kafan

Multi-turntable automatic sand blasting machine

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1. Application.

Sandblasting can replace the chemical process, like pickling and phosphating, and there is no problem of sewage discharge fees. Rapid sandblasting and rust removal can remove welding slag, burrs and flash while changing the surface roughness. High efficiency, low cost and good quality are unmatched by traditional chemical and manual rust removal. After sandblasting, the paint quality is good and the coating life is long, which is the general process method adopted in the world at present. This automatic turntable is ideal for sandblasting production of cup-shaped objects, helmets, small parts, similar to cup-shaped, barrel-shaped, electric plate residue, non-stick pan, aluminum, carburetor etc.This machine can effectively clean up: glass appearance, matte landscaping product surface, improve the adhesion of the coating. It can treat glass products surface with high efficiency and be good at the glass surface carving treatment.



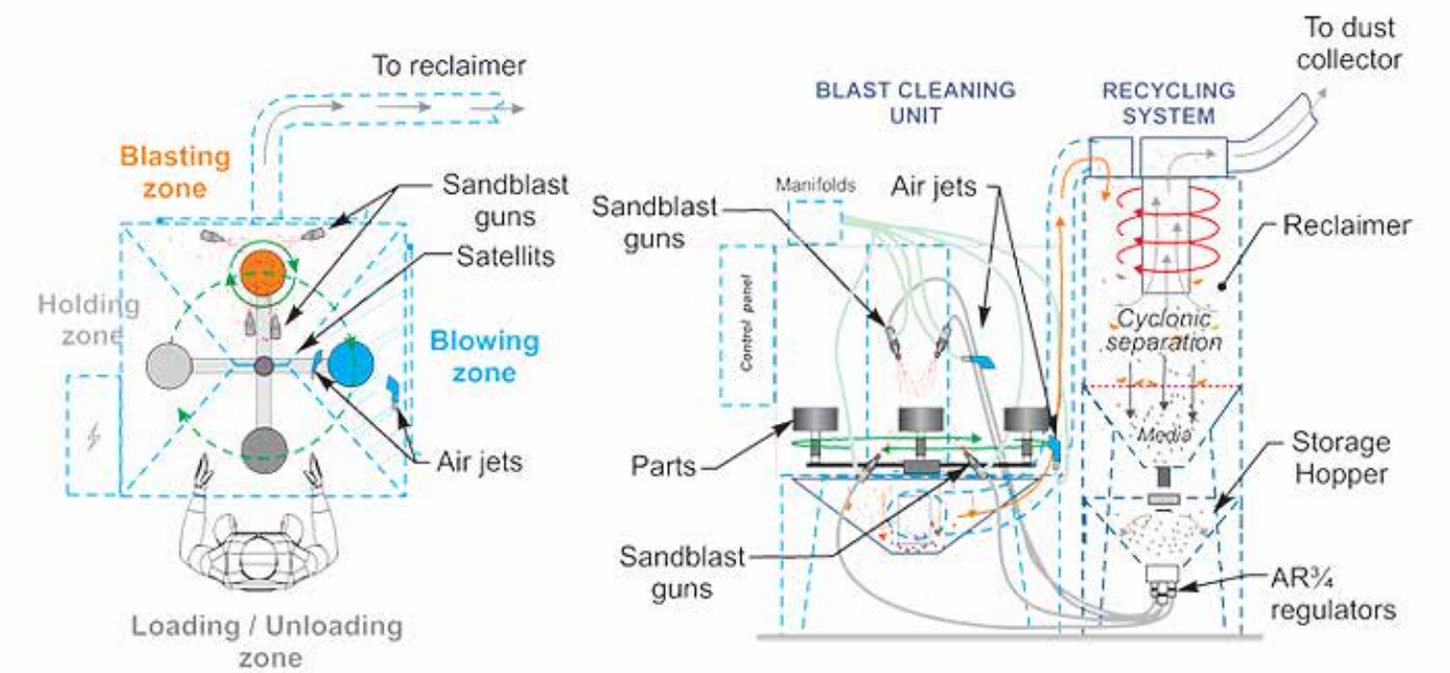
Before



After

2. Work Principle

The machine uses the suction sandblasting (shot blasting) mechanism, that is, use the high-speed flow of compressed air inside the gun to form negative pressure, erupt the sand within the separator through the sand pipe, and then spray to the workpiece surface at high speed with the compressed air from the gun mouth, to achieve the purpose of sandblasting.





3. Machine Description

3.1.Features

This automatic rotary table blasting machine has novel design, reliable structure, convenient operation, high processing efficiency and low energy consumption. It removes dirt, scratches and other sundries on the surface to make the surface matte. It can also be used to derust and deoxidize the surface of other forged castings, welded parts, heat-treated parts, stamped fighter parts, and electronic parts. The surface is bright and obtains a uniform sandblasting surface and increases surface adhesion. It can also be used for spraying, electroplating, pretreatment before painting and superficial engraving.



Before



After

This machine adopts fully automatic single-person sandblasting operation, intelligent microcomputer [PLC] control, and truly achieves safe production. The small turntable is driven by motor, and the speed can be steplessly regulated by the frequency converter (Option). The spray gun group adopts a fixed structure, and the spraying distance and angle can be adjusted to achieve the best sandblasting effect.











The blasting guns can automatically swing. Fixtures can be made according to the workpiece, and two workpieces can be cleaned at the same time. The angle of the spray gun can be adjusted freely, and the speed can be adjusted. The large turntable adopts a 90-degree splitting machine and a metal proximity switch to control the positioning.Each station cleans 2 products and can work intermittently and continuously for a long time.

The machine is equipped with a cyclone separator, which can automatically separate and store the abrasives that can be used continuously and the useless dust, so the abrasive can be recycled, thereby greatly reducing the consumption of abrasives and saving costs.

This machine is designed for fully sealed operation, and is equipped with a filter element recovery system, which can store all the dust generated during the cleaning process, so that the machine does not produce any environmental protection non-compliance index.







3.2.Specfication

The structure of the main body is welded by 1.5mm-15mm thick cold-rolled steel plate.

Dust collector: 1.5-2.0mm thick cold-rolled steel plate, welded.

The surface is high temperature powder coated and the finished parts are all made of 45# steel.

	KF-1512-8A	KF-1719-12A
Out dimension	W1936*L1700*H3130mm	W2150*L2200*H3550mm
Work cabin	W1500*L1400*H800mm	W1700m*L1900*H1200mm
Dust collector	W1200*L1300*H2400mm	W1200*L1300*H2400mm
Opening size	W250 *H350mm	W400*H450mm
Big table size	Ø900×T10mm	Ø1400×T10mm
Blasting gun qty	8pcs	12pcs
Gun oscillating motor	0.4KW 380V 50Hz(Adjustable by converter)	
Small table motor	0.75KW 380V 50Hz(Or customized)	
Big table motor	0.37KW 380V 50Hz(Or customized)	
Fan motor	7.5KW 380V 50Hz(Or customized)	
	Air flow:3685m/h Air pressure:4776pa	

3.3. Supported components

Power supply: according to order;

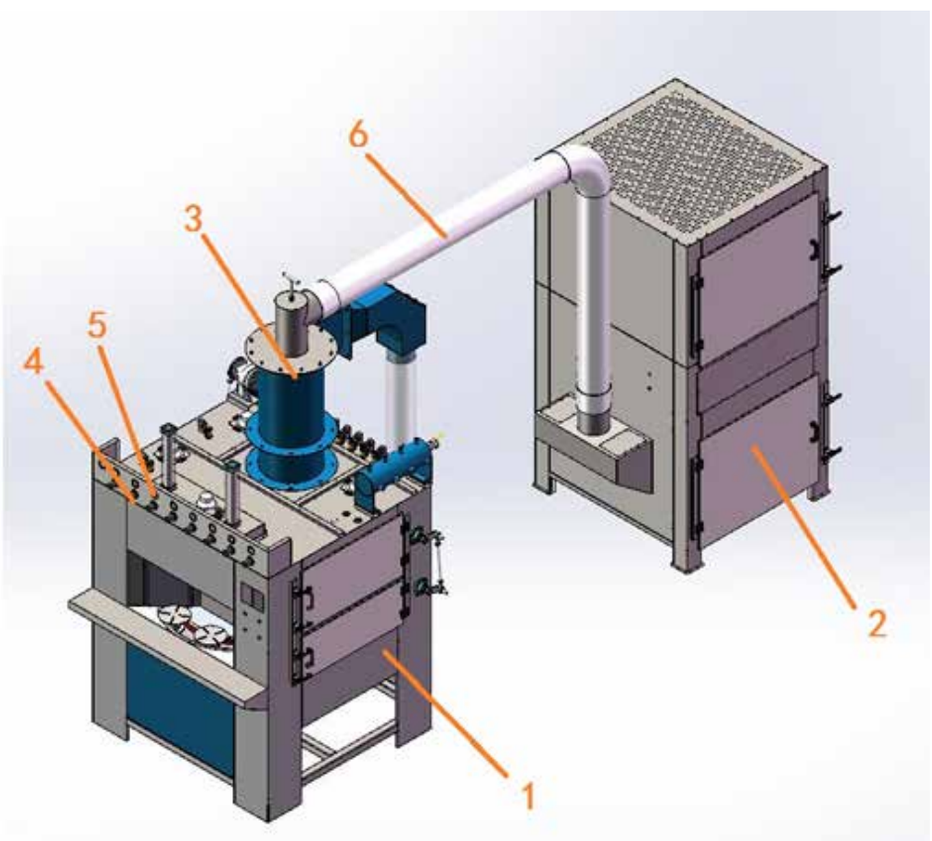
Air source requirements: dry compressed air, 8bar. Air flow is about 1cbm/min for one gun.

