



Quality and Innovation

RCP2 (CR) (W) /RCS2 Actuator Gripper Type

First Step Guide First 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

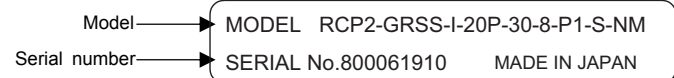
This product is comprised of the following parts if it is of standard configuration.
If you find any fault in the contained model or any missing parts, contact us or our distributor.

1. Parts (The option is excluded.)

| No. | Part Name | Model | Remarks |
|-------------|-------------------------|---|---------|
| 1 | Actuator Main Body | [Refer to "2.How to read the model plate", "3.How to read the model. "] | |
| Accessories | | | |
| 2 | Motor • Encoder Cable*1 | | |
| 3 | First Step Guide | | |
| 4 | Instruction 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



3. How to read the model

3.1 RCP2 Type

RCP2-GRSS-I-20P-30-8-P1-S-NM

| | | |
|--|--|--|
| <p><Series> RCP2 : Standard Type RCP2CR : Clean-Room Type RCP2W : Dust-Proof Type</p> <p><Type> GRSS : Thin and Small Two-finger Slide Type GRLS : Thin and Small Two-finger Lever Type GRS : Small Two-finger Slide Type GRM : Medium Two-finger Slide Type GRHM : Medium Two-finger High-grip-force Slide Type GRHB : Large Two-finger High-grip-force Slide Type GRST : Small Two-finger Long-stroke Type GR3SS : Three-finger Slide Type, Body Width 62mm GR3SM : Three-finger Slide Type, Body Width 80mm GR3LS : Three-finger Lever Type, Body Width 62mm GR3LM : Three-finger Lever Type, Body Width 80mm</p> <p><Encoder Type> I : Incremental</p> <p><Motor Type> 20P : Pulse Motor 20 □Size 35P : Pulse Motor 35 □Size 28P : Pulse Motor 28 □Size 42P : Pulse Motor 42 □Size</p> <p><Gear Ratio> 1 : 1/1(GRST) 30 : 1/30 2 : 1/2(GRST) 2 : Feed Screw Lead 2(GRHM, GRHB)</p> | <p><Option> NM : Reversed Home Specification FB : Flange Bracket SB : Shaft Bracket A0 : Cable Oriented on Bottom A1 : Cable Oriented on Side CJT : Cable Exit direction changed (to top side) CJR : Cable Exit direction changed (to right side) CJL : Cable Exit direction changed (to left side) CJB : Cable Exit direction changed (to bottom side)</p> <p><Stroke> 8 : 8mm (4mm per side) 10 : 10mm (5mm per side) 14 : 14mm (7mm per side) 32 : 32mm (16mm per side) 40 : 40mm (20mm per side) 60 : 60mm (30mm per side) 80 : 80mm (40mm per side) 100 : 100mm (50mm per side) 19 : 19 degrees 180 : 180 degrees (90 degrees per side)</p> | <p><Cable Length> N : None P : 1m S : 3m M : 5m X□□ : Specified Length (Example: X07=7m) R□□ : Robot Cable (Example: R05=5m)</p> <p><Applicable Controller> P1 : PCON P3 : PMECC RPCON PSEP PSEL</p> |
|--|--|--|

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

3.2 RCS2 Type

RCS2-GR8-I-60-5-20-T1-S

| | | | |
|----------------|--|--|---|
| <Series> | GR8 | <Cable Length> | T1 : XSEL-J/K T2 : SCON SSEL XSEL-P/Q |
| <Type> | GR8 | N : None P : 1m S : 3m M : 5m | |
| <Encoder Type> | I : Incremental | X□□ : Specified Length (Example: X07=7m) R□□ : Robot Cable (Example: R05=5m) | |
| <Motor Type> | 60 : Servo-Motor 60W | <Applicable Controller> | |
| <Gear Ratio> | 5 : 1/5 | | |
| <Stroke> | 20 : 20mm (10mm per side) 40 : 40mm (20mm per side) 60 : 60mm (30mm per side) 80 : 80mm (40mm per side) | 100 : 100mm (50mm per side) 120 : 120mm (60mm per side) 200 : 200mm (100mm per side) | |

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

Precautions in Handling

1. Handling of the Packed Product

Unless otherwise specified, the actuator is shipped with each axis packaged separately.

