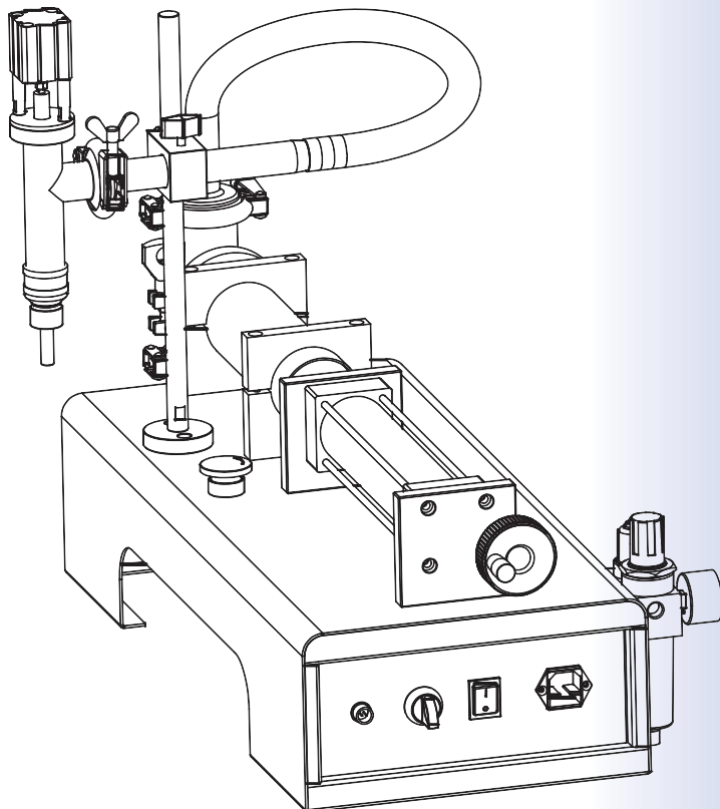


OPERATION INSTRUCTIONS

HORIZONTAL SELF-SUCTION FILLER SERIES GFA-W-150\300\500\1000



Please operate in accordance with the instructions strictly.

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1 Overview

11 Application

GFA Series Pneumatic Filler is of wide applicability and can be used for dosing filling of creams and liquids (20-2000cP) in the fields of daily chemistry, food and beverage, pharmacy, chemistry and so on. Inquire the manufacturer about other uses. Any damage due to misuse is out of limitation of warranty of the manufacturer. Such risks shall be borne by the user solely. Strictly following the instruments is a part of operation requirements.

12 Model explanation



GFA standard W horizontal Filler head G cream Max. filling volume
GFB explosion proof L vertical quantity Y liquid

13 Performance characteristics

This machine is of reasonable structure, reliable performance and accurate quantification. It applies pneumatically-driven structure. The shell and all the parts connected with filling materials are made of stainless steel (SS304 is used for standard ones and SS316 can also be customized). The inner walls of main parts are mirror-polished in roughness $Ra \leq 0.2-0.4 \mu m$, which conforms to the requirements of GMP certification. Therefore, it is rustless and corrosion resistant. In addition, the user can adjust the filling volume and speed within the type limitation as required.

2 Safety Precautions

21 Safety warnings

Violation of these safety warnings and precautions may result in serious personal injury and property losses. Qualified operators shall be familiar with all the safety warnings and precautions in the instructions. Correct handling and fixing and careful test run, all these are key elements to ensure safe operation and prevent from failures. The following reference points out security-related operations in the instructions in particular. A corresponding icon is marked next to each reference.

The meaning of this icon: Attention!



“Attention” is to mark those activities or operations that have great impact on the normal operation of machine. Violation of these precautions may bring damage to machine.

The meaning of this icon: Warning!



“Warning” is to mark those activities and operations that are harmful to people and property if the machine is not operated correctly.

22 Electrical Connection



During electrical operation, some parts involve voltages that threatening the personal safety. The electrical system or equipment should be operated by a skilled electrical technician or trained personnel operate it under experienced technicians' control and surveillance and also they must comply with the corresponding electrical engineering regulations.

