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Product Data Sheets
RCP5W-RA RoboCylinder Brochure Extract

GB

Dust-/Splash-/Water-proof

RoboCylinder Rod Type with
Battery-less Absolute Encoder

RCP5W-RA Series



www.robocylinder.de

Specification Table

Type	External view	Actuator width (mm)	Stroke (mm)	Ball screw lead (mm)	Max. speed (mm)	Max. payload (kg)		Page
						Horizontal	Vertical	
RA6C		 65mm	50～400	12	560<500>*	20	3	→ P.5
				6	360*	40	8	
				3	180*	50	16	
					70	—	30	
RA7C		 75mm	50～500	16	560<400>*	40	7	→ P.7
				8	340<280>*	50	15	
				4	170<140>*	70	25	
					80	—	45	
RA8C		 88mm	50～700	20	480<360>	24	4	→ P.9
				10	240<200>*	48	32	
				5	120<100>*	80	56	
RA10C		 108mm	50～800	10	200<130>	64	64	→ P.11
				5	100	120	80	
				2.5	50	240	120	

*In case the ambient temperature is 5° or less, the max. speed decreases. Please refer to the page featuring each actuator type.

The values in < > apply when the actuator is used vertically.

Model Number

RCP5W – [Type code] — **WA** — [Motor type] – [Ball screw lead] — [Stroke] — [Applicable controller] — [Cable length] – [Options]

Series | Type code | Encoder type | Motor type | Ball screw lead | Stroke | Applicable controller | Cable length | Options

WA	Battery-less absolute

RA6C	Actuator width 65mm Coupling type
RA7C	Actuator width 75mm Coupling type
RA8C	Actuator width 88mm Coupling type
RA10C	Actuator width 108mm Coupling type

42P	42□ motor
42SP	42□ high-thrust motor
56P	56□ motor
56SP	56□ high-thrust motor
60P	60□ motor
86P	86□ motor

2.5	Lead 2.5mm
3	Lead 3mm
4	Lead 4mm
5	Lead 5mm
6	Lead 6mm
8	Lead 8mm
10	Lead 10mm
12	Lead 12mm
16	Lead 16mm
20	Lead 20mm

50	50mm
⟆	⟆
800	800mm

(Can be set in 50-mm increments)

P3	PCON-CA MSEP MSEL
P4	PCON-CFA

N	No cable
P	1m
S	3m
M	5m
X□□	Specified length
R□□	Robot cable

A1	Cable exit from left
A3	Cable exit from right
AT	Cable exit from top
B	Brake
FL	With flange
FT	With foot bracket
NM	Non-motor side spec.

* The available selections for encoder type, motor type, ball screw lead and stroke vary depending on the actuator type.
For details, please refer to the page featuring each actuator type.

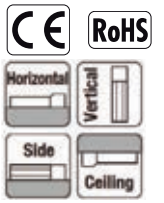
RCP5W-RA6C

RoboCylinder　Water-proof rod type　Actuator width: 65 mm
24-V Pulse motor

Model Specification Items

RCP5W	RA6C	WA	□	□	□	P3	□	□
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		WA: Battery-less absolute specification	42P: Pulse motor, size 42□ 42SP: High-thrust pulse motor, size 42□	12 :12mm 6 : 6mm 3 : 3mm	50 : 50mm 〜 400 : 400mm (every 50-mm)	P3: PCON-CA MSEP MSEL	N: None P: 1m S: 3m M: 5m X□□ : Specified length R□□ : Robot cable	Refer to the option list below. * If the high-thrust pulse motor is selected, the actuator comes standard with option B (Brake).

Radial Load Applicable



* Depending on the model, there may be some limitations to using the vertical mount position.

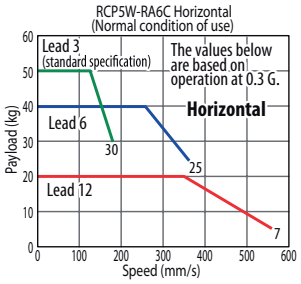


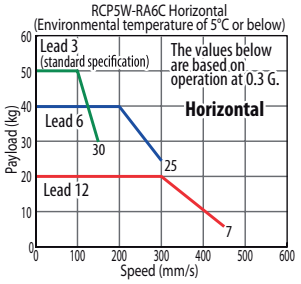
POINT Notes on selection

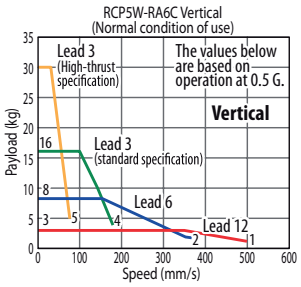
(1) The maximum payload is the value when operated horizontally and vertically at 0.3G and 0.5G, respectively. Note that raising the acceleration causes the payload to drop.
(2) The horizontal payload is calculated by assuming that an external guide is also used.
(3) The high-thrust specification is desgned exclusively for vertical operation. It comes standard with a brake.
(4) The cable joint connector is not splash-proof, so install the connector in a location where it will not come in contact with water.

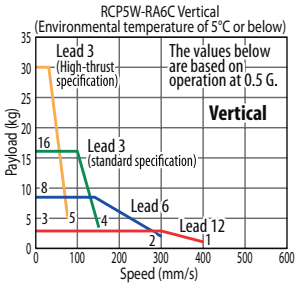
■ Correlation Diagrams of Speed and Payload

Due to its pulse motor characteristics, the RCP5 series provides lower payload at higher speed. Check the tables below to see if the desired speed and payload can be achieved.









Actuator Specifications

■ Leads and Payloads

Model number		Lead (mm)	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Maximum push force (N)	Positioning repeatability (mm)	Stroke (mm)
Standard specification	RCP5W-RA6C-WA-42P-12-①-P3-②-③	12	20	3	93	±0.02	50 to 400 (in 50-mm increments)
	RCP5W-RA6C-WA-42P-6-①-P3-②-③	6	40	8	185		
	RCP5W-RA6C-WA-42P-3-①-P3-②-③	3	50 (*1)	16	370		
High-thrust specification	RCP5W-RA6C-WA-42SP-3-①-P3-②-③-B	3	–	30	590		

Legend ① Stroke ② Cable length ③ Options

(*1) 40kg for disabled high-output setting.

■ Stroke and Maximum Speed (unit: mm/s)

Lead (mm)	High-output setting	50 (mm)	100 ~ 400 (in 50-mm increments)
12	Enabled	500 [450<400>]	560<500> [450<400>]
	Disabled	500<400>	
6	Enabled	360 [300]	
	Disabled	250<250>	
3	Enabled	180 [150]	
	Disabled	125<125>	
3 (High-thrust)	Enabled	<70> [<70>]	
	Disabled	<60>	

*The values in < > apply when the actuator is used vertically.
*The values in [ ] apply when the actuator is used at an environmental temperature of 5°C or below.