Abrasive requirements: 60-180 mesh glass beads, aluminum oxide or corundum..

Air source pipeline requirements: pressure-resistant pipeline, 1.0 inch or more.

Workshop requirements: firm and flat ground, 15-25㎡ space, 3.8m or more in height.

4.Machine Composition



1——Machine body

2——Dust collector

3——Cyclone separator

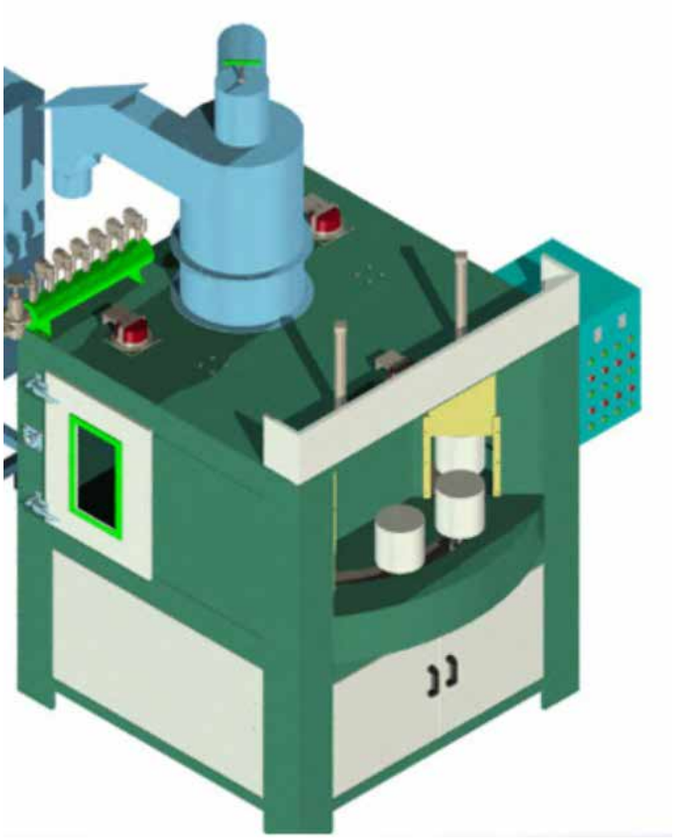
4——Adjust valve

5——Pressure gauge

6——Dust collecting pipe

4.1. Main body

According to parts characteristics, the machine has a large turntable, set up the load and unload parts area, to be blast area, blast area, clearing area, four regions (90 degrees a region).One Large turntable and 8pcs small turntables. Large turntable continuous rotation, sandblasting area arranged 8/12 high-speed blasting guns to do continuous sandblasting processing. Spray gun can adjust the jet angle, swing amplitude and swing frequency according to processing needs.











4.2. Dust collector

The machine is designed to be fully sealed and equipped with a dust collector, which can store the dust produced during the cleaning process.

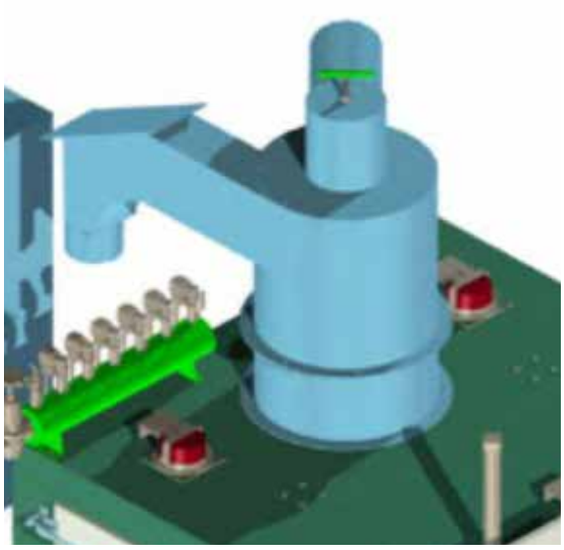




4.3. Cyclone separator

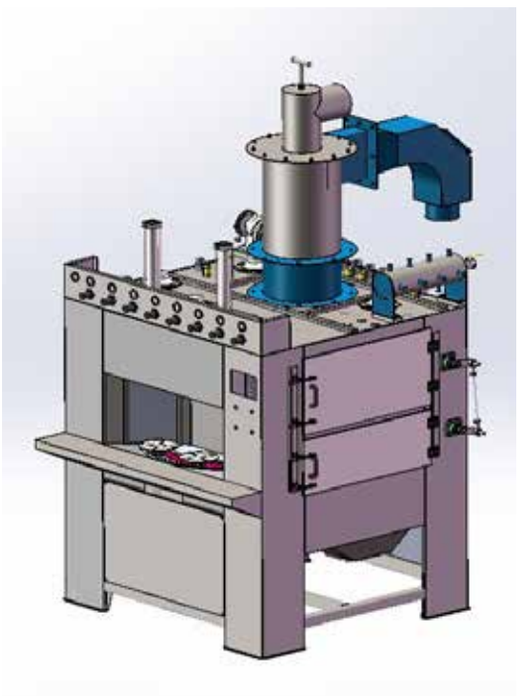
The machine is equipped with a separate split cyclone. Can seperate the abrasive and useless dust automatically. The abrasive can be recycled, thereby greatly reduce the abrasive consumption and save cost .



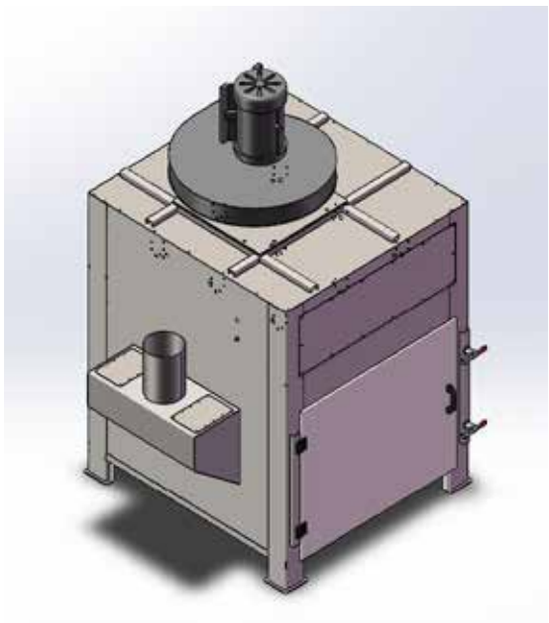


5.Operating Instructions

5.1. Assembly



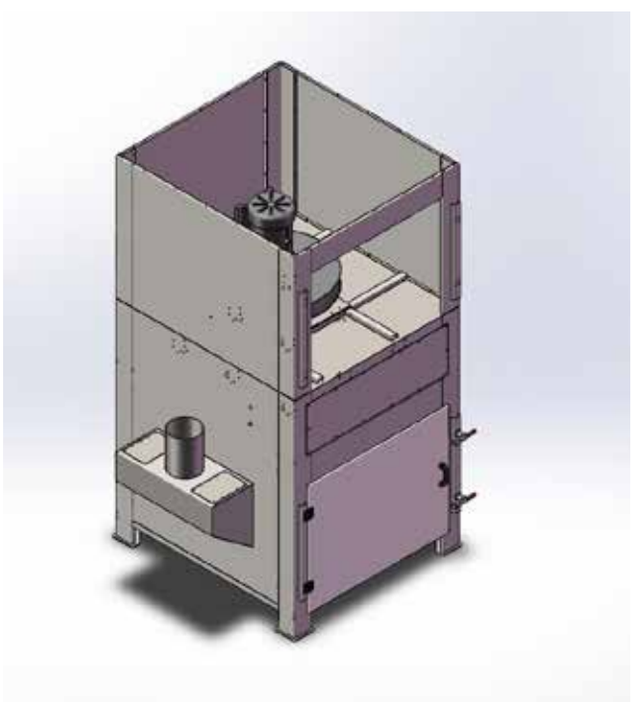
Assemble the cyclone to the cabinet.

