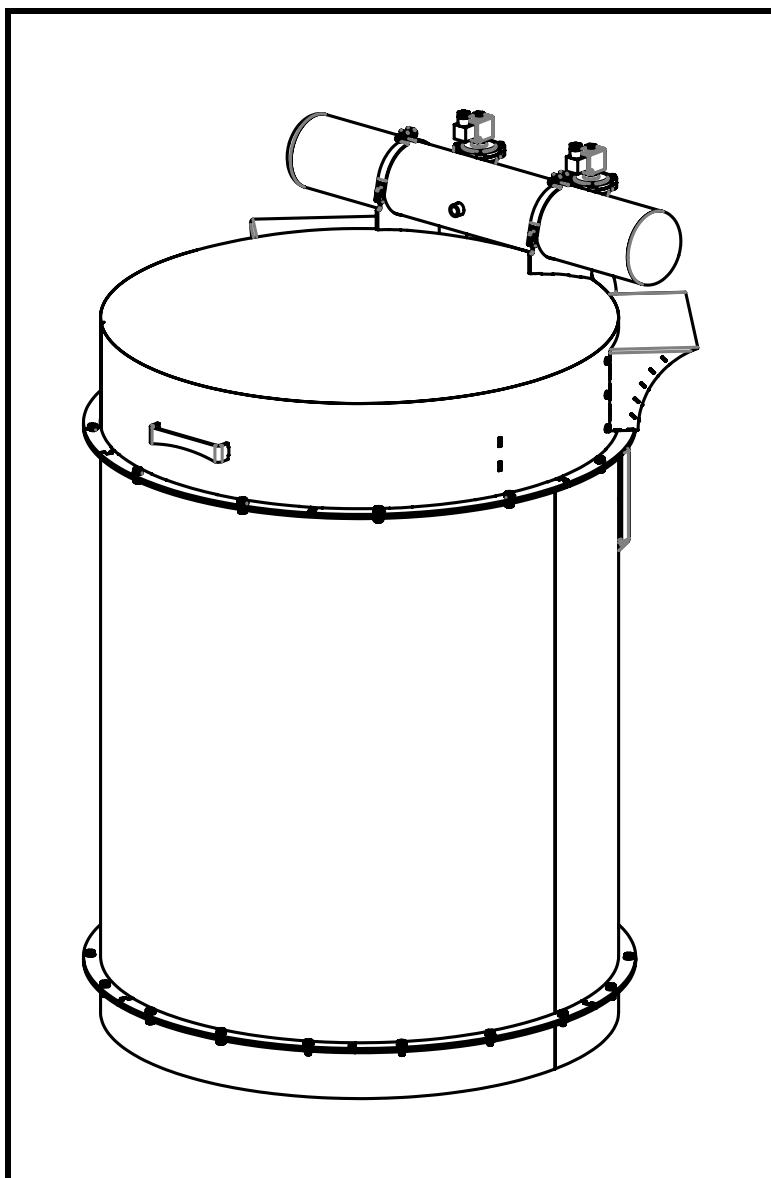


Some Tips for
installation ,
use and periodic
repairs

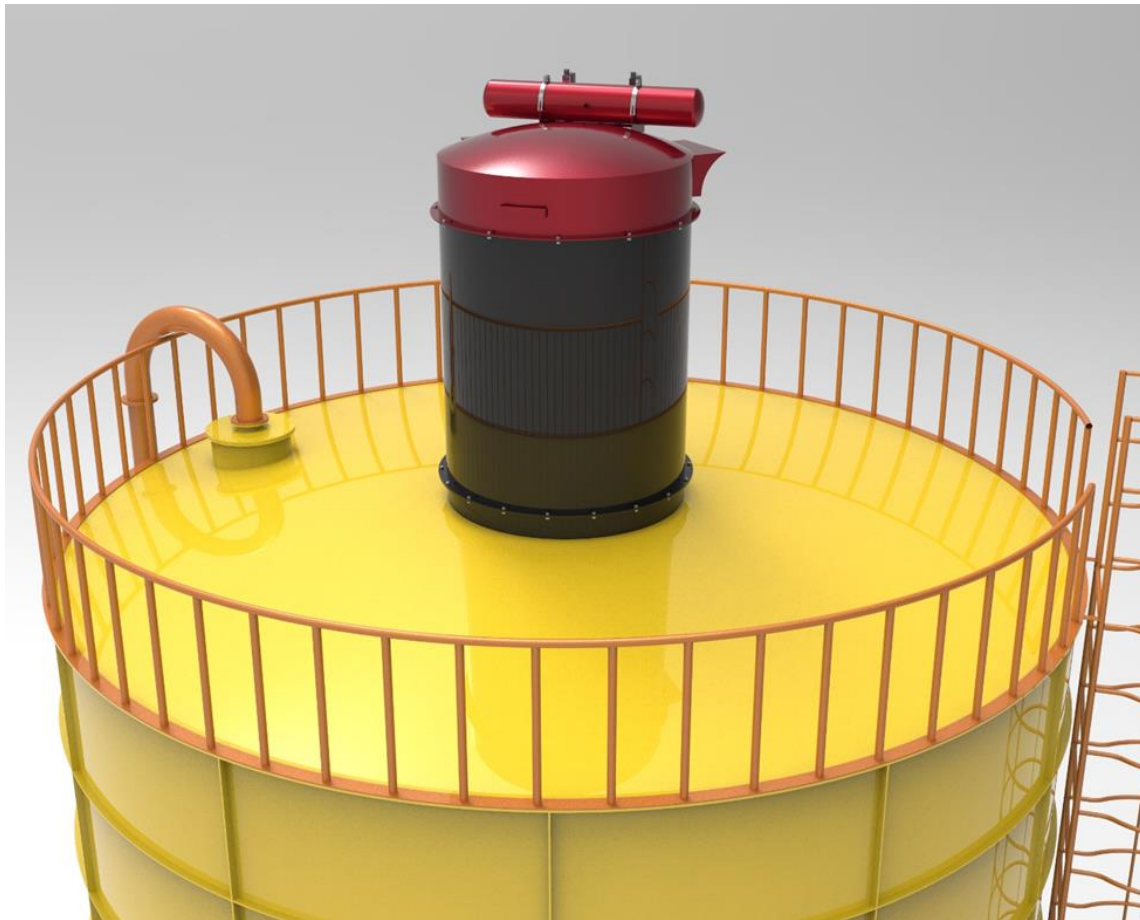


Padide Kimia

Installati
on ,
operation
and
periodic
repairs



Website: www.padidekimia.ir



**Many filters of Kimia Padideh with
clean air output in accordance with
environmental standards**



This manual contains important points related to the worker safety. Read this manual carefully and follow its instruction completely. Train all employees related to this equipment.

Considering the fact that installing the filter on top of the elevator requires proper access to install, operate or maintain the filter, check the following safety items and solve the problems.

Some of the safety problems of elevators that have been seen on different sites are as follows :

- The small distance of the steps from the elevator that makes the shoes not fit well on the ladder.
- Improper connection of the ladder to the elevator, which causes the ladder to loosen.
- Not having a guard behind the ladder, which increases the risk of climbing.

+Pl.49,4th Street , Tiran industrial town, Postal code : 8533153487, phone number :

+989138685585 / www.padidekimia.ir emai:padidekimi@gmail.com

- The use of thin and non – standard pipe in the construction of the ladder.
- The narrow width of the ladder makes it difficult to climb.
- Not having a safety fence on top of the Silo.
- The top of the Silo must be completely cleaned of Cement before installation.

These problems make it difficult to install and operate the filter on top of the Silo and cause accident or after installing the filter, it causes environmental pollution.

Please fix the above defects at the same time as buying the filter.

When installing and visiting the device be sure to observe safety measures and use a seat belt.

Unloading Cement: You must make a plan that during the installation of the equipment, the unloading of the cement in desired environment and the side environment will not be done.

Combustible materials such as lint, paper, wood, metal dust, welding sparks, flammable coolants or solvents are potential fire or explosion hazards.

Be careful with these materials during installation and use and consult with experts in this field in order to protect workers and property from serious injuries or damage caused by fire or explosion.