- Do not damage or drop. The package is not supplied with any special treatment that enables it to resist an impact caused by a drop or crash.
- If the shipping box is to be left standing, it should be in a horizontal position. Follow the instruction if there is any for the packaging condition.
- Do not step or sit on the package.
- Do not put any load that may cause a deformation or breakage of the package.

2. Handling of Robot without Package

- Do not carry the actuator by holding the cable, or do not move it by pulling the cable.
- When carrying the actuator, exercise caution not to bump it against nearby objects or structures.
- Do not give any excessive force to any of the sections in the actuator.

Installation Environment, Storage Environment

1. Installation Environment

An environment that satisfies the following conditions is required during installation.

- There should be no direct sunlight.
 - Any radiant heat from a large heat source such as a 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 be no corrosive gas or flammable gas.
 - It should be normal assembling work environment where there is not too much dust. (Dust-proof Types RCP2W-GRSS and RCP2W-GRLS are excluded)
 - Oil mist or cutting liquid should not be directed at the machine.
 - An impact or vibration should not be transmitted to it.
 - There should be no strong electromagnetic waves, ultraviolet rays or radiation.
 - Chemical resistance specification is not considered to this product.
- It is generally the environment where a worker can work without any protection gear or protection wear.

2. Storage and Preservation Environment

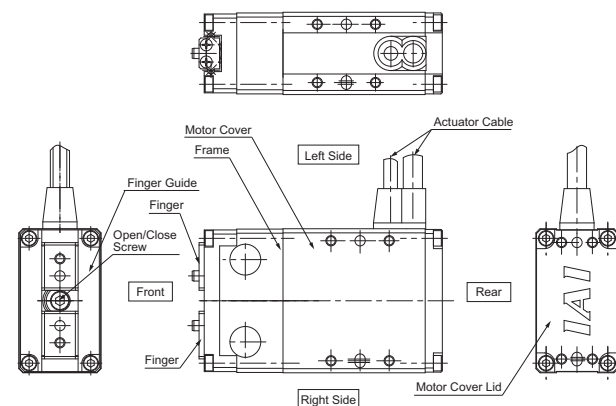
The storage and preservation environment should comply with the same standards as those for the installation environment. In particular, when the machine is to be stored for a long time, pay close attention to environmental conditions so that no dew condensation forms.

Unless specially specified, moisture absorbcency protection is not included in the package when the machine is delivered. In the case that the machine is to be stored in an environment where dew condensation is anticipated, take the condensation preventive measures from outside of the entire package, or directly after opening the package.

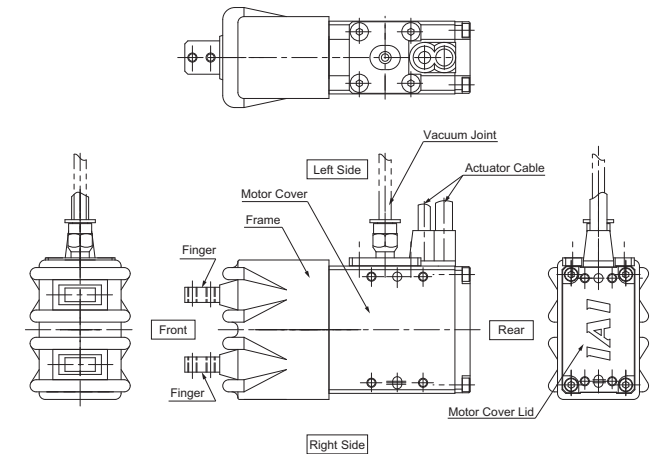
For storage temperature, the machine withstands temperatures up to 60°C for a short time, but in the case of the storage period of 1 month or more, control the temperature to 50°C or less.