Attention: This series of products shall be mounted with safe and reliable leakage protection devices.

23 Emergency Stop Switch

You should get quite familiar with the location of emergency stop button. There is a red mushroom emergency stop button close to discharge nozzle. Under extraordinary emergency conditions, you should press the nearest Emergency Stop button and cut off both power and gas supplies, then the machine will stop immediately, in order to avoid more serious damage.

24 Maintenance

During maintenance, you must comply with the maintenance precautions strictly, otherwise the safety operation of the machine can not be guaranteed.

3 Technical Parameters

The following table takes standard single head horizontal self-suction filler for example:

Type	GFA-150	GFA-30	GFA-50	GFA-100
Filling volume (ml)	10-150	20-300	20-500	30-1000
Filling accuracy (FS)	±0.5%	±0.5%	±0.5%	±0.5%
Production capacity (cycle/min)	1-25	1-25	1-25	1-25
Applicable tolerance (m ³ /min)	≥0.1	≥0.1	≥0.1	≥0.1
Applicable pressure(Mpa)	0.4-0.9	0.4-0.9	0.4-0.9	0.4-0.9
Exterior sizes (mm)	850×280×350	850×280×350	850×280×350	950×280×450
Net weight (kg)	40	40	40	45

4 Operation guidelines

4.1 Preparation for Startup



This machine uses three-strand power plug, so you should check new power socket to ensure its reliable grounding.

This machine shall be used with air compressor, of which, the air displacement shall be not less than 0.1m³/min and the applicable air pressure is able to adjust from 0.4 to 0.9 Mpa.

4.2 Cleaning



Before startup, clean all the parts which come into contact with the materials. The application of universal snaps and yokes in international type facilitates the loading and unloading. During cleaning, DO NOT use organic solvents to clean plastic hose.

4.3 Oiling of Oil Atomizer

Check whether the oil cup (oil feeder) of oil atomizer is filled with sufficient oil. The oil atomizer shall be filled with 2.5 -7°E lubricant (20# or 30# turbine oil). Oiling and volume regulation ways are listed as below:

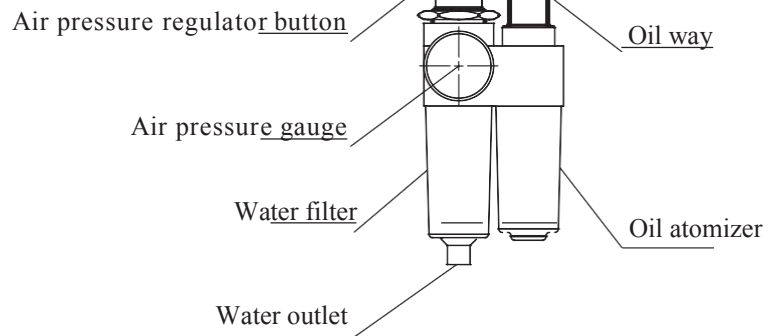
Before cutting off the gas source, push upward or transverse by hand the water outlet at the bottom of filler to discharge the remaining gas. Screw out the screw plug on the oil way in the center above the oil atomizer. Then oil may be injected through this hole. A vent hole, which is close to this oil way, may be opened if it is difficult in oiling. The oil level shall be between the min. and max. oil scale. Screw down each screw plug after oiling. A volume regulator inside above the filter can be used to adjust the volume of lubricant after entering post pneumatic components. Generally, turn on the regulator in 1 to 2 turnings in close condition.

4B Air Pressure Regulation



Refer to pressure regulation way as below:
 (See Fig. 1 Air supply treatment diad) Pull up the pressure regulator button of air supply treatment device. Turn it slowly and observe the pressure gauge finger. Press the button down when the finger points to the required air pressure value. The air pressure shall be regulated accurately. If the air pressure is lower than 0.4 Mp, the pneumatic system can not go on work normally. If the air pressure is over high, it is possible that shock will occur and corresponding parts will be damaged earlier.

