

# High-Speed Orthogonal Robot CT4

## First Step Guide Third Edition

Thank you for purchasing our product.  
Make sure to read the Safety Guide and detailed Instruction Manual (DVD) 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 DVD Manual included in the box this device was packaged in. It should be retained with this device at all times.  
A hardcopy of the DVD 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

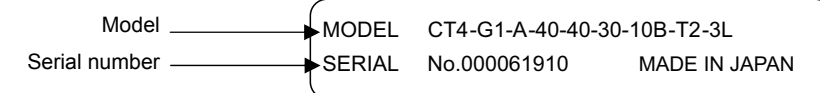
This product is comprised of the following parts if it is of standard configuration.  
If you find any fault in the contained model or any missing parts, contact us or our distributor.

#### 1. Parts

No.	Part Name	Model	Quantity	Remarks
1	Actuator Main Body	Refer to "How to read the model plate", "How to read the model No."	1 set	
<b>Accessories</b>				
2	Motor • Encoder Cable (Note 1)		1 set	Refer to 1.3 "Motor • Encoder Cables".
3	Eyebolt		3	
4	In-house made seals		1	
5	First Step Guide		1	
6	Instruction Manual (DVD)		1	
7	Safety Guide		1	

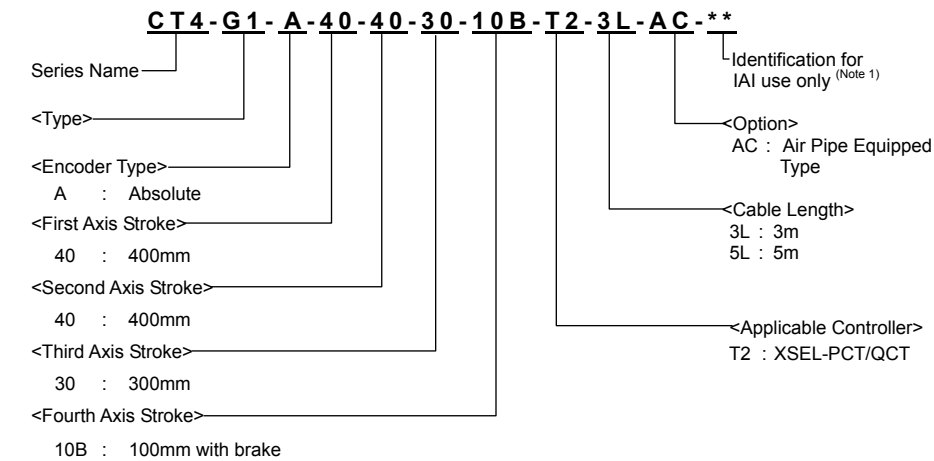
Note 1 Please refer to the wiring layout for the enclosed motor cable and encoder cable.

#### 2. How to read the model plate



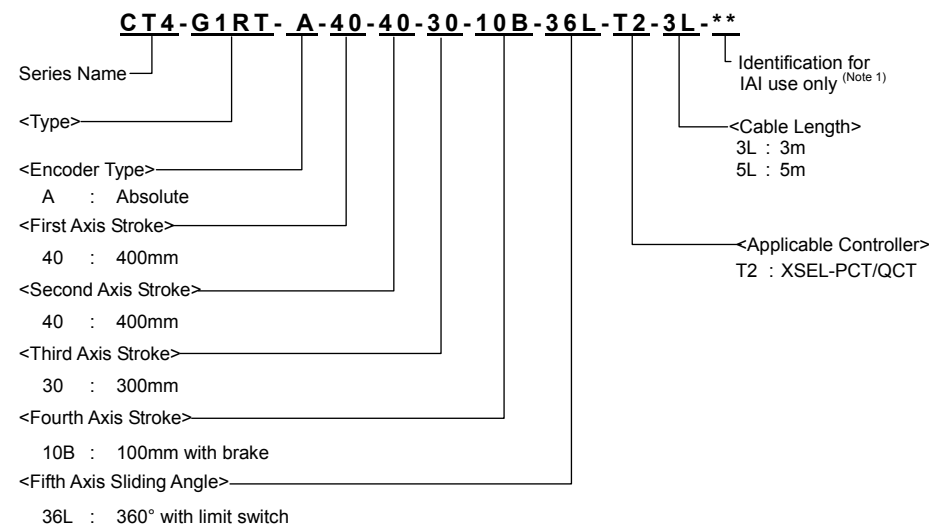
#### 3. How to read the model No.

