

Single Axis Robot NSA Series Nut Rotary Type

First Step Guide Third Edition

Thank you for purchasing our product.

Make sure to read the Safety Guide and detailed Instruction Manual as well as this First Step Guide to ensure correct use.

This Instruction Manual is original.

Warning : Read the instruction manual carefully and follow the instruction manual when handling this equipment.
Please downloaded the user's manual from our website.
You can download it free of charge. User registration is required for first time users.
URL:www.iai-robot.co.jp/data_dii/CAD_MANUAL/
Keep a printout of the introduction manual near the equipment in which this product is installed so that it can be checked at all times, or display it on your computer, tablet terminal, etc. so that you can check it immediately.
If you need a bound copy of the instruction manual, order it from the nearest sales office listed in the First Step Guide or at the end of the instruction manual. It will be provided for a fee.

- 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

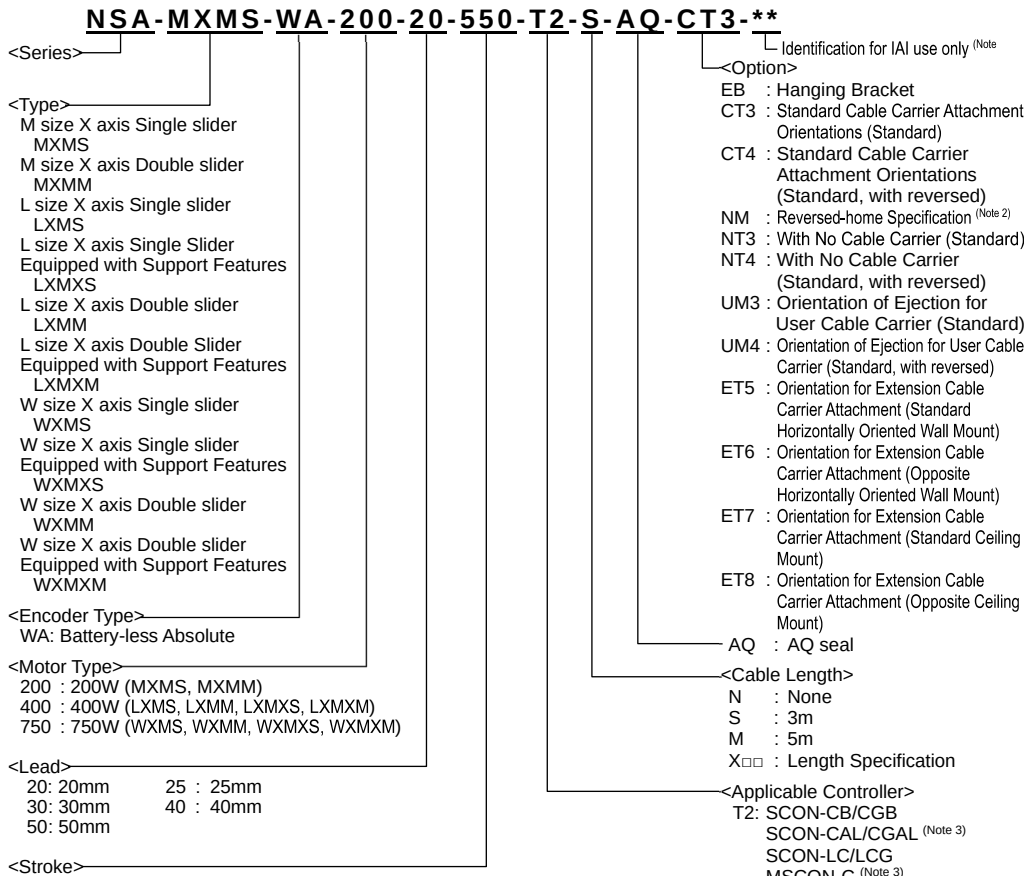
No.	Part Name	Model	Quantity	Remarks
1	Main Body	How to read the model number	1	
2	Motor Cable *1		Single slider: 1 Multiple slider: 2	
3	Encoder Cable *1		Single slider: 1 Multiple slider: 2	
4	Dedicated washers for high-tensile bolt		1set	
5	Safety Guide	M0194	1	

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

2. How to read the model plate

Model —→ **MODEL : NSA-MXMS-WA-200-20-550-T2-S-AQ-CT3**
Serial number —→ **S/N : A80000000 DATE : 14/2/2019**
MADE IN JAPAN **IAI Corporation** **CE**

3. How to read the model number



Note 1 Identification for IAI use only: This may be marked for the purpose of IAI. It is not a code to show the model type.

