

INSTRUCTION MANUAL

Pilot - kick Type

PKA

PKW—04~20—²⁵₂₇

PKS

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

Safety precautions

When designing and manufacturing a device using CKD products, the manufacturer is obligated to manufacture a safe product by confirming safety of the system comprising the following items:

- Device mechanism
- Pneumatic or water control circuit
- Electric control that controls the above

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 someone having sufficient knowledge and experience.

2. Use this product within its specifications.

This product cannot be used beyond its specifications. Additionally, the product must not be modified or machined.

This product is intended for use in general industrial devices and parts. Use beyond such conditions is not considered. Consult with CKD for details when using the product beyond the unique specification range, outdoors, or in the following conditions or environments. In any case, measures for safety shall be provided when the valve malfunctions.

- ① Use for special applications requiring safety including nuclear energy, railroad, aviation, ship, vehicle, medical equipment, equipment or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
- ② Use for applications where life or assets could be adversely affected, and special safety measures are required.

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

ISO4414, JIS B 8370 (pneumatic system rules)

JFPS2008 (principles for pneumatic cylinder selection and use)

Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, standards and regulations, etc.

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

- ① Inspect and service the machine and devices after confirming safety of the entire system related to this product.
- ② Note that there may be hot or charged sections even after operation is stopped.
- ③ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Release any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
- ④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that system safety, such as pop-out prevention measures, is secured.

5. Observe warnings and cautions on the pages below to prevent accidents.

- The safety cautions 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, or when there is a high degree of emergency to a warning.



WARNING

: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.



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. In any case, important information that must be observed is explained.

Precautions with regard to guarantee

● Guarantee period

The guarantee period of our product shall be one (1) year after it is delivered to the place specified by the customer.

● Guarantee coverage

If any failure for which CKD CORPORATION is recognized to be responsible occurs within the above warranty period, a substitute or necessary replacement parts shall be provided free of charge, or the product shall be repaired free of charge at the plant of CKD CORPORATION.

However, the guarantee excludes following cases:

- ① Defects resulting from operation under conditions beyond those stated in the catalogue or specifications.
- ② Failure resulting from malfunction of the equipment and/or machine manufactured by other companies.
- ③ Failure resulting from wrong use of the product.
- ④ Failure resulting from modification or repairing that CKD CORPORATION is not involved in.
- ⑤ Failure resulting from causes that could not be foreseen by the technology available at the time of delivery.
- ⑥ Failure resulting from disaster that CKD is not responsible of.

Guarantee stated here covers only the delivered products. Any other damage resulting from failure of the delivered products is not covered by this guarantee.

● Confirmation of product compatibility

Our customer shall be responsible of confirming compatibility of our product used in our customer's system, machinery or device.

For safety use

The Product is to be used by those who has a basic knowledge about material,fluid, piping electricity regarding Control Valves(solenoid valves,motor valves,air operated valves and so on).

Never use this Product by those who have no knowledge or are not well trained about Control Valves.

Should be any trouble or accident caused by a wrong selection and/or wrong use of the Product even by a person of basic knowledge about Control Valves,we are not responsible therefore.

Since any customer of the Product have a variety of its application,we are not in a position to get all the information on how and where the Product is used.There may be the cases where that the Product may not meet customers' requirement or may cause any trouble or accident,by fluid,piping or other condition that are not within the specifications of the Product.Under such a circumstance,select with their responsibility the most suitable application and use of the Product according to the customers' requirements.

The Product incorporates a various safety arrangement,however miss-handling of the product may lead to any trouble or accident on customers side.**To avoid any possibility of trouble,read this INSTRUCTION MANUAL carefully and understand it fully.**