Fig. 1 Air supply treatment diad

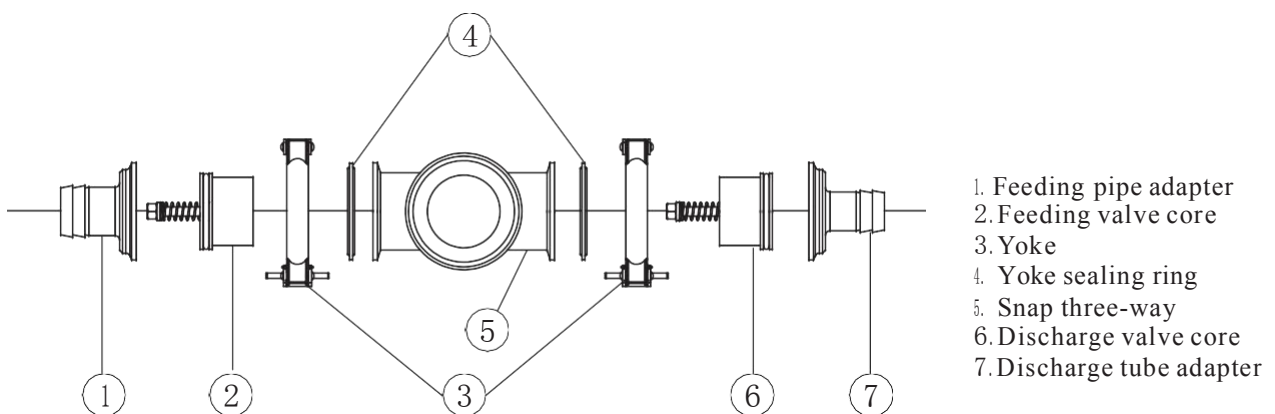
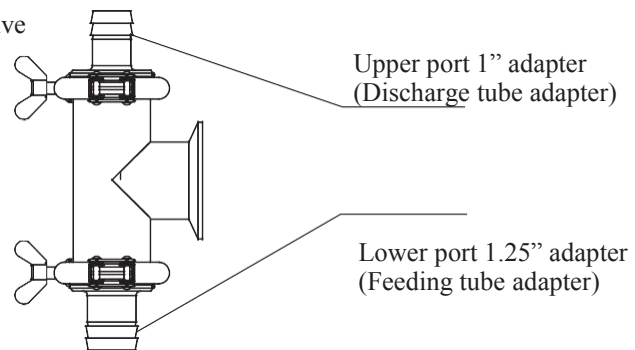


44 Feeding Connection See Fig. 3 Whole Machine Parts. Generally, the feeding tube is fixed at lower port of check valve by using yoke. The feeding connection may be done by using plastic hose or stainless steel. The lower connector of check valve may be fitted with 1.5" adapter (See Fig. 2 Check Valve). The user may also choose 1" adapter and threaded connectors or snaps of various sizes.



If the storage tank is lower than the lower port of check valve, it is recommended to choose check valve mounted at pipe end so as to get more accurate dosing filling

Fig. 2 Check Valve



42 Test Run

See Fig. 3 Whole Machine Parts. After getting ready of the preparation work before startup, connect the “Inching Switch” (attached fittings) to the corresponding jack (Fig. 3-5). Place the “Inching/Auto Option Switch” (Fig. 3-4) at the inching state, and then turn on the power on/off (Fig. 3-3) and check and ensure the Emergency Stop Switch (Fig. 13) is in normal state (the machine will enter emergency stop state if press it down). Place the feeding tube into the storage tank or open the feeding tube valves. Screw down all the connecting yokes and start press the “Inching Switch” for test run.

Adjust the fore and back the throttles on the “Cartridge Cylinder” (Fig. 3-14) to control the feeding and discharge speeds properly. Shake “filling volume regulation hand wheel” (Fig. 3-6) to keep the “Magnetic Switch (back)” (Fig. 3-7) move forward and backward to adjust the filling volume as required. And then lock “fastening screw” (Fig. 3-8).

