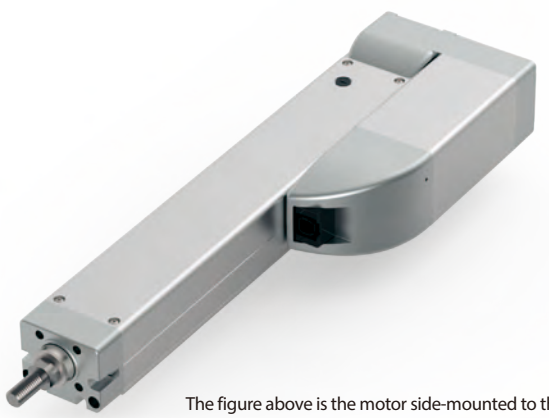
* RCP6 does not include a controller. RCP6S includes a built-in controller.
* Please refer to P.11 for more information about the model specification items.

Radial Load OK

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).

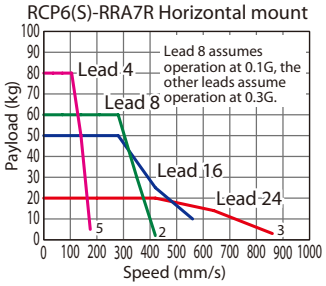
POINT Selection Notes

(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) The radial cylinder is equipped with a built-in guide. Please refer to the graphs shown in P.127 and after for the allowable load mass.
(4) 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.
(5) Depending on the ambient operational temperature, duty control is necessary for the RCP6S (built-in controller type) with lead 4/8/16. Please refer to P.130 for more information.

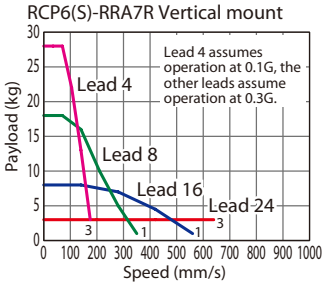
■ Correlation Diagrams of Speed and Payload

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

RCP6(S)-RRA7R Horizontal mount



RCP6(S)-RRA7R Vertical mount



Actuator Specifications

■ Lead and Payload

(Note 1) The payload assumes that there is an external guide.

Model Number	Lead (mm)	Connected Controller	Max. Payload Horizontal (kg)	Max. Payload Vertical (kg)	Stroke (mm)
RCP6(S)-RRA7R-WA-56P-24-①-②-③-④	24	High-output Enabled	20	3	70~520 (The increment of stroke is 50mm)
RCP6(S)-RRA7R-WA-56P-16-①-②-③-④	16	High-output Enabled	50	8	
RCP6(S)-RRA7R-WA-56P-8-①-②-③-④	8	High-output Enabled	60	18	
RCP6(S)-RRA7R-WA-56P-4-①-②-③-④	4	High-output Enabled	80	28	

■ Stroke and Max. Speed

(Unit: mm/s)

Lead (mm)	Connected Controller	70~520 (Every 50mm)
24	High-output Enabled	860 <640>
16	High-output Enabled	560
8	High-output Enabled	420 <350>
4	High-output Enabled	175

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

Values in brackets < > are for vertical use.

① Stroke

Stroke (mm)	RCP6	RCP6S	Stroke (mm)	RCP6	RCP6S
70	○	○	**320**	○	○
120	○	○	**370**	○	○
170	○	○	**420**	○	○
220	○	○	**470**	○	○
270	○	○	**520**	○	○

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
Flange	**FL**	See P.106
Tip adapter (Flange)	**FFA**	See P.105
Tip adapter (Internal thread)	**NFA**	See P.109
Tip adapter (Keyway)	**KFA**	See P.108
Motor side-mounted to the left	**ML**	See P.109
Motor side-mounted to the right	**MR**	See P.109
Knuckle joint*	**NJ**	See P.110
Non-motor end specification	**NM**	See P.110
Clevis bracket*	**QR**	See P.111

* The clevis (QR) and knuckle joint (NJ) are sold as a set. The assembly is to be performed by the customer.
# When selecting multiple options, please list them in alphabetical order. (e.g. B-CJB-NM)