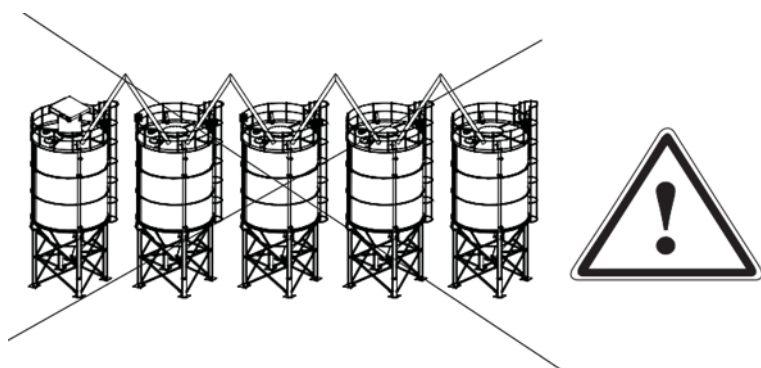
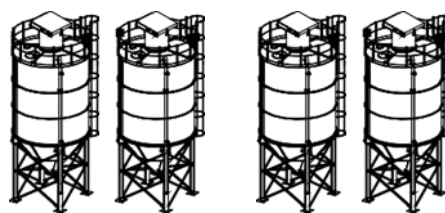
Be careful with these materials during installation and use and consult with experts in this field in order to protect workers and property from serious injuries or damage caused by fire or explosion.

During installation or periodical repairs, remove combustible



materials and dust or flammable liquids from the place. Don't allow sparks, cigarettes or other burning objects to enter the dust duct, smoke and collecting equipment as it may cause fire or explosion.

main point: According to our experts, it isn't essential to connect Silos with pipes to reduce the number of filters and our suggestion is to install a filter device on s Silo.



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For the optimal performance of the equipment, use only the spare parts of Padideh Kimia Sepahan.

The Danger

Indicates a hazardous situation which, if not avoided will result in death or serious injury .



Warning

Indicates a hazardous situation which if not avoided could result in death or serious injury.



Caution

Indicates a situation which, if not avoided, may result in minor or moderate injury.



Warranty form, machine information and buyer details

.....
Serial number :.....	Model :.....
.....
Installation date :.....	Postage date :.....
.....
Buyer name :	
.....	
Address :	
.....	
.....	
Filter Model :.....	
.....	

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Accessories :

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Introduction

What is a Silo filter?

The filter or dust collector of the silo is a machine that can be installed on top of the Silo which performs the operation of separating dust particles from the air coming out of the Silo outlet valve and then automatically opens the separated dust particles into the Silo. This type of filter can be used for cement, plaster, lime and dust of dry materials.

Silo filter operation method:

The cement Silo filter or dust collector is a machine that can be installed on top of the Silo or on its side which separates cement particles from the air coming out of the Silo outlet and the environmental pollution of your Silo will be Zero.

Padideh Kimia has designed and produced 4 types of Silo filters.

