

# ROBO Cylinder High-Speed Type RCS3 Actuator

## First Step Guide Second 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

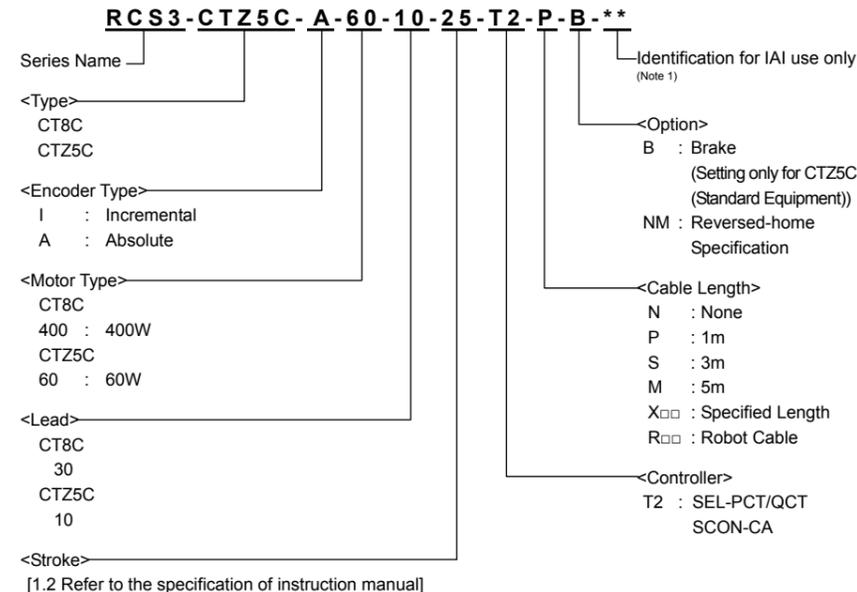
No.	Part Name	Model	Quantity	Remarks
1	Actuator Main Body	Refer to "How to read the model plate", "How to read the model No."	1	
Accessories				
2	Motor • Encoder Cable (Note 1)		1	
3	First Step Guide		1	
4	Instruction Manual (DVD)		1	
5	Safety Guide		1	

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.



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.

### 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

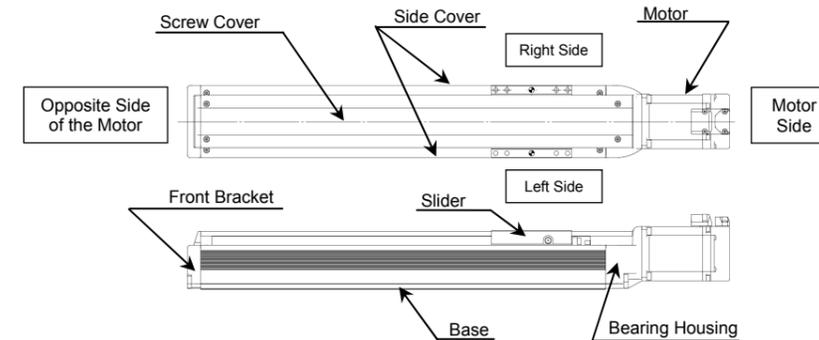
#### 2. Storage and Preservation Environment

- 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

This manual defines the right and left of the actuator by putting it horizontally as shown in the figures below and viewing it from the top and home side.

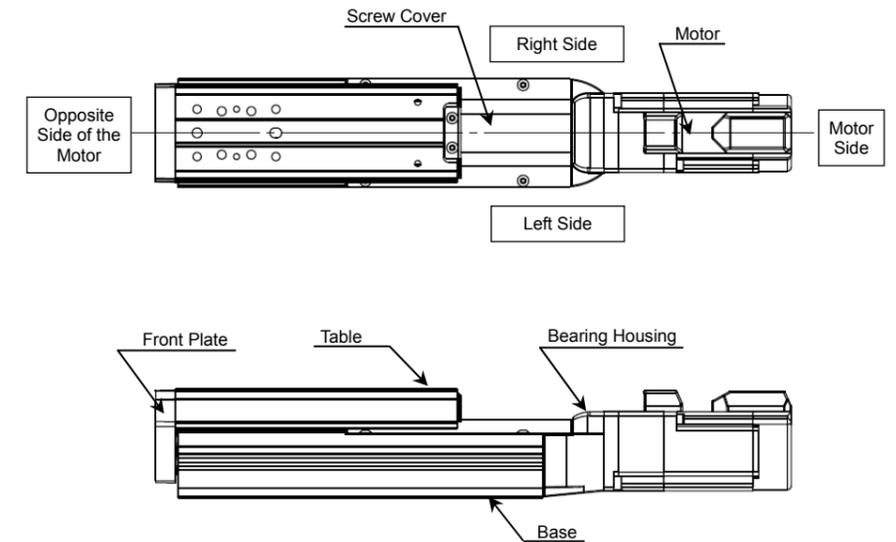
#### •CT8C



\* The actuator cable is a robot cable.