Actuator Specifications

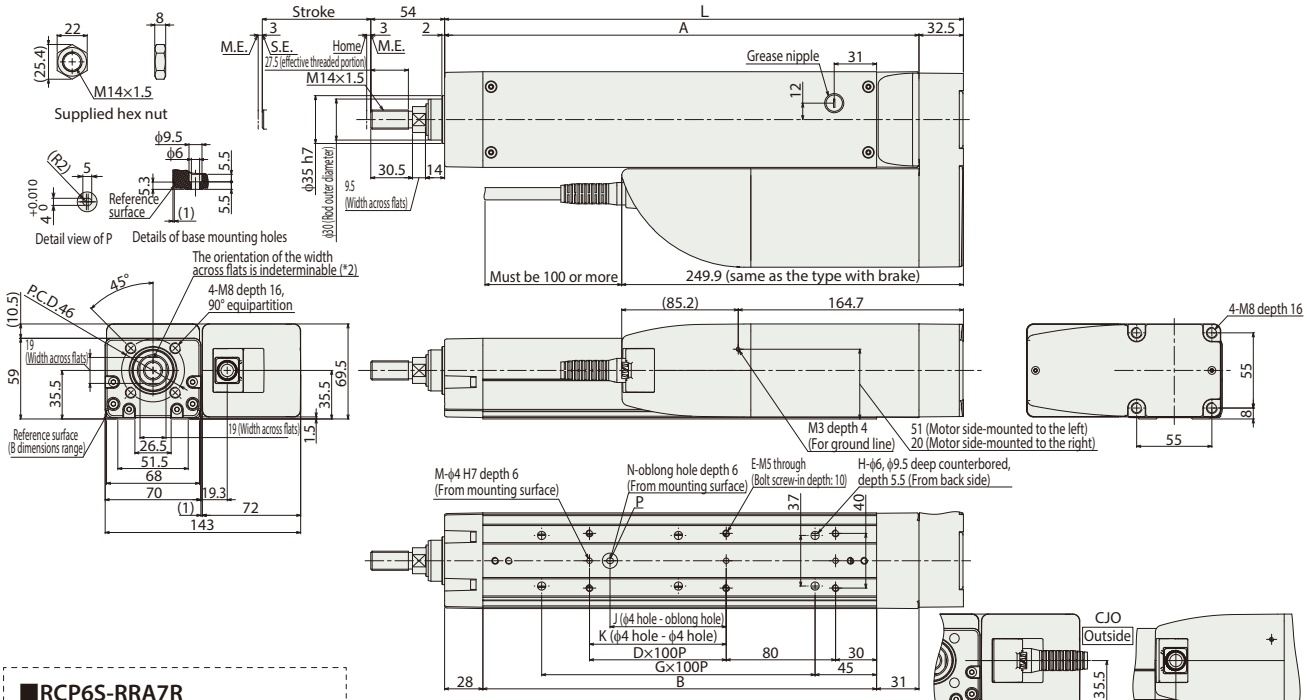
Item	Description
Drive system	Ball screw ϕ12mm, rolled C10
Positioning repeatability	±0.01mm
Lost motion	0.1mm or less
Rod	ϕ30mm Aluminum
Rod non-rotation precision*	0 deg.
Allowable load and torque on rod tip	See P. 127
Rod tip overhang distance	150mm
Ambient operating temp. & humidity	0~40°C, 85% RH or less (Non-condensing)

* Rod's angular displacement in rotational direction with no load applied to the rod.