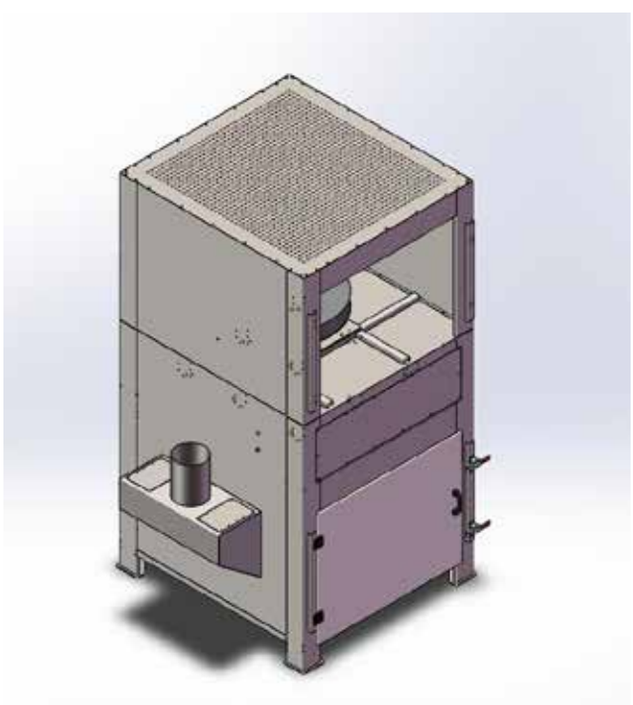


Assemble the fan motor on the filter unit.

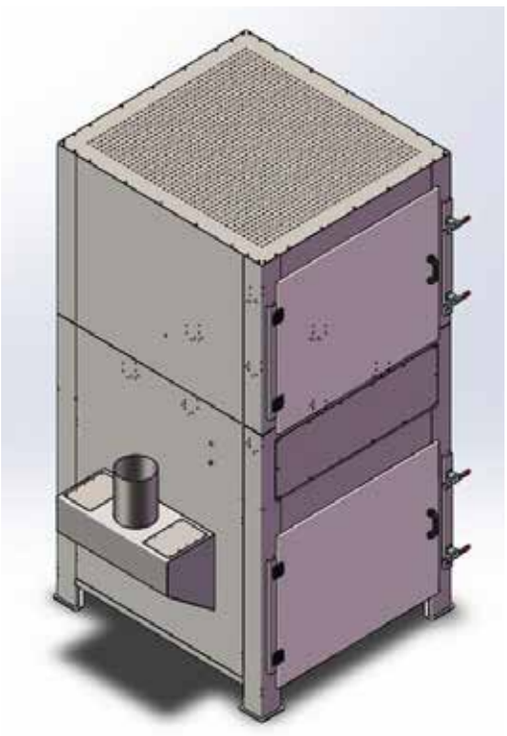
(Sometimes fan motor is assembled to ship.

This depends on the container height.)

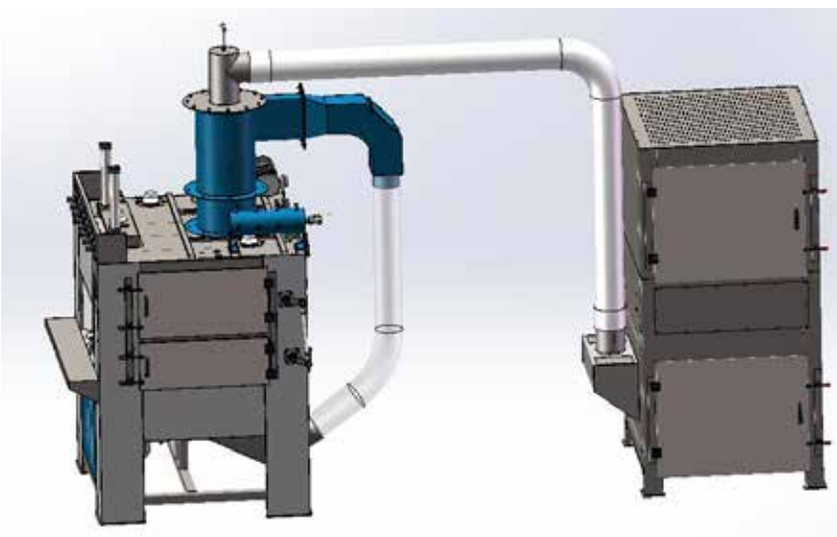




Assemble the plates around the fan motor and on the top of the fan motor.



Then, fix the doors.



Last step is to connect the cabinet with the dust collector system.

5.2. Wiring and air connection

Connect the three-phase five-wire power supply to the electrical control box of the sandblasting machine, and connect the solenoid valve power line and fan power line of the dust collector to the electrical control box of the sandblasting machine (corresponding to the terminal strip one by one according to the line number).



Connect the other end of the power line to the power source.

Connect air tube from the compressor to following connector for air in.

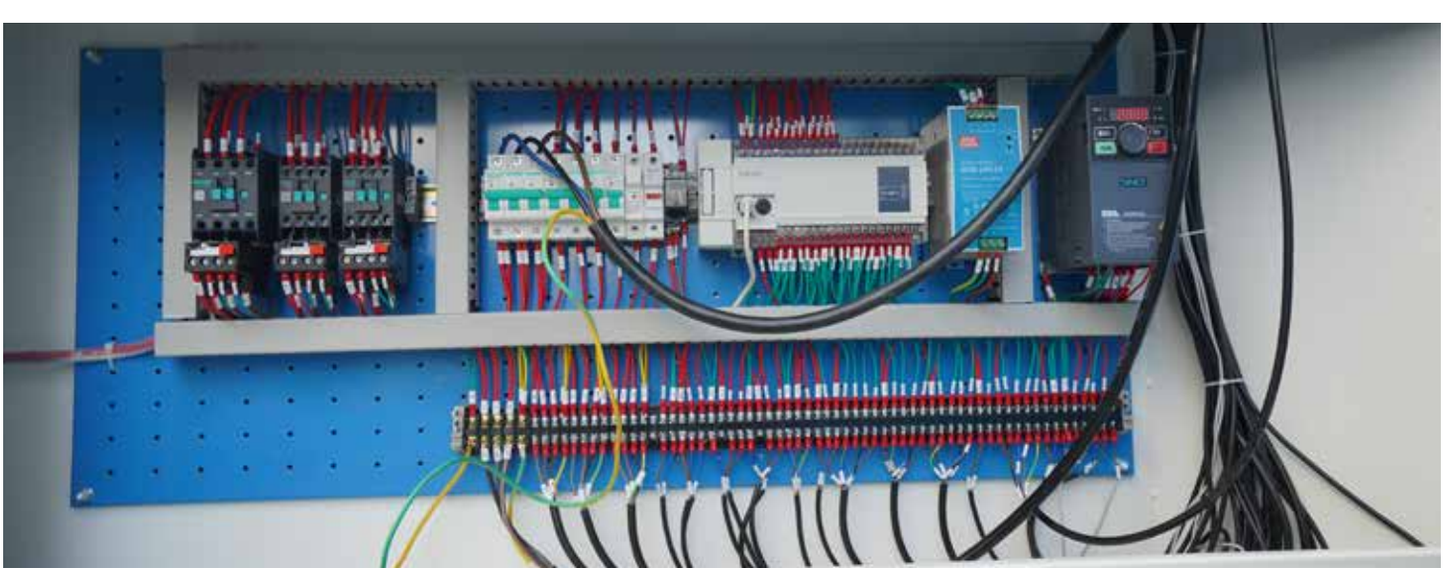
Connect air tube from following air tank to filter unit(dust collector).



5.3. Run the machine

5.3.1 Preparation before starting

Check the connection of the power supply and air source, install the three-phase four-wire of the machine on the rated power supply, and then ground the shell



5.3.2 Load sand



Open the door and add suitable abrasive.(Please keep the fan motor on and add abrasive slowly. After adding, close the door.)30-75kgs for the first time. Add 5-8kgs each time after that. If the sand is added too fast, the sand may be blocked in the sand return pipe. (Solution: Loosen the fixture on the sand return pipe, and pour the sand out)

Adjust the pressure valve according to the sandblasting requirements to control the pressure of the blastsing gun. The working pressure can be 5-8 bar. Adjust the angle of the spray gun.

