



Operation and maintenance manual

Portable welding fume extractor

AFFETH

Please read this instruction carefully and keep it safe for future maintenance

This manual describes the operation, maintenance of the equipment. In order to use the equipment correctly, please read this manual carefully before using the equipment, and strictly follow the instructions to operate, maintain the equipment.

Special instructions

1.This manual describes the operation and maintenance of the fume dust collectors AFFETH produced by ARCFORCE .

The content of this manual is only written for the fume dust collectors series produced by ARCFORCE .

2.In order to make it convenient for you to use this fume dust collectors AFFETH correctly, all personnel involved in the operation of the equipment or system should read this manual in detail. And strictly follow the instructions to operate, maintain the dust removal equipment. Non-professionals are not allowed to disassemble and assemble this fume dust collectors AFFETH .

3.Our company will not be responsible for any equipment failures or safety accidents caused by operation and maintenance which do not comply with this manual.

4.Purification of oily, watery, flammable and corrosive fume/dust, ARCFORCE must be notified in advance so that we can take necessary precautions to avoid clogging, damage to the filter cartridge and even other accidents.

5.The use of equipment should avoid objects with open flames (such as burning paper scraps, cotton yarn, cigarette butts, etc.) from being sucked into the dust removal equipment.

6.Regularly check and maintain the dust removal equipment to ensure the service life of the equipment and filter elements.

7.Live maintenance with power supply is strictly prohibited. In any case, the external power supply must be completely disconnected for any maintenance.

8.Regarding the content of this manual, product's specifications and parameters may be changed due to product improvements, without prior notice, please understand.

9. If you find any questions or errors in this manual, please contact our company or local agents.
10. Without the written permission of our company, any plagiarism or adaptation of all or part of the contents of this manual is a serious infringement, and our company will investigate its legal liability according to the law.
11. This equipment can not absorb the welding fume completely. Please have working welders wear protective measures, such as mask and earmuffs.
12. Equipment with back blowing setting must ensure that the black blowing source oil-free, water-free and dust-free.
13. This equipment should be used under the following conditions:
 - (1)The altitude not more than 3000 meters
 - (2)The temperature of the treated dusty gas should not exceed 80° C. (Special requirements should be stated when ordering)
 - (3)The treated dusty gas should not be in danger of explosion. (Any requirement of explosion-proof should be stated when ordering)
 - (4)The dusty gas treated by the equipment should not be enough to corrode metals and damage insulation.
 - (5)The equipment should be placed in a place free from severe vibration, impact and thunderstorm.
 - (6)Power supply: AC380V/50HZ

Receiving and acceptance

1. After receiving the goods, please open the box and carefully observe whether the equipment is damaged during transportation, such as scratches on the paint surface of the cabinet, broken junction boxes, broken buttons on the control panel, broken feet, and loose hinge bolts, etc.
2. The equipment should be taken out carefully when unpacking, check the packing list to verify whether the accessories are complete, and accept the qualified certificate, manual, etc.
3. Open the inspection door to check whether the filter cartridge has fallen off, whether the fastening bolts are loose, and the filter element material is damp or not. If the filter element is damp, you need to start the fan for continuous idling to dry it.
4. Check whether the electrical components are loose during transportation
(Must be operated by a licensed electrician)

Contents

1.Introduction of equipment 6

 1.1 Technical Parameters 6

 1.2 Introduction and application of equipment6

 1.3 Structure of equipment6

2.Directions for use 8

3.Equipment of Installation 9

 3.1 Suction arm installation 9

 3.2 External connection of black blowing system 10

4.Equipment Operation 12

 4.1 Equipment debugging 12

 4.2 Start and stop of equipment 12

 4.3 Dust drawer cleaning 14

 4.4 Use of suction arm 15

 4.5 Drainage of equipment17

 4.6 Dust cleaning of filter cartridge 17

 4.7 Replacement of filter cartridge 19

5.Service and maintenance of equipment 21

 5.1 Daily maintenance of equipment21

 5.2 Maintenance of filter cartridge 22

 5.3 Maintenance of equipment shell22

6.Common breakdown and maintenance23

7.Warranty 25

8.Others 26

 8.1 Transportation and storage 26

 8.2 List of wearing parts 26

Appendix Electrical schematic diagram 27

1.Introduction of equipment

1. 1Technical Parameters

Item	Description	Parameters	Remarks
1	Model	AFFETH	
2	wind processing capacity	3000m ³ /h	
3	Power	3kW	
4	Power supply	380V/50HZ	± 10%
5	Filter material	Ahlstrom nano flame-retardant filter cartridge	Filter cartridge
6	Filter area	8m ²	
7	Filter Efficiency	>99. 9%	SG
8	Noise	≤75dB (A)	
9	Cleaning method	Pulse automatic dust cleaning	
10	Compressd air	0. 5-0. 6MPa	
11	External Dimension of equipment	680*650*1210mm	

