



# RCP3/RCA2 Actuator

## Slider Type

### First Step Guide

Fourth Edition

Thank you for purchasing our product.

Make sure to read the Safety Guide and detailed Instruction Manual (CD) included with the product in addition to this First Step Guide to ensure correct use.

This Instruction Manual is original.

**Warning :** Operation of this equipment requires detailed installation and operation instructions which are provided on the CD Manual included in the box this device was packaged in. It should be retained with this device at all times.  
A copy of the CD Manual can be requested by contacting your nearest IAI Sales Office listed at the back cover of the Instruction Manual or on the First Step Guide.

- Using or copying all or part of this Instruction Manual without permission is prohibited.
- The company names, names of products and trademarks of each company shown in the sentences are registered trademarks.

## Product Check

This product is comprised of the following parts if it is of standard configuration.  
If you find any fault in the contained model or any missing parts, contact us or our distributor.

### 1. Parts

No.	Part Name	Model	Remarks
1	Actuator Main Body	Refer to "How to read the model plate", "How to read the model No."	
Accessories			
2	Motor • Encoder Cable*1		
3	First Step Guide		
4	Instructionn Manual (CD)		
5	Safety Guide		

\*1 Please refer to the wiring layout for the enclosed motor cable and encoder cable.

### 2. How to read the model plate

Model	MODEL	RCP3-SA3C-I-28P-6-50-P1-P-B
Serial number	SERIAL No.	600090255
		MADE IN JAPAN

### 3. How to read the Model No.

#### 3.1 RCP3 Actuator

<b>RCP3-SA3C-I-28P-6-25-P1-P-B</b>			
<Series name>		<Option>	
<Type>		B : Equipped with the Brake (Applicable to SA3, SA4, SA5 and SA6 types)	
SA2AC[Thin and Small Type ROBO Cylinder]		CJT : Cable exit direction changed (to top side)	
SA2BC[Thin and Small Type ROBO Cylinder]		CJR : Cable exit direction changed (to right side)	
SA3C		CJL : Cable exit direction changed (to left side)	
SA4C		CJB : Cable exit direction changed (to bottom side)	
SA5C		CJO : Cable exit direction changed (to end side)	
SA6C		(Applicable for SA3, SA4, SA5 and SA6 types)	
Motor Reversing		ML : Motor Reversing from Left Side	
SA2AR[Thin and Small Type ROBO Cylinder]		(Applicable to Motor Reversing Type)	
SA2BR[Thin and Small Type ROBO Cylinder]		MR : Motor Reversing from Right Side	
SA3R		(Applicable to Motor Reversing Type)	
SA4R		NCO : Non Cover Type	
SA5R		(Applicable to SA3, SA4, SA5 and SA6 types)	
SA6R		<Stroke>	
<Encoder type>		<Applicable Controller>	
I : Incremental		P1 : PSEL	
<Motor Type>		PCON-C/CG	
20P(20 □Size): SA2AC, SA2AR, SA2BC, SA2BR		PCON-CY	
28P(28 □Size): SA3C, SA3R		PCON-SE	
35P(35 □Size): SA4C, SA4R		PCON-PL/PO	
42P(42 □Size): SA5C, SA5R, SA6C, SA6R		P3 : PMEC	
<Lead>		PSEP	
SA2AC, SA2AR		<Cable length>	
1S/2S/4S		N : None	
SA2BC, SA2BR		P : 1m	
2S/4S/6S		S : 3m	
SA3C, SA3R		M : 5m	
2/4/6		X□□ : Specified Length	
SA4C, SA4R			
2.5/5/10			
SA5C, SA5R			
3/6/12			
SA5C			
20			
SA6C, SA6R			
3/6/12			
SA6C			
20			

[Refer to the catalog or Instruction Manual (CD) for specification details.]