Names of the Parts

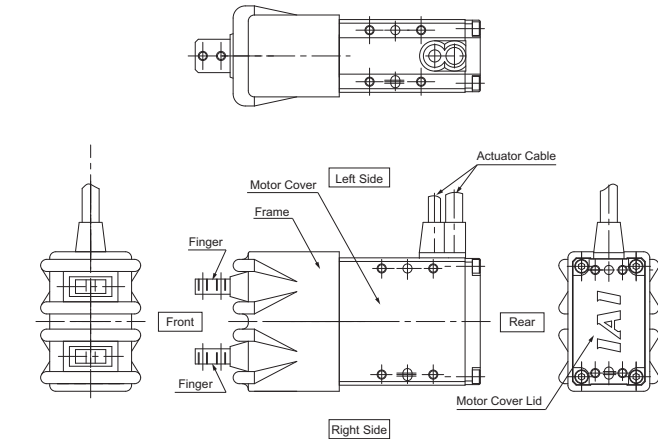
1. Thin and Small Two-finger Slide Type (Standard) RCP2-GRSS



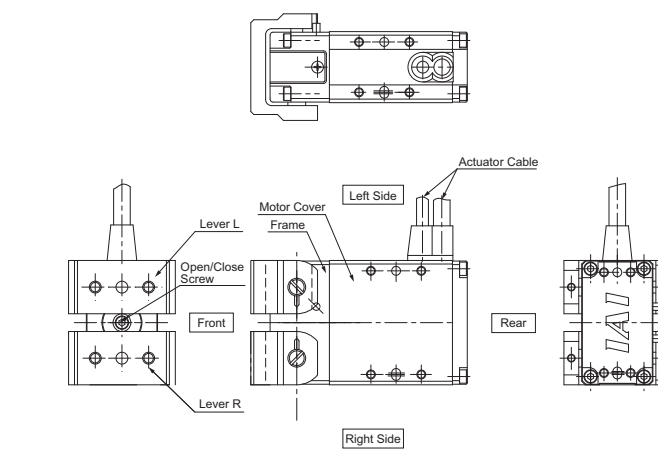
2. Thin and Small Two-finger Slide Type (for clean-room use) RCP2CR-GRSS



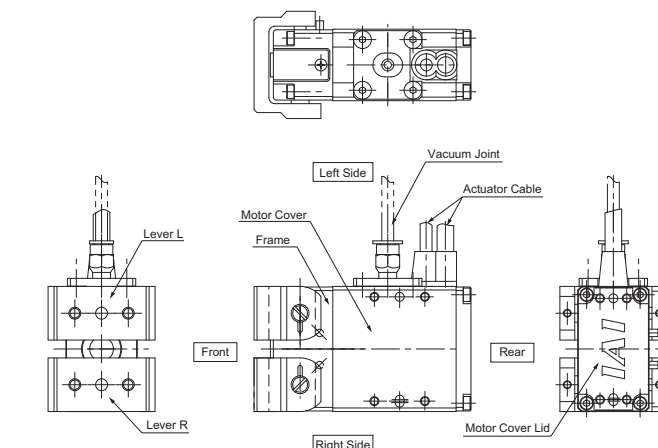
3. Thin and Small Two-finger Slide Type (for dust-proof use) RCP2W-GRSS



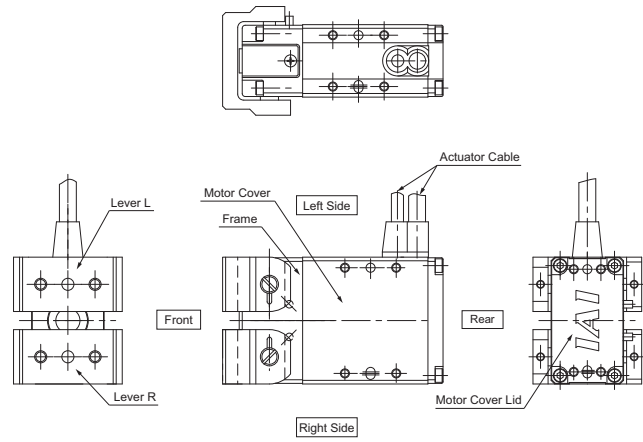
4. Thin and Small Two-finger Lever Type (Standard) RCP2-GRLS