1. 2 Introduction and application of equipment

This equipment is specially designed for purifying industrial welding fume and light particles. A variety of poisonous and harmful gases are produced in the process of industrial welding or other processing of metals. This equipment traps, filters and purifies the gas on the dust source to ensure the quality of the working environment and avoid inhalation by operators, improve work efficiency. The collectors can also recycle the rare metals and precious materials. This fume welding fume extractor has the advantages of compact structure, convenient movement, simple operation, high purification efficiency and low noise, it is widely used in arc welding, carbon dioxide shielded welding, MAG welding, carbon arc gouging welding, gas melting cutting and special welding process.

This equipment is a man-machine control device.

2. 3 Structure of equipment

The main components of this equipment include: universal flexible suction arm (with Air Flow Control Valve) , fire network, high-efficiency dust-removal filter cartridge, dust collection drawer, Fan, equipment cabinet, electronic control system, back-blowing system (optional) , etc.

Appearance of equipment shown as fig. 1

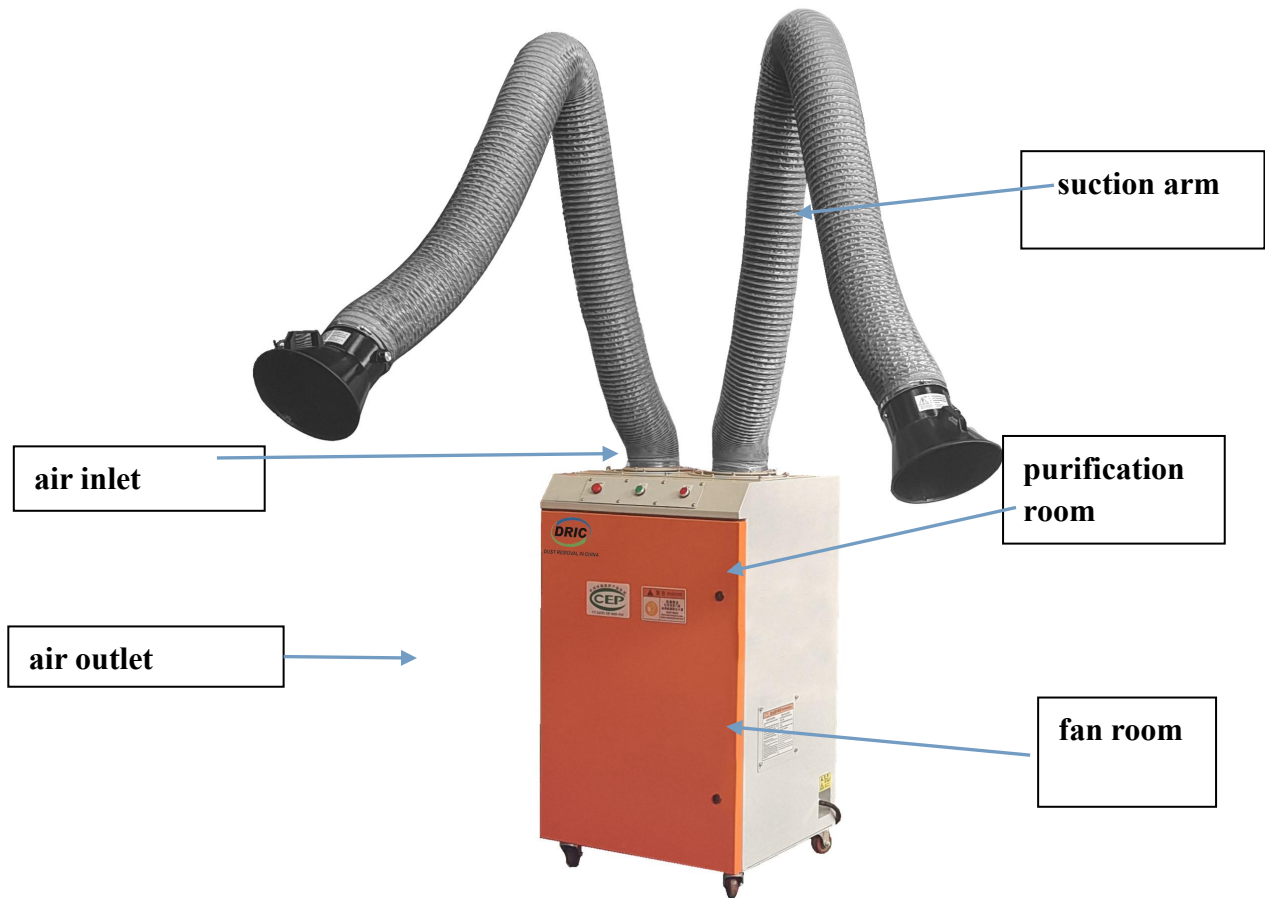


Fig. 1 Equipment appearance

2.Directions for use

1. The equipment is in place and fixed on a flat ground. There should be enough space around the equipment for maintenance.
2. After determining the position of the device, please have the fixed casters of the device stepped down to prevent the device from sliding.
3. When moving or carrying the machine, do not tilt the machine more than 45 degrees.
4. The equipment can only be placed vertically.
5. The surface of the equipment should be cleaned after use to avoid the contamination from ionized corrosion of the equipment.
6. Live maintenance with power supply is strictly prohibited. In any case, the external power supply must be completely disconnected for any maintenance.
7. The equipment should be protected from moisture during maintenance and storage, and the electronic control, motor and filter cartridge, etc. of the equipment should be checked first when it is reused after storage.

3. Equipment of Installation

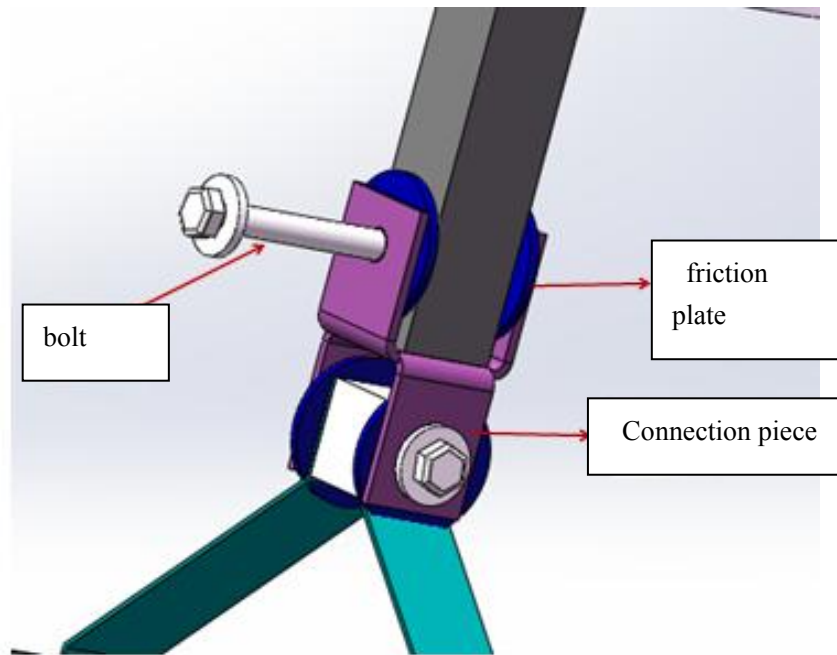
For safe sake during transportation, the suction arm and the equipment host machine are not fully assembled when you receive it them.