##### [1] Standard Type



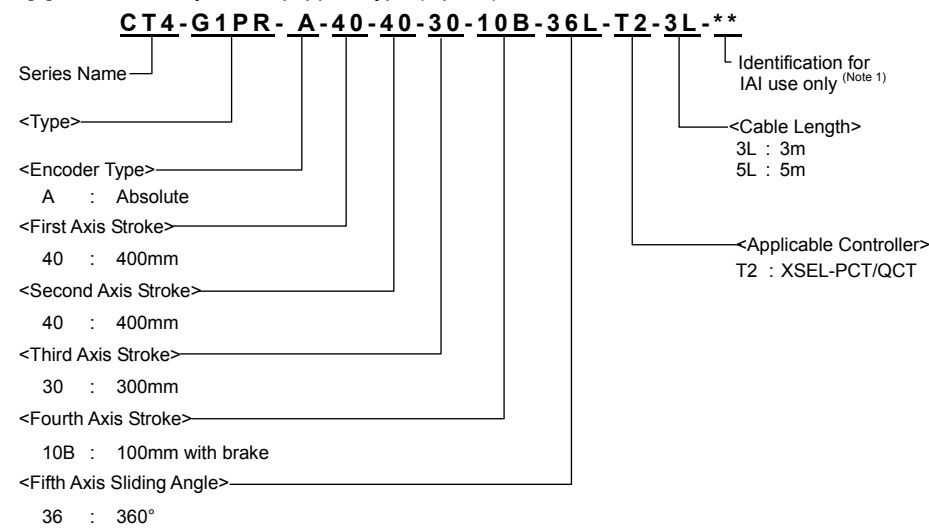
Note 1 Identification for IAI use only: This may be marked for the purpose of IAI. It is not an ID to describe the model code.

##### [2] Rotary Axis Equipped Type (Option)



Note 1 Identification for IAI use only: This may be marked for the purpose of IAI. It is not an ID to describe the model code.

##### [3] Pick & Rotary Axis Equipped Type (Option)



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### Precautions in Handling

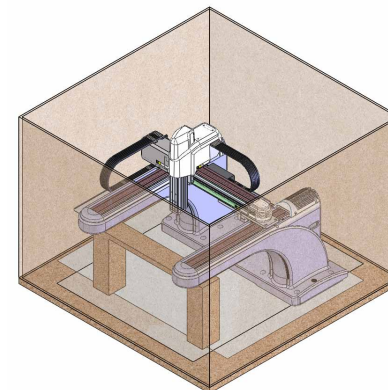
#### 1. Handling of the Robot

Pay attention to the following when carrying the robot with the axes being attached.

##### (1) When delivered with the axes attached at the IAI factory

It will be delivered in a package with an outer case fixed to a wooden base. The sliders are fixed so they will not accidentally move while in transportation.

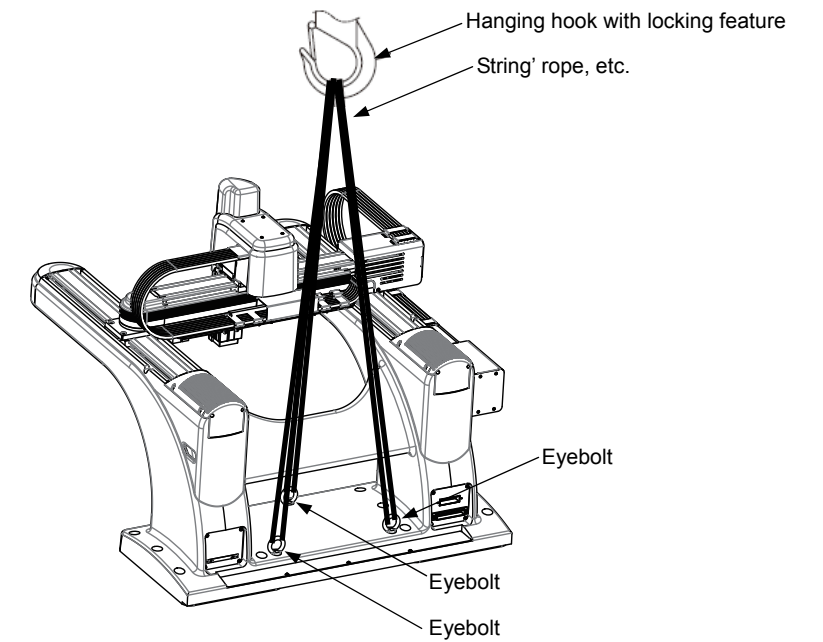
- Do not damage or drop. The package is not applied with any special treatment that enables it to resist an impact caused by a drop or crash.
- Consider an appropriate method for transportation.
- When suspending the package using ropes, pass the ropes from underneath the reinforcement frames at the bottom of the base. When lifting with a forklift, also place the forks underneath the base.
- Do not apply an impact on the package or let it bounce when putting it down.
- 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 after Unpackaged

