



QREC Series Quick adjuster slim

INSTRUCTION MANUAL

Read this Instruction Manual before using the product.

Read the safety notes carefully.

Keep this Instruction Manual in a safe and convenient place for future reference.



PREFACE

Thank you for purchasing CKD's "QREC Series" Quick adjuster slim.

This Instruction Manual contains basic matters related to the operation of this product in order to ensure optimal performance of the product. Please read this Instruction Manual thoroughly and use the product properly.

Keep this Instruction Manual in a safe place and be careful not to lose it.

Product specifications and appearances presented in this Instruction Manual are subject to change without notice.

The product is intended for users who have basic knowledge about materials, piping, electricity and mechanism. CKD shall not be responsible for accidents caused by persons who selected or used the product without knowledge or sufficient training with respect to pneumatic components.

Since there are a wide variety of customer applications, it is impossible for CKD to be aware of all of them. Depending on the application or usage, the product may not be able to exercise its full performance or an accident may occur due to fluid, piping, or other conditions. It is the responsibility of the customer to check the product specifications and decide how the product shall be used in accordance with the application and usage.

SAFETY INFORMATION

When designing and manufacturing any device incorporating the product, the manufacturer has an obligation to ensure that the device is safe. To that end, make sure that the safety of the machine mechanism of the device, the pneumatic control circuit, and the electric system that controls such mechanism is ensured.

To ensure the safety of device design and control, observe organization standards, relevant laws and regulations, which include the following:

ISO 4414, JIS B 8370, JFPS 2008 (the latest edition of each standard)




The High Pressure Gas Safety Act, the Industrial Safety and Health Act, other safety rules, organization standards, relevant laws and regulations

In order to use our products safely, it is important to select, use, handle, and maintain the products properly.

Observe the warnings and precautions described in this Instruction Manual to ensure device safety.

Although various safety measures have been adopted in the product, handling that is not described in this Instruction Manual may lead to an accident. Thoroughly read and understand this Instruction Manual before using the product.









To explicitly indicate the severity and likelihood of a potential harm or damage, precautions are classified into three categories: "DANGER", "WARNING", and "CAUTION".

 DANGER	Indicates an imminent hazard. Improper handling will cause death or serious injury to people.
 WARNING	Indicates a potential hazard. Improper handling may cause death or serious injury to people.
 CAUTION	Indicates a potential hazard. Improper handling may cause injury to people or damage to property.




Some statements classified as "CAUTION" may still lead to serious results depending on the situation.

All statements that follow these labels are important and must be observed.

<Types of warning symbols>

	A general mark indicating a prohibited (not permitted) action.		A mark prohibiting people from touching objects or equipment.
	A mark prohibiting people from putting their fingers into openings.		A general mark warning people of dangers such as electric shock and burns.
	A mark warning people of dangers that occur when starting an automatic equipment.		A general mark indicating that a specific course of action must be taken.
	A mark indicating that an instruction manual must be read carefully.		A mark indicating that the earth terminal must be connected to the ground.

In addition, the following icons indicate general precautions, usage tips, technical information, and glossary are indicated by the following icons.

	<ul style="list-style-type: none"> ● Contains useful information such as general precautions, supplementary information, and reference information.
	<ul style="list-style-type: none"> ● Contains detailed information and tips on advanced usage.
	<ul style="list-style-type: none"> ● Contains technical information and terminology explanations that you should know when using the features.

Precautions on Product Use

DANGER



Do not use this product for the following purposes

- Medical devices related to the maintenance and management of human life and body
- Mechanisms and machinery intended for the movement or transport of people
- Critical safety components of machinery and equipment

WARNING



Do not modify the product or perform additional work on the product.

- Modification or additional work may not only pose a risk of fire or electric shock, but it may also cause the product to fail to satisfy the specifications described in this Instruction Manual.

Do not handle the product or install or remove pipes and devices until confirming safety.

- Inspect and service the machines and devices only after confirming that safety of the entire system related to the product is ensured. Also, turn off the energy source air supply and power to the relevant equipment and release compressed air from the system.

Before starting or restarting a machine or device that incorporates pneumatic components, make sure that a safety measure (such as a pop-out prevention mechanism) is in place and system safety is secured.