3.1 Suction arm installation

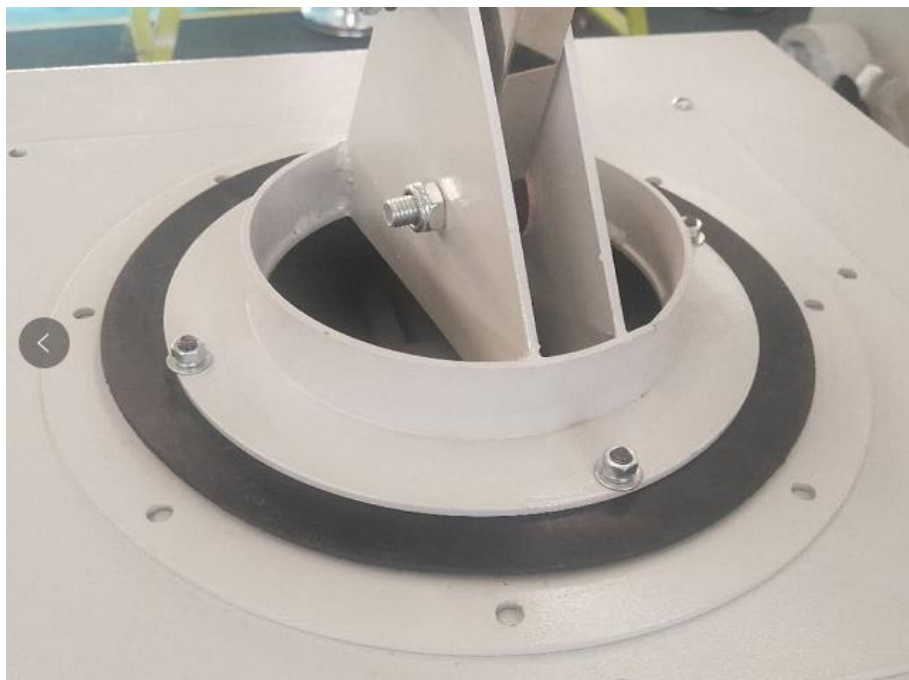
Appearance of suction shown as fig. 2



fig. 2 Appearance of suction arm



the connection between cover mouth and suction arm skeleton



Connection flange mounting

3. 2 External connection of black blowing system

- ①measure the distance between the equipment from compressed air supplying unit
- ②Cut off the proper length of $\Phi 12$ hose
- ③Connect one end of the hose to the equipment and the other end to the compressed air supplying unit as fig 5,



Drain valve

compressed air inlet

the hose connecting port

4. Equipment Operation

4.1 Equipment debugging

Equipment debugging includes checking whether the fan's steering is correct, whether the suction arm is fully sealed, whether the equipment back-blowing system is working properly, whether there is abnormal fan operation, etc. .

1) Fan steering

① Press "start" button of the equipment

② Place your hand in the air intake to feel the wind speed.

2) equipment seal

Operate the equipment under No-loading situation. Put your hand or light material in the equipment door and suction arm to see if there is air leakage. If there is air leakage at the door, check whether the sealing tape is broken or not and replace it. If there is air leakage in the suction arm, adjust the sealing rubber ring to ensure the sealing

3) blowing back system

The equipment back blow interval is 3 min. Test the equipment to see whether the back-blowing interval is stable, whether the gas transmission is smooth, whether the operation of equipment leakage phenomenon.

4) Fan operation

When testing equipment, listen whether there is noise abnormal sound, if yes, then check whether there is debris into the fan, clean up in time.

4.2 Start and stop of equipment

1. Adjust the suction arm to the proper working position. Confirm connection of related accessories

2. Close main power switch, turn on power switch;

3. Press the "start" button to start the equipment.

4. When the equipment is suspended, press the "stop" button. After use, the total power supply should be disconnected, the power indicator lamp is switched off.

Equipment control panel shown as fig.6



fig.6 Equipment control panel

Attention:

1. When using the machine, you should pay attention to the power supply voltage and the machine is in line, it means whether the access voltage is 380V/50HZ, the use of plug-in power equipment do not use the same electrical socket together with other electrical appliances.

2. Before starting the machine, the door, cover and drawer must be closed strictly, and can not be opened them when the equipment is running.

3. Do not place items such as water cups on the equipment.

4. If there is a big noise in the operation of the equipment, be sure to turn off the equipment switch and the external power supply, be sure to do a comprehensive inspection after the fan is stop, be sure to restart the equipment after the breakdown is eliminated.

5. If the equipment needs to completely disconnect the external power supply, you should first press the "stop" button except for special circumstances.

6. When it is running, please don't move the equipment body at will. If it needs to be moved, you should stop the machine and cut the power supply first.

7. It is a normal phenomenon that the sound of equipment system is loud

when it is blowing back.

8. Make sure the air source port is connected to the high pressure air source and the air source must be 0.5 ~ 0.6 MPA oil-free, dry, clean compressed air (too high pressure will affect the service life of solenoid valve and filter) .