5.3.3 Start

Connect the power supply, turn on the lighting switch, turn on the fan (dust removal) start switch, and start the automatic sandblasting (gun swing, large turntable rotation, and small turntable rotation).

Adjust the swing speed of the blasting gun and the sandblasting time according to the requirements of the workpiece. Each gun has its own switch on the control panel and can be turned off individually.

Air pressure of each sandblast gun is controlled separately via each pressure regulating valve. According to the work requirement, adjust the pressure to control the pressure of the compressed air into the gun, the working pressure can be selected in the range of 2.8-7bar.





Put the workpiece to be sandblasted on the small turntable in the working cabin, and the load limit of the turntable is 20 kgs.



Turn on automatically.



Adjust the jog switch (automatic/manual) to be manual, each function can be adjusted separately.

When the machine is turned on, the large turntable starts to rotate for the first time.When the workpieces on the small turntable are transferred into the working cabin (two workpieces are placed on the two small turntables outside the machine cabin at the same time), the spray gun will automatically start sandblasting. The abrasive is sprayed from all directions by the nozzle to the surface of the workpiece at high speed to achieve the cleaning effect. When the blasting time reaches the set period, the first group of workpieces are done. The large turntable rotates again to automatically transfer the second group of workpieces into the working cabin. If the workpieces need double-sided sandblasting, the operator should turn the parts upside down. If the workpiece does not need to be processed on both sides, the operator can directly remove the cleaned product and put the new product that needs to be cleaned.





Emergency stop

If something unkown happens, press the button of Emergency stop, then the machine will stop working and alarm rings. Loosen the button, alarm stops.

5.3.4 Switch off

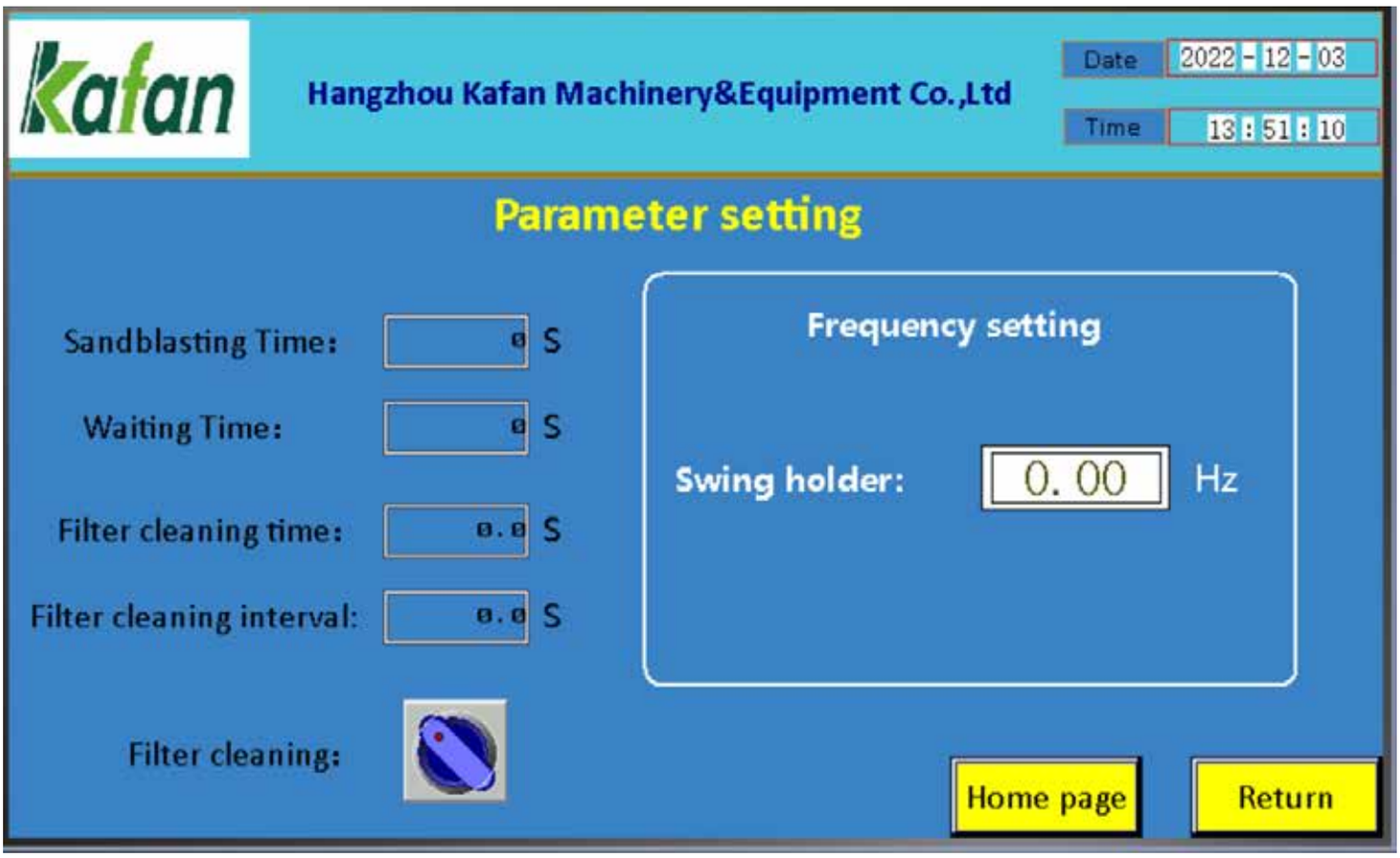
After work, turn off the power and compressed air, and finally pour out the dust in the dust box at the bottom of the dust collector.

5.4. Controller Operation

After power on, initial page shows on the PLC screen.



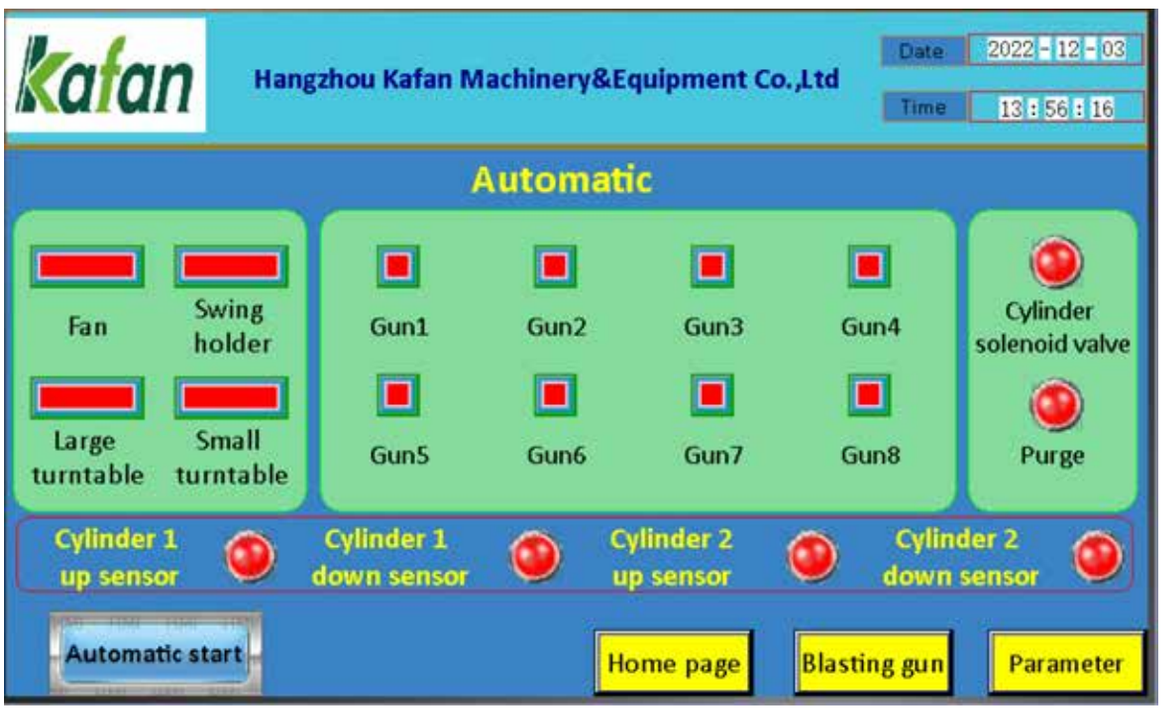
English and Chinese language can be shifted. Click Parameter settings to enter the setting page.