The product must be handled by a qualified person who has extensive knowledge and experience.

- This product is designed and manufactured as a device or part for general industrial machinery and should be handled with care.

Use the product within the specifications.

- The product must not be used beyond its specifications.
- The product is intended for use as a device or part for general industrial machinery. It is not intended for use under the conditions or in environments listed below. Exception is made if the customer consults with CKD prior to use and understands the specifications of the product. However, even in that case, safety measures must be taken to avoid danger in case of a possible failure.

⦿ For use under the conditions or in environments other than those specified or outdoors.

⦿ In applications for nuclear power, railroad system, aviation, ship, vehicle, medical equipment, and equipment that directly touches beverage or food.

⦿ For special applications that require safety including amusement equipment, emergency shut-off circuit, press machine, brake circuit, and safety measures.

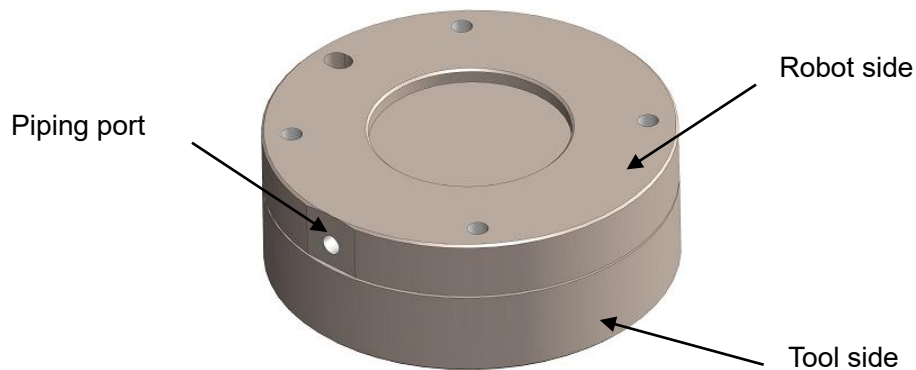
⦿ For applications where life or properties may be adversely affected and special safety measures are required.

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1. PRODUCT OVERVIEW

1.1. Series Variation



1.2. Model Number Indication

QREC- **03**

① Payload limit

Code	Direction
01	1kg
03	3kg
07	7kg
12	12kg
25	25kg

1.3. Specifications

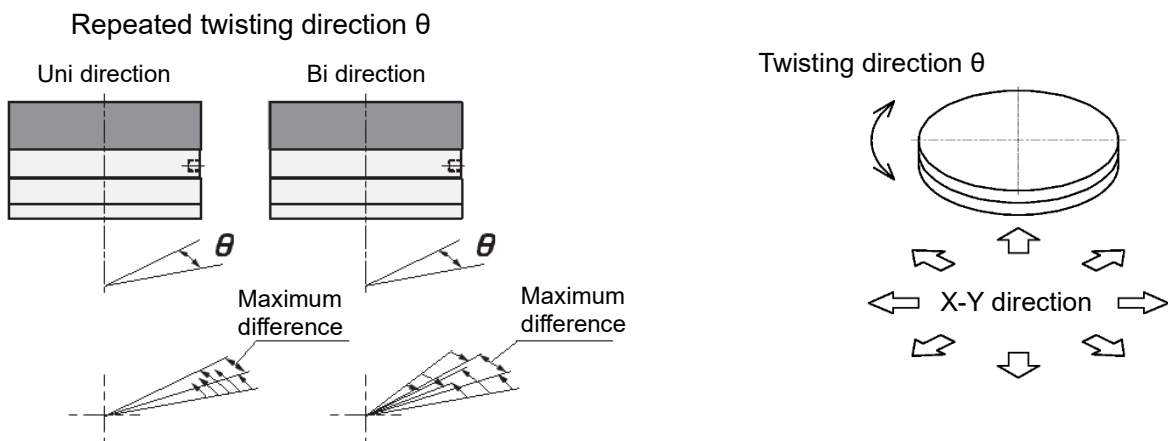
Code		01	03	07	12	25		
Payload limit	kg	1	3	7	12	25		
Working Fluid	Compressed air							
Max. Operating Pressure	MPa	0.7						
Min. Operating Pressure	MPa	0.3						
Connection port size		M3	M5					
Ambient Temperature	°C	5 to 60						
Movement range	X-Y direction (note1)	mm	±0.5	±1.5	±2.0	±3.0	±3.0	
	Twisting direction θ	°	±2.0	±4.0	±4.0	±4.5	±4.0	
Repeatability	X-Y direction	mm	±0.02					
	Twisting direction θ (note3)	Uni direction	°	±0.1				
		Bi direction	°	±0.5		±0.4	±0.2	
Withstand Load (note2)	Tensile Direction	N	1020	1610	3180	5600	8670	
	Compression Direction	N	1610	4310	7660	11030	22060	
	Bending Moment	N·m	8	22	100	219	497	
	Allowable Torque	N·m	11	42	88	194	436	
Weight	kg	0.04	0.16	0.40	0.79	1.5		
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)							