Cable length

Type	Cable symbol		
Standard type	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)		

Options

Name	Option code	See page	
Cable exit from the left side face	A1	P4 (or refer to the RCP5 rod type manual)	
Cable exit from the right side face	A3		
Cable exit from the top face	AT		
Brake	B		
With flange	FL		
With foot bracket	FT		
Non-motor side specification	NM		

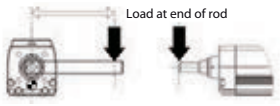
*The high-thrust specification comes standard with a brake.

Actuator Specifications

Item	Description
Drive system	Ball screw ø10mm, rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Rod	ø22 stainless steel pipe
Non-rotating accuracy of rod (*1)	±0 deg
Allowable load/allowable torque at end of rod	Refer to page 15 (or to the RCP5 rod type manual)
Lost offset distance at end of rod	100mm or less
Protective structure	IP67
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) Rod's angular displacement in rotational direction with no applied load is shown.

Offset distance at end of rod (100mm or less)



Dimensional Drawings

CAD drawings can be downloaded from the website. www.robocylinder.de

2/3D CAD

*1 Connect the motor and encoder cables.
*2 The rod moves to the ME during home return, so pay attention to possible contact with surrounding structures and objects.
*3 The orientation of the width across flats varies from one product to another.
*4 When installing the actuator using the front housing or flange, make sure the actuator does not receive any external force

■ Materials of Key Components

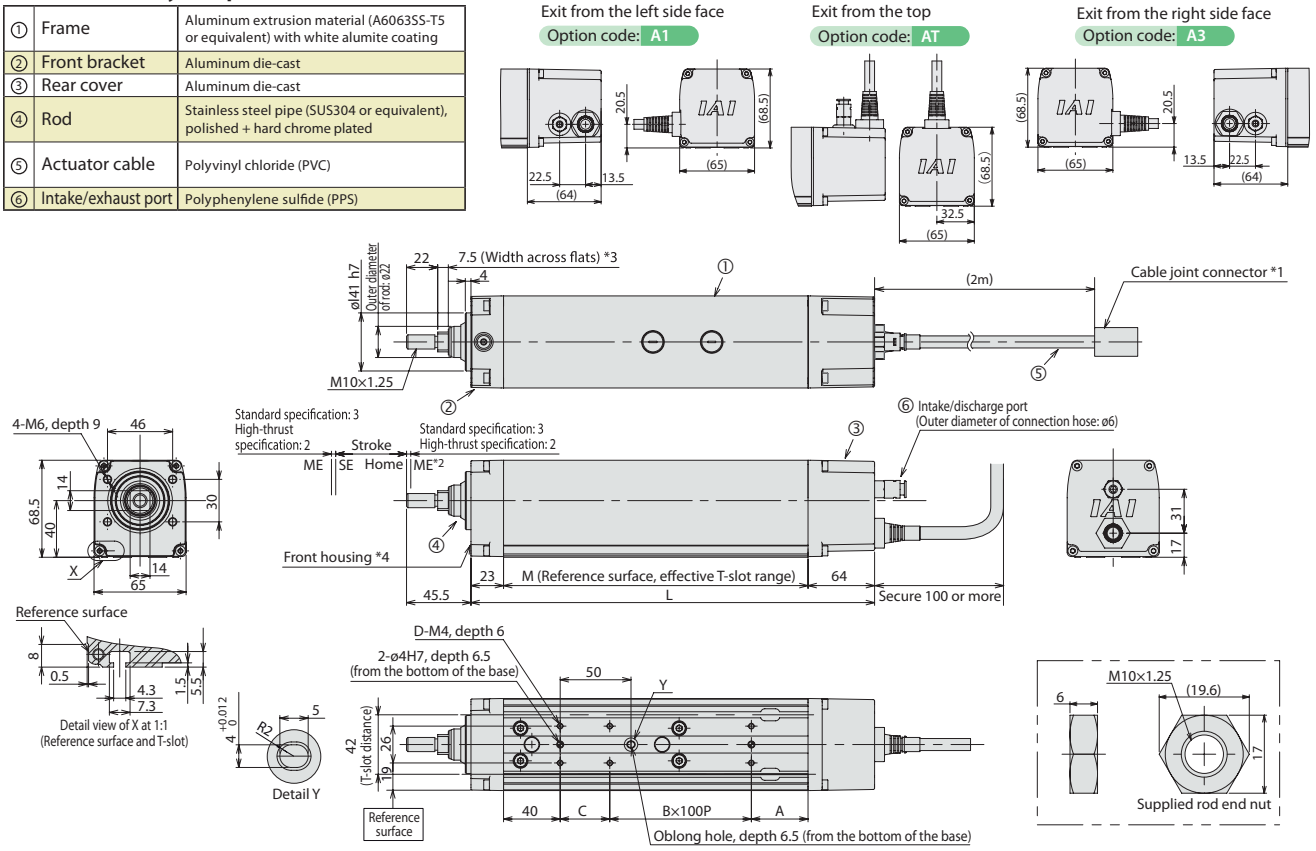
①	Frame	Aluminum extrusion material (A6063SS-T5 or equivalent) with white alumite coating
②	Front bracket	Aluminum die-cast
③	Rear cover	Aluminum die-cast
④	Rod	Stainless steel pipe (SUS304 or equivalent), polished + hard chrome plated
⑤	Actuator cable	Polyvinyl chloride (PVC)
⑥	Intake/exhaust port	Polyphenylene sulfide (PPS)

■ Cable Exit Direction Option

Exit from the left side face — Option code: A1

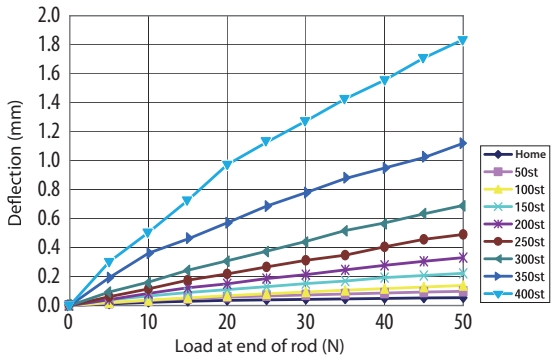
Exit from the top — Option code: AT

Exit from the right side face — Option code: A3



■ Rod Deflection of RCP5W-RA6C (Reference Values)

(The graph below plots deflection as measured by installing the actuator vertically and applying a force to the rod from one side.)



■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400
L	Without brake	302	352	402	452	502	552	602	652
	With brake (*)	363	413	463	513	563	613	663	713
A	Without brake	40	40	40	40	40	40	40	40
	With brake (*)	101	101	101	101	101	101	101	101
B		1	1	2	2	3	3	4	4
C		35	85	35	85	35	85	35	85
D		6	6	8	8	10	10	12	12
M	Without brake	215	265	315	365	415	465	515	565
	With brake (*)	276	326	376	426	476	526	576	626
Allowable static load at end of rod (N)		65.6	51.2	41.7	34.9	29.8	25.7	22.4	19.7
Allowable dynamic load at end of rod (N)	Load offset 0 mm	32.4	23.6	18.1	14.4	11.6	9.5	7.7	6.2
	Load offset 100 mm	25.6	19.7	15.7	12.7	10.4	8.6	7.1	5.7
Allowable static torque at end of rod (N•m)		6.6	5.2	4.3	3.7	3.2	2.8	2.6	2.3
Allowable dynamic torque at end of rod (N•m)		2.6	2.0	1.6	1.3	1.0	0.9	0.7	0.6
Mass (kg)	Without brake	3.2	3.6	3.9	4.3	4.7	5.1	5.5	5.9
	With brake	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	With brake (high-thrust spec.)	3.7	4.1	4.5	4.9	5.3	5.7	6.1	6.5

(*) The dimensions of the high-thrust specification include the brake.