#### 3.2 RCA2 Actuator

<b>RCA2-SA3C-I-10-6-50-A1-P-B</b>			
<Series name>		<Option>	
<Type>		B : Equipped with the Brake	
SA2AC		CJT : Cable exit direction changed (to top side)	
SA3C		CJR : Cable exit direction changed (to right side)	
SA4C		CJL : Cable exit direction changed (to left side)	
SA5C		CJB : Cable exit direction changed (to bottom side)	
SA6C		CJO : Cable exit direction changed (to end side)	
Motor Reversing		ML : Motor Left Reversing Type	
SA2AR		MR : Motor Right Reversing Type	
SA3R		LA : Power Saving Type	
SA4R		NCO : Non Cover Type	
SA5R		NM : Reversed-Home Type	
SA6R		<Cable length>	
<Encoder type>		N : None	
I : Incremental		P : 1m	
<Motor Type>		S : 3m	
5S(5W) : SA2AC, SA2AR		M : 5m	
10(10W) : SA3C, SA3R		X□□ : Specified Length	
20(20W) : SA4C, SA4R, SA5C, SA5R		<Applicable Controller>	
30(30W) : SA6C, SA6R		A1 : ASEL	
<Lead>		ACON-C/CG	
SA2AC, SA2AR		ACON-CY	
1/2/4		ACON-SE	
SA3C, SA3R		ACON-PL/PO	
2/4/6		A3 : AMEC	
SA4C, SA4R		ASEP	
2.5/5/10			
SA5C, SA5R			
3/6/12			
SA5C			
20			
SA6C, SA6R			
3/6/12			
SA6C			
20			

[Refer to the catalog or Instruction Manual (CD) for specification details.]

## Precautions in Handling

Handle it with great care, and keep to the following instructions. Failure to do so may cause damage to the product.

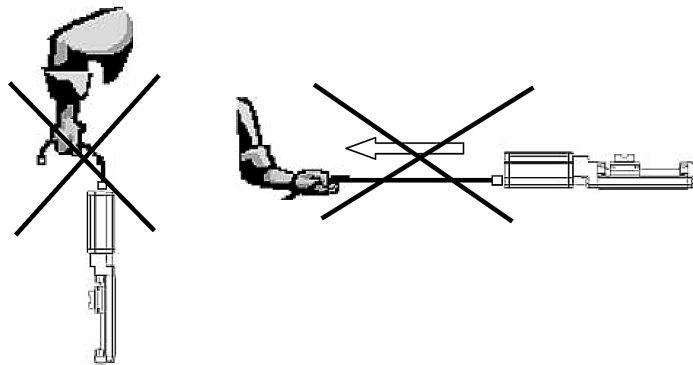
### 1. Handling of the Packed Product

Take the greatest care in transporting the product, not to bump or drop it.

- When setting down the packed actuator keep it horizontal.
- Do not step on the package.
- Do not place any heavy article on top of the package that may deform the package.

### 2. Handling of the Unpacked Product

Do not transport the actuator by holding the cable or move it by pulling the cable.



- When the actuator is taken out from the package and handled, hold the base section.
- When the stainless sheet is attached, never hold the stainless sheet section.
- When carrying the actuator, do not bump or drop the actuator or otherwise cause the actuator to receive any impact or excessive force.
- Do not give any unnatural force to any of the sections in the actuator. Take care not to give any force to the stainless sheet.

## Installation Environment, Storage Environment

### 1. Installation Environment

An environment that satisfies the following conditions is required during installation. Generally speaking, it should be an environment where a worker can work without any protective gear.

- There should be no direct sunlight
- Any radiant heat from a large heat source such as heat treatment furnace should not be directed at the machine main body.
- The ambient temperature should be 0 to 40°C.
- The relative humidity should be 85% or less. There should not be dew condensation.
- There should not be corrosive gas or flammable gas.
- It should be a normal assembling work environment where there is not too much dust.  
(In the case of RCP3-SA2A or SA2B type, when it is used under the condition where dust hangs in the air, the life is remarkably shortened.)
- Oil mist or cutting liquid should not be directed at the machine.
- Chemical liquid should not be splashed on it.
- An impact or vibration should not be transmitted to it.
- There should not be strong electromagnetic waves, ultraviolet rays or radiation.
- The working space required for maintenance or inspection should be secured.