4.3 Dust drawer cleaning

The dust drawer of this equipment needs to be cleaned regularly by hand.

Dust removal steps:

- 1) Suspend or stop running of equipment
- 2) (Be sure to) Wear clean mask and dust-proof gloves
- 3) Open the cartridge box door with the assigned key
- 4) Take out dust drawer and dump the dust into designated dust bin;
- 5) Put back dust drawer and close the door

Attentions

1. Welding dust has great harm to human body. Please collect the dust as "hazardous waste" then deal with it centrally.

2. Weight of dust is light, and easy to form floating dust in air while vibration. The dust remover must wear a mask when removing the dust.

3. When cleaning, if there is more accumulative dust on surface of filter cartridge, it is necessary to take out filter cartridge and clean it.

Fig 7 shows filter cartridge cabinet door is opened

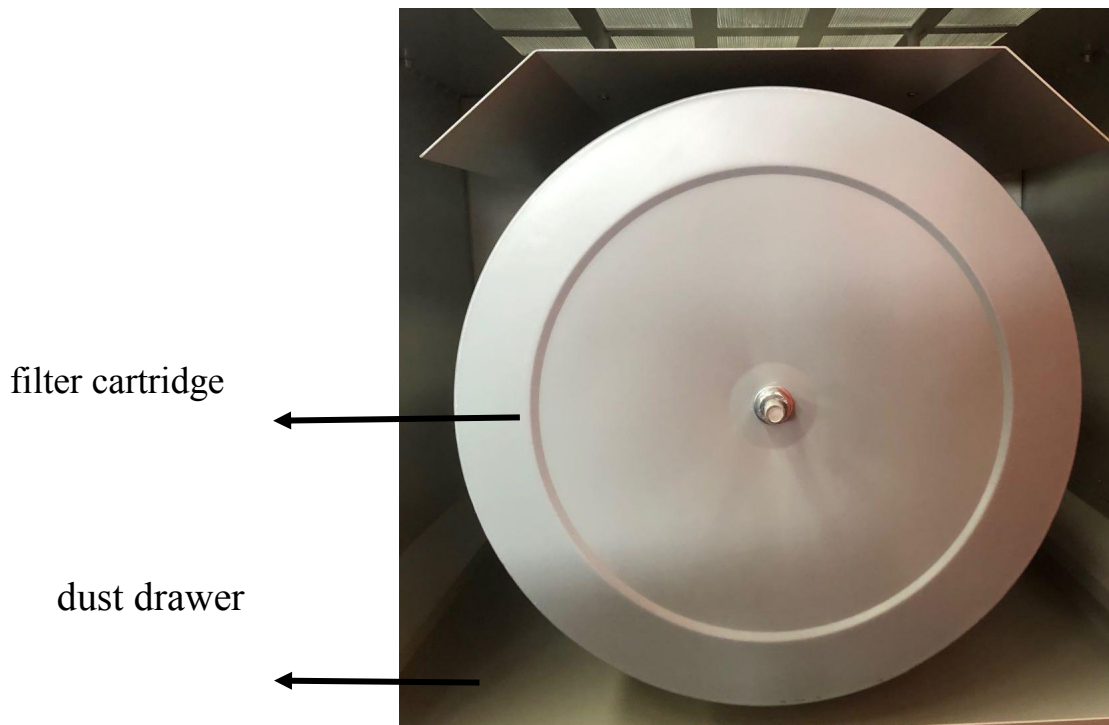


Fig 7 after Filter cartridge cabinet door is opened

4. 4 Use of suction arm

1. suction hood angle adjustment

Put one hand on the handle of the Suction Hood and one hand on the hose. Turn the suction hood slightly and adjust the direction of the suction.

Suction arm adjustment as fig 8 shows

2. suction arm height adjustment

Put one hand on the handle of the Suction Hood and the other hand on the hose. Turn the suction hood slightly and adjust the direction of the suction.