Applicable Controllers

The RCP5W series actuators can be operated by the controllers indicated below. Please select the type depending on your intended use.

Name	External view	Model number	Max. number of controlled axes	Maximum number of positioning points	Input power		Reference page
Positioner type (High-output specification)		PCON-CA-42ⓂWAI-Ⅰ-2-0	1	512 points	DC24V		Refer to the PCON catalog.
Pulse train type (High-output specification)		PCON-CA-42ⓂWAI-PLⓋ-2-0					
Field network type (High-output specification)		PCON-CA-42ⓂWAI-Ⅲ-0-0		768 points			
Solenoid valve multi-axis type (PIO specification)		MSEP-Ⅳ-Ⅱ-~Ⅰ-2-0	C: 8 (4 when high-output enabled) LC: 6 (3 when high-output enabled)	3 points			Refer to the MSEP catalog.
Positioner multi-axis type (Field network specification)		MSEP-Ⅳ-Ⅱ-~Ⅲ-0-0		256 points			
Program control multi-axis safety category type		MSEL-PG-1-42PWAI-Ⅰ-2-4	4	30000 points	Single-phase AC 100V~230V		Refer to the MSEL catalog.
Program control multi-axis safety category type (w/ network board)		MSEL-PG-1-42PWAI-Ⅲ-0-4					

*Above MSEL models are for single-axis specification. *The high output enabled operation is only available when the „High-output setting specs" is selected in the MSEP-C/LC.
*Ⅰ I/O type (NP/PN) *Ⅱ Number of axes *Ⅲ Field network specification code *Ⅳ C or LC *Ⅴ N (NPN specification) or P (PNP specification) code *Ⅿ P (standard specification) or SP (high-thrust specification) code

RCP5W-RA7C

RoboCylinder　Water-proof rod type　Actuator width: 75 mm
24-V Pulse motor

Model Specification Items: **RCP5W** — **RA7C** — **WA** — [Motor type] — [Lead] — [Stroke] — [Applicable controller] — [Cable length] — [Options]

Series: RCP5W

Type: RA7C

Encoder type: WA: Battery-less absolute specification

Motor type:
- 56P: Pulse motor, size 56□
- 56SP: High-thrust pulse motor, size 56□

Lead:
- 16 :16mm
- 8 : 8mm
- 4 : 4mm

Stroke: 50 ~ 50mm ~ 500 : 500mm (every 50-mm)

Applicable controller:
- P3: PCON-CA
- MSEP/MSEL
- P4: PCON-CFA

*The PCON-CFA is designed exclusively for the high-thrust specification.

Cable length:
- N: None
- P: 1 m
- S: 3 m
- M: 5 m
- X□□ : Specified length
- R□□ : Robot cable

Options: Refer to the option list below.
*If the high-thrust pulse motor is selected, the actuator comes standard with option B (Brake).

Radial Load Applicable

CE RoHS



* Depending on the model, there may be some limitations to using the vertical mount position.

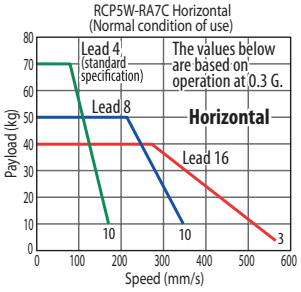


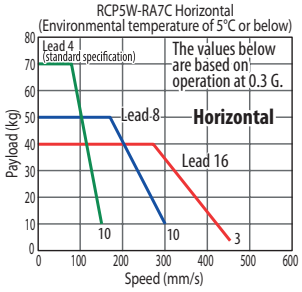
POINT Notes on selection

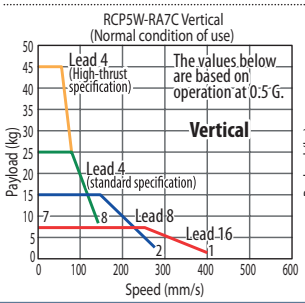
(1) The maximum payload is the value when operated horizontally and vertically at 0.3G and 0.5G, respectively. Note that raising the acceleration causes the payload to drop.
(2) The horizontal payload is calculated by assuming that an external guide is also used.
(3) The high-thrust specification is desgned exclusively for vertical operation. It comes standard with a brake.
(4) The cable joint connector is not splash-proof, so install the connector in a location where it will not come in contact with water.

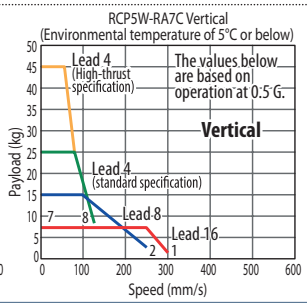
■ Correlation Diagrams of Speed and Payload

Due to its pulse motor characteristics, the RCP5 series provides lower payload at higher speed. Check the tables below to see if the desired speed and payload can be achieved.









Actuator Specifications

■ Leads and Payloads

Model number		Lead (mm)	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Maximum push force (N)	Positioning repeatability (mm)	Stroke (mm)
Standard specification	RCP5W-RA7C-WA-56P-16-①-P3-②-③	16	40	7 (*1)	219	±0.02	50 to 500 (in 50-mm increments)
	RCP5W-RA7C-WA-56P-8-①-P3-②-③	8	50	15	437		
	RCP5W-RA7C-WA-56P-4-①-P3-②-③	4	70	25	875		
High-thrust specification	RCP5W-RA7C-WA-56SP-4-①-P4-②-③-B	4	–	45	1030		

Legend ① Stroke ② Cable length ③ Options

(*1) 5kg for disabled high-output setting.

■ Stroke and Maximum Speed (unit: mm/s)

Lead (mm)	High-output setting	50 (mm)	100 ~ 500 (in 50-mm increments)
16	Enabled	500 [450<300>]	560<400> [450<300>]
	Disabled	420<350>	
8	Enabled	340<280> [300<250>]	
	Disabled	210<210>	
4	Enabled	170<140> [150<125>]	
	Disabled	140<110>	
4 (High-thrust)	Enabled	<80> [<80>]	
	Disabled	—	

*The values in < > apply when the actuator is used vertically.
*The values in [ ] apply when the actuator is used at an environmental temperature of 5°C or below.