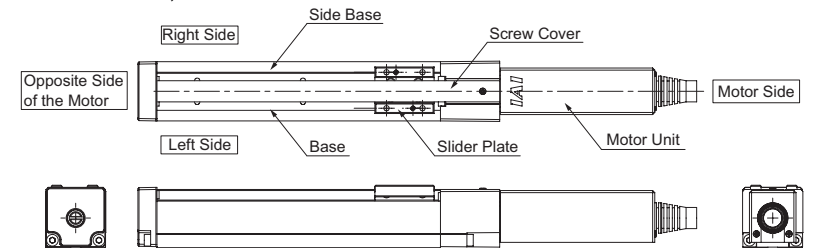
### 2. Storage and Preservation Environment

The storage and preservation environment should comply with the same standards as those for the installation environment. In particular, when the machine is to be stored for a long time, pay close attention to environmental conditions so that no condensation forms. Unless specially specified, moisture absorber protection is not included in the package when the machine is delivered. In the case that the machine is to be stored and preserved in an environment where condensation is anticipated, take the condensation preventive measures from outside of the entire package, or directly after opening the package.

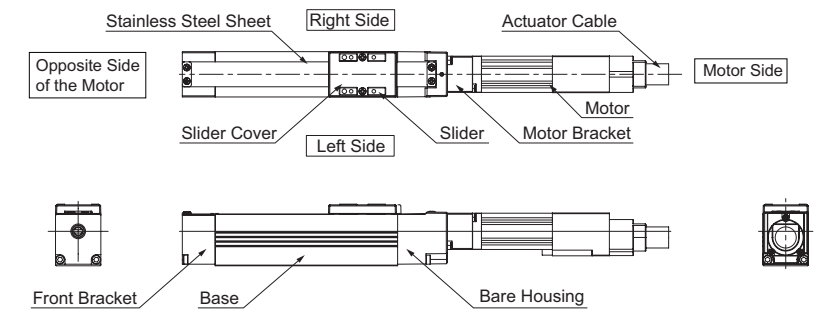
In the storage and preservation for up to 1 month, it can endure in the temperature at 60°C at maximum. For the storage and preservation longer than that, keep the temperature at 50°C at maximum.

## External Dimensions

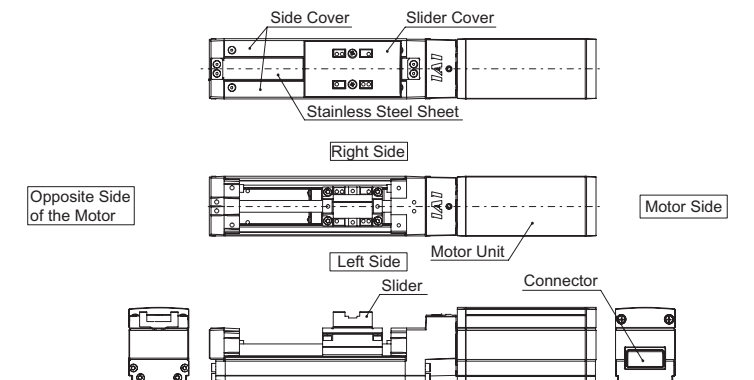
### 1. Motor Coupling Type RCP3-SA2AC, SA2BC