Follow the instructions below to transport the unpackaged CT4 that was delivered from our factory in assembled form.

- Fix the slider so it would not unexpectedly move.
- Do not apply an impact of 0.3G or more when in transportation.
- When using a crane, attach the enclosed eyebolts at the positions shown in the figure below (three points) to hang a string rope to pull up. Pay attention to the balance when carrying. Do not apply vibration or impact.



**Danger:** Use the enclosed eye bolts to tighten the unit firmly. It is extremely dangerous to use unspecified eye bolts or to have bolts not tightened firmly enough since it may cause a drop of the product. Also, for those tools such as a crane and hook, choose standardized ones with enough stiffness.

- Be sure not to apply load on any of the actuator brackets or covers or on the guide rail. Also, avoid the cables being pinched or caused an excessive deformation.

### Installation and Storage • Preservation Environment

#### 1. Installation Environment

Do not use this product in the following environment  
It is generally the environment where a worker can work without any protection gear.  
Also make sure to keep enough work space necessary for maintenance.

- Location exposed to radiant heat from a huge heat source such as the heat treatment
- Location where the surrounding air temperature exceeds the range of 0 to 40°C
- Location where condensation occurs due to abrupt temperature changes
- Location where relative humidity exceeds 85%RH
- Location exposed to direct sunlight
- Location exposed to corrosive gases or combustible gases
- Location exposed to significant amount of dust, salt or iron powder (Outside of ordinary assembly plant)
- Location where water, oil (includes oil mist and cutting fluid) or chemical is splashed
- Location where the product main body receives vibration or hit impact
- Location where the altitude is more than 2000m

When using the product in any of the locations specified below, provide a sufficient shield.

- Place subject to electrostatic noise
- Location where exposed to the influence of strong electric or magnetic field
- Location where exposed to the influence of ultraviolet or radiant rays

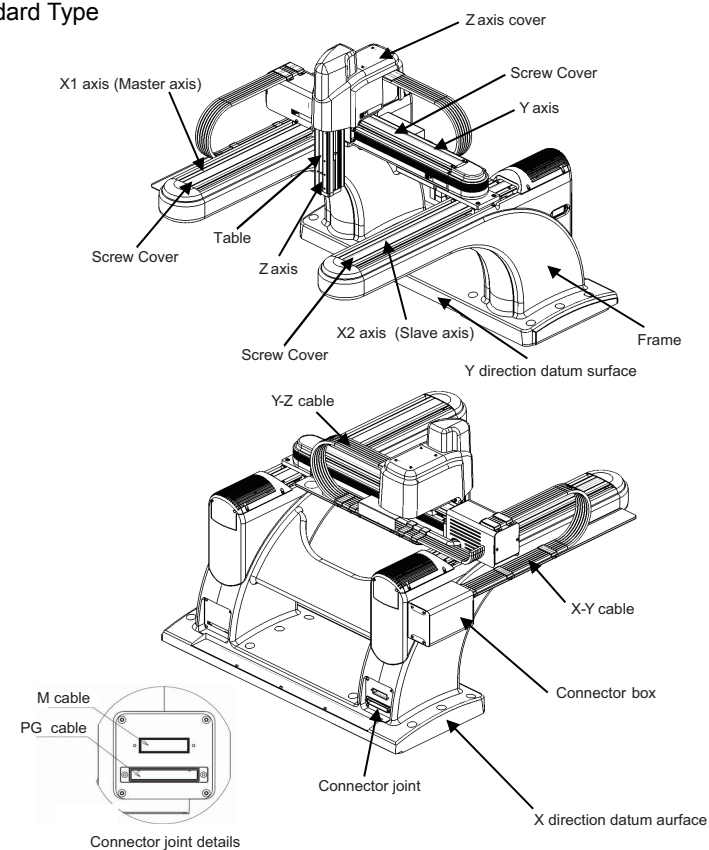
#### 2. Storage and Preservation Environment