Cable length

Type	Cable symbol	
Standard type	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)	

Options

Name	Option code	See page	
Cable exit from the left side face	A1	P4 (or refer to the RCP5 rod type manual)	
Cable exit from the right side face	A3		
Cable exit from the top face	AT		
Brake	B		
With flange	FL		
With foot bracket	FT		
Non-motor side specification	NM		

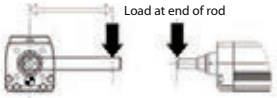
*The high-thrust specification comes standard with a brake.

Actuator Specifications

Item	Description
Drive system	Ball screw ø12mm, rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Rod	ø25 stainless steel pipe
Non-rotating accuracy of rod (*1)	±0 deg
Allowable load/allowable torque at end of rod	Refer to page 15 (or to the RCP5 rod type manual)
Lost offset distance at end of rod	100mm or less
Protective structure	IP67
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) Rod's angular displacement in rotational direction with no applied load is shown.

Offset distance at end of rod (100mm or less)



Dimensional Drawings

CAD drawings can be downloaded from the website. www.robocylinder.de

2/3D CAD

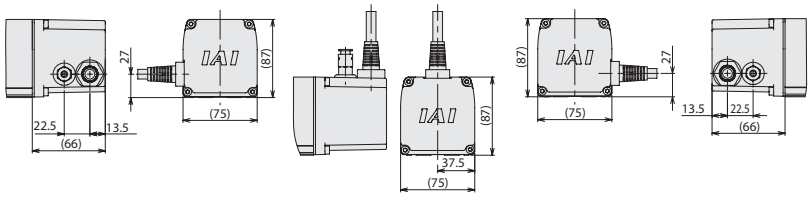
■ Materials of Key Components

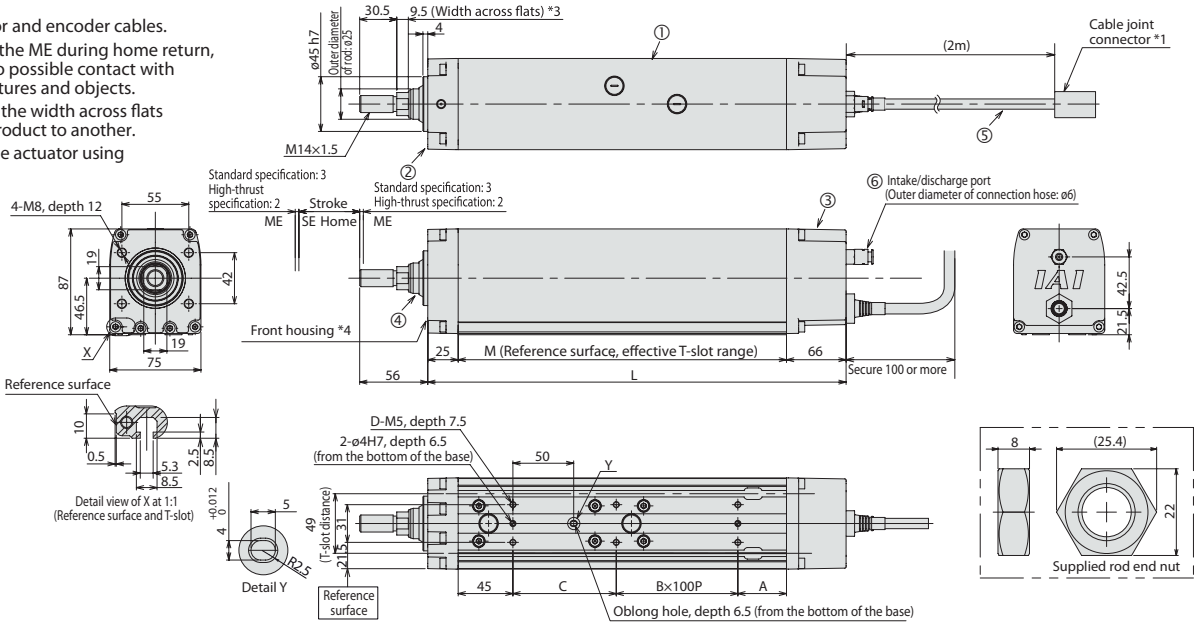
①	Frame	Aluminum extrusion material (A6063SS-T5 or equivalent) with white alumite coating
②	Front bracket	Aluminum die-cast
③	Rear cover	Aluminum die-cast
④	Rod	Stainless steel pipe (SUS304 or equivalent), polished + hard chrome plated
⑤	Actuator cable	Polyvinyl chloride (PVC)
⑥	Intake/exhaust port	Polyphenylene sulfide (PPS)

*1 Connect the motor and encoder cables.
*2 The rod moves to the ME during home return, so pay attention to possible contact with surrounding structures and objects.
*3 The orientation of the width across flats varies from one product to another.
*4 When installing the actuator using the front housing or flange, make sure the actuator does not receive any external force.

■ Cable Exit Direction Option

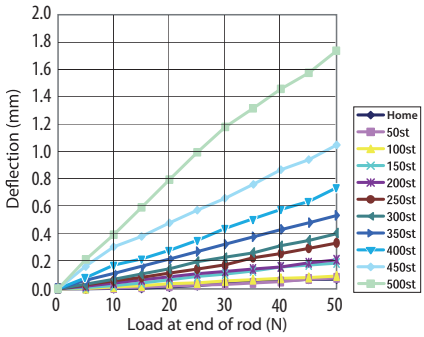
Exit from the left side face — Option code: A1
Exit from the top — Option code: AT
Exit from the right side face — Option code: A3





■ Rod Deflection of RCP5W-RA7C (Reference Values)

(The graph below plots deflection as measured by installing the actuator vertically and applying a force to the rod from one side.)



■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	361	411	461	511	561	611	661	711	761	801
	With brake (*)	416	466	516	566	616	666	716	766	816	866
A	Without brake	40	40	40	40	40	40	40	40	40	40
	With brake (*)	95	95	95	95	95	95	95	95	95	95
B		1	1	2	2	3	3	4	4	5	5
C		85	135	85	135	85	135	85	135	85	135
D		6	6	8	8	10	10	12	12	14	14
M	Without brake	270	320	370	420	470	520	570	620	670	720
	With brake (*)	325	375	425	475	525	575	625	675	725	775
Allowable static load at end of rod (N)		112.7	91.5	76.7	65.7	57.2	50.4	44.8	40.2	36.2	32.7
Allowable dynamic load at end of rod (N)	Load offset 0 mm	49.0	37.4	29.9	24.5	20.4	17.1	14.5	12.3	10.3	8.6
	Load offset 100 mm	38.7	31.0	25.5	21.4	18.1	15.4	13.2	11.2	9.5	8.0
Allowable static torque at end of rod (N•m)		11.4	9.3	7.9	6.8	6.0	5.4	4.9	4.5	4.1	3.8
Allowable dynamic torque at end of rod (N•m)		3.9	3.1	2.5	2.1	1.8	1.5	1.3	1.1	1.0	0.8
Mass (kg)	Without brake	5.7	6.2	6.7	7.3	7.8	8.3	8.8	9.3	9.8	10.3
	With brake	6.5	7.0	7.5	8.0	8.5	9.1	9.6	10.1	10.6	11.1

(*) The dimensions of the high-thrust specification include the brake.