On the left, set the sandblasting time and the waiting time for loading and unloading. The filter cleaning time and intervals are also set here.

(The cleaning time is recommended to be 1S-2S, and the waiting time can be set according to the working frequency). The frequency of the gun hoder swing is set on the right. (The maximum frequency is 50Hz.) On the lower left corner of the page, you can turn on and off the filter cleaning function. (The filter solenoid valves are divided into 4 groups.) After turning on the filter cleaning function, wait for 60 seconds, and then automatically clean each group by each.

Press the button Automatic. The machine will run automatically.



Follow the indicator light, click the button Automatic start on the right corner. Automatic blasting process will begin. There is two physical buttons START nd STOP under the touch screen, which performs the same function to Automatic start. Under the page of automatic mode, click the button of Blasting gun. Blasting guns can be turned on or off. Button Purge is for the function of cleaning parts.



Button Manual is for the manual control mode. Under this mode, all functions are controlled separately. First, click Manually start on the left corner to start manual mode. Then click each button for manual control. To turn on or off blasting guns, click the button Sandblasting on the right. Then control each gun individually.



The door must be closed when working, otherwise it cannot be operated. If there is an alarm, you need to follow the hints to eliminate the alarm before continuing to work.

6. Main Consumable Parts List:

NO.	Name	Specification	Material	Remark
1	Gun	DS-C	Aluminum alloy	Service life 300-600 hours
2	Nozzle	Φ8mm	Carbide boron	Service life 200-400 hours
3	Sand Tube	Φ23mm	Abrasive rubber	Service life 600-1200 hours
4	Air Tube	Φ20mm	Abrasive rubber	Service life 600-1200 hours
5	Filter	Φ320mm	Polyester fiber	1Year
6	Belt	B	Abrasive rubber	Service life uncertainty
7	Sealing rubber	Design	Rubber	Service life uncertainty
8	Window Glass	Design	Glass	Service life uncertainty

7. Safety Precautions

To ensure safe operation, the following must be observed:

7.1. In order to prevent electric shock, please conduct grounding and wear clothing and safety protective equipment by electrical professionals in accordance with legal standards.

7.2. To prevent sand and dust from splashing into the eyes, please wear glasses.

7.3. To prevent dust; if necessary, wear an effective respiratory protection device.

7.4. During maintenance, it is necessary to carry out maintenance under the premise of cutting off the power supply and air source to ensure safety, otherwise it may cause electric shock, burns and other major accidents that are related to personal safety.

7.5. Prevent fires and machine burns caused by overheating. Keep the machine and the wall at a distance of 1.5M or more, and maintain a distance of more than 10M from combustible items.

7.6. Prevent injury to the mechanical transmission parts. Please do not touch the mechanical transmission part when the machine is in operation. Please turn off the machine power supply for maintenance after maintenance.

7.7. Do carefully read the instruction manual and use the sand blasting machine correctly on this basis.

7.8. Please do not open the door when the blasting machine is working to prevent sand from splashing into the eyes.

8. Common Troubleshooting Methods

Fault	Cause	Solve
Good abrasive enters the dust box	Separator opening is too large, abrasive is too thin	Adjust the separator top screw
Come out air but not Sand abrasive	Check the use of sand, whether the sand has been used up, check whether the agitation is normally rotated, check whether the fan is activated, visually check whether there is sand twitching in the return pipe, and check if there is any foreign matter in the spray gun.	Add sand, or clean the sand at the bottom of the sand blasting machine, or remove the foreign matter from the spray gun. Be sure to turn off the power of the equipment when the bottom is sanded.
Unclear vision when sandblasting	The filter element is blocked; the aging is blocked;The abrasive contains too much dust;The recovery pipe is blocked;The nozzle hole is too large;The compressed air pressure is too high.Glass grinding	Replace the filter element; Replace the abrasive, adjust the separator to adjust the opening; Remove the recovery tube to check the cause of the blockage; The aperture should not exceed 5.6mm. Lower pressure Change glass

Low processing efficiency	Compressed air pressure is too low Nozzle and nozzle are too small All abrasives have exceeded the limits of use (too much abrasive and dust)	Increase pressure Replace the larger nozzle and the nozzle to empty the old abrasive, then load the new abrasive
Uneven or pulsating abrasive	Too little abrasive; Air compression pressure is too low Nozzle blockage Abrasive wet Separator tank regulator Air flow is too small Make the abrasive not output	Adding abrasive Increase pressure Eliminate blockages Drain the material in the tank and load the dry abrasive Check if there is water in the gas path to adjust the air flow

9. Maintenance Requirements

The rubber sheaths of spray guns and air nozzles need to be inspected and replaced regularly, generally once a week, and must be replaced immediately if any damage is found, otherwise the air nozzles will be worn by sand and even damage the spray gun.

The sand pipe needs to be inspected regularly to check whether it is worn out, and whether the sand pipe joints are tightly connected, otherwise no sand or less sand will be sprayed out, which will affect the normal operation of the equipment.

The dust in the dust box is cleaned once a day.

Bearings, geared motors, worm gear reducers and other parts that need to be lubricated should be lubricated regularly.

Always check the tightness of the V-belt, the rubber in the sandblasting cabin, and the wear of the rubber on the large turntable, and replace it immediately if it is damaged.

At the end of each shift, clean the machine and check the wear of the wearing parts (including spray guns, nozzles, sand pipes, air pipes, etc.), and replace them immediately if there is any damage

Following is the advice frequency for reference.

9.1. Check the blasting work window every day.

9.2. Replace the nozzle every 600 hours

9.3. Change the gun every 3 months.

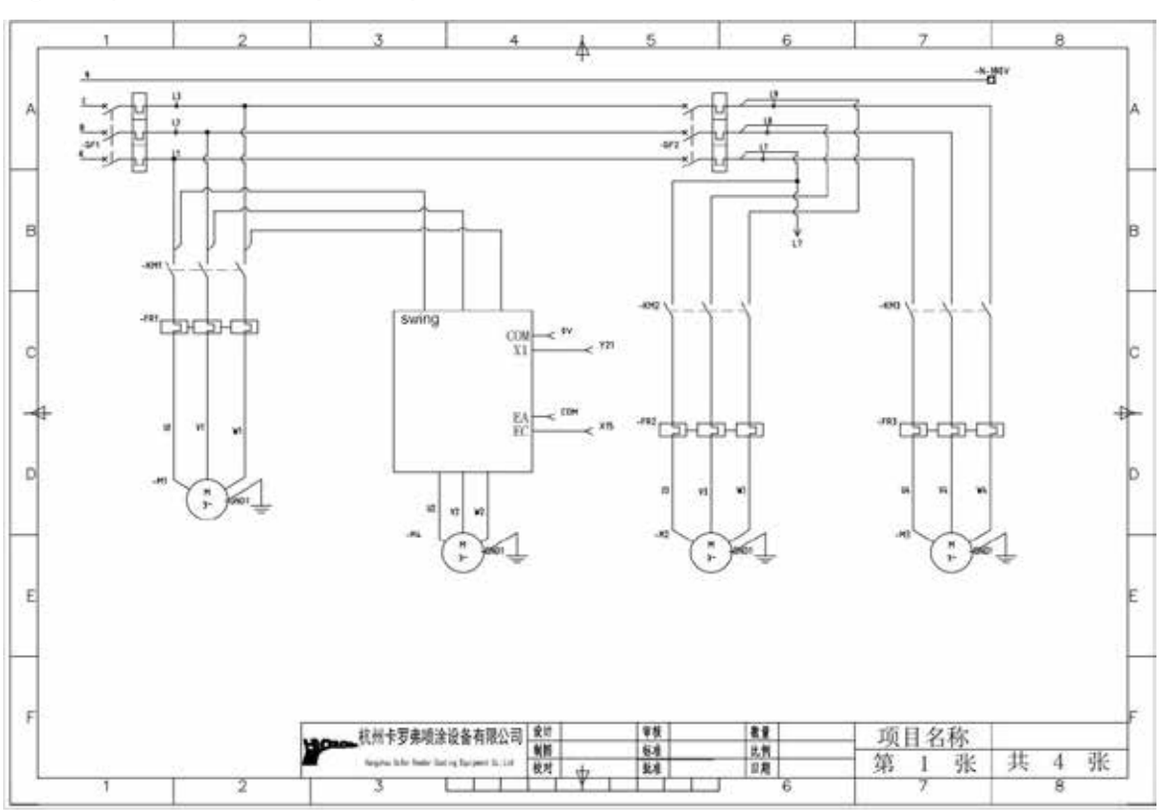
9.4. Replace the solenoid valve every 6 months (can be replaced according to actual use)

