

# RCAW-RA4C/RA4D/RA4R

ROBO Cylinder Splash-proof Rod Type  
 ø37mm Diameter 24V Servo Motor  
 Coupled/Built-in/Side-Mounted Motor Specification

■ Configuration: **RCAW** — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ]

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

RA4C: Coupled type  
 RA4D: Built-in Side-Mounted Motor  
 I : Incremental Type  
 A : Absolute Type  
 20 : 20W servo motor  
 30 : 30W servo motor  
 12 : 12mm  
 6 : 6mm  
 3 : 3mm  
 50:50mm  
 300:300mm (50mm pitch increments)  
 A1 : ACON  
 RACON  
 ASEL  
 A3 : AMEC  
 ASEP  
 N : None  
 P : 1m  
 S : 3m  
 M : 5m  
 X [ ] : Custom Length  
 R [ ] : Robot Cable  
 See Options below

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

\* The absolute model can only use ASEL.  
 The simple absolute type is considered an incremental model.

Power-saving



Technical References P. A-5

- Notes on Selection
- 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.
  - The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model). These values are the upper limits for the acceleration.
  - Please use external guide combination for horizontal load capacity; the value is for when no external force coming from a direction other than that of rod's advance is applied.
  - The cable joint connector is not splash-proof; secure it in a place that is not prone to water spills.

## Actuator Specifications

### ■ Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. load capacity Horizontal (kg) Vertical (kg)	Rated thrust (N)	Stroke (mm)
RCAW-①-②-20-12-③-④-⑤-⑥	20	12	3.0 / 1.0	18.9	50-300 (50mm increments)
RCAW-①-②-20-6-③-④-⑤-⑥		6	6.0 / 2.0	37.7	
RCAW-①-②-20-3-③-④-⑤-⑥		3	12.0 / 4.0	75.4	
RCAW-①-②-30-12-③-④-⑤-⑥	30	12	4.0 / 1.5	28.3	
RCAW-①-②-30-6-③-④-⑤-⑥		6	9.0 / 3.0	56.6	
RCAW-①-②-30-3-③-④-⑤-⑥		3	18.0 / 6.5	113.1	

Legend ① Type ② Encoder ③ Stroke ④ Compatible controller ⑤ Cable length ⑥ Options

### ■ Stroke and Maximum Speed

Stroke / Lead	50 - 300 (50mm increments)	
	Stroke	50 - 300 (50mm increments)
12		600
6		300
3		150

(Unit: mm/s)

## Encoder & Stroke List

③ Stroke (mm)	Standard Price							
	RA4C/RA4D				RA4R			
	② Encoder Type				② Encoder Type			
	Incremental		Absolute		Incremental		Absolute	
	Motor power output	Motor power output	Motor power output	Motor power output	20W	30W	20W	30W
50	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-

## ⑤ Cable List

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

\* See page A-39 for cables for maintenance.

## ⑥ Option List

Name	Option Code	See Page	Standard Price
Brake (*1)	B	→ A-25	-
Flange bracket	FL	→ A-27	-
Foot bracket	FT	→ A-29	-
Home confirmation sensor (*2)	HS	→ A-32	-
Power-saving	LA	→ A-32	-
Knuckle Joint	NJ	→ A-34	-
Reversed-home (*2)	NM	→ A-33	-
Clevis Bracket (*3)	QR	→ A-34	-
Rear mounting plate (*3)	RP	→ A-33	-
Trunnion Bracket (Front) (*4)	TRF	→ A-38	-
Trunnion Bracket (Back) (*4)	TRR	→ A-38	-

- (\*1) No brake setting for RA4D.  
 (\*2) Home sensor (HS) can't be used under reversed-home (NM).  
 (\*3) Clevis bracket and rear mounting plate only available for RA4R.  
 (\*4) Trunnion bracket only available for RA4C/RA4D.

## Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1 mm or less
Base	Material: Aluminum (white alumite treated)
Rod diameter	ø20mm
Rod non-rotational accuracy	±1.0 degrees
Protection Structure	IP54
Ambient Operating Temp./Humidity	0~40°C, 85%RH or less (Non-condensing)

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RCAW-RA4C/RA4D/RA4R

Dimensions

CAD drawings can be downloaded from IAI website. [www.intelligentactuator.com](http://www.intelligentactuator.com)

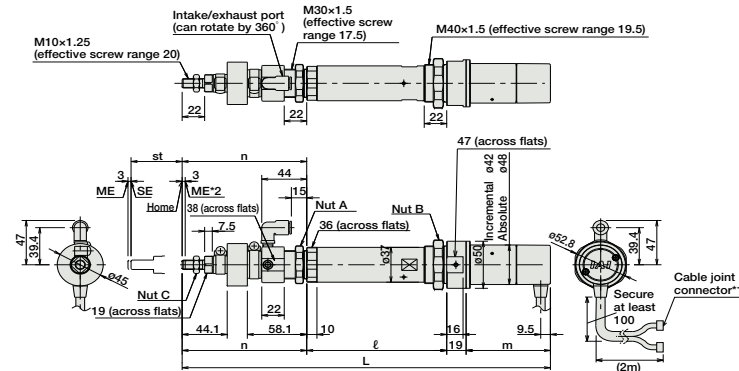
For Special Orders P. A-9



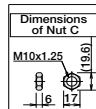
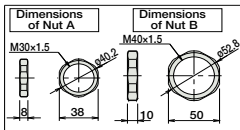
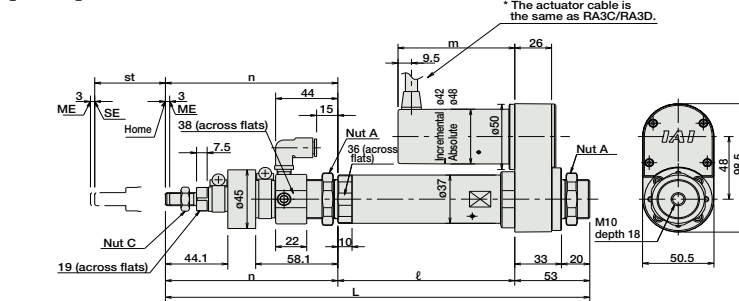
Note: No 3D CAD data for RA4D type.