Applicable Controllers

The RCP5W series actuators can be operated by the controllers indicated below. Please select the type depending on your intended use.

Name	External view	Model number	Max. number of controlled axes	Maximum number of positioning points	Input power		Reference page
Positioner type (High-output specification)		PCON-CA-56PWAI-Ⓘ-2-0	1	512 points	DC24V		Refer to the PCON catalog.
Pulse train type (High-output specification)		PCON-CA-56PWAI-PLⓋ-2-0		–			
Field network type (High-output specification)		PCON-CA-56PWAI-Ⓘⅲ-0-0		768 points			
Solenoid valve multi-axis type (PIO specification)		MSEP-Ⓥ-Ⓘⅱ-~Ⓘ-2-0	C: 8 (4 when high-output enabled) LC: 6 (3 when high-output enabled)	3 points			Refer to the MSEP catalog.
Positioner multi-axis type (Field network specification)		MSEP-Ⓥ-Ⓘⅱ-~Ⓘⅲ-0-0		256 points			
Program control multi-axis safety category type		MSEL-PG-1-56PWAI-Ⓘ-2-4	4	30000 points	Single-phase AC 100V~230V		Refer to the MSEL catalog.
Program control multi-axis safety category type (w/ network board)		MSEL-PG-1-56PWAI-Ⓘⅲ-0-4					
Positioner high-thrust type (High-output specification)		PCON-CFA-56SPWAI-Ⓘ-2-0	1	512 points	DC24V		Refer to the PCON catalog.
Pulse train high-thrust type (High-output specification)		PCON-CFA-56SPWAI-PLⓋ-2-0		–			
Field network high-thrust type (High-output specification)		PCON-CFA-56SPWAI-Ⓘⅲ-0-0		768 points			

*PCON-CFA controller for high-thrust type actuator RCP5W-RA7C-WA-56SP. *Above MSEL models are for single-axis specification. *The high output enabled operation is only available when the „High-output setting specs" is selected in the MSEP-C/LC.
*Ⓘ I/O type (NP/PN) *Ⅱ Number of axes *Ⅲ Field network specification code *Ⅳ C or LC *Ⅴ N (NPN specification) or P (PNP specification) code *Ⅵ P (standard specification) or SP (high-thrust specification) code

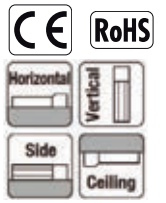
RCP5W-RA8C

RoboCylinder Splash-proof rod type Actuator width: 88 mm
24-V Pulse motor

Model Specification Items: **RCP5W** — **RA8C** — **WA** — **60P** — ☐ — ☐ — **P4** — ☐ — ☐

- **Series**: RCP5W
- **Type**: RA8C
- **Encoder type**: WA: Battery-less absolute specification
- **Motor type**: 60P: Pulse motor, size 60☐
- **Lead**: 20 : 20mm, 10 : 10mm, 5 : 5mm
- **Stroke**: 50 : 50mm ~ 700 : 700mm (every 50-mm)
- **Applicable controller**: P4: PCON-CFA
- **Cable length**: N: None, P: 1m, S: 3m, M: 5m, X☐☐ : Specified length, R☐☐ : Robot cable
- **Options**: Refer to the option list below.

Radial Load Applicable



* Depending on the model, there may be some limitations to using the vertical mount position.

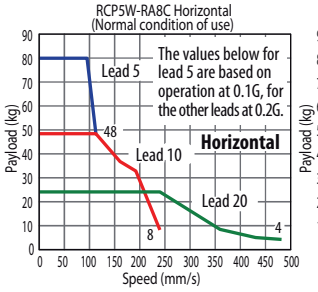


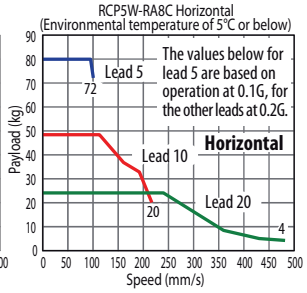
POINT Notes on selection

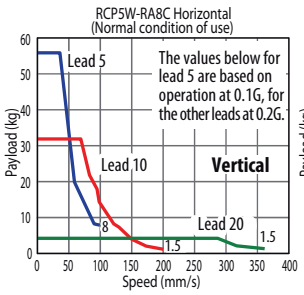
(1) The maximum payload is the value when operated horizontally and vertically at 0.1G for lead 5 and 0.2G for lead 10 and lead 20. Note that raising the acceleration causes the payload to drop.
(2) Please note that the RA8C requires a dedicated controller (PCON-CFA).
(3) The horizontal payload is calculated by assuming that an external guide is also used.
(4) The cable joint connector is not splash-proof, so install the connector in a location where it will not come in contact with water.

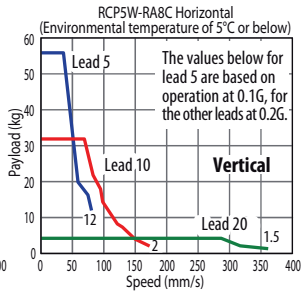
■ Correlation Diagrams of Speed and Payload

Due to its pulse motor characteristics, the RCP5 series provides lower payload at higher speed. Check the tables below to see if the desired speed and payload can be achieved.









Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Max. push force (N)	Stroke (mm)
RCP5W-RA8C-WA-60P-20-①-P4-②-③	20	24	4	500	50 to 700 (in 50-mm increments)
RCP5W-RA8C-WA-60P-10-①-P4-②-③	10	48	32	1000	
RCP5W-RA8C-WA-60P-5-①-P4-②-③	5	80	56	2000	

Legend ① Stroke ② Cable length ③ Options

■ Stroke and Maximum Speed (unit: mm/s)

Lead (mm)	50 (mm)	100 (mm)	150 ~ 400 (mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)
20	280	405 <360>	480 <360>	440 <360>	360	320	280	240	220
10	240 <200> [210<175>]			220 <200>	180 [<175>]	160	140	120	110
5	120 <100> [100<75>]			110 <100>	90 [<75>]	80 [<75>]	70	60	55

*The values in < > apply when the actuator is used vertically.
*The values in [ ] apply when the actuator is used at an environmental temperature of 5°C or below.

Cable length

Type	Cable symbol	
Standard type	**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)	

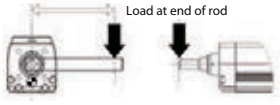
Name	Option code	See page	
Brake	**B**	P4 (or refer to the RCP5 rod type manual)	
With flange	**FL**		
Non-motor side specification	**NM**		

Actuator Specifications

Item	Description
Drive system	Ball screw ø16mm, rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Rod	ø40 aluminum drawn tube
Non-rotating accuracy of rod (*1)	±0 deg
Allowable load/allowable torque at end of rod	Refer to page 16 (or to the RCP5 rod type manual)
Lost offset distance at end of rod	100mm or less
Protective structure	IP65
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) Rod's angular displacement in rotational direction with no applied load is shown.