### RCA2-SA2AC

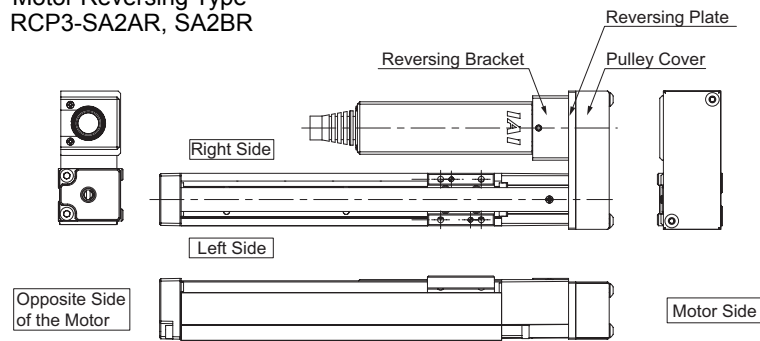


### RCP3-SA3C/SA4C/SA5C/SA6C RCA2-SA3C/SA4C/SA5C/SA6C

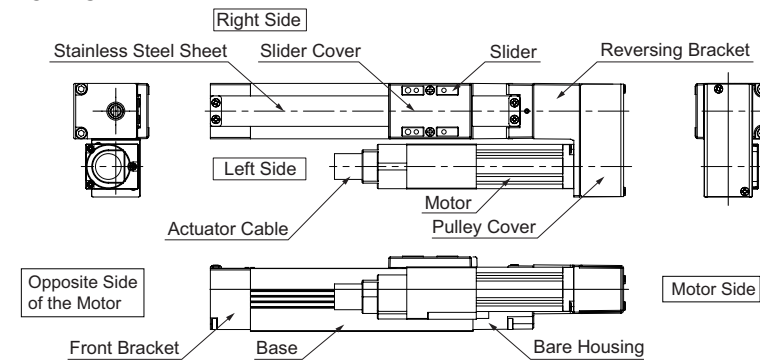


\* Connector position in the figure above is that with no direction change.

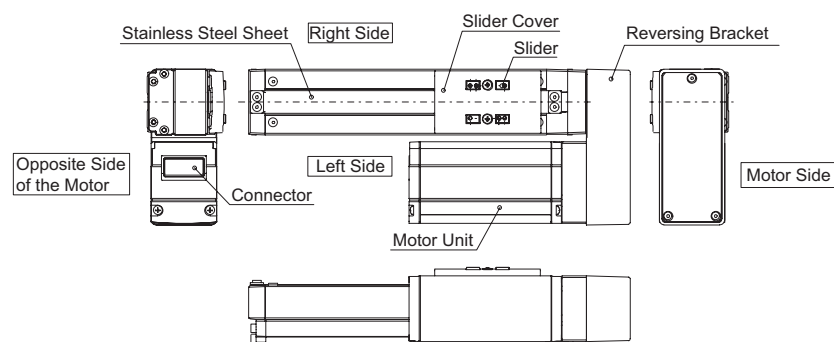
2. Motor Reversing Type  
RCP3-SA2AR, SA2BR



RCA2-SA2AR



RCP3-SA3R/SA4R/SA5R/SA6R RCA2-SA3R/SA4R/SA5R/SA6R



\* Connector position in the figure above is that with no direction change.

[Refer to the catalog or Instruction Manual (CD) for the external shape and setting dimensions.]

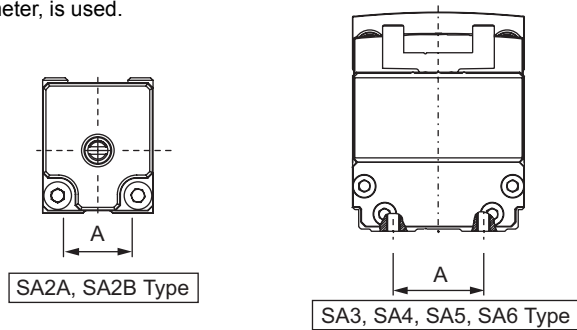
Attachment

1. Installing the Actuator

Fix it using the tapped hole on the rear side.

Description of the Set Screws

- For the base male set screw, use a hexagon socket head cap screw.
- For the bolt to be used, a high-tensile bolt complying with ISO-10.9 or more is recommended.
- Secure the following value or more for effective fitting length for bolts and screws.  
In the case of the stainless steel male screw: A screw with the same length as the nominal diameter is used.  
In the case of the aluminum male screw: A screw with the length as much as twice of the nominal diameter, is used.