Silo filter machine with 10 cylindrical filters: Silos that have more than 2 cement discharges per day.

Silo filter machine with 12 cubic filters: Silos that have more than 3 cement discharges per day.

Silo filter machine with 19 cylindrical filters: Silos that have more than four cement discharges per day.

Silo filter machine with 24 cylindrical filters: Silos that have more than 6 cement discharges per day.

All of which are cleaned by jet pulse method and selected then installed depending on the amount of your work traffic.

Note: The external shape of the filter body is designed and made in cubic and cylindrical type. In the Cylindrical type, due to the aerodynamic shape of the body it has more endurance against wind and storms. It is recommended to use this type of filter in high altitude Silos and places where the wind blows a lot.

Note : In silos where a smaller filter is selected , the time to empty the bunker into the silo may increase.

Filter function :

By installing this filter , clean and standard air is released from the Silo , prevent the wastage of your cement or materials and keep your workshop area clean.

1-1 Machine characteristics

The Silo Filter uses jet pulse bag filter technology to collect dust and offers significant benefits. This equipment is specially designed for Silos , Storage tanks and Conveyor related machines. This model consists of 3 parts : 1 – the part connected to the Silo body 2 – Filter unit 3 – Cleaning unit

Characteristic	Title
Bag characteristics 550 Grams , Non – Woven polyster	
14 Cm Bag rack with a length of 95 cm	
Power supply 12 Volts – 2 amps	
3*0/75 (2 amps current consumption Power supply cable 3	
Fuse required 6 amp fuse	

Air Compressor Compressor with
a minimum capacity of 250 liters and
a pressure of 7 bar

Machine dimensions 1530 * 970 Mm

The part connected to the Silo body (Flinch)

This part is connected to the body of the Silo and assumes the task of connecting other parts to the Silo.

Filter Unit -۱

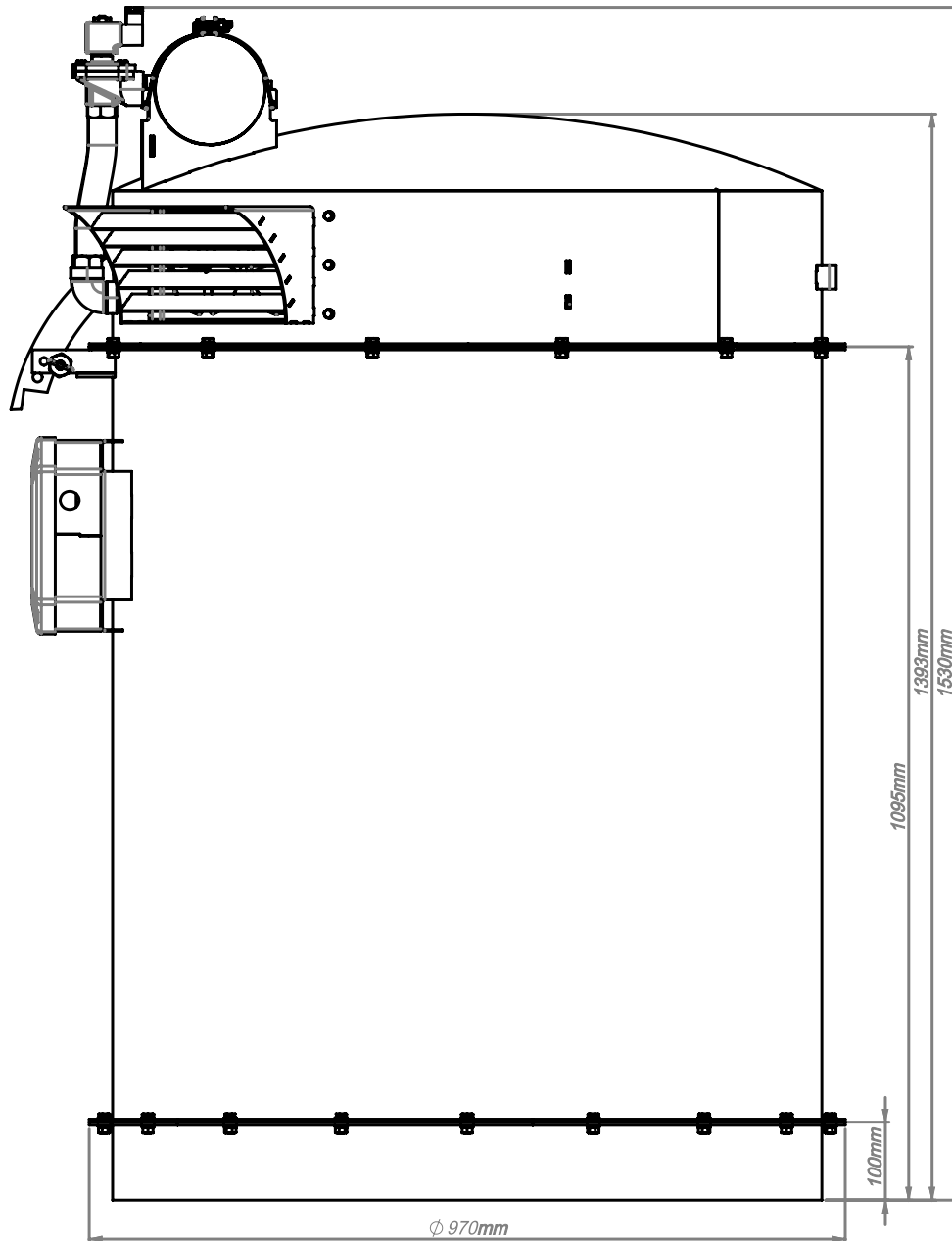
This section contains the filters and transport the captured dust into the Silo -۲ tank.