Offset distance at end of rod (100mm or less)



Dimensional Drawings

CAD drawings can be downloaded from the website. www.robocylinder.de

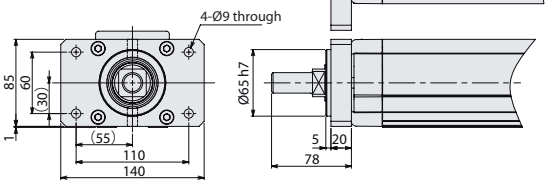
2/3D CAD

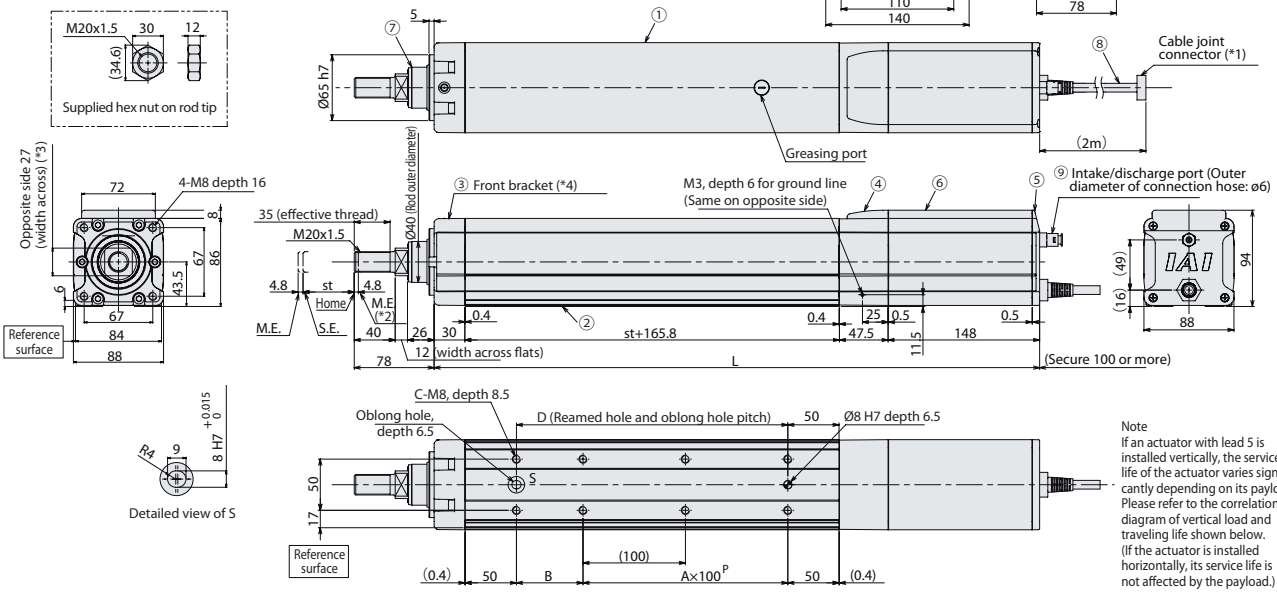
*1 Connect the motor and encoder cables.
*2 The rod moves to the ME during home return, so pay attention to possible contact with surrounding structures and objects.
*3 The orientation of the width across flats varies from one product to another.
*4 When installing the actuator using the front housing or flange, make sure the actuator does not receive any external force.

■ Materials of Key Components

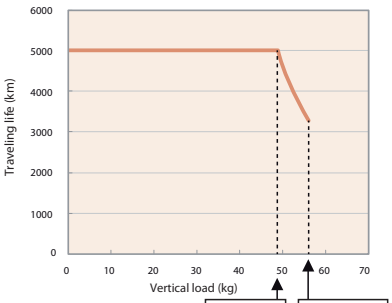
①	Frame	Aluminum extrusion material (A6N01SS-T5 or equivalent) with white alumite coating
②	Base	Aluminum extrusion material (A6N01SS-T5 or equivalent) with white alumite coating
③	Front bracket	Aluminum die-cast
④	Rear bracket	Aluminum die-cast
⑤	Rear cover	Aluminum die-cast
⑥	Motor cover	Aluminum extrusion material (A6063SS-T5 or equivalent) with white alumite coating
⑦	Rod	Aluminum drawn tube (A6063TD-T83 or equivalent), polished + hard alumite coating
⑧	Actuator cable	Polyvinyl chloride (PVC)
⑨	Intake/exhaust port	Polyphenylene sulfide (PPS)

■ Dimension with Flange (Optional)

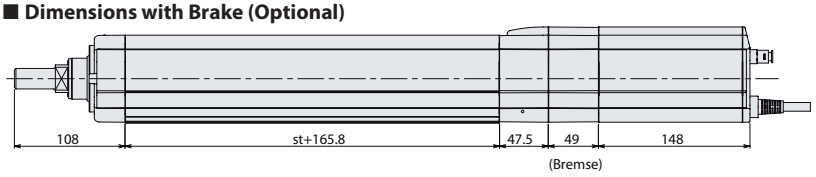




Note
If an actuator with lead 5 is installed vertically, the service life of the actuator varies significantly depending on its payload. Please refer to the correlation diagram of vertical load and traveling life shown below. (If the actuator is installed horizontally, its service life is not affected by the payload.)

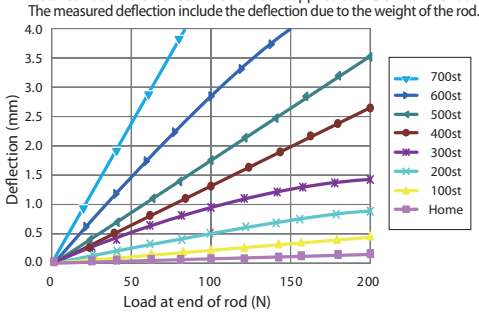


■ Dimensions with Brake (Optional)



■ Rod Deflection of RCP5W-RA8C (Reference Values)

(The graph below shows the measurements of how much a horizontally installed rod would deflect when a load is applied to the end of the rod. The measured deflection include the deflection due to the weight of the rod.)