Note 1. Amount of movement is the same in all directions.

Note 2. This is the maximum load that will not damage the product.

Note 3. This value is calculated by rotating the plate in one direction (uni direction: in the same direction, bi direction: left and right) under no load and no pressure, and then applying air (0.5 MPa) to determine the maximum angle difference between the fixed part and the drive part, with a \pm value added.

Values for bi directions are for reference only.



2. INSTALLATION



WARNING



Machining, casting, and welding factories, there is a risk of foreign substance such as cutting fluid, chips, and dust entering the equipment, so caution is necessary.

Prohibit in the following environments.

- When Cutting fluid is applied. (Because the sliding parts are worn down by the abrasive or abrasive powder in the liquid.)
- When organic solvents, chemicals, acids, alkalis, kerosene, etc. are present in the atmosphere.
- When water gets on it.

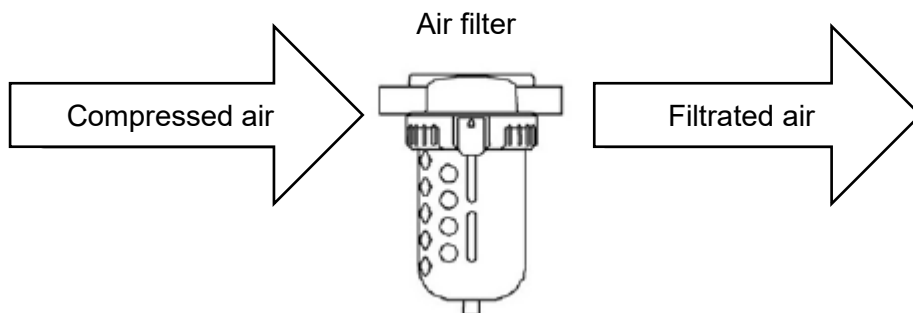
Do not disassemble or modify the product in any way not instructed in this instruction manual.

Could not only cause injury, accidents, malfunctions, or failures, but it could also result in the device not meeting the specifications outlined in this instruction manual.

2.1. Environment

Use in locations where the ambient temperature is between 5 and 60°C. However, ensure that there is no risk of freezing.

Use the compressed air, filtrated and dehumidified. carefully select a filter of an adequate filtration (rating 5µm or lower), flow rate and its mounting position (as closest to directional control valve as possible).



See to it that the air supply pressure to the cylinder is as shown in the specification. Operate the cylinder within this pressure range.

Applying excessive pressure can lead to reduced durability, malfunctions, and damage.

Please use clean, dry air for the supply.

2.2. Unpacking



CAUTION



Do not remove the piping port protector and do not take the product out of the plastic bag until immediately prior to performing piping work.

- If the piping port protector is removed or the product is taken out of the plastic bag before ready to begin piping work, foreign substance may enter from the piping ports and cause a failure or malfunction.



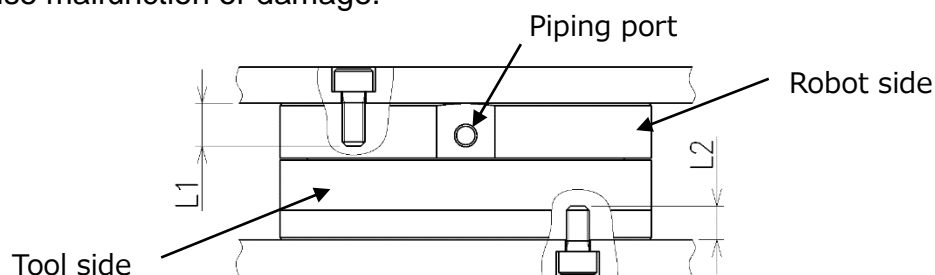
- Take sufficient care to avoid dropping or subjecting the product to impacts during transportation and handling.