\* 1 A 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

[RA4C/RA4D]



[RA4R]



Dimensions/Weight by Stroke

RCAW-RA4C/RA4D/RA4R (without brake)

Stroke	50 100 150 200 250 300							
		Incremental	345.4	405.4	465.4	525.4	586.4	647.4
L	RA4C	Absolute	358.4	418.4	478.4	538.4	599.4	660.4
		Incremental	360.4	420.4	480.4	540.4	601.4	662.4
	RA4D	Absolute	373.4	433.4	493.4	553.4	614.4	675.4
		Incremental	323.4	383.4	443.4	503.4	564.4	625.4
	RA4R	Absolute	336.4	396.4	456.4	516.4	577.4	638.4
		Incremental	338.4	398.4	458.4	518.4	579.4	640.4
l	RA4C	Absolute	351.4	411.4	471.4	531.4	592.4	653.4
		Incremental	299.9	359.9	419.9	479.9	540.9	601.9
	RA4D	Absolute	299.9	359.9	419.9	479.9	540.9	601.9
		Incremental	299.9	359.9	419.9	479.9	540.9	601.9
	RA4R	Absolute	299.9	359.9	419.9	479.9	540.9	601.9
		Common	137	187	237	287	337	387
m	RA4C	Incremental	137	187	237	287	337	387
		Absolute	137	187	237	287	337	387
	RA4D	Incremental	137	187	237	287	337	387
		Absolute	137	187	237	287	337	387
	RA4R	Incremental	125	175	225	275	325	375
		Absolute	125	175	225	275	325	375
n	RA4C	Incremental	67.5	80.5	95.5	110.5	125.5	140.5
		Absolute	67.5	80.5	95.5	110.5	125.5	140.5
	RA4D	Incremental	45.5	58.5	73.5	88.5	103.5	118.5
		Absolute	45.5	58.5	73.5	88.5	103.5	118.5
	RA4R	Incremental	67.5	80.5	95.5	110.5	125.5	140.5
		Absolute	67.5	80.5	95.5	110.5	125.5	140.5
Weight (kg)	RA4C	20W/30W	1.4	1.5	1.7	1.8	2.0	2.1
		RA4D	1.3	1.5	1.6	1.8	1.9	2.1
	RA4R	20W/30W	1.5	1.7	1.8	2.0	2.1	2.3
		RA4D	1.3	1.5	1.6	1.8	1.9	2.1

\* Adding a brake increases the RA4C type's overall length by 43mm. Adding a brake also increases the RA4R type's motor portion length by 43mm. However, the overall length does not change because the type is a Side-Mounted type. No brake setting for the RA4D type. Also the weight increases by 0.2kg for all types.

④ Compatible Controllers

The RCAW 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 ValveType		AMEC-C-20I ②-NP-2-1 AMEC-C-30I ②-NP-2-1	Easy-to-use controller, even for beginners.	3 points	AC100V	2.4A rated	-	→ P477						
		ASEP-C-20I ②-NP-2-0 ASEP-C-30I ②-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.						→ P487					
Splash-Proof Solenoid ValveType		ASEP-CW-20I ②-NP-2-0 ASEP-CW-30I ②-NP-2-0												
Positioner Type		ACON-C-20I ②-NP-2-0 ACON-C-30I ②-NP-2-0	Positioning possible for up to 512 points	512 points				DC24V	20W 1.3A rated 5.1A peak  30W 1.3A rated 5.1A peak	-	→ P535			
Safety Category Compliant Positioner Type		ACON-CG-200I ②-NP-2-0 ACON-CG-300I ②-NP-2-0												
Pulse Train Input Type (Differential Line Driver)		ACON-PL-20I ②-NP-2-0 ACON-PL-30I ②-NP-2-0	Differential line driver support Pulse Train Input Type	(-)										
Pulse Train Input Type (Open Collector)		ACON-PO-20I ②-NP-2-0 ACON-PO-30I ②-NP-2-0	Open Collector Pulse Train Input Type											
Serial Communication Type		ACON-SE-20I ②-N-0-0 ACON-SE-30I ②-N-0-0	Dedicated to serial communication	64 points										
Field NetworkType		RACON-20 ② RACON-30 ②	Dedicated to field network	768 points								→ P503		
Program Control Type			ASEL-C-1-20 ① ②-NP-2-0 ASEL-C-1-30 ① ②-NP-2-0	Programmed operation is possible Can operate up to 2 axes	1500 points								→ P567	

\* This is for the single-axis ASEL.  
 \* ① is a placeholder for the encoder type (I: incremental, A: absolute).  
 \* ② is a placeholder for the code "LA", when the energy-saving option is selected.

- 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