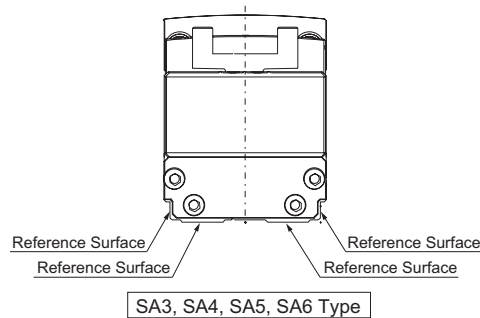


Model	Tap Size and Max. Screw Depth	Mounting bolt	Tightening Torque		A(mm)	Reamed Hole(mm)
			In the case that steel is used for the bolt seating surface:	In the case that aluminum is used for the bolt seating surface:		
RCP3-SA2A	M3 Depth 5	M3	1.54N·m (0.16kgf·m)	0.83N·m (0.085kgf·m)	10	Depth 3 from the φ2H7 Base Surface
RCP3-SA2B	M3 Depth 4	M3	1.54N·m (0.16kgf·m)	0.83N·m (0.085kgf·m)	10	Depth 3 from the φ2H7 Base Surface
RCA2-SA2A	M2 Depth 4	M2	0.42N·m (0.043kgf·m)	0.25N·m (0.026kgf·m)	16	Depth 2 from the φ3H7 Base Surface
SA3	M3 Depth 5	M3	1.54N·m (0.16kgf·m)	0.83N·m (0.085kgf·m)	17	Depth 4 from the φ2H7 Base Surface
SA4	M3 Depth 5	M3	1.54N·m (0.16kgf·m)	0.83N·m (0.085kgf·m)	21	Depth 5 from the φ2.5H7 Base Surface
SA5	M4 Depth 7	M4	3.59N·m (0.37kgf·m)	1.76N·m (0.18kgf·m)	26	Depth 5 from the φ2.5H7 Base Surface
SA6	M5 Depth 10	M5	7.27N·m (0.74kgf·m)	3.42N·m (0.35kgf·m)	31	Depth 5 from the φ3H7 Base Surface

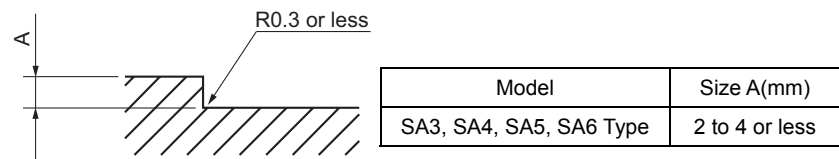
⚠ Note : Take care in selecting the bolt. Using a bolt with inappropriate length may cause damage to the tapped hole, insufficient attachment strength of the actuator or interference with the driving section, which may result in degradation of accuracy, damage or unexpected accident.

2. Attachment Surface

- The platform to install the actuator should possess a structure that ensures enough stiffness, and should be free from vibration.
- This surface is used as the reference for the SA3, SA4, SA5 or SA6 type actuator base side and lower side slider running. In the case that the running accuracy is required, attach the actuator using this surface as the reference.



Refer to the following figure for the processing when the actuator is attached to the base using the base reference surface.



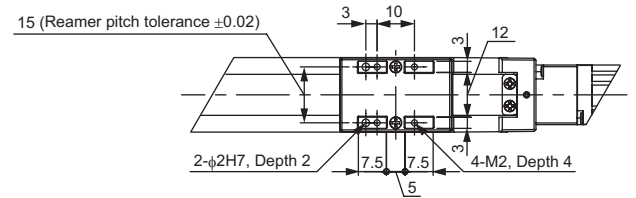
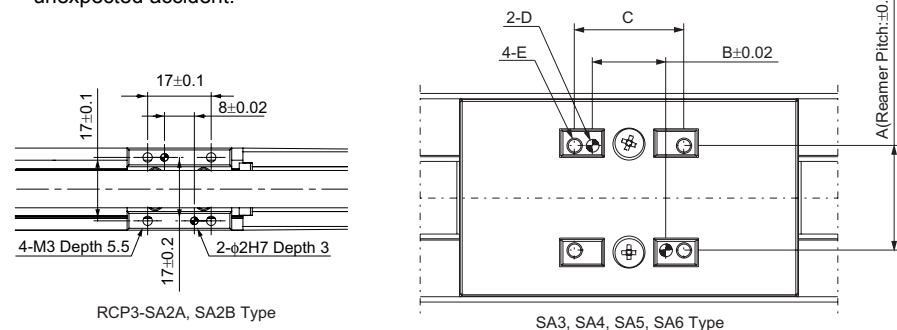
3. Attachment of the payload to be carried

- Fix the payload to be carried using the slider tapped hole.