43 Run

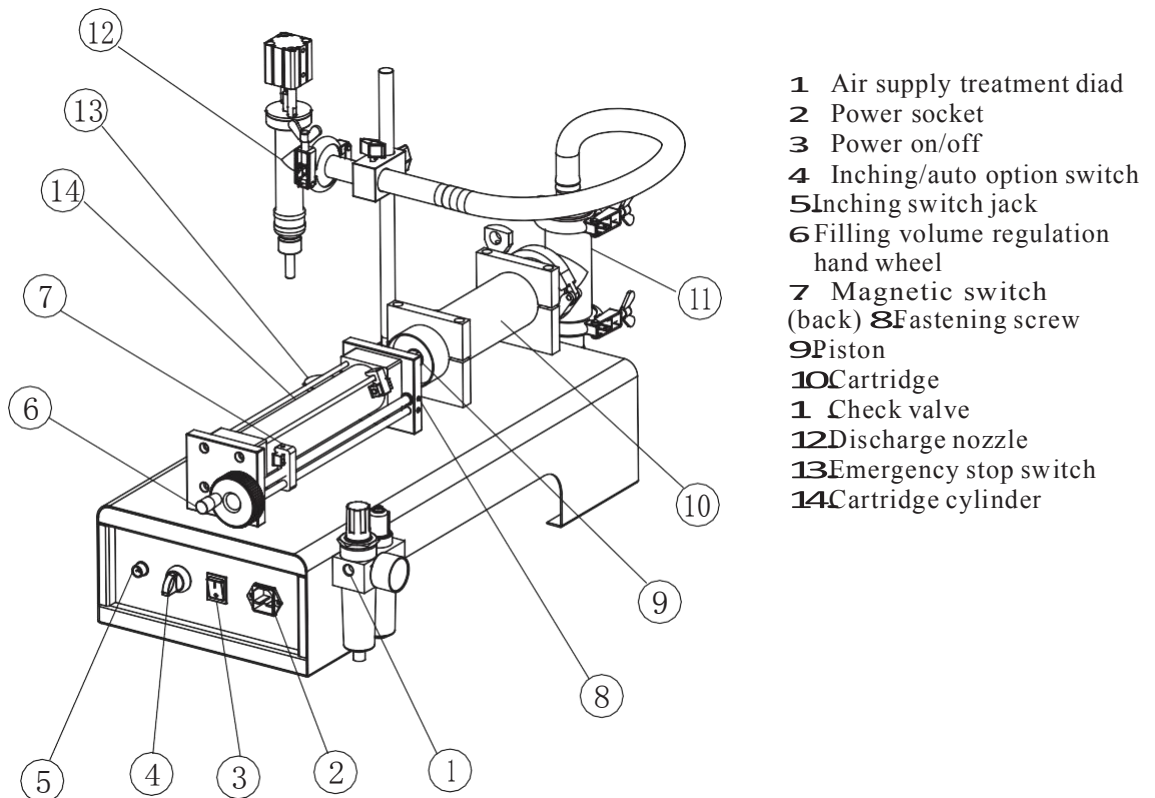
Test whether repeated accuracy of filling volume is up to standard and check whether the discharge nozzle leaks. Put into normal work if there is no abnormal condition. The normal work may be done in inching or automatic way (place the “Inching/Auto Option Switch” (Fig. 3-4) at automatic state). Pay attention to properly adjust the interval time when the machine works in automatic state.

44 Stop



After the machine stops, you MUST turn off the power on/off, pull out the power plug and turn off the air supply valve. It is recommended to clean the material tubes, discharge nozzle, check valve and cartridge before off duty.

Fig. 3 Whole Machine Parts



5 Maintenance and Service

5 Replacement of Seal Ring



Following the use of machine, the seal rings of each component will get worn, which will bring adverse effect on normal work. Replace the seal rings in time if there is any drip or leakage. DO NOT replace the seal rings until the machine is in stop state.