Note 2 It is an option for Single Sliders MXMS, LXMS and WXMS.

Note 3 L size and W size cannot perform operation with SCON-CAL/CGAL and MSCON-C.
[Refer to the Catalog or Instruction Manual (ME3795) for specification details.]

Precautions in Handling

1. Handling of Robot

1.1 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.
- Transport a heavy package with at least more than two operators. Consider an appropriate method for transportation.
- 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 get on the package.
- Do not put any load that may cause a deformation or breakage of the package.

1.2 Handling after Unpacking

- Do not carry the actuator by holding the cable, or do not move it by pulling the cable.
- Hold the body base when transporting the actuator. Do not attempt to perform transportation holding only one part of either the screw cover, motor cover, pulley housing, reversing bracket, guide rail or end cover.
- When carrying the actuator, exercise caution not to bump it against nearby objects or structures. Pay attention especially to the motor cover, pulley housing, cable carrier and guide rail.
- Do not give any excessive force to any of the sections in the actuator.

2. Handling of Multi-Axes Type

2.1 Handling of the Packed Product

Multi-axes type will be delivered in a package with an outer case fixed to a wooden base. Sliders are fixed so they would not accidentally move while in transportation. The end of the actuator is also fixed to avoid it swinging by external vibration.

- 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.
- Transport a heavy package with at least more than two operators. 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 get on the package.
- Do not put any load that may cause a deformation or breakage of the package.

2.2 Handling after Unpacking

- Secure the sliders to prevent sudden movement during transport.
- If any end of the actuator is overhanging, secure it properly to avoid significant movement due to external vibration.
- If the actuator assembly is transported without the ends being secured, do not apply an impact of 0.3G or more.
- In the case that the actuator needs to be carried up with ropes or another method, be sure to use an appropriate cushioning to avoid the robot being deformed or put on an excessive pressure. And also, be sure to keep the robot in a stable and horizontal posture. If necessary, build tools to attach on the bottom of the base using tapped holes to hook them up.
- Do not attempt to apply load to the actuator or connector box. Also, avoid the cables being pinched or caused an excessive deformation.

3. Handling of Robot Mounted on Mechanical Equipment (System)

Note the following when the whole mechanical equipment (system) that the actuator is mounted on needs to be transported.

- Secure the sliders to prevent sudden movement during transport.
- If any end of the actuator is overhanging, secure it properly to avoid significant movement due to external vibration.
- If the actuator assembly is transported without the ends being secured, do not apply an impact of 0.3G or more.
- When suspending the mechanical equipment (system) with ropes, avoid applying force to actuator, connector box, etc. Also, avoid the cables being pinched or caused an excessive deformation.

Installation Environment, Storage Environment

1. Installation Environment

The actuator should be installed in a location other than those specified below.

It is generally the environment where a worker can work without any protection gear.

Also provide sufficient work space required for maintenance inspection.

