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CKD
シーケーディ株式会社

SM-6865-A

OPERATIONAL MANUAL

AFDC3

Please read this operation manual carefully before using this product, particularly the section describing safety.

Retain this operation manual with the product for further consultation whenever necessary.

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For Safety Use

To use this product safely, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, read this operation manual carefully for proper operation.

Observe the cautions on handling described in this manual, as well as the following instructions :

⚠ Precautions

- Do not touch electric wiring connections (exposed live parts) : this will cause an electric shock. During wiring, keep the power off. Also, do not touch these live parts with wet hands.

Thank you for adopting CKD's quality Master Valve "F series".

"Master Valves" are the solenoid valves developed based upon our years' experiences so as to be of service in various fields to as many customers as possible.

Rely upon our strict quality control exercised on every product of ours.

Read this manual for better and effective utilization of CKD' products, please.

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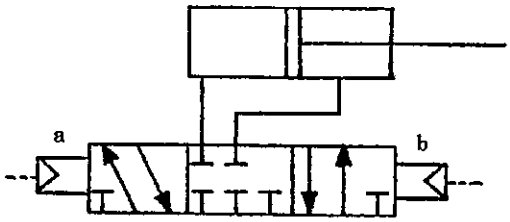
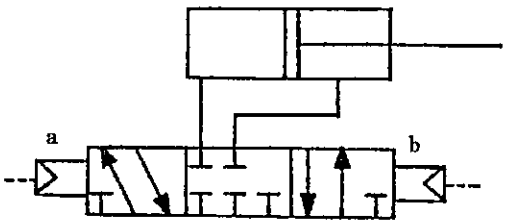
1. FUNCTION

Pilot a — On, In ⇌Cyl - 1 Cyl - 2 ⇌Exh - 2 Exh - 1 --- Blocked
Pilot b — On, In ⇌Cyl - 2 Cyl - 1 ⇌Exh - 1 Exh - 2 --- Blocked
Neutral All Ports blocked

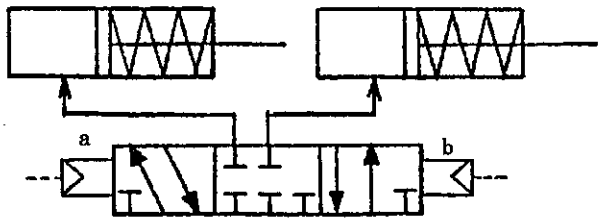
a. In case of operating a double-action cylinder with the same pressure to either end of it.



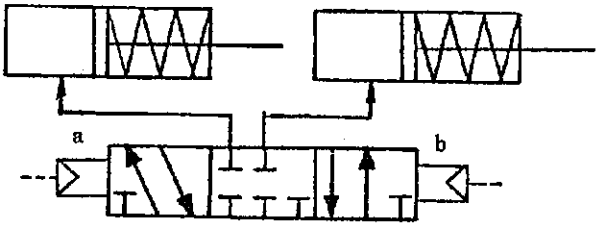
b. In case of providing different pressure to two ports respectively.
Out-put of the cylinder speed is regulatable in different or same speed intentionally by controlling the given pressure to each exhaust port.



c. In case of controlling single-action cylinders, by means of three way control valve, alternatively or one cylinder exclusively.

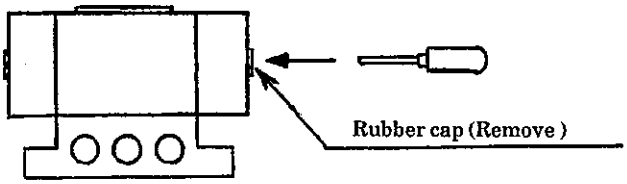


d. In case of operating single-action cylinders, by means of three way control valve, alternatively but different pressure to each other.

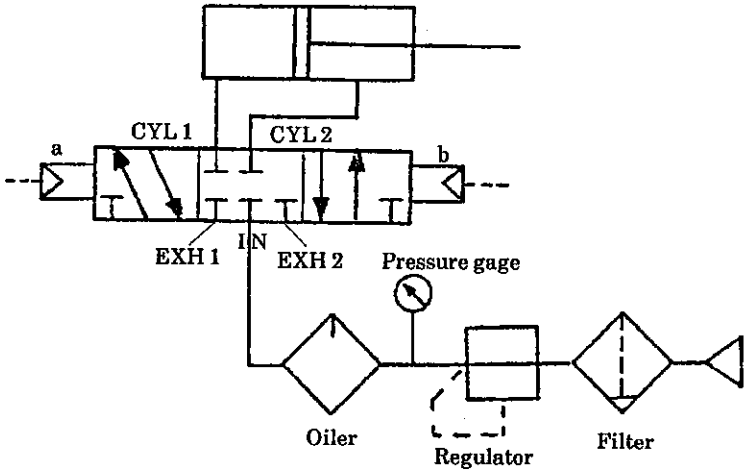


e. Others

(1) This Master Valve, as being "Three-position-valve", has a neutral position.
(2) Connect a metering valve (needle control type) at an exhaust port in case that no speed control is required.
(3) Manual control is available besides the automated control by the pilot pressure.