3. Air volume control

There is an air volume on the Suction Hood, rotate the valve to control the air volume

4. suction arm using range

The suction arm can rotate 360 degree and the length direction can reach 3 meters, as shown in figure 9



fig8 suction arm adjustment

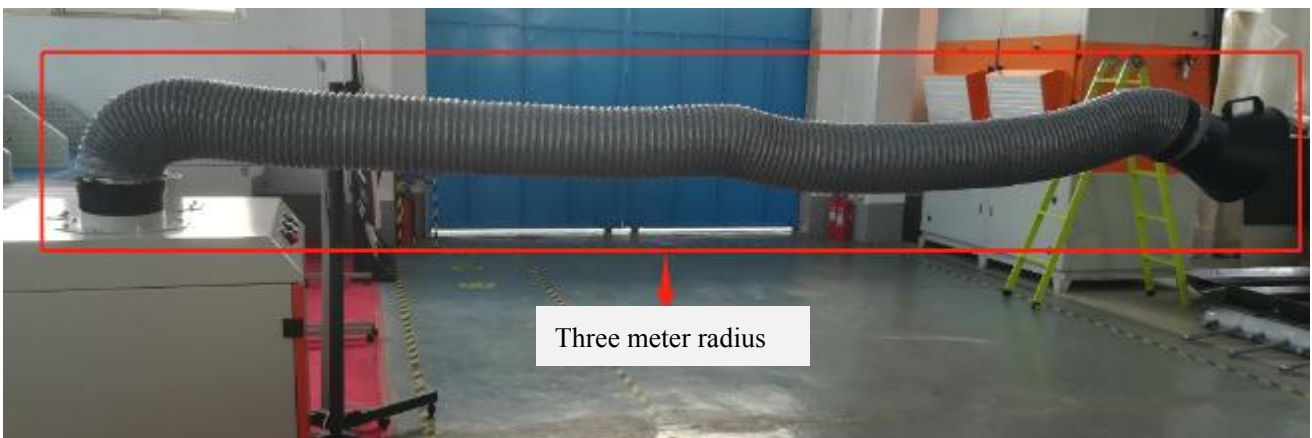


Fig 9 suction arm range

attentions:

1. Do Not Force too much when retracting or moving the suction arm, put one hand on the handle of the Suction Hood and the other hand on the hose to drag the suction hood slightly.
2. Avoid Sharp objects penetrating the suction arm hose.
3. Due to the potential risk of fire accidents caused by sparks in the dust

collector, combustible materials such as polished Flannelette and paper must be avoided from entering the equipment.

4. Under no circumstances shall the equipment operator be permitted to throw an unflamed cigarette or other burning object into the suction arm hood.

5. After the equipment is finished using, the suction arm should be closed to protect it from excessive pulling force.

4.5 Drainage of equipment

Because the compressed air contains moisture, there will be a certain amount of water when the compressed air is stored in air tank for a long time. The equipment needs to be drained after a period of time to protect the air tank from corrosion.

When draining, use a clean container as shown in the figure, open the valve until no water flows out, then finish drainage.



Fig.10 Air connection(right)&Drain valve(left)

4.6 Dust cleaning of filter cartridge

When filter cartridge filters dust, the moisture contained in air and electrostatic of partial dust will make the dust cleaning of pulse blowing system incompletely, and the dust deposited on surface of filter cartridge will affect the use effect. Therefore, it's necessary to clean filter cartridge after using it for a certain period of time to ensure the purification effect of the equipment.

Steps of cleaning filter cartridge

- 1) Make sure that the device is stopped ,and the external power supply has been disconnected;
- 2) Wear a clean mask and dust-proof gloves;
- 3) Open door of purification room;
- 4) Loosen and take down the pressed nuts of filter cartridge with a wrench;
- 5) Check whether the filter cartridge is in good condition. If good, only need to clean dust on surface; Otherwise, need to replace it immediately;
- 6) Check whether the sealing strip is intact and elastic. If good, only need to remove dust on surface; otherwise, need to replace it;
- 7) Use compressed air spray gun to remove dust on surface of the cartridge filter. (as shown in Fig. 6) (If there is a lot of dust and slight compaction, use a soft brush to brush the surface of cartridge filter gently then clean it with air spray gun);
- 8) Install dust cleaned filter cartridge or new one into equipment in turn according to the method of taking out.
- 9) Test-run the machine again and check the working condition.