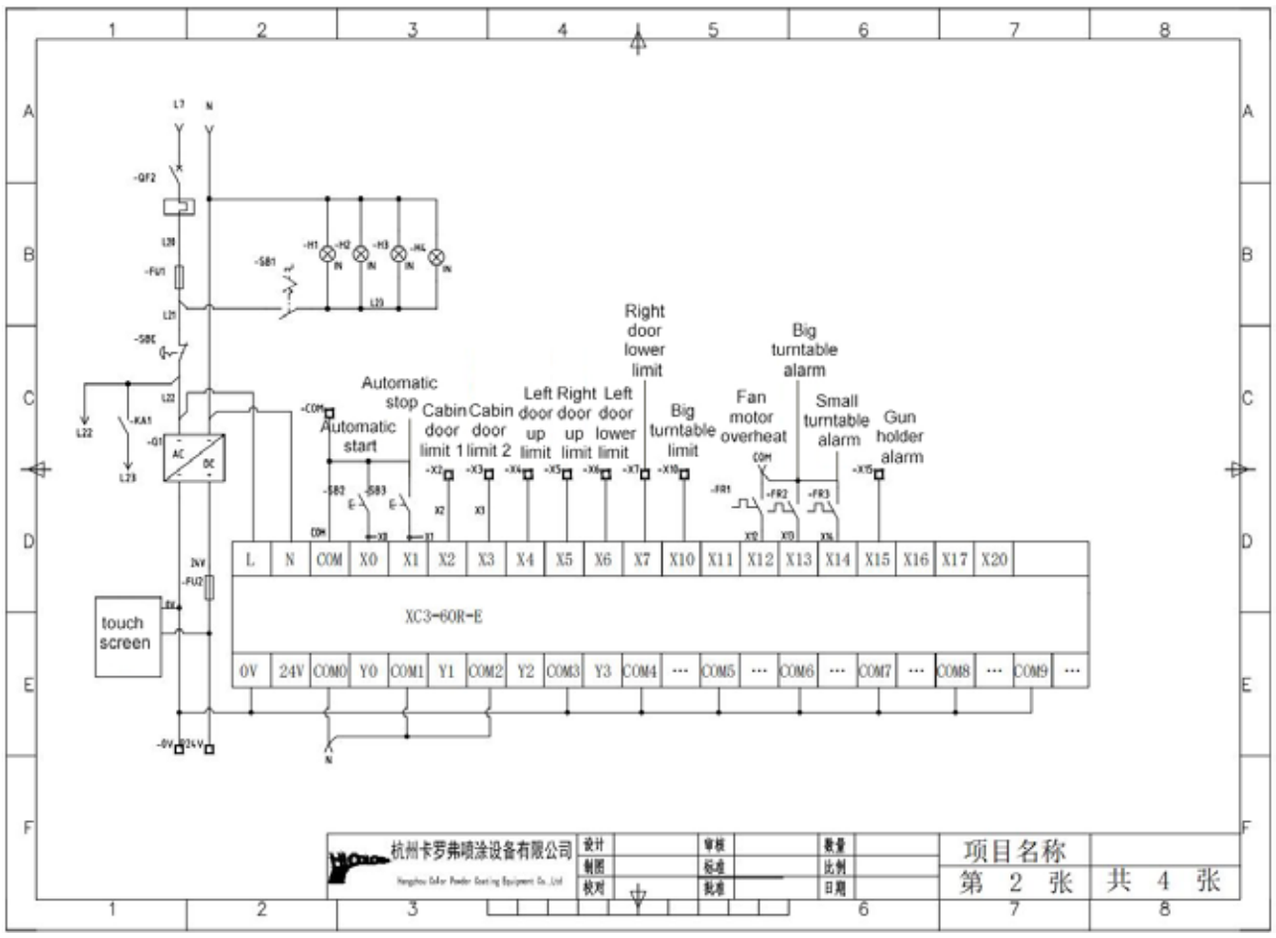
9.5. Replace the sand pipe every 1 month.