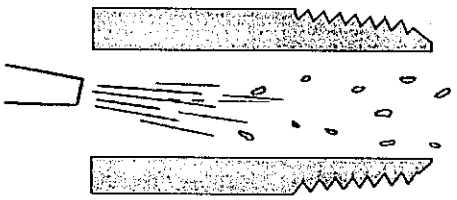


2. CARES WHEN PLUMBING A SYSTEM CIRCUIT



a. Clean the inside of pipings prior to mounting solenoid valve.

(1) Make sure that foreign particles and burrs are completely removed.
(Give an air flushing to inside of pipes when it is ready to have a valve connected.)



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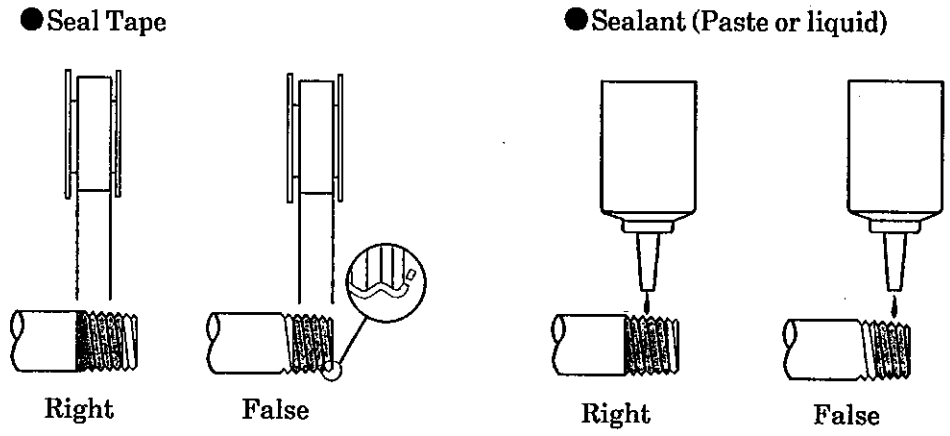
(2) Refrain applying sealant or seal tape approximately two pitches of thread off the tip of pipe.



b. Install an air filter (approximately 5μ mesh) and an oiler at an upper-stream location to a valve. An installation of a tar removal filter is advisable in case of the quality of supplied air is low due to reciprocating type air compressor.

Turbine oil #90 is recommended for a lubricant. (Avoid from using spindle oil or machine oil.)

c. Mount the valve so as to have the center line of its spool and mounting flat rest horizontal.

d. Carefully mount the valve to eliminate from generating any distortion of valve body.

e. Select appropriate mounting location of valve where there is the least amount of vibration or shock.

f. Upon completion of plumbing, inspect against any external leakage.

g. Design plumbings so as to provide ample space for handling tools during later maintenance work.

h. Inspect the sludge level in filters and drain it regularly.

3. MAINTENANCE

a Disassembly

(1) Disassemblying of valve body

① Disconnect valve body from the system.
② Remove a cap and take out a spring.
③ Take out a spool.
④ Pull out a sleeve.

(2) Cautions

① Avoid from leaving a taken out spool in an open air long.
② Wear a pair of rubber gloves while pulling sleeve and spool instead of handling them with bare fingers.
(Bare finger spot on metal surface causes metal corrosion.)
③ Avoid pulling a sleeve off unless it is necessary.
(There is a high possibility of cutting O-ring.)
④ Thoroughly wash foreign particles away from external surface of piston and internal surface of sleeve before starting assemblying them.
⑤ Highly tighten cap and pilot valve .
(It apt to loosen, particularly which is used frequently.)
⑥ Pay some consideration to eliminate from exposing this valve directly to rain or dripping of water when to be installed outdoor system, although it is designed drip-proof.
⑦ Take some precautional care to eliminate drip formation when environment condition is unfavorable.
⑧ Confirm its correct functioning with manual operation when intending putting the system back in operation after leaving it unoperated long.
⑨ Shut the air line, exhaust compressed air and drain sludge so long as it is possible at the end of day's operation.

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Drawing Number AFDC3-02, 03, 04-4 MASTER VALVE

Specification

1. Ports arrangement	
2. Applicable pressure	0 ~ 10 kg/cm^2
3. Pilot pressure	1 ~ 10 kg/cm^2
4. Operational Fluid	Lubricant (Turbine Oil #90 ~ 140) Pneumatic

	Item	Material	Qty
17	O ring	Nitriles rubber	2
16	Sub-plate	Aluminum alloy, die casted	1
15	Gasket	Asbestos packing	1
14	Socket headed bolt	Steel	4
13	Name plate	Alumium sheet	1
12	Cross cut flat head screw	Steel	4
11	Collar	Steel	2
10	Spring	Piano steel wire	2
9	Holder	Aluminum bar	2
8	Sleeve-Spool Ass'y	Stainless steel	1
7	O ring	Nitriles rubber	6
6	Bushing	Nitriles rubber	1
5	Gasket	Asbestos packing	1
4	Cover	Polyamide	1
3	Body	Aluminum alloy, die casted	1
2	Spacer	Aluminum sheet	2
1	Pilot valve body	Aluminum alloy, die casted	2