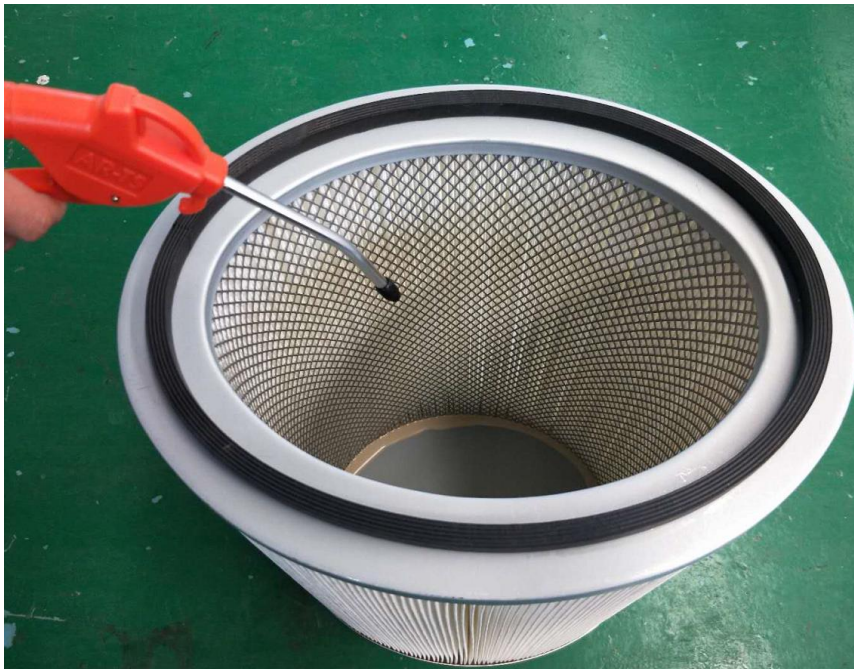


Fig.11 Spraying and blowing filter cartridge

Attentions:

- 1) When cleaning the dust, you can use compressed air to clean the surface of filter cartridge from inside to outside. The pressure of compressed air should be less than 0.5mpa, the nozzle of compressed gas ejection pipe should be kept at a distance of more than 150mm from the filter material to avoid damaging filter cartridge.
- 2) During the cleaning process, it is strictly prohibited to use hard brush, steel wool or other tools which are easy to scratch the filter cartridge.
- 3) When replacing and cleaning the filter cartridge, protective measures should be taken to avoid collision.
- 4) Don't wash the filter cartridge with water.
- 5) Cleaning filter cartridge should be operated outdoors without wind or only breeze, to avoid raising dust. Dust-proof mask must be worn when cleaning the filter cartridge.

4.7 Replacement of filter cartridge

When filter cartridge filters dust, exhaust gas has a wear effect on filter cartridge. The filter cartridge has a certain lifespan. the equipment needs to be replaced the filter cartridge after a certain period of time to ensure the purification effect of the equipment.

Steps of replacing filter cartridge:

1. Make sure that the device is not running, and the external power supply has been disconnected;
2. Wear clean mask and dust-proof gloves
3. Open door of purification room, loosen and take down the nuts with wrench;
4. After taking out the filter cartridge which needs to be replaced, install new filter cartridge and fix it;
5. Use a wrench and nut to hold the cartridge in place

6. Close the door, start the equipment

Attentions:

1. Before taking out of filter cartridge, should first do a good job of protection, such as wearing a mask and dust gloves
2. Take care to prevent scratches when taking out filter cartridge.
3. Replace with original filter elements, otherwise our company will not be responsible for its filter efficiency; When replacing filter element, please keep the sealing ring clean and do not knock against the filter cartridge.

5. Service and maintenance of equipment

Only by effectively maintaining on the equipment, user can ensure the use time of each component and stable operation of the equipment, and keep the equipment efficiency of purification. It is recommended that you establish a duty operation record and maintenance system.

5.1 Daily maintenance of equipment

1. Establish on-duty Operation Record and maintenance system.
2. Equipment maintenance managers should be familiar with the principle of dust collector, performance, and master the operation parameters adjustment and equipment maintenance methods.
3. Strictly follow the debugging and operation procedures.
4. Clean the surface of equipment every day, to ensure that the body is clean, and often remove adhering dust, dirt and other varia, to prevent corrosion.
5. Regularly remove the deposited dust in equipment according to the operating conditions of the equipment to ensure purification environment.
6. When the used equipment is temporarily unused, the filter element must be removed and cleaned. Remove all the dust in the box and store it properly.
7. The equipment is indoor equipment, it should be installed in the indoor, not in the outdoor.
8. Often check the wear of the filter element (can see whether the dust goes out of the exit),once found broken filter element,repair or replace them immediately.
9. Must grasp the degree of ash removal to ensure thorough ash removal. Insufficient cleaning will lead to filter plug, resistance rise, suction is insufficient, poor dust absorption effect.
10. If abnormal conditions are found in the use of the equipment, the machine should be stopped immediately for overhaul.
11. Add lubricating oil to fan bearing every year to reduce system noise and prolong fan service life.
12. Send professional personnel to check and repair the equipment regularly