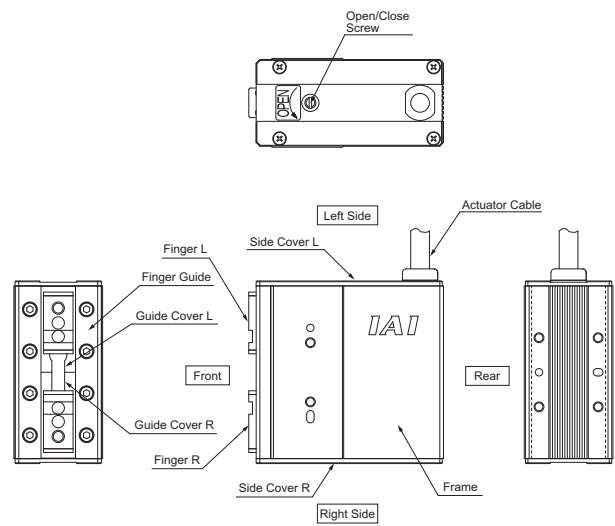
5. Thin and Small Two-finger Lever Type (for clean-room use) RCP2CR-GRLS



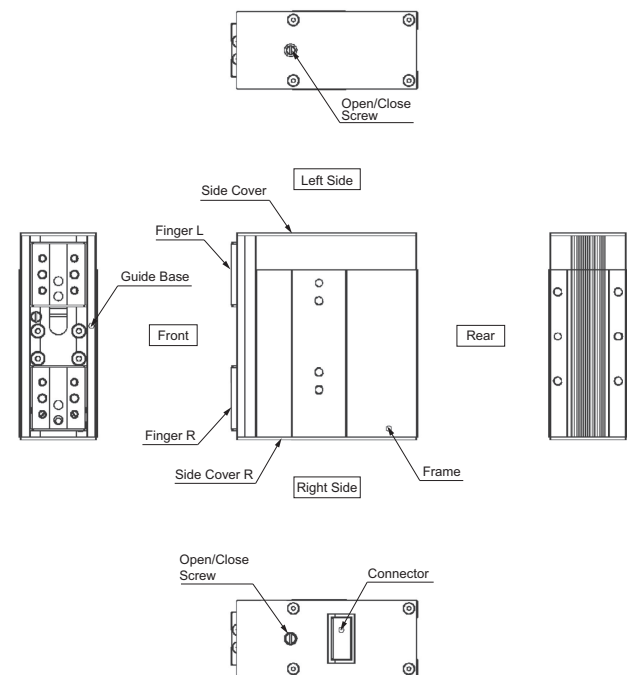
6. Thin and Small Two-finger Lever Type (for dust-proof use) RCP2W-GRLS



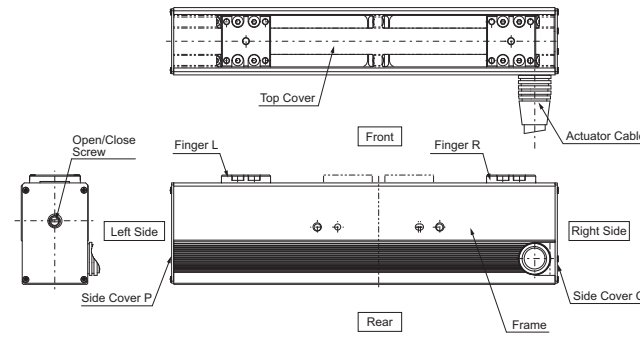
7. Small • Medium Two-finger Slide Type RCP2-GRS/GRM