- Where the actuator receives radiant heat from strong heat sources such as heat treatment furnaces
- Where the ambient temperature exceeds the range of 0 to 40°C
- Where the temperature changes rapidly and condensation occurs
- Where relative humidity larger than 85%RH
- Where the actuator receives direct sunlight
- Where the actuator is exposed to corrosive or combustible gases
- Where the ambient air contains a large amount of powder dust, salt or iron (at level exceeding what is normally expected in an assembly plant)
- Where the actuator is subject to splashed water, oil (including oil mist or cutting fluid) or chemical solutions
- Where the actuator receives impact or vibration
- Place with an altitude of 2,000m or more

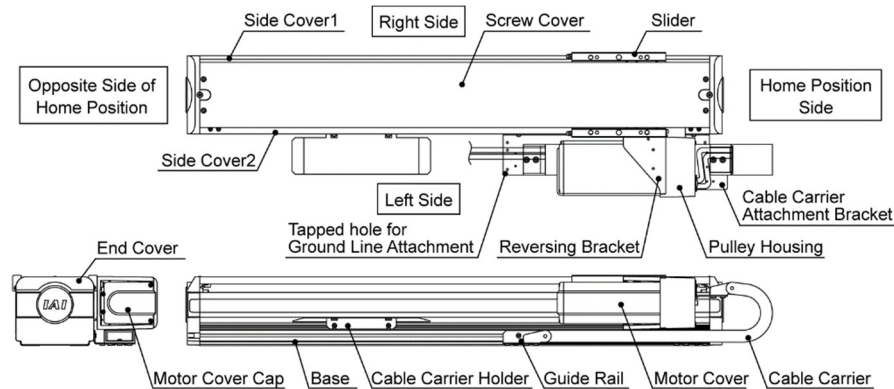
If the actuator is used in any of the following locations, provide sufficient shielding measures:

- Where noise generates due to static electricity, etc.
- Where the actuator is subject to a strong electric or magnetic field
- Where the actuator is subject to ultraviolet ray or radiation

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 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.
- Storage and preservation should be performed in the horizontal 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



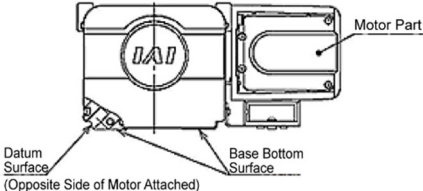
* The orientation of the cable carrier attachment may differ from shown above as it is oriented to the indicated direction.

Refer to Catalog or Instruction Manual (ME3795) for the dimensions and profile.

Attachment

Refer to the Instruction Manual (ME3795) for the attachments of the actuator and loads.

[Precautions for Attachments]

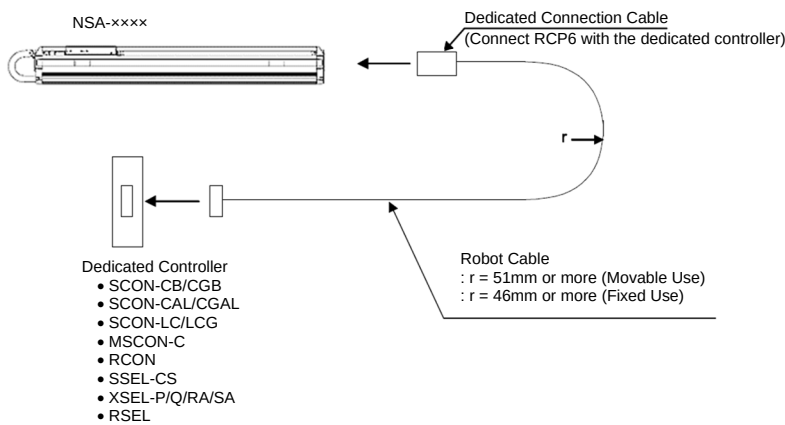
No.	Item	Precautions
1	Attachment Surface	• The base has to have a structure with sufficient rigidity to prevent oscillation. • The side of the actuator base are the datum for the slider to be driven. When it requires an accuracy to the driving performance, conduct installation using this face as the datum.  • 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. • Secure the space where maintenance work can be performed.
2	Bolts to be used	• Pay attention to the screw length when installing the actuator using through holes so the screw tip would not go through the platform. • When a workpiece to be carried on the slider is to be attached using the tapped holes, use screws with their length lower than the length of thread engagement. • For the bolts to be used, a high-tensile bolt complying with ISO-10.9 or more is recommended. • 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 → thread length same as nominal diameter If tapped hole in aluminum → thread length 1.5 times longer than nominal diameter • In order to protect the base, it is suggested that the dedicated washers for high-tensile bolt (enclosed) are used for installation using M8 screws. Without the washers, there is a concern of buckling at the screw seats. Also, do not attempt to apply general spring lock washer.
3	Tightening Torque	• Please follow the specification values stated in the Instruction Manual for the tightening torque. Failure to do so may cause an operation problem.
4	Load Moment and Overhung Length	• Please follow the specification values stated in the Instruction Manual 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.