■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700
L	Without brake	441.3	491.3	541.3	591.3	641.3	691.3	741.3	791.3	841.3	891.3	941.3	991.3	1041.3	1091.3
	With brake	490.3	540.3	590.3	640.3	690.3	740.3	790.3	840.3	890.3	940.3	990.3	1040.3	1090.3	1140.3
A		0	1	1	2	2	3	3	4	4	5	5	6	6	7
B		115	65	115	65	115	65	115	65	115	65	115	65	115	65
C		4	6	6	8	8	10	10	12	12	14	14	16	16	18
D		115	165	215	265	315	365	415	465	515	565	615	665	715	765
Allowable static load at end of rod (N)		180	150.3	128.9	112.7	99.9	89.7	81.3	74.3	68.3	63.1	58.6	54.6	51.1	47.9
Allowable dynamic load at end of rod (N)	Load offset 0mm	73.6	60.3	51.0	44.1	38.7	34.3	30.7	27.7	25.2	23.0	21.1	19.4	17.8	16.5
	Load offset 100mm	57.0	48.6	42.5	37.8	33.8	30.5	27.6	25.2	23.1	21.2	19.5	18.1	16.7	15.5
Allowable static torque at end of rod (Nm)		18.1	15.2	13.0	11.4	10.2	9.2	8.4	7.7	7.1	6.6	6.1	5.8	5.4	5.1
Allowable dynamic torque at end of rod (Nm)		5.7	4.9	4.3	3.8	3.4	3.0	2.8	2.5	2.3	2.1	2.0	1.8	1.7	1.5
Mass (kg)	Without brake	7.6	8.1	8.5	8.9	9.4	9.8	10.2	10.7	11.1	11.5	11.9	12.4	12.8	13.2
	With brake	8.8	9.2	9.6	10.1	10.5	10.9	11.4	11.8	12.2	12.6	13.1	13.5	13.9	14.4

Applicable Controllers

The RCP5W series actuators can be operated by the controllers indicated below. Please select the type depending on your intended use.

Name	External view	Model number	Maximum number of positioning points	Input power		Reference page
Positioner type		PCON-CFA-60PWAI-NP-2-0 PCON-CFA-60PWAI-PN-2-0	512 points	DC24V		Refer to the PCON catalog.
Pulse-train type		PCON-CFA-60PWAI-PLN-2-0 PCON-CFA-60PWAI-PLP-2-0	—			
Field network type		PCON-CFA-60PWAI-①-0-0	768 points			

*① Field network specification code (DV, CC, PR, CN, PRT, EC, EP)

RCP5W-RA10C

RoboCylinder　Splash-proof rod type　Actuator width: 108 mm
24-V Pulse motor

Model Specification Items

RCP5W — **RA10C** — **WA** — **86P** — □ — □ — **P4** — □ — □

Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		WA: Battery-less absolute specification	86P: Pulse motor, size 86□	10 : 10mm 5 : 5mm 2.5 : 2.5mm	50 : 50mm 〜 800 : 800mm (every 50-mm)	P4: PCON-CFA	N: None P: 1m S: 3m M: 5m X□□ : Specified length R□□ : Robot cable	Refer to the option list below.

Radial Load Applicable



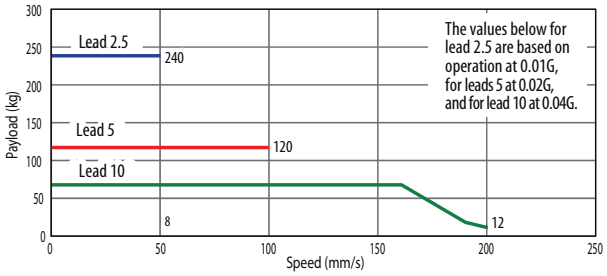
* Depending on the model, there may be some limitations to using the vertical mount position.

POINT Notes on selection

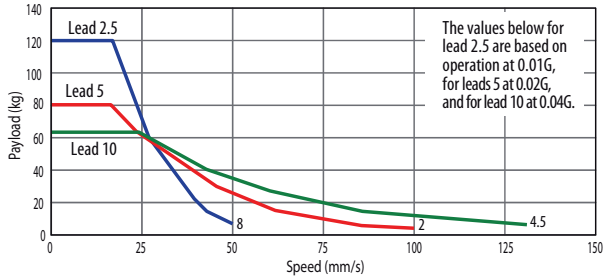
(1) The maximum payload is the value when operated horizontally and vertically at 0.01G for lead 2.5, 0.02G for lead 5, and 0.04G for lead 10. Note that raising the acceleration causes the payload to drop.
(2) Please note that the RA10C requires a dedicated controller (PCON-CFA).
(3) The horizontal payload is calculated by assuming that an external guide is also used.
(4) The cable joint connector is not splash-proof, so install the connector in a location where it will not come in contact with water.

■Correlation Diagrams of Speed and Payload

RCP5W-RA10C Horizontal



RCP5W-RA10C Vertical



Actuator Specifications

■Leads and Payloads

Model number	Lead (mm)	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Max. push force (N)	Stroke (mm)
RCP5W-RA10C-WA-86P-10-①-P4-②-③	10	64	64	1500	50 to 800 (in 50-mm increments)
RCP5W-RA10C-WA-86P-5-①-P4-②-③	5	120	80	3000	
RCP5W-RA10C-WA-86P-2.5-①-P4-②-③	2.5	240	120	6000	

Legend ① Stroke ② Cable length ③ Options

■Stroke and Maximum Speed (unit: mm/s)

Lead (mm)	50 (mm)	100 (mm)	150 ~ 400 (mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
10	117	167	200					180	160	140	120
		<130>									
5	83	100			90	80	70	60	55	50	45
2.5	50							45	40	35	30

*The values in < > apply when the actuator is used vertically.

Cable length

Type	Cable symbol	
Standard type	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)	

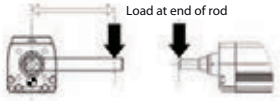
Name	Option code	See page	
Brake	B	P4 (or refer to the RCP5 rod type manual)	
With flange	FL		
Non-motor side specification	NM		

Actuator Specifications

Item	Description
Drive system	Ball screw Ø20mm (Lead 2.5/10mm), Ø16mm (Lead 5mm), rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Rod	ø40 aluminum drawn tube
Non-rotating accuracy of rod (*1)	±0 deg
Allowable load/allowable torque at end of rod	Refer to page 16 (or to the RCP5 rod type manual)
Lost offset distance at end of rod	100mm or less
Protective structure	IP65
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*1) Rod's angular displacement in rotational direction with no applied load is shown.

Offset distance at end of rod (100mm or less)