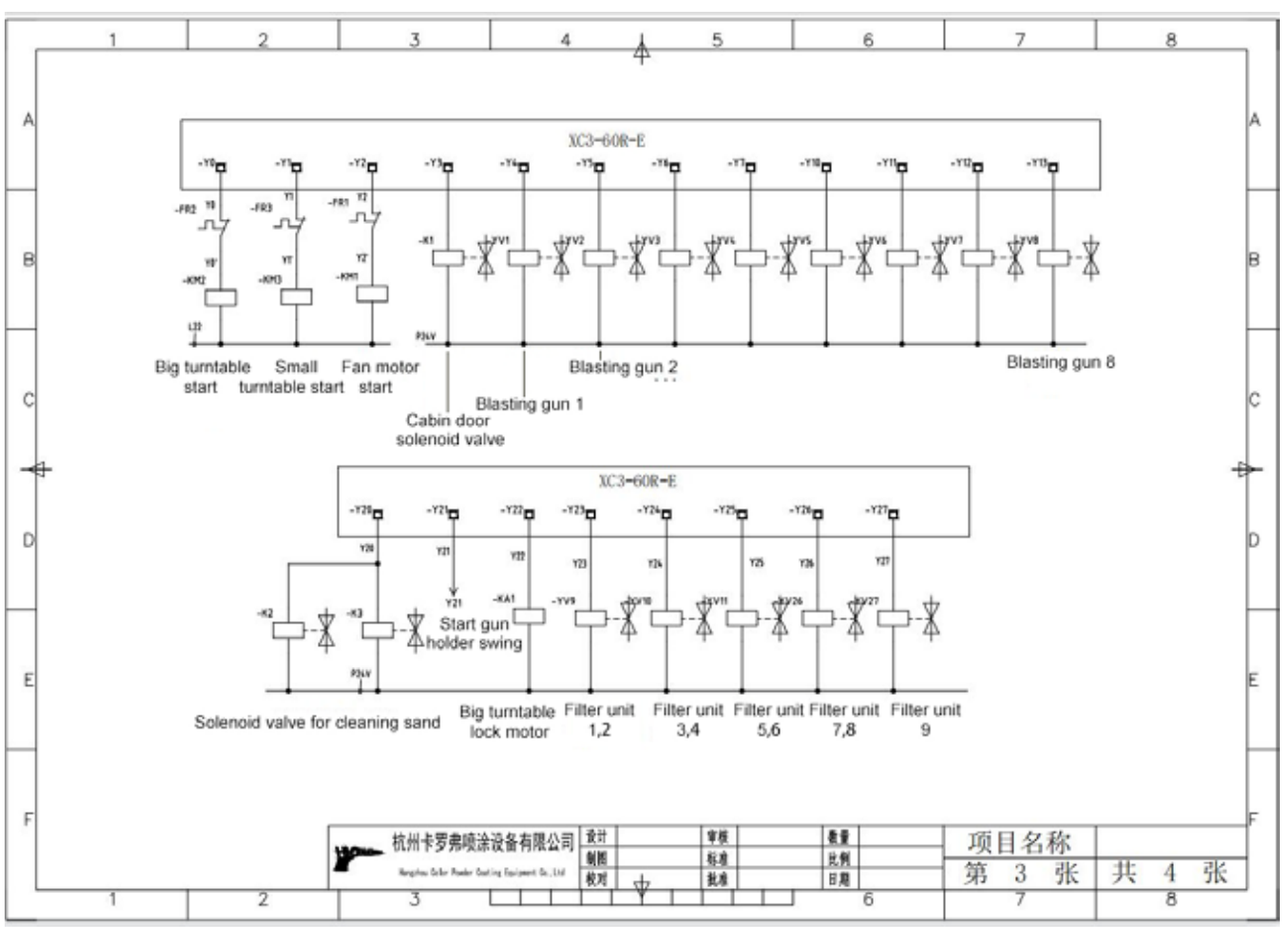
9.6. Clean up the dust every day

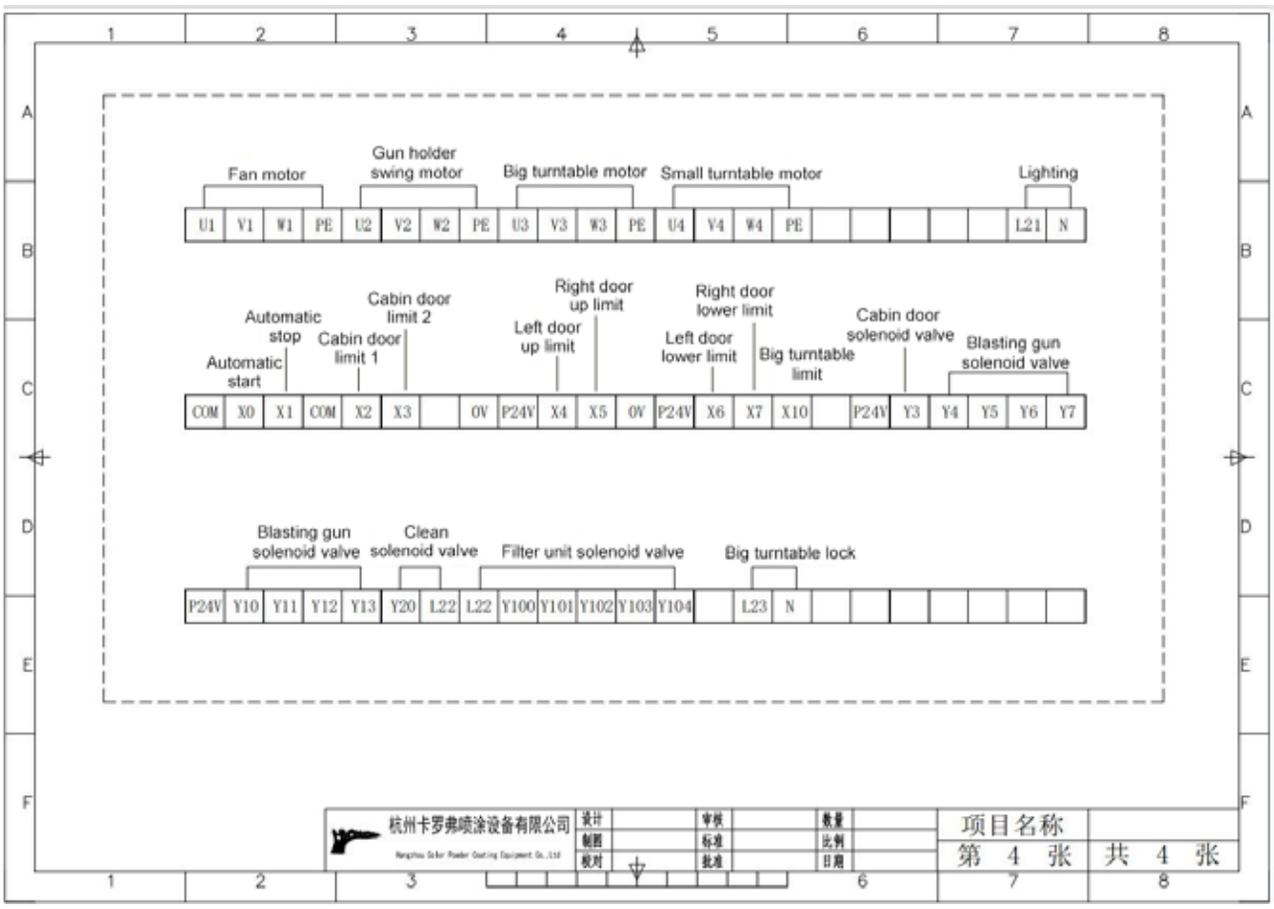
9.7. Replace the dust filter cartridge every 1 year.

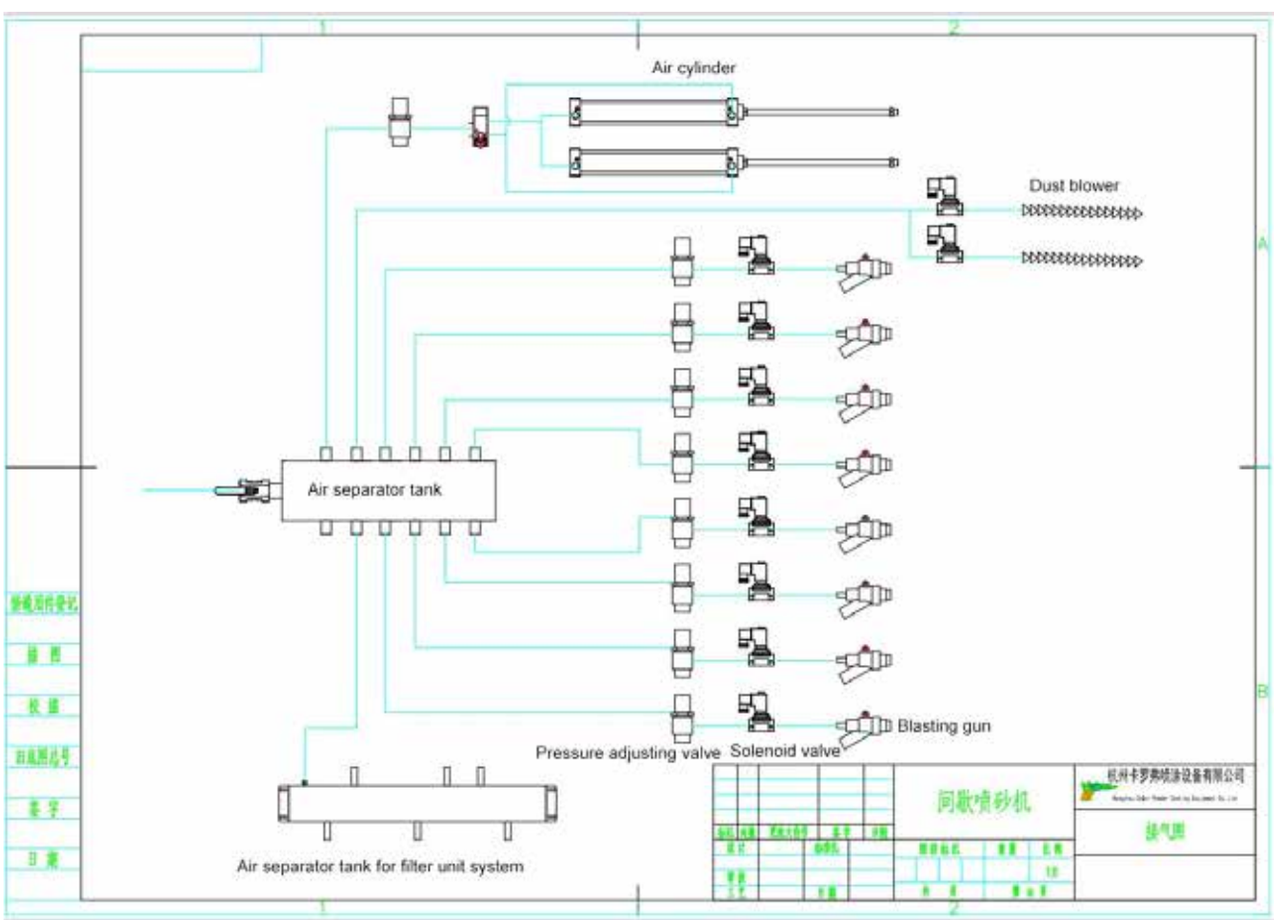
Circuit Diagram(380V 50Hz 3phase)