13. When the equipment is closed down, after the process system stops, the equipment should be kept working for a period of time, to remove moisture and dust in equipment. Meanwhile, it is necessary to clean and unload the dust in filter cartridge, to remove the dust on the surface of filter cartridge and inside of hopper completely.

14. Equipment with blowing-back system, the air bag should be drained regularly to prevent air bag corrosion, and the drain valve is located at the bottom of the air bag.

5.2 Maintenance of filter cartridge

When the filter cartridge is seriously clogged, it can be removed and cleaned before use. Regarding removal method of the filter cartridge, please see "5.5 Filter Cartridge Dust Removal".

5.3 Maintenance of equipment shell

1. Check and maintain the external connection line regularly every month, to avoid phenomena such as electricity leakage, aging and looseness that affect the use of equipment and the safety of operators.
2. Monthly regular inspection purifier box sealing effect is good or not
3. Regularly check the sealing conditions of pipeline flanges and access door. If any damaged or aging, replace them in time.
4. Regular quarterly professional electrical staff on the internal electrical components inspection and maintenance, to ensure the normal operation of the equipment
5. Quarterly regular maintenance of fans, motors and other moving parts, check whether there is loose and abnormal, then correct in time.
6. Regularly check emission concentration at exhaust port and observe frequently. If emission concentration is big and dust emerged, check the damage condition of filter cartridge and the sealing condition of filter chamber in time to plug up the leaking pores, or replace filter cartridge.

6. Common breakdown and maintenance

No.	Breakdown	Cause Analysis	Method of elimination	Remarks
1	The equipment does not work after starting	circuit connection is not good	reconnect the circuit	
		electronic components are damaged	replace electronic components are damaged	
2	Equipment stops automatically after starting	large amount of dust has accumulated on the outer surface of filter cartridge	clean the dust and try again	
		the equipment is not sealed tightly enough	replace the old seal and try again.	
3	Bigger temperature rise of collectors	the circuit is aging	replace it	
		electronic components are damaged	replace them	
4	Bigger noise after starting	equipment is not well sealed		
		uneven ground	readjust the equipment position	
		the fastening screws are loose	check all the fastening screws and tighten them	
		there are any sundries inside the fan	repair the fan	
5	Serious shaking after starting	the motor is not working normally	repair the motor or replace the motor	(the motor's service life has expired)
		the fastening	check all the	

		screws of motor are loose	fastening screws and tighten them	
6	the wind pressure drops and the air volume decreases	the equipment seal is not tight	replace the gasket restart	
		filter cartridge is blocked by dust	clean dust on the surface of filter cartridge and restart	
		the motor is not working normally	repair or replace the motor	(the motor's service life has expired)
		the electronic components are in bad contact	replace them	

Attention:

All maintenance work must first disconnect the power supply, and by the professional staff to carry out maintenance.

7.Warranty

The warranty period of main machine is one year, filter cartridge's is one year too.

During the warranty period, the product will be repaired by our company in the following conditions:

- a. Product damage caused by product quality problems in accordance with the specifications under normal operating voltage and normal operating frequency (daily Eight-hour day)
- b. The machine is not damaged and the equipment is not working properly.

The following failures are not covered by our warranty

- c. The product has the external force damage obviously but affects or can not work normally.
- d. Failure to use as required by the operation manual results in damage to the organism or abnormal operation of the product.
- e. The product can not work properly because of the intentional destruction.

8. Others

8.1 Transportation and storage

The equipment's packaging, transportation and storage should be reference to the relevant national standards. The equipment should be handled with care and no collisions, to avoid damage to the outer surface of the shell.

The equipment should be stored in a dry and ventilated environment, and should not be placed in places with high temperature, humidity, or corrosive gases such as acid and alkali.

8.2 List of wearing parts

No.	Name	Model	Remarks
1	Filter element	L01-420*460-A1	Ahlstrom

Appendix Electrical schematic diagram