Cleaning unit (Jet pulse)

This section is responsible for continuous control and cleaning of filters. Using compressed air and jet pulse , this section blows compressed air quickly and with pressure at specific times into the filter and with this process , it cleans the filter bag.

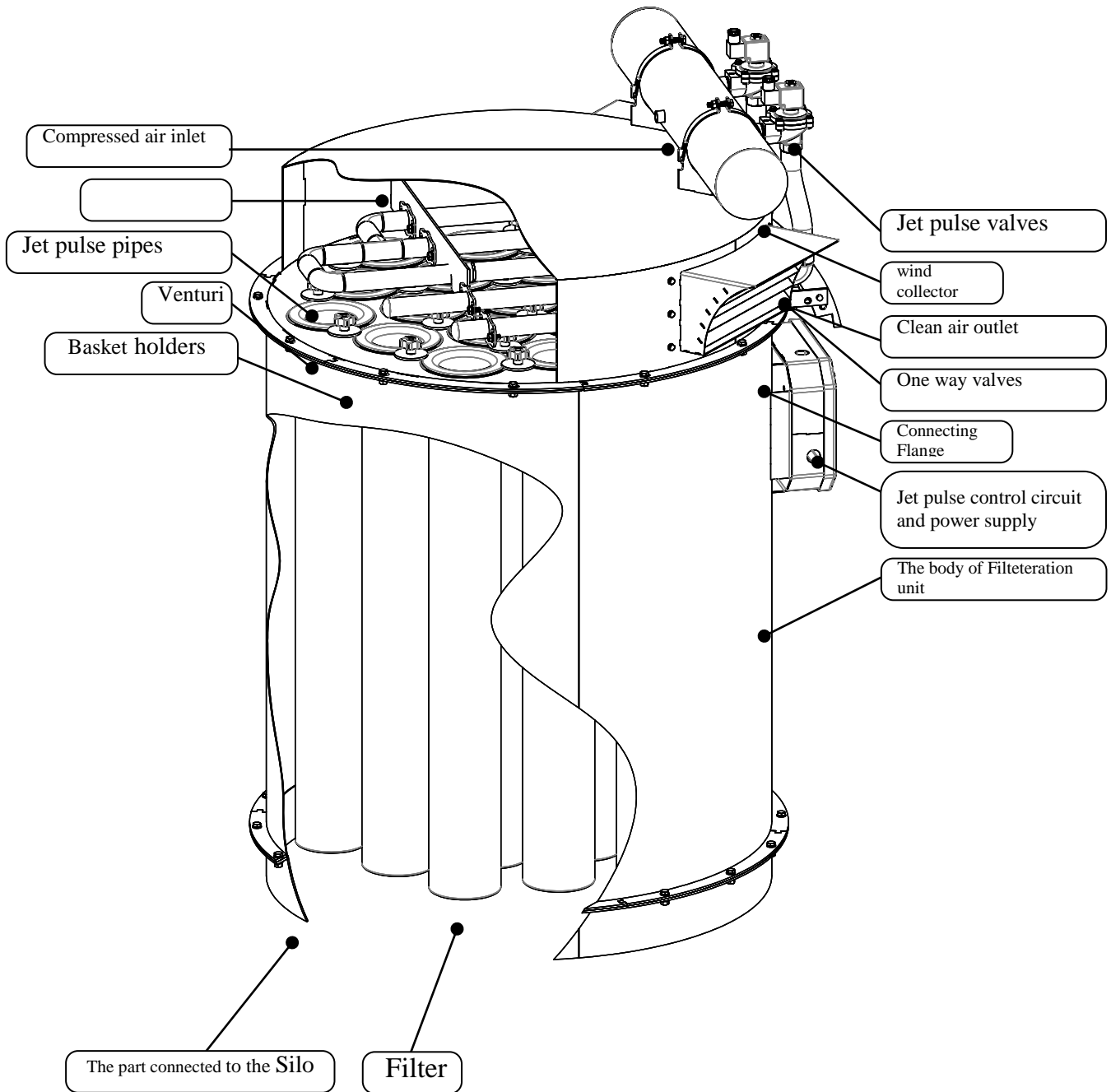
This part is one of the most important parts of this equipment , because it ensures the long life of the filter and reduces the maintenance.It is designed based on the approach of simple filter service and maintenance without tools. The Silo filter involves removing and replacing the filter in the upper part , which makes it unnecessary to enter the Silo or storage Compartment. When changing the filters , no tools are needed to change the filter. This reduces the risk of contamination of the Silo due to the sudden fall of the tool.

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Equipment dimensions

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Different parts of the Device

Warning : Misuse or modification of this device may result in personal injury.



1-2 Uses in industries

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Silo filter is used to separate air dust containing valuable or harmful products in tanks or silos. These materials are transferred to the tank or silo using a pneumatic system with positive pressure. The most common industries for silo filters are food industries , agricultural industries such as grains and related products , pharmaceutical chemical industries , cement , wood , casting (clay , sand , additives) and waste treatment. The most common dusts are lime , cement , non – oily carbon , plastic and woods.