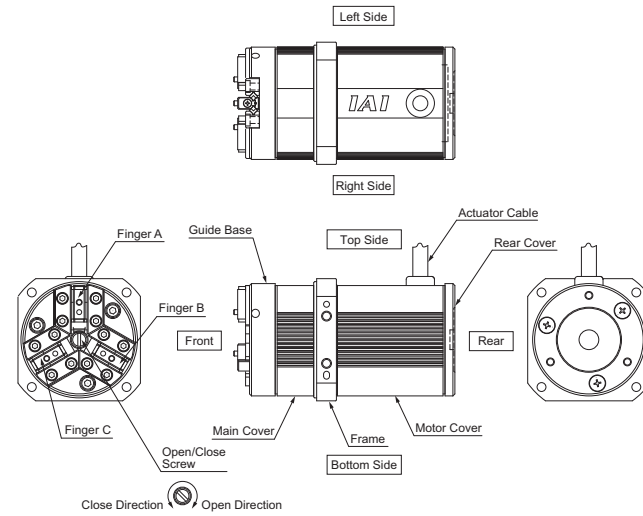
8. Two-finger High-grip-force Slide Type RCP2-GRHM/GRHB



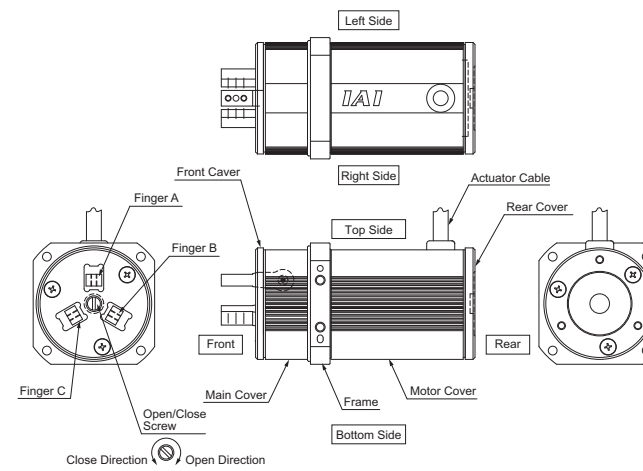
9. Small Two-finger Long-stroke Type RCP2-GRST



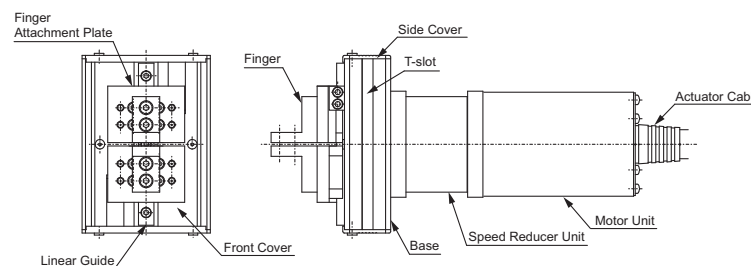
10. Three-finger Slide Type RCP2-GR3SS/GR3SM



11. Three-finger Lever Type RCP2-GR3LS/GR3LM



12. Servo-Motor Type RCS2-GR8



Please refer to the Catalog or the Instruction Manual (CD) for the dimensions and profile.

Attachment

Refer to the Instruction Manual (CD) for the attachments of the actuator and loads.

[Precautions for Attachments]