Description of the Set Screws

- For the male set screw, use a hexagon socket head cap screw.
- For the bolt to be used, a high-tensile bolt complying with ISO-10.9 or more is recommended.
- The slider has two reamed holes. In the case that repeated attaching and removal is required, use these reamed holes. Also, in the case that fine adjustment for squareness is required, select one of these reamed holes to be used and adjust.
- \* When the reamed hole is to be used, the H7 pin is recommended. Do not drive the pin into the reamed hole, but insert it in the hole with the pressing-in operation.
- Refer to the following table for the screw depth and reamed hole depth.

In the case that the screw is screwed in the hole to the depth more than the value in the following table, it might cause a damage to the tapped hole or insufficient attachment strength of the object to be carried, which may result in degradation of accuracy or unexpected accident.



\*In common for coupling type/reversed type

RCA2-SA2A Type

Model	A	B	C	D	E	Mounting bolt	
						Nominal thread size	Tightening torque
RCP3-SA2A, SA2B						M3	0.83N·m (0.085kgf·m)
RCA2-SA2A						M2	0.25N·m (0.026kgf·m)
SA3	17	11	17	φ2H7 Depth 5	M3 Depth 6	M3	0.83N·m (0.085kgf·m)
SA4	20	14	21	φ2.5H7 Depth 5	M3 Depth 6	M3	0.83N·m (0.085kgf·m)
SA5	26	14	22	φ2.5H7 Depth 5	M4 Depth 8	M4	1.76N·m (0.18kgf·m)
SA6	31	15	25	φ3H7 Depth 5	M5 Depth 10	M5	3.42N·m (0.35kgf·m)

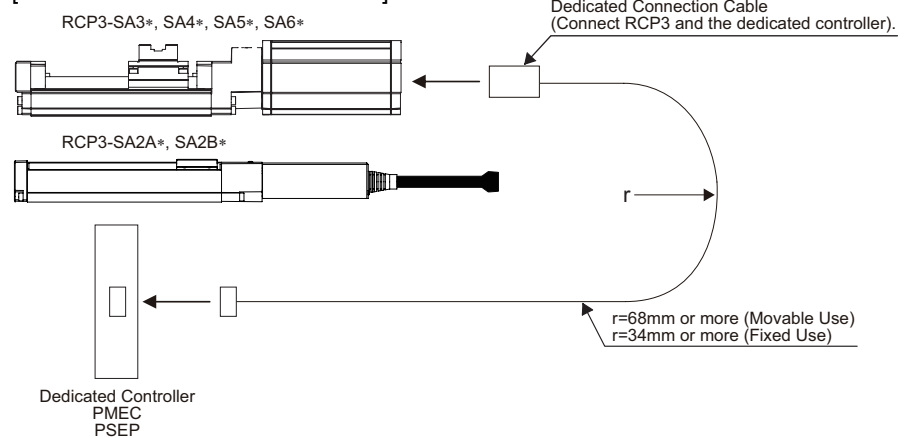
Wiring

For the controller, use the dedicated controller manufactured by our company.  
For the connection between the actuator and controller, use the attached dedicated connection cable.