Danger :

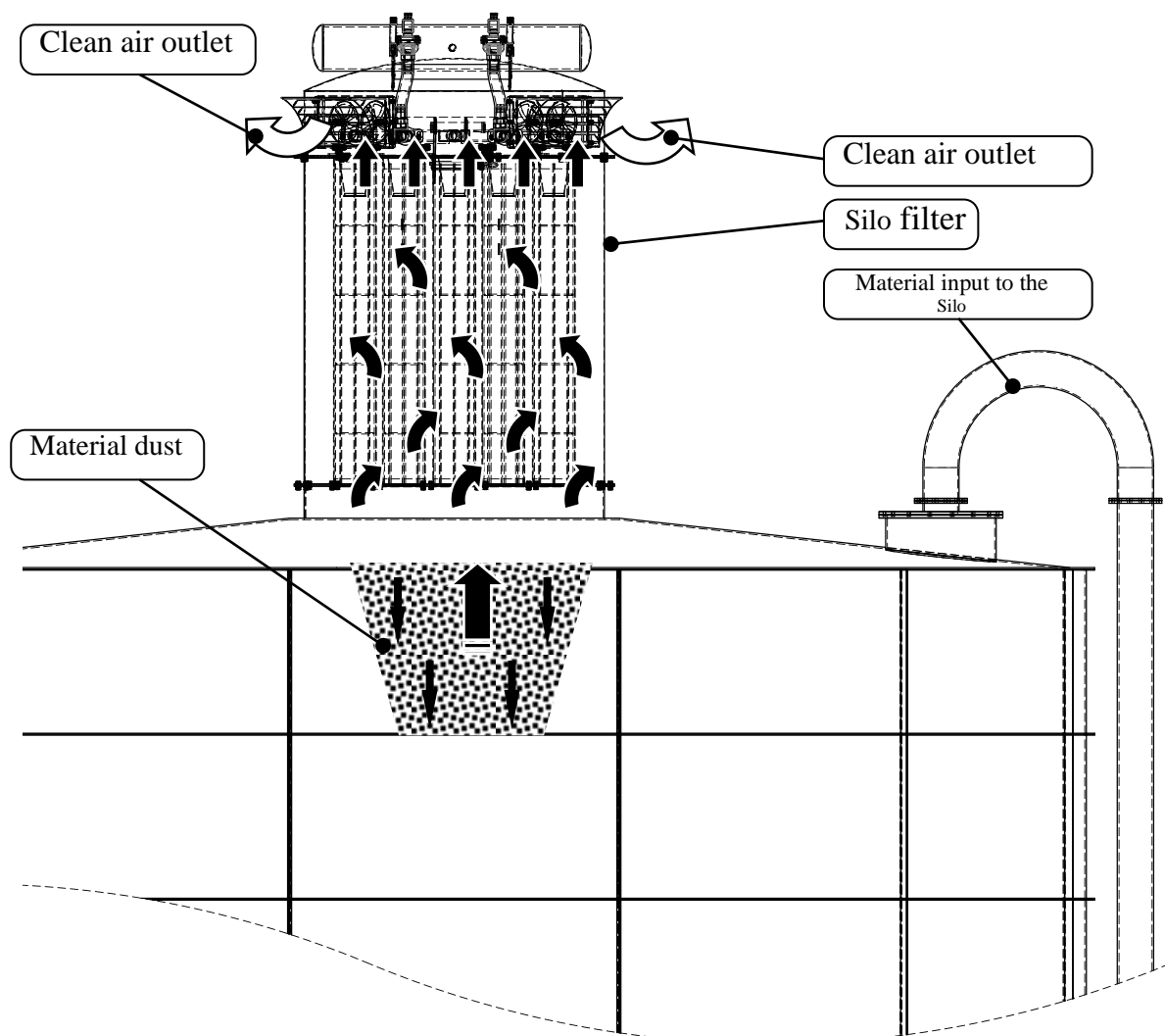
Combustible circuits such as lint , paper , wood, metal dust , welding sparks or flammable solvents double the possible risks of fire or explosion. When selecting , installing and operating all dust , vapor or dust extraction equipment where such combustible materials may be present in order to protect workers and property from injury or serious damage from fire or explosion with consult experts in this field.



Performance

The operation of the device is such that during operation , polluted air or dust enters the filtration section through the inlet opening at the bottom of the device. (the connecting part to the Silo)

The dusty inlet air is collected on the outer surface of the filter , it and the jet pulse cleaner return the dust to the storage tank and clean and filtered air again. It passes through the center of the filter and clean , standard air is directed outside.



Way of Filter Silo performance

Automatic filter cleaning system (Jet pulse)

Filters are automatically and continuously cleaned during operation . The cleaning cycle is such that in each cycle some filters are being cleaned and other filters are purifying the air. The reason for this is that during the cleaning process , there is no interruption in the process of the air purification system. An electronic controller performs the filter cleaning cycle in an intelligent way. This controller commands the diagram valves of the jet pulse solenoid valve , which is opened by a solenoid and a jet of compressed air is injected into the filter. The high – pressure air flow is strengthened by passing through the venturi and this causes mechanical stress and the filter is shaken , then it's cleaned , then by passing through the filter body it destroys the dust collected in the external environment and meanwhile other filters continue the air purification process.

Delivery , preparation and installation

1-1 Inspection upon delivery of the device

1. Check the device upon delivery
2. report any damage to the driver and porter
3. prepare an inspection report to prove the claim.
4. Submit your complains to the driver and porter.
5. Compare the received products with the ordered one.
6. Inform incomplete shipments to the delivery driver and carrier and also to the representative of Padide kimia.
7. Remove the boxes and straps. Remove the side fasteners before lifting the Mechine from the truck.

