RCAW-RA3C/RA3D/RA3R

Robo Cylinder, Splash-Proof Rod Type, ø32mm Diameter,
24V Servo Motor, Coupled/Built-In/Side-Mounted Motor Specification

Model Specification Items

RCAW — Series — ☐ Type — I Encoder type — 20 Motor type — ☐ Lead — ☐ Stroke — ☐ Applicable controller — ☐ Cable length — ☐ Options

- Type: RA3C: Coupled type; RA3D: Built-in; RA3R: Side-mounted motor
- Encoder type: I: Incremental; * The Simple absolute encoder is also considered type "I".
- Motor type: 20: 20W Servo motor
- Lead: 10: 10mm; 5: 5mm; 2.5: 2.5mm
- Stroke: 50: 50mm ~ 200: 200mm (50mm pitch increments)
- Applicable controller: A1: ACON, ASEL, A3: AMEC, ASEP, MSEP
- Cable length: N: None; P: 1m; S: 3m; M: 5m; X☐☐: Custom Length; R☐☐: Robot Cable
- Options: See Options below.

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

CE RoHS

Power-saving

*Please note that the bellows shape has some change from the photo above.

Technical References → Appendix P.5

POINT — Notes on selection

(1) When the stroke increases, the maximum 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.
(2) The load capacity is based on operating the standard and power-saving models at 0.3G (0.2G for 2.5mm lead model). These values are the upper limits for the acceleration.
(3) 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 direction of travel is applied.
(4) The cable joint connector is not splash-proof; secure it in a place that is not prone to water spills.
(5) See page A-71 for details on push motion.

Actuator Specifications

■ Lead and Payload

Model number	Motor output (W)	Lead (mm)	Max. Load Capacity Horizontal (kg)	Max. Load Capacity Vertical (kg)	Rated thrust (N)	Stroke (mm)
RCAW-①-I-20-10-②-③-④-⑤	20	10	4	1.5	36.2	50~200 (every 50mm)
RCAW-①-I-20-5-②-③-④-⑤		5	9	3	72.4	
RCAW-①-I-20-2.5-②-③-④-⑤		2.5	18	6.5	144.8	

■ Stroke and Maximum Speed

Lead \ Stroke	50~200 (every 50mm)
10	500
5	250
2.5	125

(Unit: mm/s)

Code explanation ① Type ② Stroke ③ Applicable controller ④ Cable length ⑤ Options *See page A-71 for details on push motion.

Encoder / ② Stroke

② Stroke (mm)	Standard price RA3C	RA3D	RA3R
50	—	—	—
100	—	—	—
150	—	—	—
200	—	—	—

⑤ Options

Name	Option code	See page	Standard price
Brake (*1)	B	→ A-42	—
Flange bracket	FL	→ A-45	—
Foot bracket (front)	FT	→ A-49	—
Home sensor (*2)	HS	→ A-50	—
Power-saving	LA	→ A-52	—
Knuckle joint	NJ	→ A-53	—
Non-motor end specification (*2)	NM	→ A-52	—
Clevis bracket (*3)	QR	→ A-53	—
Rear mounting plate (*3)	RP	→ A-54	—
Trunnion bracket (front) (*4)	TRF	→ A-57	—
Trunnion bracket (rear) (*4)	TRR	→ A-58	—

(*1) No brake option for RA3D.
(*2) The home sensor (HS) cannot be used on the Non-motor end models (NM).
(*3) Clevis bracket and rear mounting plate only available for RA3R.
(*4) Trunnion bracket (rear) only available for RA3C/RA3D.

④ Cable 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.

Actuator Specifications

Item	Description
Drive System	Ball screw, ø8mm, rolled C10
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum, white alumite treated
Rod diameter	ø16mm
Non-rotating accuracy of rod	±1.0 deg
Protection structure	IP54
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

Dimensional Drawings

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

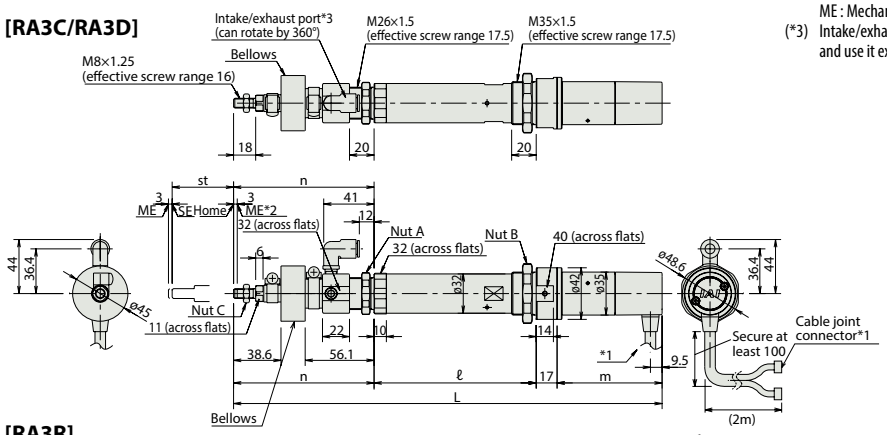
2D CAD 3D CAD (Note) No 3D CAD data for RA3D type.