1. Seal ring on the piston (Fig. 3-9)

Loosen pressure screw on the cartridge (Fig. 3-10) and separate the cartridge from the piston in horizontal direction. Now replace with a new seal ring. Apply a little lubricant oil to the inside wall of the cartridge and slightly push it in to prevent from the scuffing of seal ring. Align with the cartridge, half lock the pressure screw and then start up the machine in the inching way till the cylinder and cartridge are in right alignment. At last, lock the pressure screw.

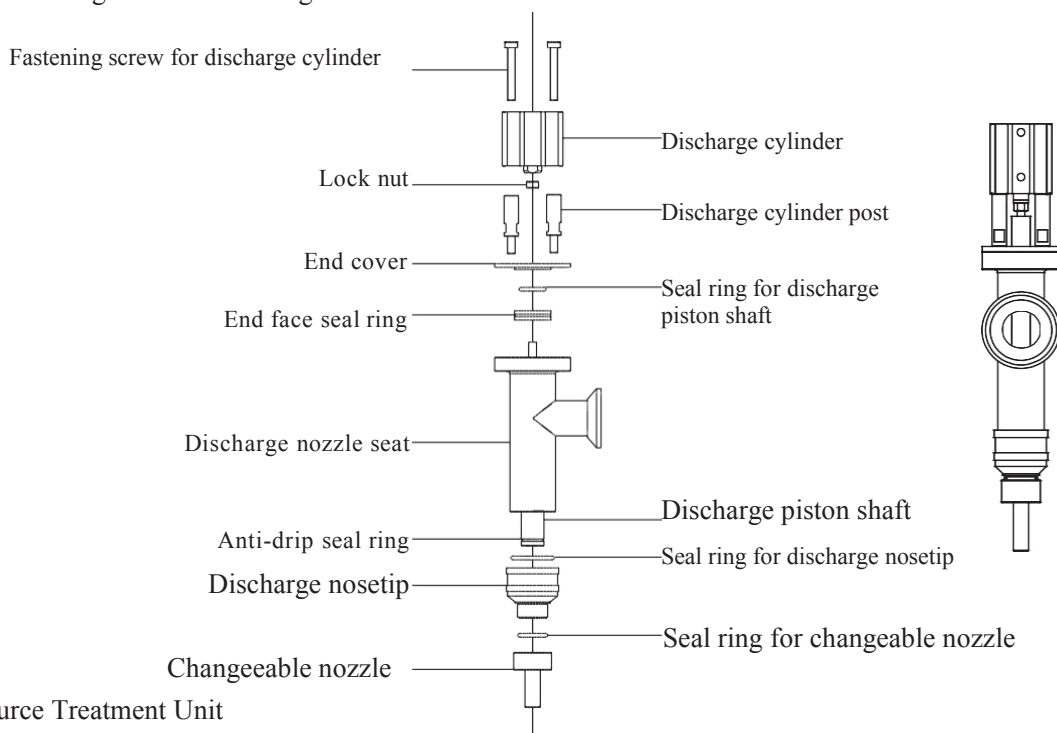
2. Anti-drip seal ring on the discharge nozzle (See Fig. 4 Discharge Nozzle Diagram)

Screw out the “discharge port”, loosen “lock nut” and then slightly pull out the “discharge piston shaft”. Now replace with a new anti-drip seal ring.

3.1. Seal rings on the check valve, discharge valve core and feeding valve core (See Fig. 2-2, 6)

Loosen the snap yoke on the check valve and pull the “discharge valve core” or “feeding valve core” out of tube adapter forcibly and then loosen the “Non- return spring seat”. Now replace with a new seal ring on the check valve core.

Fig. 4 Discharge Nozzle Discharge



5 Air Source Treatment Unit

Filter core of air supply filter and water cup shall be cleaned regularly. The filter core shall be washed in the mineral oil and blow with compressed air. Discharge the water in the filter by hand regularly. Ensure the sufficient oil in the oil atomizer by regularly checking (Oil shall be added to the 2/3 level of oil cup)

5 Consumables

To guarantee the machine works normally, maintain spare consumables timely.