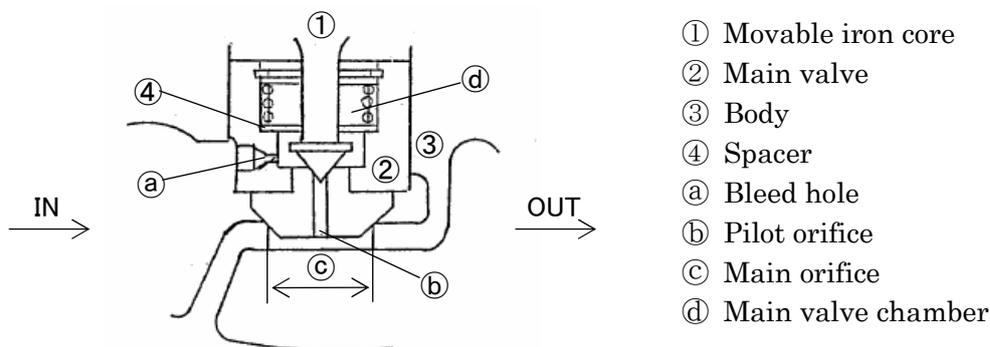
Pay your attention to the items described in this Text,as well as the items indicated below.



CAUTION

- When energized,heat is generated at coil portion of solenoid valves and motor valves particularly “Class H”coil where may have high temperature.
- There may have electric shock when wire connecting portion of solenoid valves or motor valves are touched.In case of disassembly or inspection,turn off power supply beforehand.Do not touch live portion by wet hands.
- Make piping so as not to have leakage and check for no leakage before use,because in case of control valves for high temperature fluid like steam,leakage may cause heat injury.

Description of Operation



The above drawing shows the disconnected state. The pilot orifice (b) is closed by the movable iron core due to its weight and pressure.

Valve opening

1. The movable iron core ① is sucked by magnet excitation and the orifice (b) opens.
2. The fluid in the chamber (d) passes through the orifice (b) and flows to the OUT side.
3. The pressure of the chamber (d) will drop and the main valve (2) will be pushed upward by the pressure (upward force) of IN side.

Note : If the IN side pressure is too small for pushing up (2), pull up the spacer (4) directly at the flange part of (1) by magnet suction and lift (2).

Valve closing

The movable iron core ① drops to close the orifice (b) at demagnetization.

The fluid of IN side enters the chamber (d) from the bleed hole (a) and the gap between the main valve (2) and the body (3).

The main valve drops due to the weight and pressure of (1) and (2).

Wiring

Use wire with the core sectional area of at least 0.75mm².

Use a 3A fuse for protecting the electric circuit.

Use a snap-action or a relay type switch for the electric circuit.

Choose a circuit system featuring small voltage drop.

Thread diameters of bonnet and conduit 3/4" dia. 16 pitches per inch per JIS B 0204.CTC19.

Piping

Mount a strainer near the electromagnetic valve and attach a by-pass.

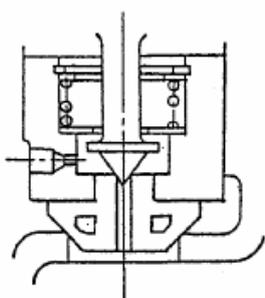
Cautions

1. Clean the pipes completely before mounting the electromagnetic valve.
2. Pay attention to the direction of flow.
3. Do not use the valve head part (coil part) for piping work.
(it will lead to the deformation of a packless pipe.)
4. Mount the valve vertically with the valve head at the top.
5. Make sure that the electromagnetic valve can be dismantled easily.
6. Do not allow strain on the valve. (It will lead to poor operation.)
7. Attach a manometer before the valve as long as possible.
8. For PKS model, always retighten the stuffing body connection bolts before using it. Once the connection bolts have been retightened properly, the torque may not lower and repeated retightening is not required. Retighten the connecting bolts with proper tightening torque shown in the following table.

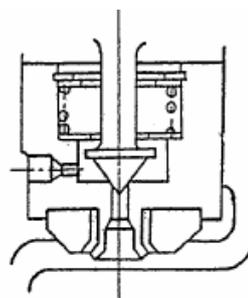
	Tightening torque [N·m]
PKS-04-27	21~28
PKS-06-27	34~42.5
PKS-10-27	
PKS-12-27	43~86
PKS-14-27	
PKS-20-25	110~190

Testing

1. Check the voltage.
2. Make sure that the electromagnetic valve works without fluid.
(Checking noise at switching between ON and OFF.)
3. Lead fluid and check for leakage.
4. Make several test runs and check for leakage on OUT side.



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