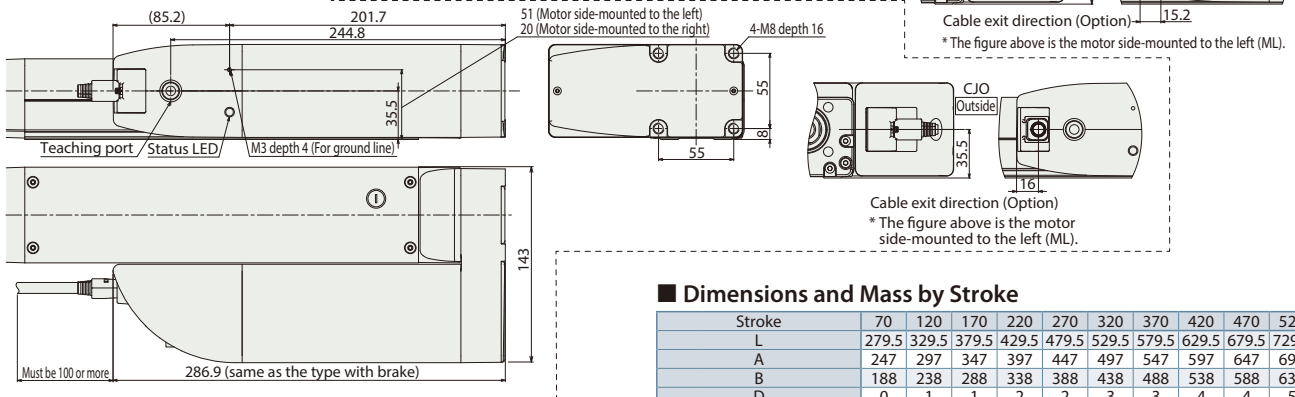
Dimensions

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

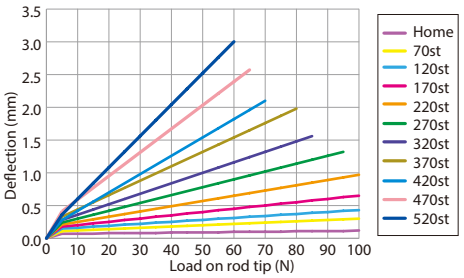
*1 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E. M.E: Mechanical end S.E: Stroke end
*2 The direction of width across flats varies depending on the product.
*3 When fixing the actuator using a front bracket or flange, please make sure that there is no external force applied to the main body.



■RCP6S-RRA7R



■ Rod Deflection of RCP6(S)-RRA7R (Reference Values)



■ Dimensions and Mass by Stroke

Stroke		70	120	170	220	270	320	370	420	470	520
L		279.5	329.5	379.5	429.5	479.5	529.5	579.5	629.5	679.5	729.5
A		247	297	347	397	447	497	547	597	647	697
B		188	238	288	338	388	438	488	538	588	638
D		0	1	1	2	2	3	3	4	4	5
E		4	6	6	8	8	10	10	12	12	14
G		1	1	2	2	3	3	4	4	5	5
H		4	4	6	6	8	8	10	10	12	12
J		0	85	85	185	185	285	285	385	385	485
K		0	0	100	200	200	300	300	400	400	500
M		2	2	3	3	3	3	3	3	3	3
N		0	1	1	1	1	1	1	1	1	1
Allowable static load on rod tip (N)		175	147	126	111	98.6	88.7	80.6	73.8	68	63
Allowable dynamic load on rod tip (kg)	Load offset 0mm	7.7	6.4	5.4	4.7	4.1	3.7	3.3	3.0	2.7	2.5
	Load offset 100mm	5.1	4.6	4.1	3.7	3.4	3.1	2.8	2.6	2.4	2.2
Allowable static torque on rod tip (N·m)		17.6	14.7	12.7	11.2	9.9	9.0	8.2	7.5	6.94	6.45
Allowable dynamic torque on rod tip (N·m)		5.0	4.5	4.0	3.6	3.3	3.0	2.8	2.5	2.32	2.16
Mass (kg)	RCP6 w/o brake	4.6	4.9	5.2	5.5	5.7	6.0	6.3	6.6	6.8	7.1
	RCP6 w/ brake	4.8	5.0	5.3	5.6	5.9	6.1	6.4	6.7	7.0	7.2
	RCP6S w/o brake	4.8	5.0	5.3	5.6	5.9	6.1	6.4	6.7	7.0	7.2
	RCP6S w/ brake	4.9	5.1	5.4	5.7	6.0	6.2	6.5	6.8	7.1	7.3

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: Positioner	Pulse train	Program	Network *Option	Maximum number of positioning points	Reference page
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.				256	Please see the MCON catalog.
MSEL-PC/PG		4	Single-phase 100~230VAC	-	-	●		30,000	Please see the MSEL-PC/PG catalog.

Note:
· The type of compatible networks will vary depending on the controller. Please refer to reference page for more information.

*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.