6 Troubleshooting

6.1 Failure of Cartridge Cylinder

1. Check whether air supply is connected well.
2. Check whether air pressure is too low. If so, adjust the pressure relief valve to proper air pressure.
3. Check whether the magnetic switch sends out signal.
4. Check whether the solenoid valve changes the direction normally.
5. Check whether the throttle valve of cartridge cylinder is normal. If not, adjust the air flow properly.
6. Check whether there is any foreign object blocked in the discharge port and tubes.

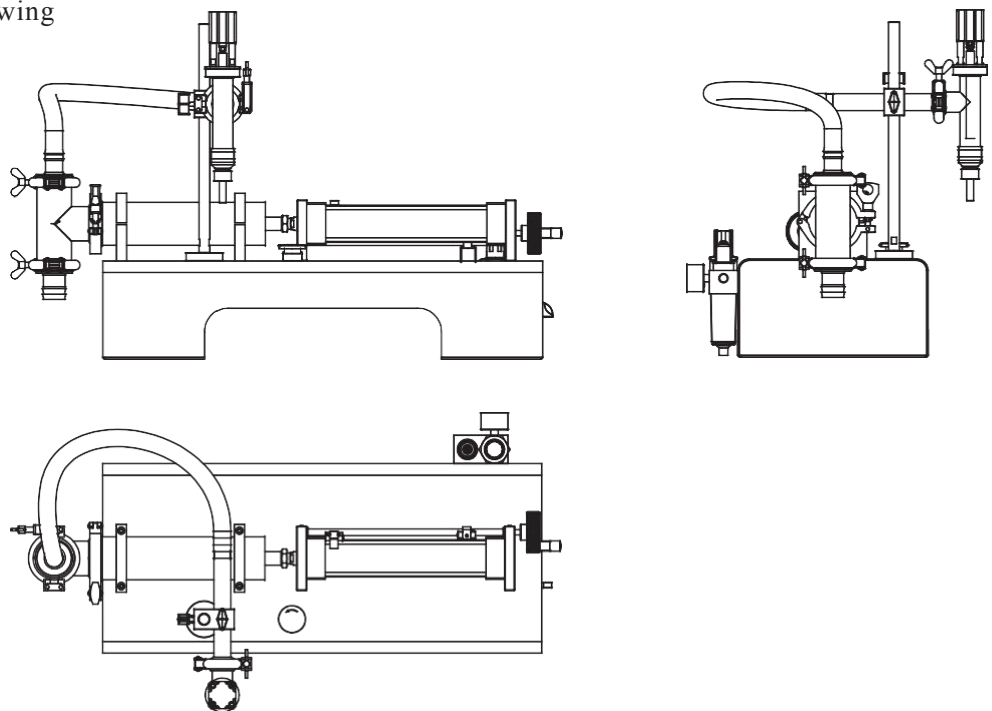
6.2 Inaccurate Filler Volume

1. Check whether the seal ring is worn (Refer to paragraph 5.1).
2. Check whether the magnetic switch (back) sends out signal.
3. Check whether the cartridge and cylinder is in right alignment when you disassemble or mount the cartridge.
4. Check whether there is any material leakage on the connector of each part and discharge nozzle.
5. Check whether there is any foreign object blocked the seal ring in the check valve.
6. Check whether the discharge nozzle cartridge and its cylinder work synchronously.