- 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 absorbency 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 dew condensation is anticipated, take the condensation preventive measures from outside of the entire package, or directly after opening the package.

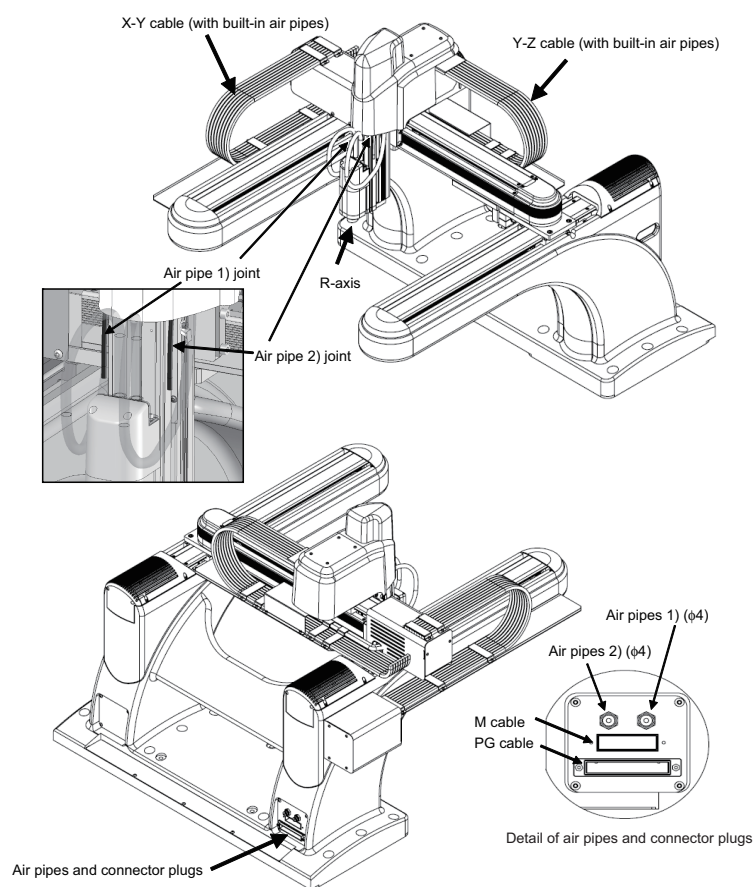
- For storage and preservation temperature, the machine withstands temperatures up to 60°C for a short time, but in the case of the storage and preservation period of 1 month or more, control the temperature to 50°C or less.
- Storage and preservation should be performed in the horizontally oriented mount condition. In the case it is stored in the packaged condition, follow the posture instruction if any displayed on the package.