Dimensional Drawings

CAD drawings can be downloaded from the website. www.robocylinder.de

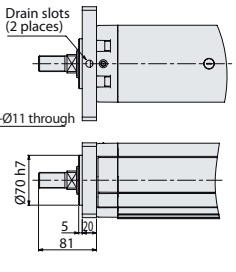
2/3D CAD

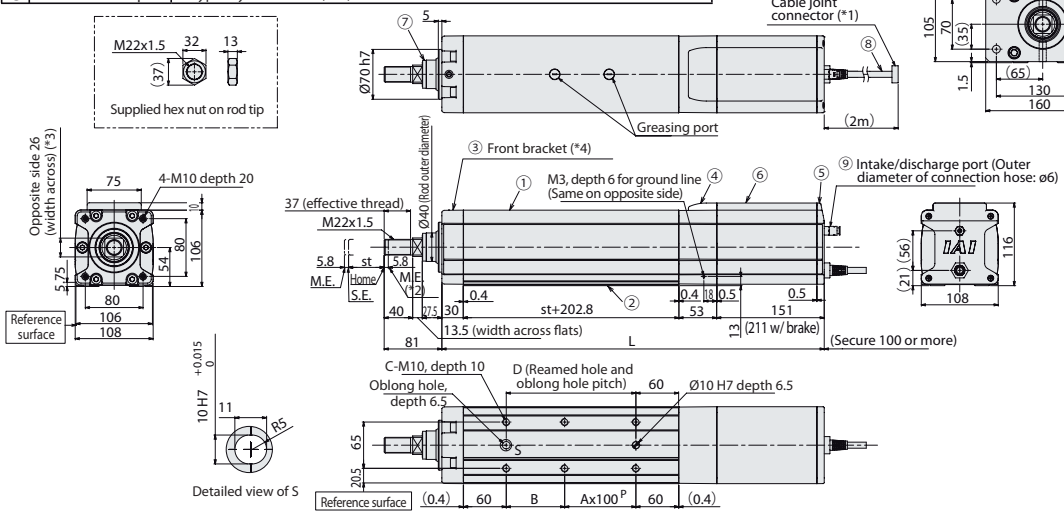
*1 Connect the motor and encoder cables.
*2 The rod moves to the ME during home return, so pay attention to possible contact with surrounding structures and objects.
*3 The orientation of the width across flats varies from one product to another.
*4 When installing the actuator using the front housing or flange, make sure the actuator does not receive any external force.

■ Materials of Key Components

①	Frame	Aluminum extrusion material (A6N01SS-T5 or equivalent) with white alumite coating
②	Base	Aluminum extrusion material (A6N01SS-T5 or equivalent) with white alumite coating
③	Front bracket	Aluminum die-cast
④	Rear bracket	Aluminum die-cast
⑤	Rear cover	Aluminum die-cast
⑥	Motor cover	Aluminum extrusion material (A6063SS-T5 or equivalent) with white alumite coating
⑦	Rod	Aluminum drawn tube (A6063TD-T83 or equivalent), polished + hard alumite coating
⑧	Actuator cable	Polyvinyl chloride (PVC)
⑨	Intake/exhaust port	Polyphenylene sulfide (PPS)

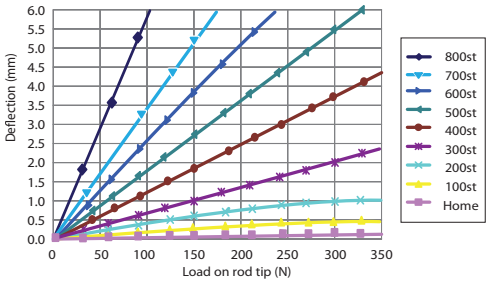
■ Dimension with Flange (Optional)





■ Rod Deflection of RCP5W-RA10C (Reference Values)

(The graph below shows the measurements of how much a horizontally installed rod would deflect when a load is applied to the end of the rod. The measured deflection includes the deflection due to the weight of the rod.)



■ Dimensions and Mass by Stroke

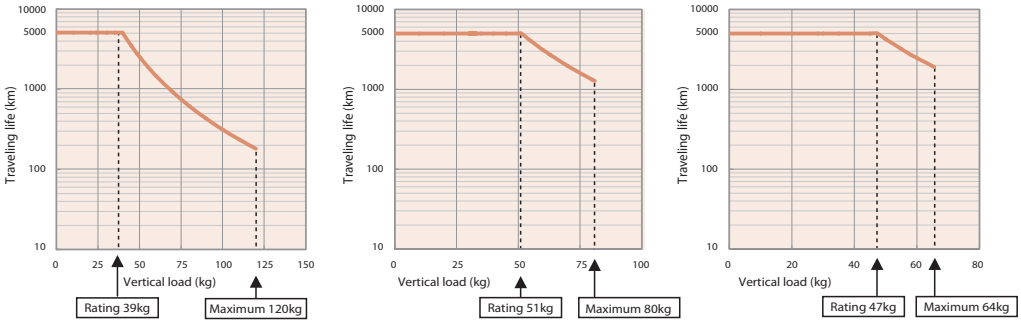
Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	486.8	536.8	586.8	636.8	686.8	736.8	786.8	836.8	886.8	936.8	986.8	1036.8	1086.8	1136.8	1186.8	1236.8
	With brake	546.8	596.8	646.8	696.8	746.8	796.8	846.8	896.8	946.8	996.8	1046.8	1096.8	1146.8	1096.8	1246.8	1296.8
A		0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8
B		132	82	132	82	132	82	132	82	132	82	132	82	132	82	132	82
C		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
D		132	182	232	282	332	382	432	482	532	582	632	682	732	782	832	882
Allowable static load on rod tip (N)		316.9	268.4	232.6	205.1	183.4	165.7	151.0	138.6	128.1	119.0	111.0	103.9	97.7	92.1	87.0	82.5
Allowable dynamic load on rod tip (N)	Load offset 0mm	119.1	99.1	84.7	73.8	65.3	58.5	52.8	48.1	44.0	40.5	37.5	34.8	32.4	30.2	28.3	26.5
	Load offset 100mm	100.7	85.9	74.9	66.3	59.3	53.6	48.8	44.7	41.2	38.1	35.4	32.9	30.8	28.8	27.0	25.4
Allowable static torque on rod tip (N•m)		31.8	27.0	23.4	20.7	18.5	16.8	15.3	14.1	13.1	12.2	11.4	10.7	10.1	9.6	9.1	8.6
Allowable dynamic torque on rod tip (N•m)		10.1	8.6	7.5	6.6	5.9	5.4	4.9	4.5	4.1	3.8	3.5	3.3	3.1	2.9	2.7	2.5
Mass (kg)	Without brake	12.5	13.2	13.9	14.6	15.3	16	16.7	17.4	18.1	18.8	19.5	20.2	20.9	21.6	22.3	23
	With brake	14.1	14.8	15.5	16.2	16.9	17.6	18.3	19	19.7	20.4	21.1	21.8	22.5	23.2	23.9	24.6

Correlation Diagrams of Vertical Load and Traveling Life

- Since the RCP5W-RA10C has a greater maximum thrust than other types, its service life varies significantly depending on the payload and push force applied when the actuator is installed vertically. When selecting an appropriate type from the correlation diagram of speed and payload or correlation diagram of push force and current-limiting value, check its traveling life on the correlation diagram of payload and service life as well as on the correlation diagram of push force and service life.

Note

The rated value represents the maximum value at a traveling life of 5000km. The greatest value is the maximum value at which the actuator can operate.
Take note that, if an actuator is operated beyond its rating, its service life will drop as shown by the applicable graph on the right.



Applicable Controllers

The RCP5W series actuators can be operated by the controllers indicated below. Please select the type depending on your intended use.

Name	External view	Model number	Maximum number of positioning points	Input power		Reference page
Positioner type		PCON-CFA-86PWAI-NP-2-0 PCON-CFA-86PWAI-PN-2-0	512 points	DC24V		Refer to the PCON catalog.
Pulse-train type		PCON-CFA-86PWAI-PLN-2-0 PCON-CFA-86PWAI-PLP-2-0	—			
Field network type		PCON-CFA-86PWAI-①-0-0	768 points			

*① Field network specification code (DV, CC, PR, CN, PRT, EC, EP)