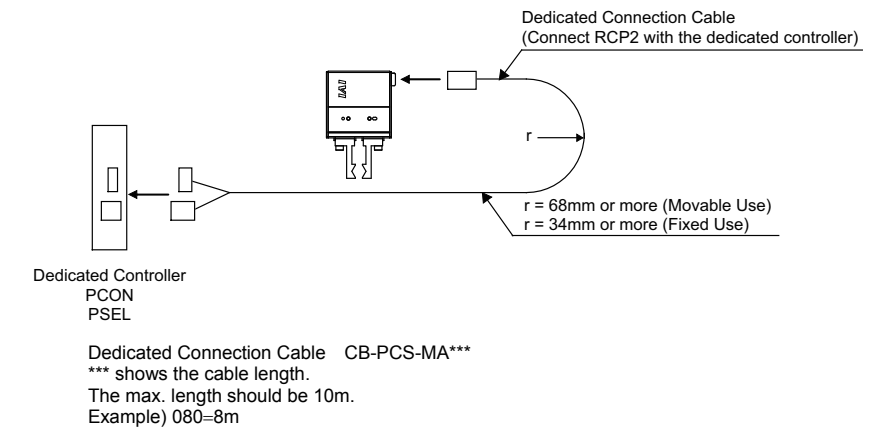
| No. | Item | Precautions |
|-----|-----------------------|--|
| 1 | Attachment Surface | <ul style="list-style-type: none"> The actuator mounting surface and other surfaces that are used as a datum should be flat enough with an accuracy of machining or equivalent treatment, and the flatness of the mounting surface needs to be $\pm 0.05\text{mm/m}$ or less. Secure the space where maintenance work can be performed. |
| 2 | Bolts to be used | <ul style="list-style-type: none"> For the bolts to be used, a high-tensile bolt complying with ISO-10.9 or more is recommended. If using the tapped holes, use screws with the thread length dimension being less than the effective depth of the holes. In case the tapped hole is a through hole, be careful so the screw tip does not exceed the surface of the tapped hole. For the actuator mounting, use a bolt with the dimension of its effective mating length to the tapped hole size as stated below. If tapped hole in steel \rightarrow thread length same as nominal diameter. If tapped hole in aluminum \rightarrow thread length 2 times longer than nominal diameter. |
| 3 | Tightening Torque | <ul style="list-style-type: none"> Please follow the specification values stated in the Instruction Manual (CD) for the tightening torque. Failure to do so may cause an operation problem. |
| 4 | Allowable Load Moment | <ul style="list-style-type: none"> Please follow the specified value stated in the Instruction Manual (CD) for the allowable load moment. If a load beyond the range is applied, it may shorten the product life. An extremely high load may cause flaking. |

Wiring

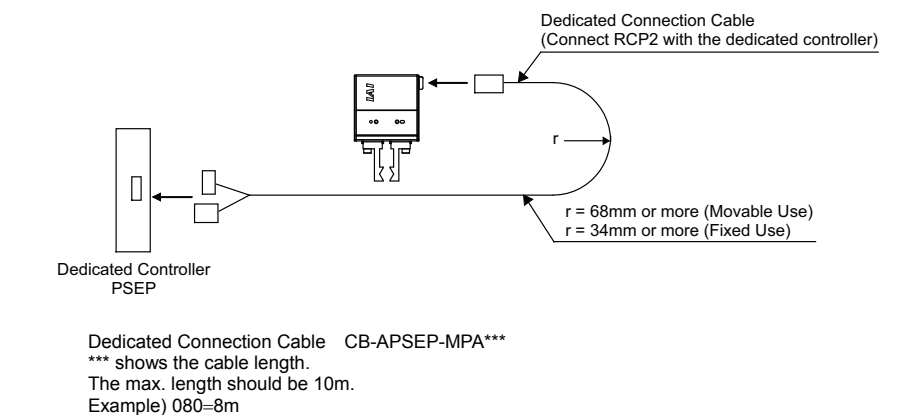
For the controller, only the dedicated controller manufactured by our company can be used. Use the dedicated cable enclosed in the package when connecting the actuator and the controller.

- Thin and Small Two-finger Slide Type (RCP2-GRSS/RCP2CR-GRSS/RCP2W-GRSS)
- Thin and Small Two-finger Lever Type (RCP2-GRLS/RCP2CR-GRLS/RCP2W-GRLS)
- Two-finger High-grip-force Slide Type (RCP2-GRHM/GRHB)
- Two-finger Long-stroke Type (RCP2-GRST)

[Connection to the PCON, PSEL Controller]

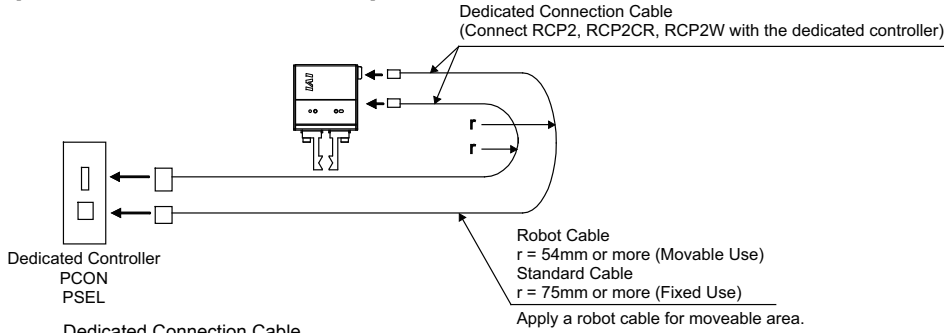


[Connection to the PMEC, PSEP Controller]