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

#### •CTZ5C



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

### Attachment

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

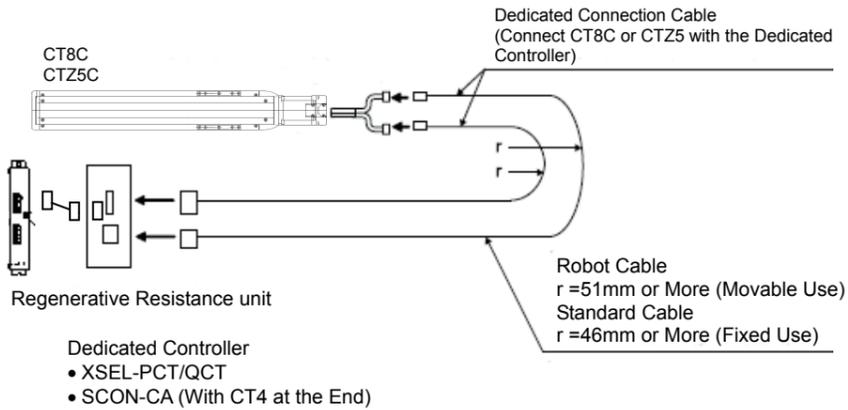
#### [Precautions for Attachments]

No.	Item	Precautions
1	Installation	<ul style="list-style-type: none"> <li>CT8C is not available for vertical orientation, horizontally oriented wall mount or ceiling mount.</li> <li>CTZ5C is not available for horizontally oriented wall mount or ceiling mount.</li> </ul>
2	Attachment Surface	<ul style="list-style-type: none"> <li>Reaction force and the moment load by the height up to the point of the center of gravity are applied to the platform to install the robot. It is necessary to consider the stiffness against this load moment for the platform to install the robot. [Refer to Instruction Manual (DVD).]</li> <li>The side faces on the base is referred as the datum surface for the slider and table'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>
3	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>When using tapped holes, make sure to use a screw with the size less than the length of thread engagement.</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>

No.	Item	Precautions
4	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>
5	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

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.



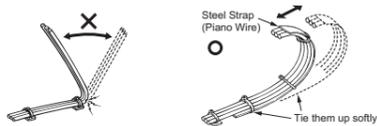
### Dedicated connection cable

- Motor cable : CB-RCC-MA□□□/Motor robot cable : CB-RCC-MA□□□ -RB
- Encoder robot cable : CB-X1-PA□□□
- \*) □□□ indicates the cable length, Max.30m  
(Example: 080=8m)

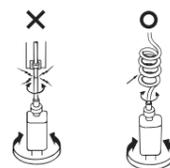
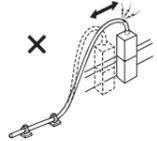
(Note) Refer to the instruction manual or the catalog of the controller to use for the number of the regenerative resistance units.

### [Prohibited Items in the Cable Processing]

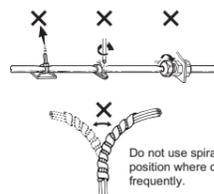
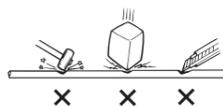
- Do not pull or bend forcibly the cable so as not to give any extra load or tension to the cable.
- Do not process the cable for extension or shortening by means of cutting out, combination or connecting with another cable.
- Do not let the cable flex at a single point. • Do not let the cable bend,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



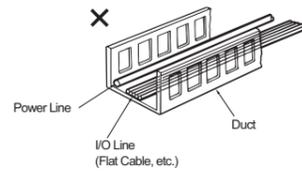
- Do not pull the cable with a strong force. • Do not let the cable receive a turning force at a single point.



- 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.

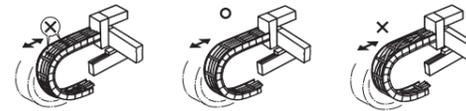


- Separate the I/O line, communication line and power line from each other. Arrange so that such lines are independently routed in the duct.



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.

**IAI**  
Quality and Innovation

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Manual No.: ME3734-2A