Check that the model number, ordered and the model number indicated on the product are the same.

Check the exterior of the product for any damage.

2.3. Mounting

Do not subject the unit to strong impacts or excessive moment.
Do not apply twisting or bending forces when installing the unit.
Do not use bolts that exceed the maximum threading depth.
This may cause malfunction or damage.



Robot side fixing bolt

Model No.	Mounting bolt	Tightening torque (N·m)	Maximum threading depth L1(mm)
QREC-01	M3x0.5	1.14	5
QREC-03	M5x0.8	5.4	8.5
QREC-07	M5x0.8	5.4	10
QREC-12	M6x1.0	9.2	10
QREC-25	M8x1.25	22	10

Tool side fixing bolt

Model No.	Mounting bolt	Tightening torque (N·m)	Maximum threading depth L2(mm)
QREC-01	M3x0.5	1.14	3.5
QREC-03	M5x0.8	5.4	5
QREC-07	M5x0.8	5.4	6
QREC-12	M6x1.0	9.2	8
QREC-25	M8x1.25	22	9.5

Piping thread

Model No.	Mounting bolt	Tightening torque (N·m)	Maximum threading depth (mm)
QREC-01	M3x0.5	0.315	3
QREC-03~25	M5x0.8	1.5	5

2.4. Piping



WARNING



Insert the tubing securely until it touches the end of the fitting, and ensure that it does not come loose before use.



CAUTION



Be careful not to use the wrong supply port or connect to the wrong piping destination.

- Wrong supply port or piping destination may lead to a malfunction or accident.

Prevent malfunction or damage to this product, observe the following.

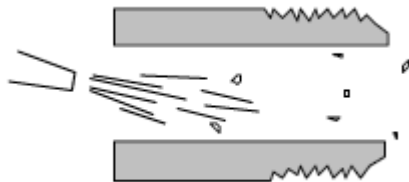
- Use a clean air source.
- Use tubing that is free from scratches or other damage to its exterior.

Do not apply high pressure suddenly when supplying fluid for the first time after connecting the pipes.

- If the pipes are not secured properly, it may lead to accidents such as pipe disconnection or compressed air leakage.

■ Pipe cleaning

Before piping, perform flushing with air to remove foreign substance such as dust, metal powder, rust, and seal tape.



■ Removal of foreign substance

Remove any dust, foreign substance, or other contaminants from the compressed air, as these can cause malfunctions or leaks.

Install an air filter with a filtration rating 5 μ m or less upstream of this product.

■ Lubrication

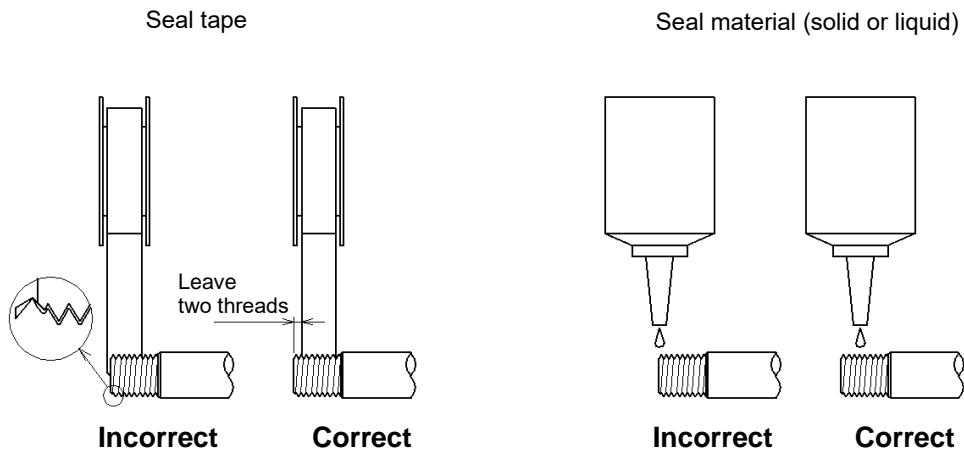
Do not refuel. Refueling will cause contamination or damage to the objects being blown.