1-2 Unit place

when the device is in contact with dangerous substances, consult the experts of Padideh kimia company to install the device in the right place. Notice that the place of device installation must be able to bear the total

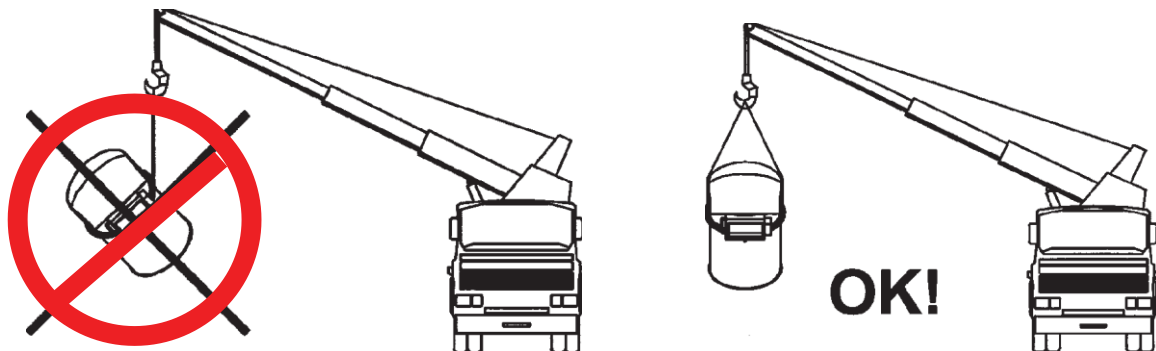
weight of the unit plus the weight of collected materials and piping.
Consult the company's experts to ensure the shortest and most direct length of inlet and outlet ducts , easy access to the electrical and compressed air connections , and routine maintenance .

The policy of Padideh Kimia Sepahan company has been simple installation of the device , so the device is designed in such a way that can be installed and operated by a skilled welder without the need for an installer .

1-1 Lifting the device

Warning:

lifting the device using the collector will cause severe damage to the device. Use the appropriate equipment and take all necessary safety precautions for moving the device. The figure below shows how to lift the device correctly .



1-1 lifting device information

- Use all around the mounting flange for movement

- Use a strap for lifting , not a tow line or hook.

- Check the specification control drawing for weight and dimentions of the unit , subassemblies , and parts to ensure adequate crane capacity.

Only allow the qualified crane operators to lift the device.

- Remove the unit and accessories separately and assemble after the unit is in place.

- During installation, use guide pins to align the monting flange holes.

1-1 Electrical preparation

Caution :

Electrical installation must be performed by a qualified electrician who is familiar with all safety standards and requirements.

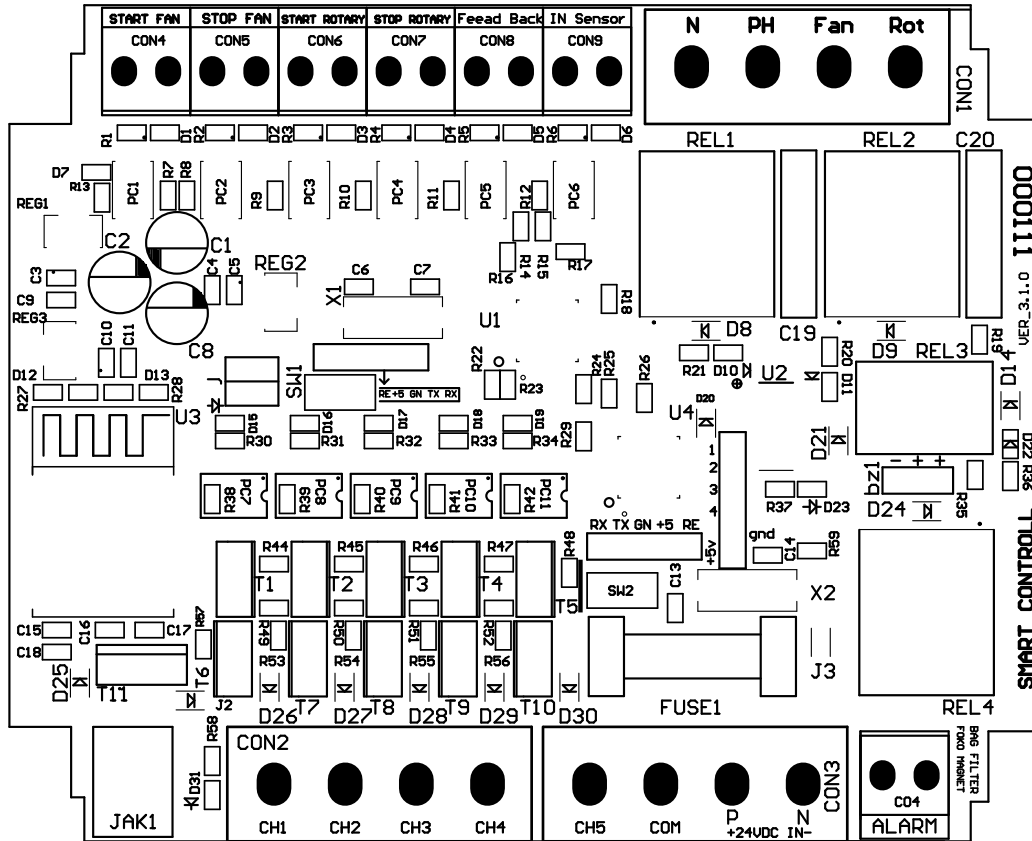
Before doing maintenance , make sure the main switch is off.

When the unit isn't equipped with a main switch in the factory , install a switch with the appropriate capacity and ampege.



The cable required for the device is 3*0.75 , that must be stretched from the bottom of the silo to the top of the Silo and supply the device with electricity .