2. Small Two-finger Slide Type (RCP2-GRS), Medium Two-finger Slide Type (RCP2-GRM)
 Three-finger Slide Type (RCP2-GR3SS/GR3SM)
 Three-finger Lever Type (RCP2-GR3LS/GR3LM)

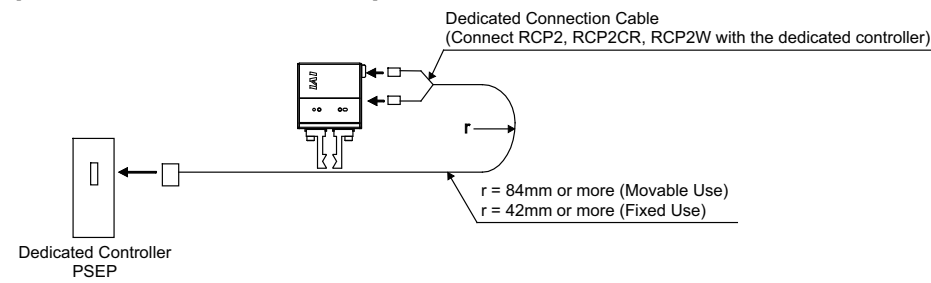
[Connection to the PCON, PSEL Controller]



Dedicated Connection Cable

- Motor Cable (Robot Cable) CB-RCP2-MA***
 - Encoder Cable CB-RCP2-PB***/Encoder Cable Robot Cable CB-RCP2-PB***-RB
- *** shows the cable length.
 The max. length should be 20m.
 Example) 080=8m

[Connection to the P MEC, PSEP Controller]

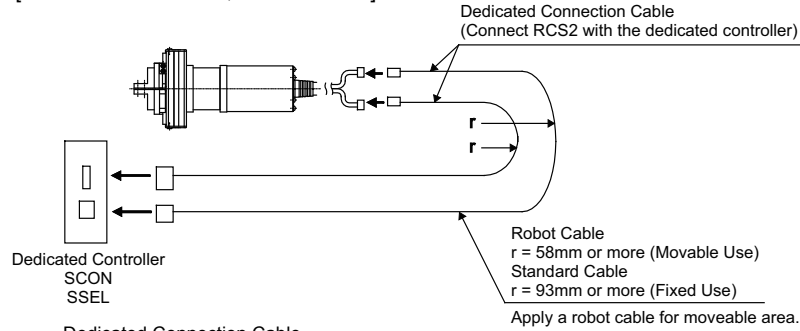


Dedicated Connection Cable

- Motor Encoder Cable CB-PSEP-MPA***
- *** shows the cable length.
 The max. length should be 10m.
 Example) 080=8m

3. RCS2

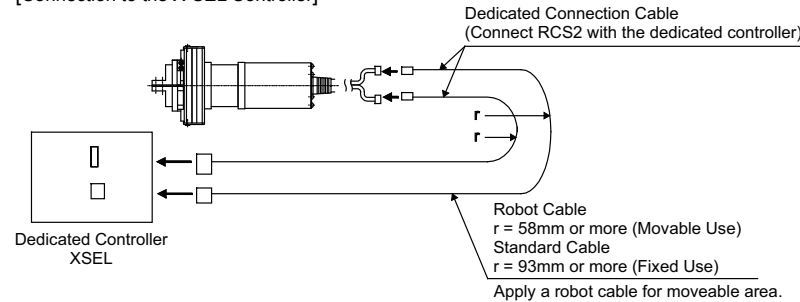
[Connection to the SCON, SSEL Controller]