Wiring

For the controller, only the dedicated controller manufactured by our company can be used. Using other controllers may cause a problem such as burning the product, ignition or generating heat.

Use the dedicated cable enclosed in the package when connecting the actuator and the controller.

[Connection to the XSEL-P/Q/RA/SA, SSEL, RSEL, SCON, MCON, RCON controller]



Dedicated cable
Other than RCON and RSEL

- Motor Robot Cable : CB-X-MA□□□
- Encoder Robot Cable : CB-X1-PA□□□ (For cable length 30m or less)

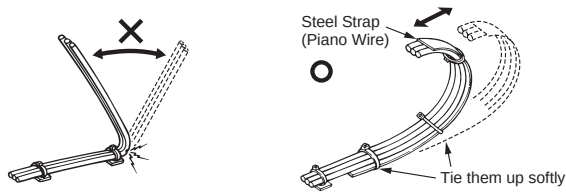
RCON and RSEL

- Motor Robot Cables : CB-X2-MA□□□
- Encoder Robot Cables: CB-X1-PA□□□ (Cable length 30m or less)

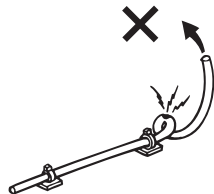
* □□□ represents the cable length. The longest corresponds to 30m.
e.g.) 080 = 8m

[Prohibited Items in the Cable Processing]

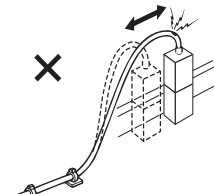
- Do not pull or bend forcibly the cable so as not to give any extra load or tension to the cable.
- Do not process the cable for extension or shortening by means of cutting out, combination or connecting with another cable.
- Do not let the cable flex at a single point.



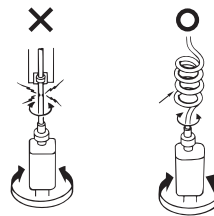
- Do not let the cable bend, kink or twist.



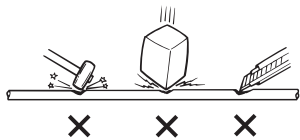
- Do not pull the cable with a strong force.



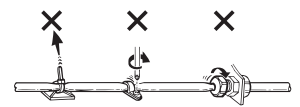
- Do not let the cable receive a turning force at a single point.



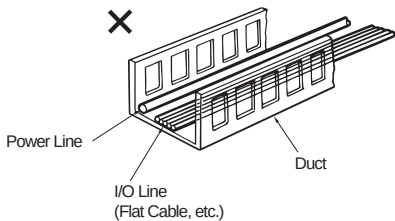
- Do not pinch, drop a heavy object onto or cut the cable.



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

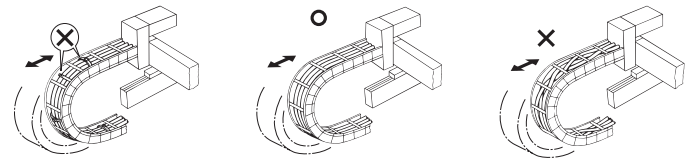


- Separate the I/O line, communication line and power line from each other. Arrange so that such lines are independently routed in the duct.



Follow the instructions below when using a cable carrier.

- If there is an indication to the cable for the space factor in a cable carrier, refer to the wiring instruction given by the supplier when storing the cable in the cable carrier.
- Avoid the cables to get twined or twisted in the cable carrier, and also to have the cables move freely and do not tie them up.
(Arrange the wiring so the cables are not to be pulled when 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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