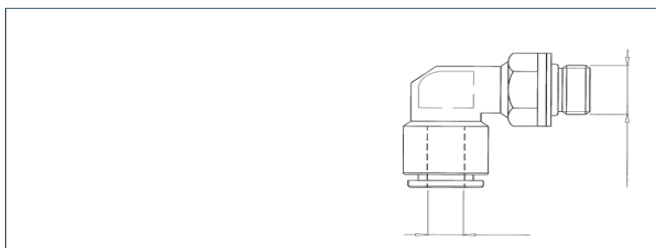
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1-1 Preparation of compressed air

The source of compressed air can be supplied by a normal compressor of at least 250 liters with a working pressure of 6 to 7.5

The source of compressed air must be free of oil and moisture. Contamination in the compressed air used to clean the filters and will result in poor cleaning , failure of the cleaning valve or poor performance of the collector . Clean the compressed air lines before connecting to the device

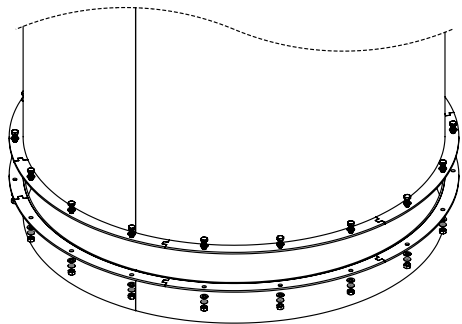


compressed air manifold.

1. Remove the 1 – inch tube cap from the machine air manifold and connect the compressed air supply tube. Use sealing tape or pipe sealant on all compressed air connections.
 2. Connect the compressed air pipe to the air collector using a flexible hose.
 3. It is better to install a safety valve to prevent the increase of compressed air pressure.
- Don't increase the pressure of the power supply more than 8 times because it will damage the parts.

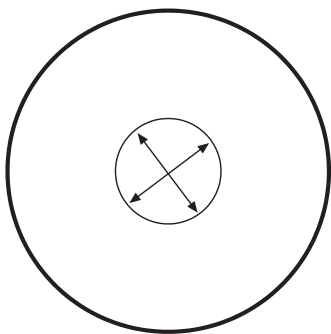
1-1 installation and setup of the device

The installation place of this device is on top of Silos and storage tanks or in the upper cover of material handling services such as conveyors and elevators or processing equipment such as mixers and crushers. When installing and welding the flange and device connection supports , the usual wind direction of the area and other direct wind conditions should be considered.



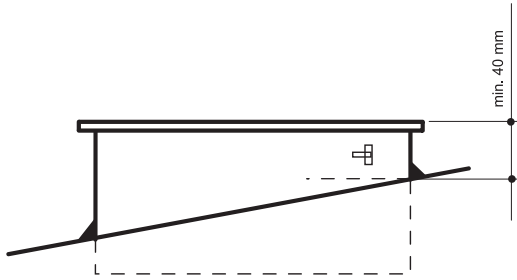
First open the device packaging.

Move the flange to the top of the Silo.

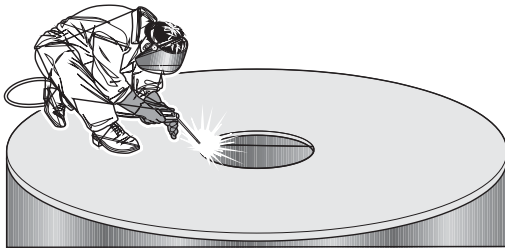


If the surface of the silo is covered with cement , clean it by hammer and hitting.
Set the flange in the center of the Silo.

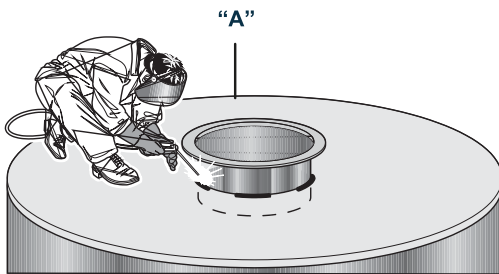
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Align the flange in all directions . From the inside of the flange mark the installation location of the flange with a marker.

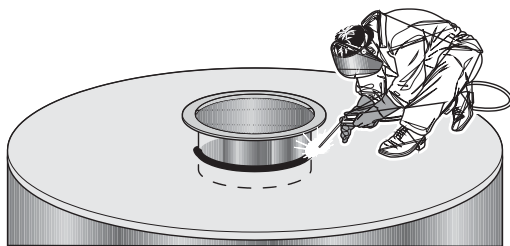


Remove the flange , cut one centimeter inside of the marked line with a gringing stone. Make sure that the cut piece doesn't fall into the silo.After cutting , remove the cut piece from the place.



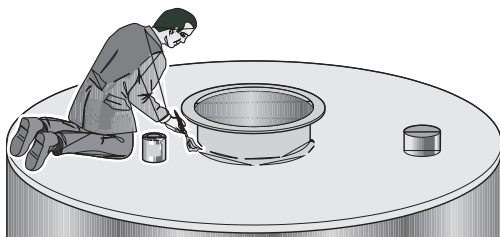
It is better to grind the cut edge , so that it would be free from paint and pollution and would have better weldability.In one direction of the flange , there is a sign engraved that shows the back of the device and specifies the dirction of the device.

Align the flange on the roof of the silo and connect the flange to the silo crosswise.



Hammer from the inside towards the flange with a hammer until the edges mate.

Now weld the outside. Try to do clean and faultless welding so that air doesn't leak out from inside the welds.