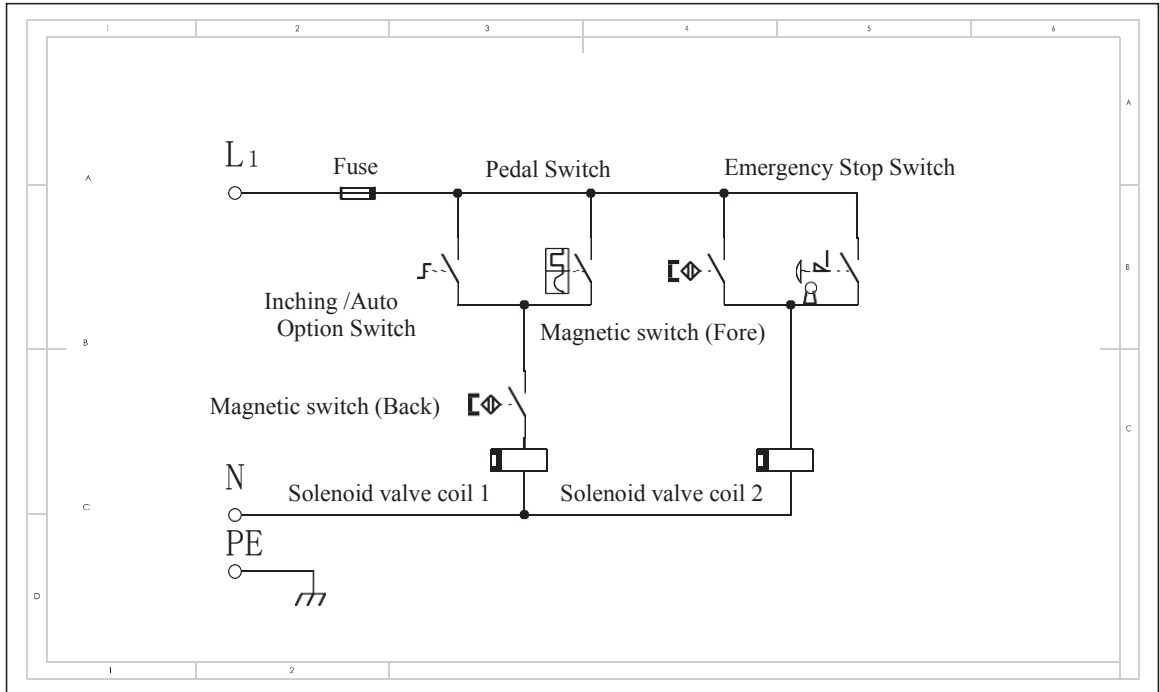
- ### 6.3 Failure of Inching Work
1. Check whether the inching socket (Fig. 3-5) is loose and the wiring is firm or not.
 2. Check whether the inching switch works normally.
 3. Check whether the fore and back magnetic switches work normally.
 4. Check whether the solenoid valve exchanges the direction normally.