1. RCP3 Actuator Connection

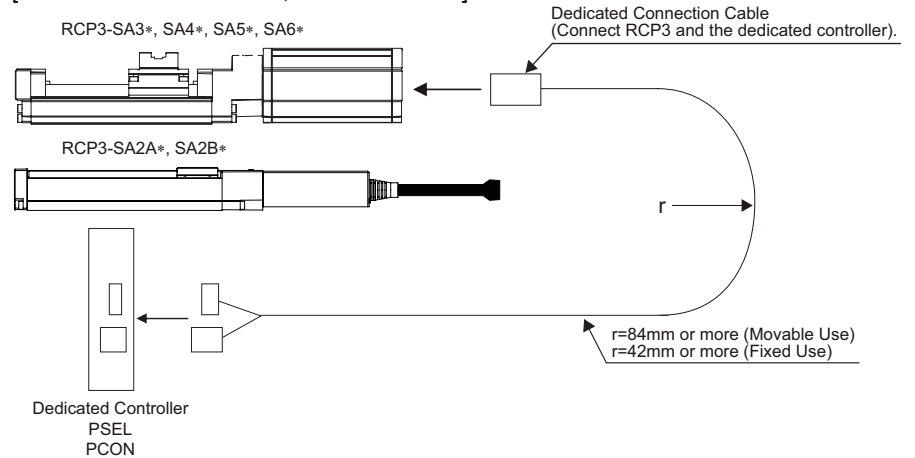
Motor Coupling Type SA2AC/SA2BC/SA3C/SA4C/SA5C/SA6C,  
Motor Reversing Type SA2AR/SA2BR/SA3R/SA4R/SA5R/SA6R

[Connection to the PSEP controller]



Dedicated Connection Cable CB-APSEP-MPA\*\*\*  
\*\*\* shows the cable length. The max. length should be 20m.  
Example) 080=8m

[Connection to the PCON, PSEL controller]



Dedicated Connection Cable CB-PCS-MPA\*\*\*  
\*\*\* shows the cable length. The max. length should be 20m.  
Example) 080=8m

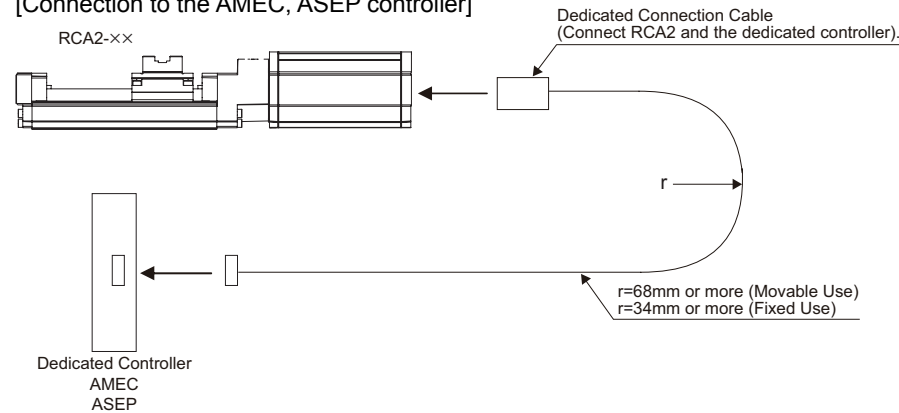
## 2. RCA2 Actuator Connection

Motor Coupling Type SA2AC/SA3C/SA4C/SA5C/SA6C,

Motor Reversing Type SA2AR/SA3R/SA4R/SA5R/SA6R

(Note) Only the ASEP Controller can be connected to RA2AC and SA2AR.

[Connection to the AMEC, ASEP controller]

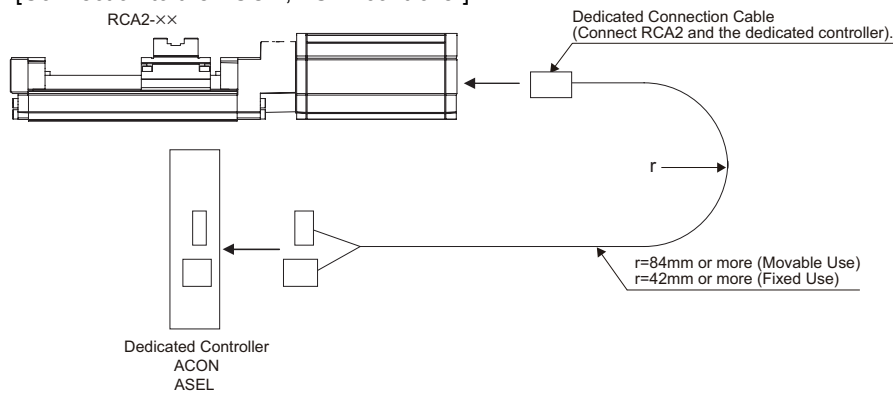


Dedicated Connection Cable CB-APSEP-MPA\*\*\*

\*\*\* shows the cable length. The max. length should be 20m.