For Special Orders Appendix P.15

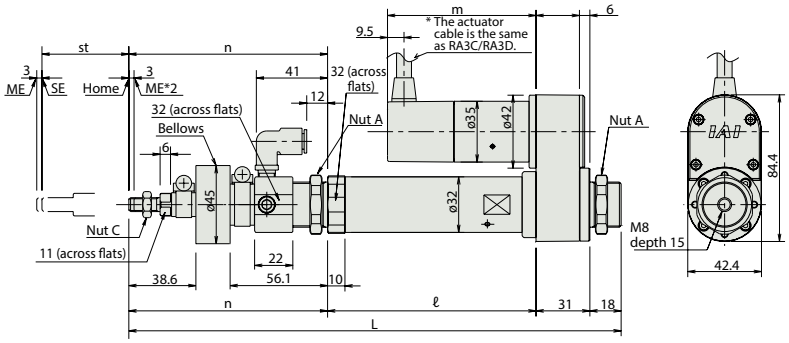
(*1) Connect the motor and encoder cables here. See page A-59 for details on cables.
(*2) After homing, the slider moves to the ME, therefore, please watch for any interference with surrounding objects.
ME : Mechanical end SE : Stroke end
(*3) Intake/exhaust port is the air exhaust tube in the main body. Insert OD ø10 mm tube and use it extended to a place that is not prone to water spills or intake.

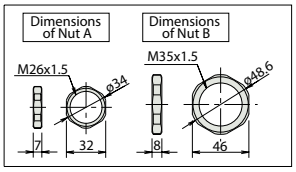
Note
Please don't apply an external force coming from a direction other than that of the rod's direction of travel.
The detent may break if a force is applied other than in the direction of travel or a torque is applied to the rod.

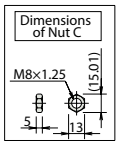
[RA3C/RA3D]



[RA3R]







■ Dimensions and Weight by Stroke

RCAW-RA3C/RA3D/RA3R (without brake)

Stroke		50	100	150	200
L	RA3C	348.9	408.9	468.9	528.9
	RA3D	329.9	389.9	449.9	509.9
	RA3R	283.4	343.4	403.4	463.4
ℓ	RA3C	132	182	232	282
	RA3D	132	182	232	282
	RA3R	120	170	220	270
m	RA3C	85.5			
	RA3D	66.5			
	RA3R	85.5			
n	RA3C	114.4	124.4	134.4	144.4
	RA3D	114.4	124.4	134.4	144.4
	RA3R	114.4	124.4	134.4	144.4
Weight (kg)	RA3C	1.0	1.1	1.2	1.3
	RA3D	1.0	1.1	1.2	1.3
	RA3R	1.1	1.2	1.3	1.4

RCAW-RA3C/RA3D/RA3R (with brake)

Stroke		50	100	150	200
L	RA3C	387.9	447.9	507.9	567.9
	RA3D	No brake-equipped model.			
	RA3R	283.4	343.4	403.4	463.4
ℓ	RA3C	132	182	232	282
	RA3D	No brake -equipped model.			
	RA3R	120	170	220	270
m	RA3C	124.5			
	RA3D	No brake-equipped model.			
	RA3R	124.5			
n	RA3C	114.4	124.4	134.4	144.4
	RA3D	No brake -equipped model.			
	RA3R	114.4	124.4	134.4	144.4
Weight (kg)	RA3C	1.2	1.3	1.4	1.5
	RA3D	1.2	1.3	1.4	1.5
	RA3R	1.3	1.4	1.5	1.6

③Applicable Controllers

RCAW 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		AMEC-C-20SI①-②-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	—	→ P537
		ASEP-C-20SI①-②-2-0	Simple controller operable with the same signal as a solenoid valve		DC24V	(Standard) 1.7A rated 5.1A max. (Power-saving) 1.7A rated 3.4A max.	—	→ P547
Solenoid valve multi-axis type PIO specification		MSEP-C-③-~~-②-2-0	Positioner type based on PIO control, allowing up to 8 axes to be connected				—	→ P563
Solenoid valve multi-axis type Network specification		MSEP-C-③-~~-Ⓥ-0-0	Field network-ready positioner type, allowing up to 8 axes to be connected	256 points				
Positioner type		ACON-C-20SI①-②-2-0	Positioning is possible for up to 512 points	512 points			—	→ P631
Safety-Compliant Positioner Type		ACON-CG-20SI①-②-2-0					—	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-20SI①-②-2-0	Pulse train input type with differential line driver support	(—)			—	
Pulse Train Input Type (Open Collector)		ACON-PO-20SI①-②-2-0	Pulse train input type with open collector support				—	
Serial Communication Type		ACON-SE-20SI①-N-0-0	Dedicated Serial Communication	64 points			—	
Program Control Type		ASEL-CS-1-20SI①-②-2-0	Programmed operation is possible. Can operate up to 2 axes	1,500 points			—	→ P675

* This is for the single-axis ASEL.
* ② indicates I/O type (NP/PN).
* Enter the code "LA" in ① when the power-saving specification is specified.
* ③ indicates number of axes (1 to 8).
* Ⓥ indicates field network specification symbol.