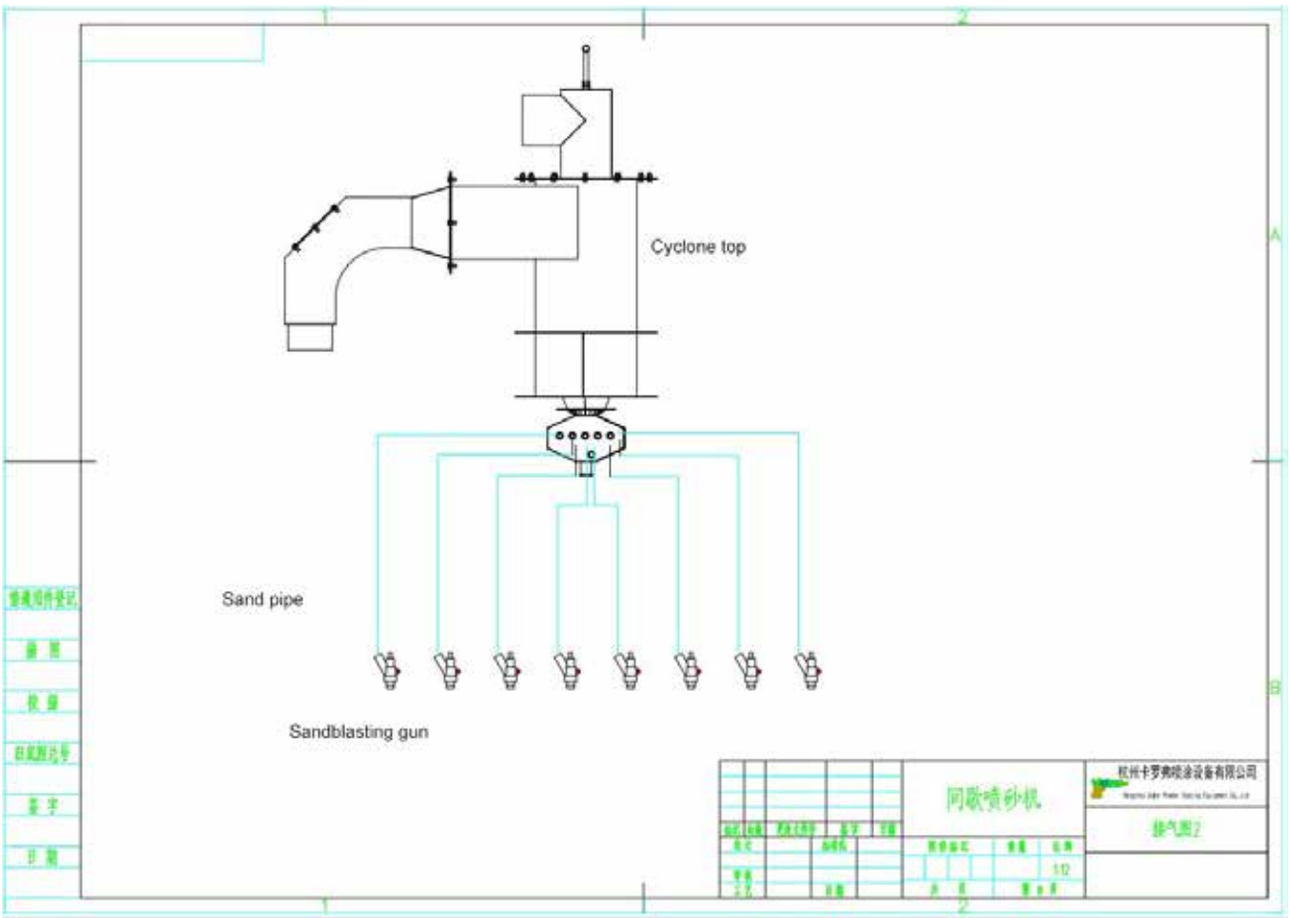


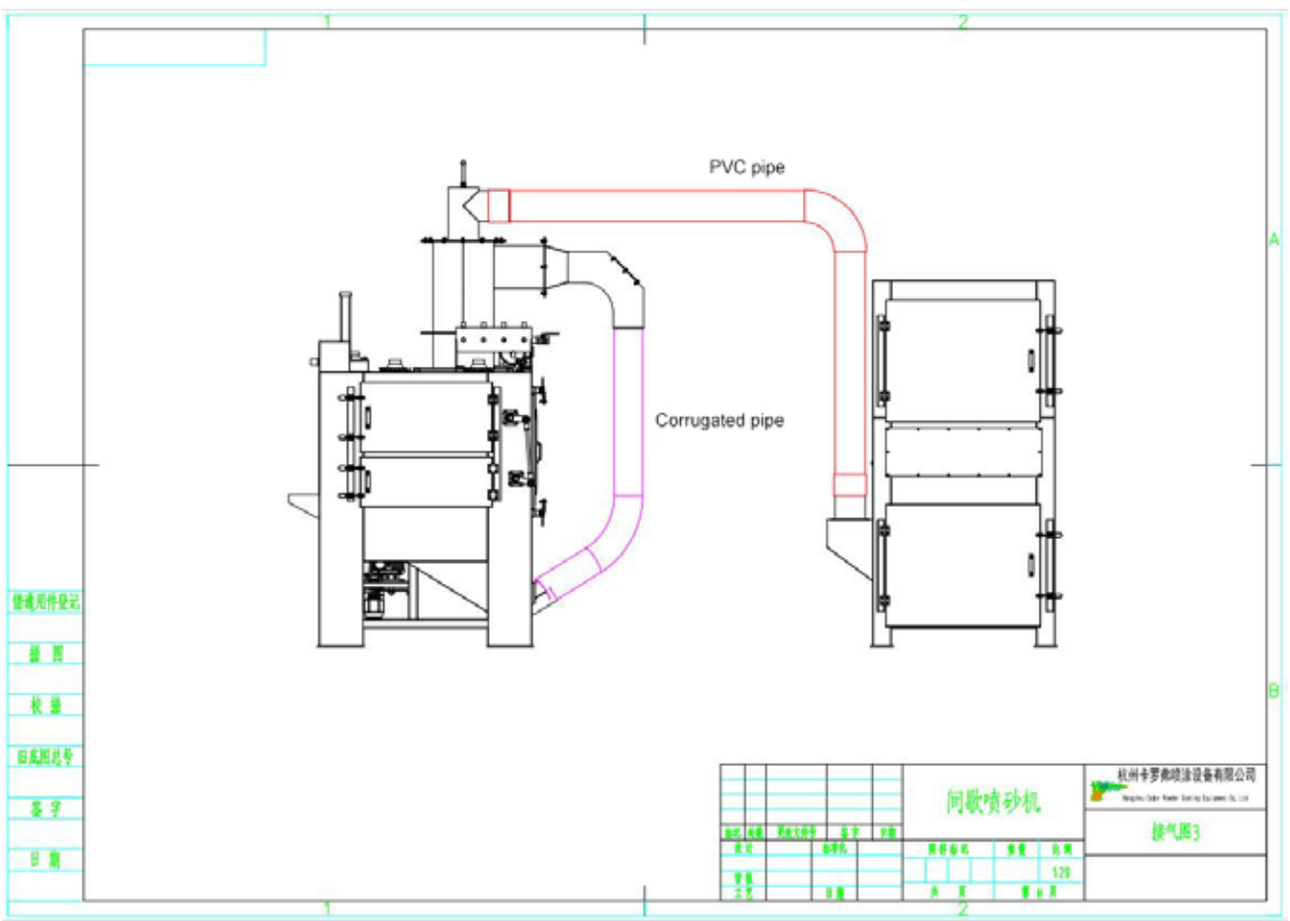

Automatic stop
Automatic start
Cabin door limit 1
Cabin door limit 2
Left door up limit
Right door up limit
Left door lower limit
Right door lower limit
Big turntable limit
Fan motor overheat
Big turntable alarm
Small turntable alarm
Gun holder alarm
touch screen
XC3-60R-E
L N COM X0 X1 X2 X3 X4 X5 X6 X7 X10 X11 X12 X13 X14 X15 X16 X17 X20
0V 24V COM0 Y0 COM1 Y1 COM2 Y2 COM3 Y3 COM4 COM5 COM6 COM7 COM8 COM9
杭州卡罗弗喷涂设备有限公司
项目名称
第 2 张 共 4 张


XC3-60R-E
Big turntable start
Small turntable start
Fan motor start
Cabin door solenoid valve
Blasting gun 1
Blasting gun 2
Blasting gun 8
XC3-60R-E
Start gun holder swing
Solenoid valve for cleaning sand
Big turntable lock motor
Filter unit 1,2
Filter unit 3,4
Filter unit 5,6
Filter unit 7,8
Filter unit 9
杭州卡罗弗喷涂设备有限公司
项目名称
第 3 张 共 4 张


Fan motor
Gun holder swing motor
Big turntable motor
Small turntable motor
Lighting
U1 V1 W1 PE U2 V2 W2 PE U3 V3 W3 PE U4 V4 W4 PE L21 N
Automatic stop
Automatic start
Cabin door limit 1
Cabin door limit 2
Left door up limit
Right door up limit
Left door lower limit
Right door lower limit
Big turntable limit
Cabin door solenoid valve
Blasting gun solenoid valve
COM X0 X1 COM X2 X3 0V P24V X4 X5 0V P24V X6 X7 X10 P24V Y3 Y4 Y5 Y6 Y7
Blasting gun solenoid valve
Clean solenoid valve
Filter unit solenoid valve
Big turntable lock
P24V Y10 Y11 Y12 Y13 Y20 L22 L22 Y100 Y101 Y102 Y103 Y104 L23 N
杭州卡罗弗喷涂设备有限公司
项目名称
第 4 张
共 4 张


Air cylinder
Dust blower
Air separator tank
Pressure adjusting valve
Solenoid valve
Blasting gun
Air separator tank for filter unit system
间歇喷砂机


Cyclone top
Sand pipe
Sandblasting gun
间歇喷砂机
接气图2


PVC pipe
Corrugated pipe
间歇喷砂机
接气图3