7 Technical Drawings

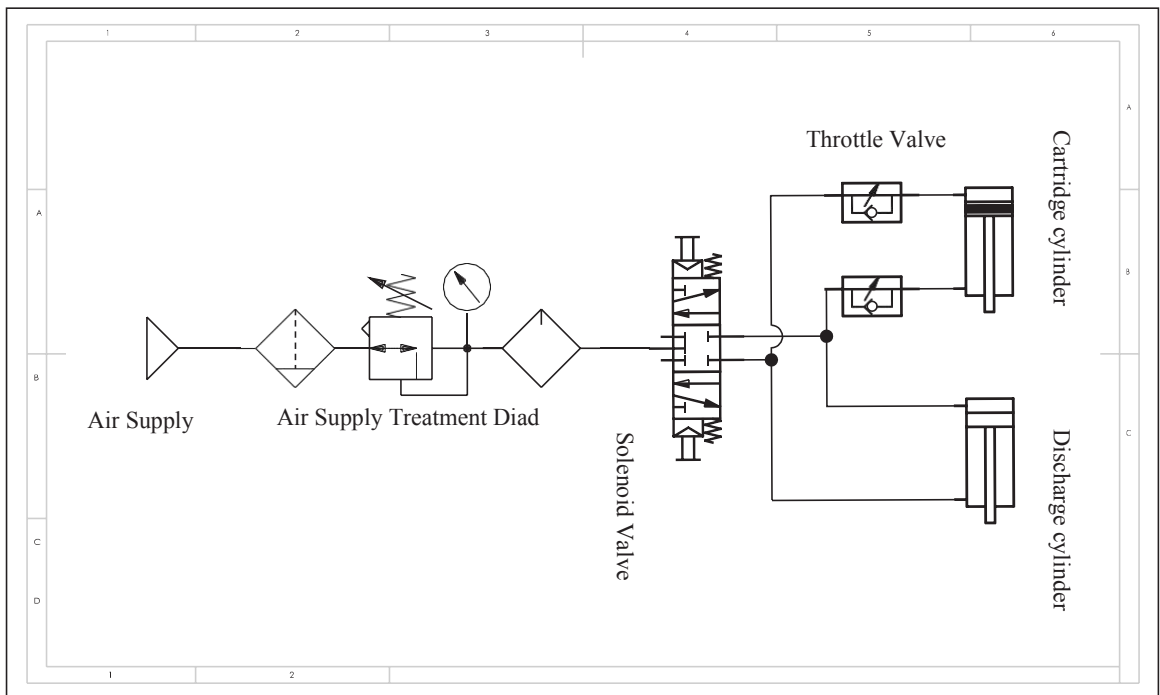
7.1 Three-view Drawing



Electric Circuit Diagram



Gas Circuit Diagram



8. Attached Fittings

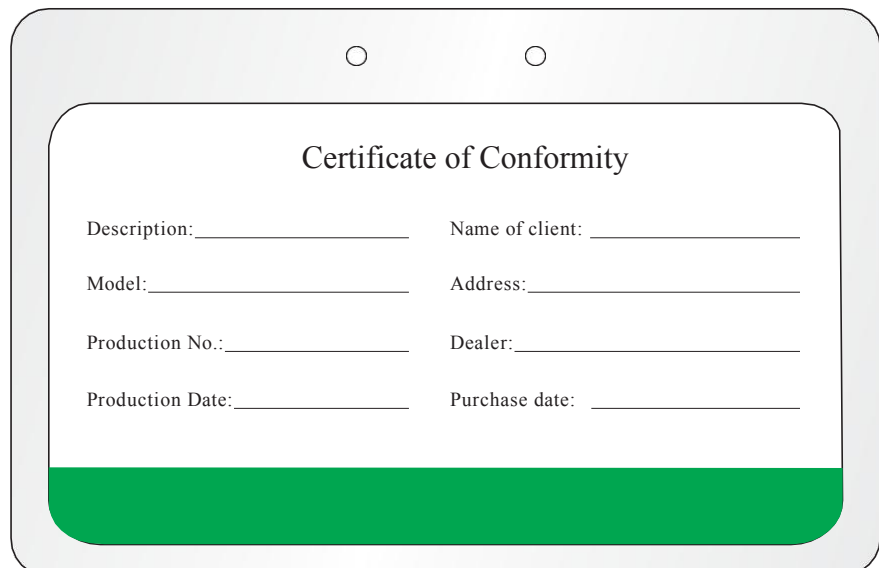
1. Seal ring for discharge piston shaft	2 pcs
2. Anti-drip seal ring	4 pcs
3. Seal ring for discharge end	2 pcs
4. Seal ring for changeable nozzle	2 pcs
5. Piston seal ring	2 pcs
6. Seal ring for check valve	1 pc
7. Yoke seal ring	2 pcs
8. Phillips screwdriver	1 pc
9. Allen key (6, 8)	Each 1 pc
10. Open end wrench	1 pc
11. Power wire	1 strip
12. Pedal switch	1 pc
13. Instructions	1 copy
14. Certificate of Conformity	1 copy
15. Warranty Card	1 copy

9. Certificate of Conformity



A form titled "CERTIFICATE OF QUALITY" with fields for Description, Model, Production No., Inspector, and Production Date. Below the fields is a statement: "The product is found eligible and permitted to leave the factory." The bottom of the form has a green bar.

10. Warranty Card



A form titled "Certificate of Conformity" with fields for Description, Model, Production No., Production Date, Name of client, Address, Dealer, and Purchase date. The bottom of the form has a green bar.