■ Seal material

Apply a seal tape or seal material to the screw threads leaving one or two threads at the pipe end uncovered or uncoated.

If the pipe end is fully covered or coated, a shred of seal tape or residue of seal material may enter inside of the valve and cause a failure.

- When using a seal tape, wind it around the screw threads in the direction opposite from the screw threads and press it down with your fingers to attach it firmly.
- When using a liquid seal material, be careful not to apply it to resin parts. The resin parts can become damaged and this may lead to a failure or malfunction. Also, do not use the seal material excessively or apply it to the internal threads.



3. USAGE

WARNING



Do not stand on the product or place objects on it.

- This may cause injuries from tipping over, the product falling, or other accidents, as well as malfunctions or runaway behavior due to damage or breakage of the product.

Do not apply a load exceeding the permissible value to the product.

- Load capacity value is the limit at which physical damage will not occur when the device is locked and a static load is applied (it does not guarantee the maintenance of accuracy). When subjected to impact, please use with sufficient safety precautions.

CAUTION



Use the product with the center of gravity of the mounting load within the product's outer diameter.

- If the product is offset, the lock may disengage, causing component damage and performance degradation.

When operating, always secure the product and ensure there are no obstacles nearby.

- This may cause damage or injury.



Provided the external control equipment, robot-side flange, and tool-side flange equipment yourself.

When transporting the product using robots or other means, excessive moments will be applied due to the inertial force of the mounting load. Therefore, please ensure that there is sufficient margin in the product's allowable load.

When attaching a handle or other components to the mounting surface, ensure that piping and wiring do not obstruct the floating mechanism.

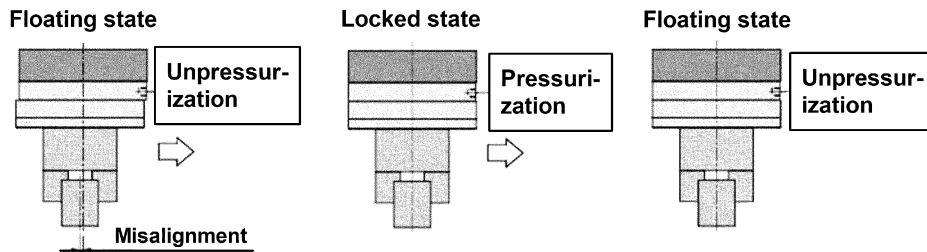
- This may cause malfunction.

■ Operational explanation

This product locks its floating function by applying air pressure, which returns the plate to the center.

Removing the pressure puts it into a floating state, allowing it to align in the twisting and X-Y directions.

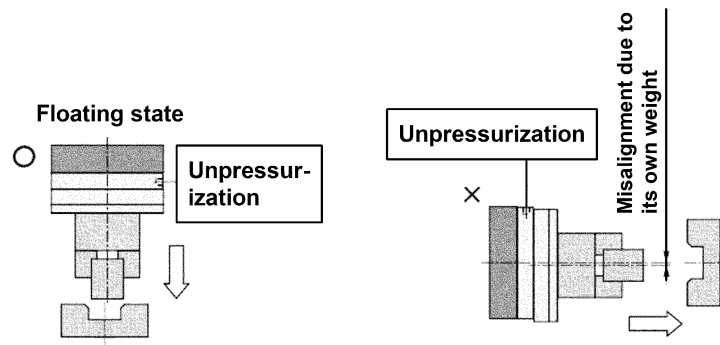
Floating should be performed with the product facing downwards (see figure below) or upwards. Floating it sideways will cause impact loads due to its own weight, potentially damaging components or degrading performance.



■ When press-fitting and insertion operations

Leave it unpressurized and in a floating state.