Dedicated Connection Cable

- Motor Cable CB-RCC-MA***/Motor Cable Robot Cable CB-RCC-MA***-RB
 - Encoder Cable CB-RCS2-PA***/Encoder Cable Robot Cable CB-X3-PA***
- *** shows the cable length.
 The max. length should be 30m.
 Example) 080=8m

[Connection to the X-SEL Controller]

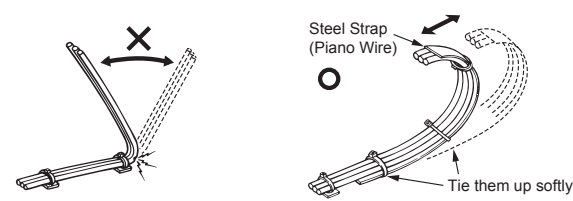


Dedicated Connection Cable

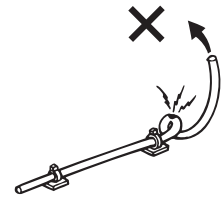
- Motor Cable CB-RCC-MA***/Motor Cable Robot Cable CB-RCC-MA***-RB
 - Encoder Cable for XSEL-J/K Type CB-RCBC-PA***
 - Encoder Cable for XSEL-P/Q Type CB-RCS2-PA***
- *** shows the cable length.
 The max. length should be 15m. The max. length for other cables is 20m.
 Example) 080=8m

[Prohibited Items in the Cable Processing]

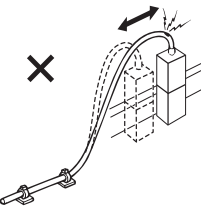
- Do not pull or bend forcibly the cable so as not to give any extra load or tension to the cable.
- Do not process the cable for extension or shortening by means of cutting out, combination or connecting with another cable.
- Do not let the cable flex at a single point.



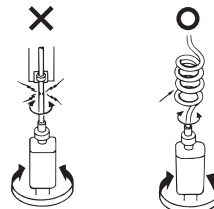
- Do not let the cable bend, kink or twist.



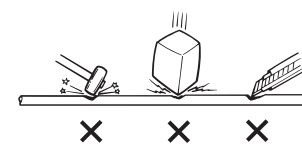
- Do not pull the cable with a strong force.



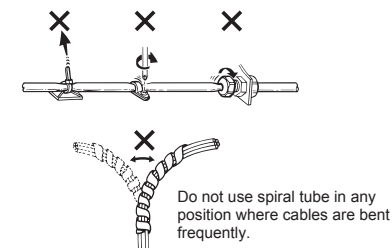
- Do not let the cable receive a turning force at a single point.



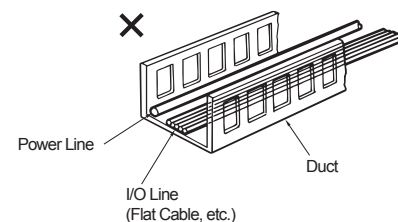
- Do not pinch, drop a heavy object onto or cut the cable.



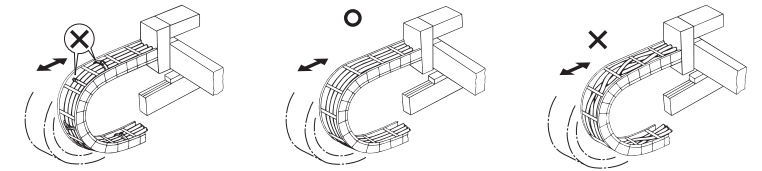
- When fixing the cable, provide a moderate slack and do not tension it too tight.



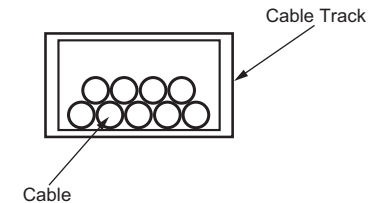
- Separate the I/O line, communication line and power line from each other. Arrange so that such lines are independently routed in the duct.



- 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 cable track capacity for cables to put in should be 60% or less to prevent cables from breaking. (Cable heat is not considered.)



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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