Safety Precautions

Be sure to read this section before use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.
It is important to select, use, handle and maintain the product appropriately to ensure that the CKD product is used safely.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

WARNING

1 This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product.
This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments.
(Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)

❶ Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
❷ Use for applications where life or assets could be significantly affected, and special safety measures are required.

3 Observe organization standards and regulations, etc., related to the safety of device design and control, etc.

ISO4414, JIS B 8370 (Pneumatics fluid power - General rules and safety requirements for systems and their components)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.

4 Do not handle, pipe, or remove devices before confirming safety.

❶ Inspect and service the machine and devices after confirming safety of all systems related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ When inspecting or servicing the device, turn OFF the energy source (air supply or water supply), and turn OFF power to the facility.Discharge any compressed air from the system, and pay attention to possible water leakage and leakage of electricity.
❹ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

5 Observe warnings and cautions in the following pages to prevent accidents.

■ The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

DANGER: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, and when there is a high degree of emergency to a warning.

WARNING: If handled incorrectly, a dangerous situation may occur, resulting in death or serious injury.

CAUTION: When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation.
Every item provides important information and must be observed.

Warranty

1 Warranty period

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

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, 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:

1) 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 the Instruction Manual.
2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
3) Failure not caused by the product.
4) Failure caused by use not intended for the product.
5) Failure caused by modifications/alterations or repairs not carried out by CKD.
6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
7) 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.
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility check

The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

Pneumatic Components

Safety Precautions

Be sure to read this section before use.
For general cylinders and cylinder switches, please refer to the Pneumatic Cylinders ⑤ (Catalog No. RJ-006AA).

Product-specific cautions: Auto tool changer KHBC Series

Design / Selection

⚠ CAUTION

■ The optional electrode part is a consumable part. Replace if necessary. Wire the cable so that it is free of local bends, repeated bends, or tension.

■ Working environment

At cutting, casting, or welding plants, there is a risk of foreign matter, such as cutting fluid, chips, powder and dust, entering the equipment. Use covers and such to prevent this as much as possible. Do not use the equipment under the following environments.

- ●Exposed to cutting oil (because the sliding section is abraded by abrasive or polishing debris in the liquid)
- ●organic solvents, chemicals, acids, alkalis, kerosene, and similar substances contained in atmospheres are included
- ●Exposed to water

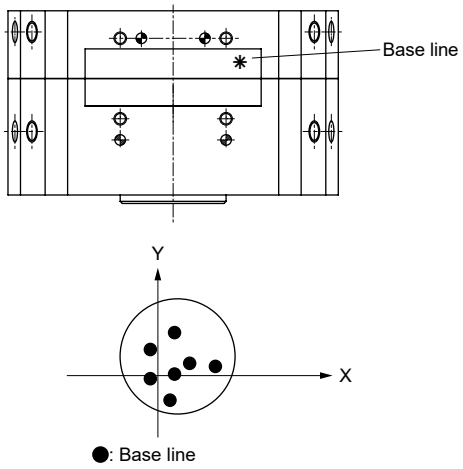
■ Do not disassemble or modify the body.

■ Do not apply load to the body without applying pressure. The specified values for connecting axial force, maximum load moment, and maximum load torque are based on 0.5 MPa pressure.

■ Select the maximum acceleration of the robot during automatic operation so that the load is not exceeded.
Refer to the technical data (auto tool changer selection method) on page 20.

■ Repeatability

The repeatability here indicates the displacement used as the reference when the auto tool changer is repeatedly attached and detached under the same conditions (e.g., fixing the auto tool changer: see below).
Conditions
· Workpiece dimensions, shape, weight
· Robot operation
· Air pressure, etc.



■ Optional electrode section

- ●Be sure to turn the power OFF before installing or removing the auto tool changer. If the filter is attached/detached while power is ON, electric discharge is generated between the opposing electrodes. This discharge causes the tip of the contact probe or electrode pin to burn or melt, and the gold plating to oxidize or wear, causing conduction failure.
- ●To improve electrode durability, it is recommended to use multiple electrodes in parallel when performing continuous energizing that exceeds 40 to 60% of the rated current.
- ●When wiring various electric signals, it is recommended to arrange the weak electric signal line and power signal line as far away as possible. This is because noise may be transmitted from the power signal line to the feeble electric signal line. Also, wires and cables connected to the electrode option should be placed as far apart as possible, as bundling these signal wires together may transmit noise.
- ●If a contact fault occurs during use, inspect and clean the electrical contact section. Dirt or dust adhering to the electrical contact section may lead to conduction failure. Clean with a clean cloth or rag soaked with organic solvents such as IPA, and then blow it with air.

For precautions regarding mounting, installation, adjustment, operation, and maintenance, please refer to the 'Usage Notes' section in this catalog and the CKD Equipment Product Site (https://www.ckd.co.jp/kiki/en/) → 'Model Number' → Instruction Manual.