Example) 080=8m

[Connection to the ACON, ASEL controller]



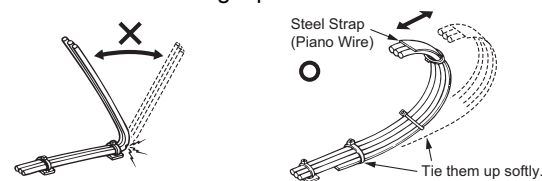
Dedicated Connection Cable CB-ACS-MPA\*\*\*

\*\*\* shows the cable length. The max. length should be 20m.

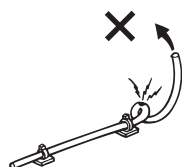
Example) 080=8m

[Prohibited Items in the Cable Processing]

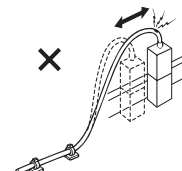
- Do not pull or bend forcibly the cable so as not to give any extra load or tension to the cable.
- Do not process the cable for extension or shortening by means of cutting out, combination or connecting with another cable.
- Do not let the cable flex at a single point.



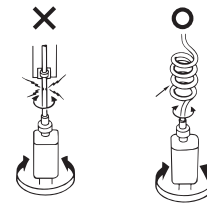
- Do not let the cable bend, kink or twist.



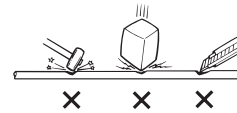
- Do not pull the cable with a strong force.



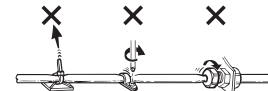
- Do not let the cable receive a turning force at a single point.



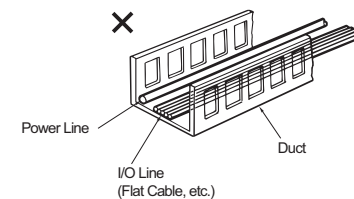
- Do not pinch, drop a heavy object onto or cut the cable.



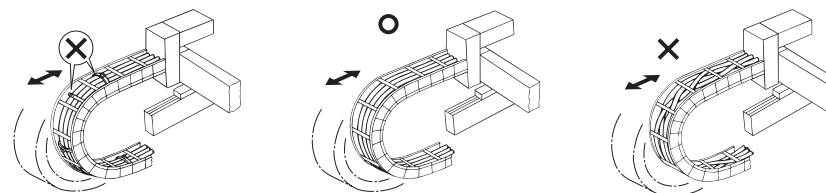
- When fixing the cable, provide a moderate slack and do not tension it too tight.



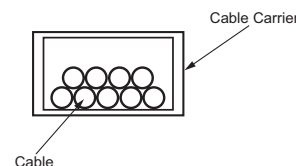
- Separate the I/O line, communication line and power line from each other. Arrange so that such lines are independently routed in the duct.



- Take care of the following items using the cable carrier.
- Arrange the wiring so that there is no entanglement or kink of the cables in the cable carrier or flexible tube, and do not bind the cables so that the cables are relatively free (Do not bend it at an angle of 90° or less).



- The occupied volume rate for the cables, etc., inside the cable carrier should be 60% or less.



### ⚠ Note:

- When the cable is connected or disconnected, make sure to turn off the power to the controller. When the cable is connected or disconnected with the controller power turned ON, it might cause a malfunction of the actuator and result in a serious injury or damage to the machinery.
- When the connector connection is not correct, it would be dangerous because of a malfunction of the actuator. Make sure to confirm that the connector is connected correctly.

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