## Names of the Parts

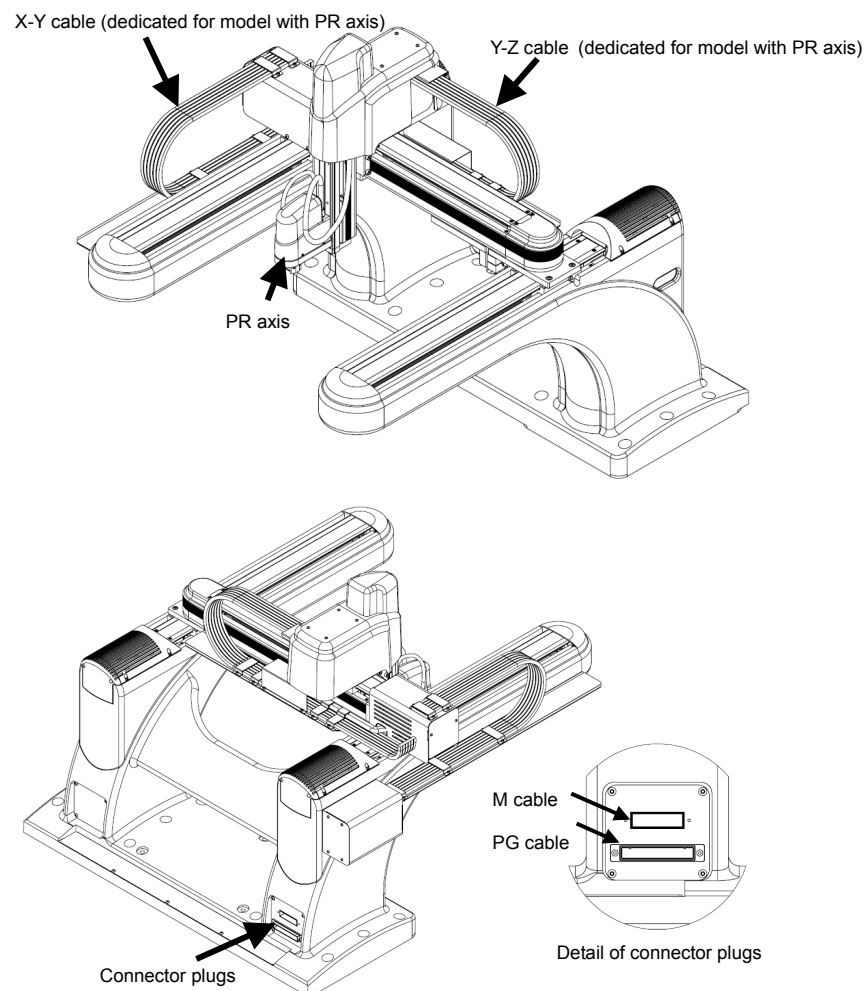
### • Standard Type



### • Rotary Axis Equipped Type



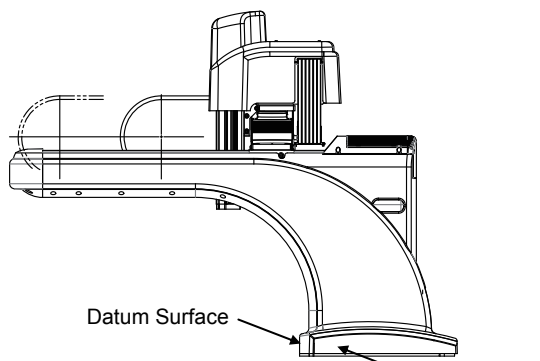
### • Pick & Rotary Axis Equipped Type



## Attachment

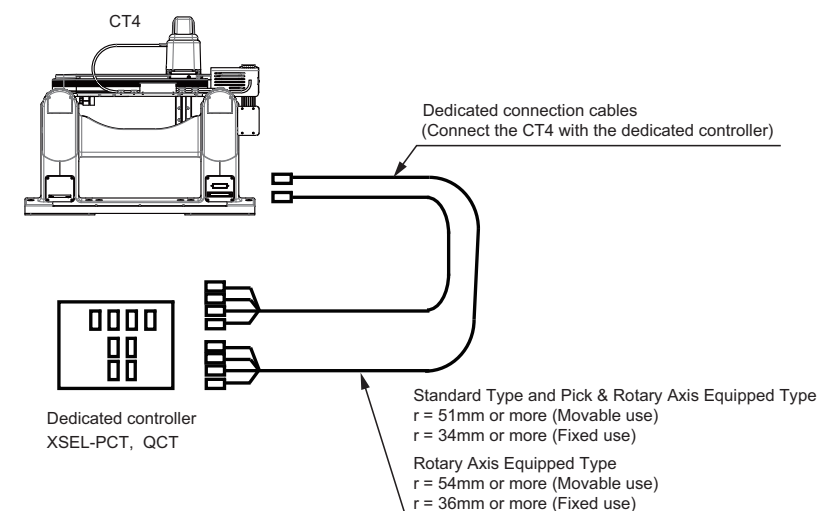
Refer to Instruction Manual (DVD) for the information of how to install the actuator, to mount the load and regarding installation platform.