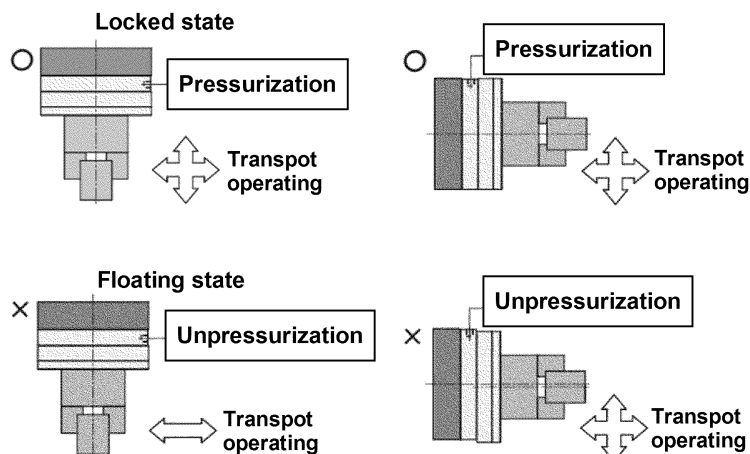
It cannot be used in a sideways position as its own weight will cause it to shift.



■ When transport operating

Please perform transport operations while the unit is locked. Transporting the unit while it is floating may cause damage to parts or a decrease in performance. Also, please start and stop transport operations as smoothly as possible.

Abrupt starts and stops in transport operations may cause the lock to disengage, impairing centering accuracy.



4. MAINTENANCE AND INSPECTION



WARNING



Do not disassemble or modify the product in any way not instructed in this instruction manual.

- This may not only cause injury, accidents, malfunctions, or failures, but may also result in the device not meeting the specifications outlined in this instruction manual.

Make sure to shut down the air source and releasing any remaining pressure in the piping before performing maintenance.

- Failure to do so may result in injury.

4.1. Periodic Inspection



CAUTION



Periodic inspections (2-3 times/year) are performed to confirm that the system is functioning correctly.

4.1.1. Inspection items

Make sure to turn off the power source and shut down the air source before inspection.

Items	Methods	Solutions
Check if the mounting bolts, fittings, etc., of the product are loose.	Check for looseness	Tighten the bolts to the specified torque.
Check if there are any foreign objects inside the tube.	Visual Confirmation	Blow through the tube.
Check if there are any foreign objects accumulated or stuck inside.	Visual Confirmation	Please clean it.
Are there any vibrations or unusual noises while the device is stopped or in operation.	Confirmation by sound	Please contact your nearest branch seals or agent.
Check for any air leaks.	Confirmation by sound	If the issue cannot be resolved by port maintenance, please contact your nearest sales office or agent.

4.2. Precautions on Product Disposal



CAUTION



When disposing of the product, comply with local laws and regulations pertaining to disposal and cleaning of wastes and have an industrial waste disposal company dispose of the product.

5. TROUBLESHOOTING

5.1. Problems, Causes, and Solutions

If the product does not operate as intended, check the table below for a possible solution.



- If the problem is not resolved even after conducting inspections and taking corrective actions, contact your nearest CKD sales office or distributor.

Problem	Cause	Solution
Product itself vibrates.	Fastening of the main body is loose.	Tighten the bolts.
	Payload capacity and permissible load have been exceeded.	Review the payload capacity, load moment, and load torque.
Floating movement is heavy when unpressurized.	There is a foreign substance stuck inside the product.	Clean the product.
It does not centering even under pressure.	Floating plate is interfering with a foreign substance.	Clean the product.
	Payload capacity and allowable moment are exceeded.	Please review the payload capacity, load moment, and load torque.

6. WARRANTY PROVISIONS

6.1. Warranty Conditions

■ Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified below, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge. However, following failures are excluded from this warranty:

- Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or this Instruction Manual.
 - Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
 - Failure not caused by the product.
 - Failure caused by use not intended for the product.
 - Failure caused by modifications/alterations or repairs not carried out by CKD.
 - Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
 - Failure caused by acts of nature and disasters beyond control of CKD.
- The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.

■ Confirmation of product compatibility

It is the responsibility of the customer to confirm compatibility of the product with any system, machinery, or device used by the customer.

■ Others

The terms and conditions of this warranty stipulate basic matters. When the terms and conditions of the warranty described in individual specification drawings or the Specifications are different from those of this warranty, the specification drawings or the Specifications shall have a higher priority.

6.2. Warranty Period

The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.