### [Precautions for Attachments]

No.	Item	Precautions
1	Attachment Surface	<ul style="list-style-type: none"> <li>• The base has to have a structure with sufficient rigidity to prevent oscillation.</li> <li>• The side faces on the base is referred as the datum surface for the slider's run.</li> </ul>  <ul style="list-style-type: none"> <li>• 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 0.05mm/m or less.</li> <li>• Secure the space where maintenance work can be performed.</li> </ul>

No.	Item	Precautions
2	Bolts to be used	<ul style="list-style-type: none"> <li>• For the bolts to be used, a high-tensile bolt complying with ISO-10.9 or more is</li> <li>• If the platform material is steel, use the screws and washers described below. Bolts to be used : M10×40 (Effective length of thread engagement 10 or more) Washers to be used : M10 (10.5×18×2)</li> <li>• If the platform material is steel, use the screws and washers described below. Bolts to be used : M10×50 (Effective length of thread engagement 20 or more) Washers to be used : M10 (10.5×18×2)</li> <li>• For the actuator mounting, use a bolt with the dimension of its effective mating length to the female screw size as stated below. If female screw in steel → thread length same as nominal diameter If female screw in aluminum → thread length 1.8 times longer than nominal diameter</li> </ul>
3	Tightening Torque	<ul style="list-style-type: none"> <li>• Please follow the specification values stated in the Instruction Manual (DVD) for the tightening torque. Failure to do so may cause an operation problem.</li> </ul>
4	Load Moment and Overhung length	<ul style="list-style-type: none"> <li>• Please follow the specification values stated in the Instruction Manual (DVD) for the load moment and the overhung length. Failure to do so may cause abnormal vibration or noise, and also may remarkably shorten the product life.</li> </ul>

## Connection to the Controller



### Standard Type

- Motor Cable CB-CT4-MA □□□
- Encoder Cable CB-CT4-PA □□□

### Rotary Axis Equipped Type

- Motor Cable CB-CT4R-MA □□□
- Encoder Cable CB-CT4R-PA □□□

### Pick & Rotary Axis Equipped Type

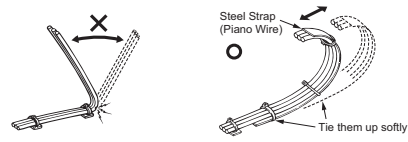
- Motor Cable CB-CT4R-MA □□□
- Encoder Cable CB-CT4PR-PA □□□

□□□ shows the cable length.  
The max. length should be 30m.  
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.

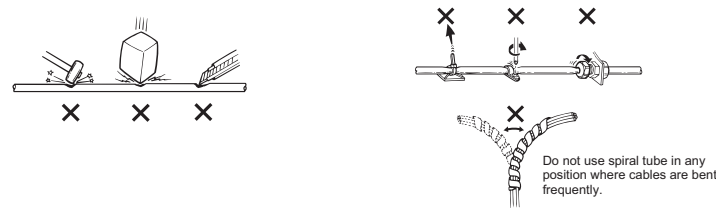
- Do not let the cable flex at a single point.
- Do not let the cable bend, kink or twist.



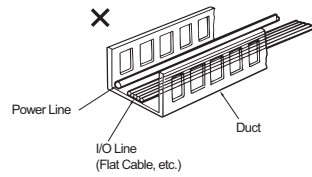
- Do not pull the cable with a strong force.
- Do not let the cable receive a turning force at a single point.



- 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.

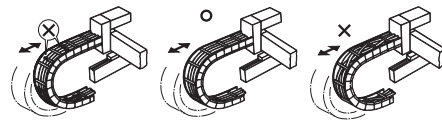


- Separate the I/O line, communication line and power line from each other. Arrange so that such lines are independently routed in the duct.



Follow the instructions below when using a cable track.

- If there is an indication to the cable for the space factor in a cable track, refer to the wiring instruction given by the supplier when storing the cable in the cable track.
  - Avoid the cables to get twined or twisted in the cable track, and also to have the cables move freely and do not tie them up. (Avoid tension being applied when the cables are bent.)
- Do not pile up cables. It may cause faster abrasion of the sheaths or cable breakage.



**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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