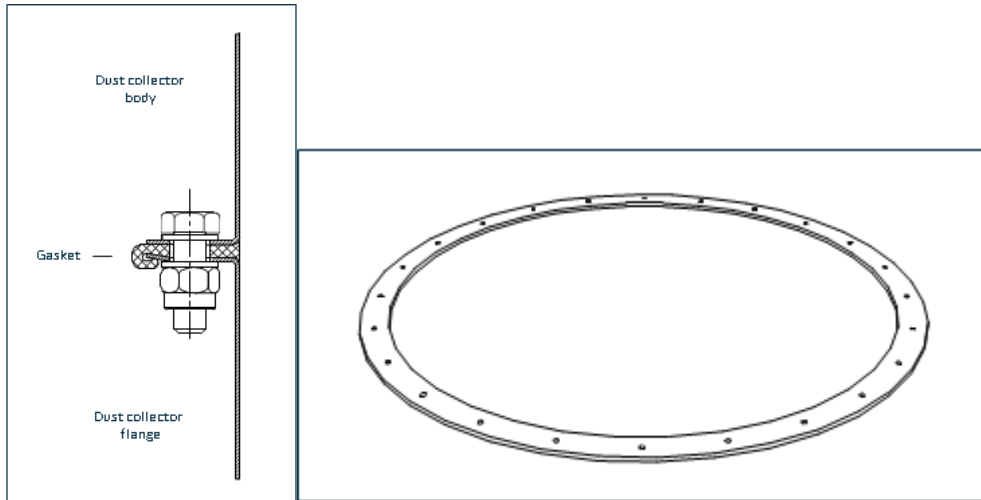


After completing the welding , clean the welding surface and after cooling the welding area , it's better to paint the joint to prevent dust. For better sealing , completely seal the flange on the roof of the Silo from inside with stone putty.

Now the place to install the filter is ready. Move the filter bag to the top of the

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silo with a suitable crane and install it on the flange and tighten its Screws.



Cable the device power to the bottom of the Silo and install the on and off switch next to the base of the Silo . the power required by the device is 220 V. To connect the compressed air , a one – inch tube should be stretched to the top of the silo and connected to the bushing on the air collector. The air required by the device can be supplied with a normal air compressor with a pressure of 7 bar.

Your device is ready to launch.



1-2 pre-launch control measures

- ✓ Check all electrical connections for tightness and contact.
- ✓ Check and fix all loose items at the inlet and outlet of the device or near it .

Check that all optional accessories are properly installed and secure.

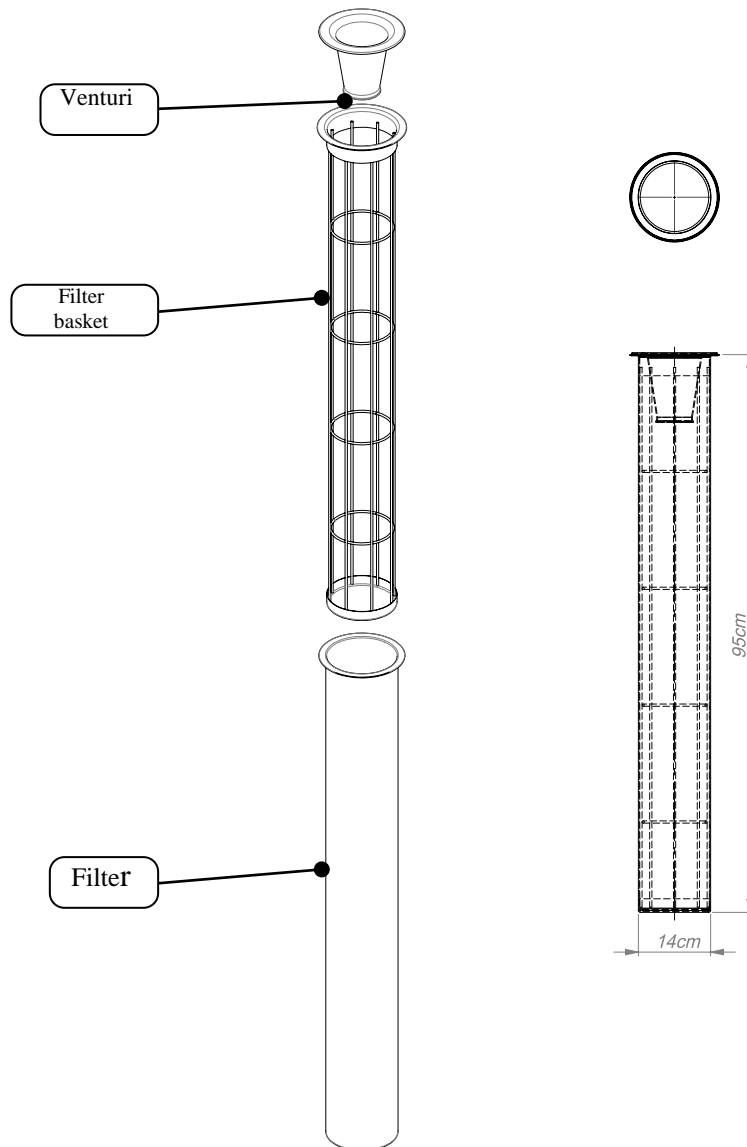
Turn on the source.

- ✓ Turn on the compressed air source. Adjust the pressure regulator 7 times.
- ✓ Connect the Ert wire of the device to the central Ert of the workshop or factory.

Different parts of the device

1-1 Filter
Filter characteristics

Charateristics	Title
Non-woven polyester 550 grams	Bag specification
13*5 cm Bag rack with a length of 95 cm.	Bag size

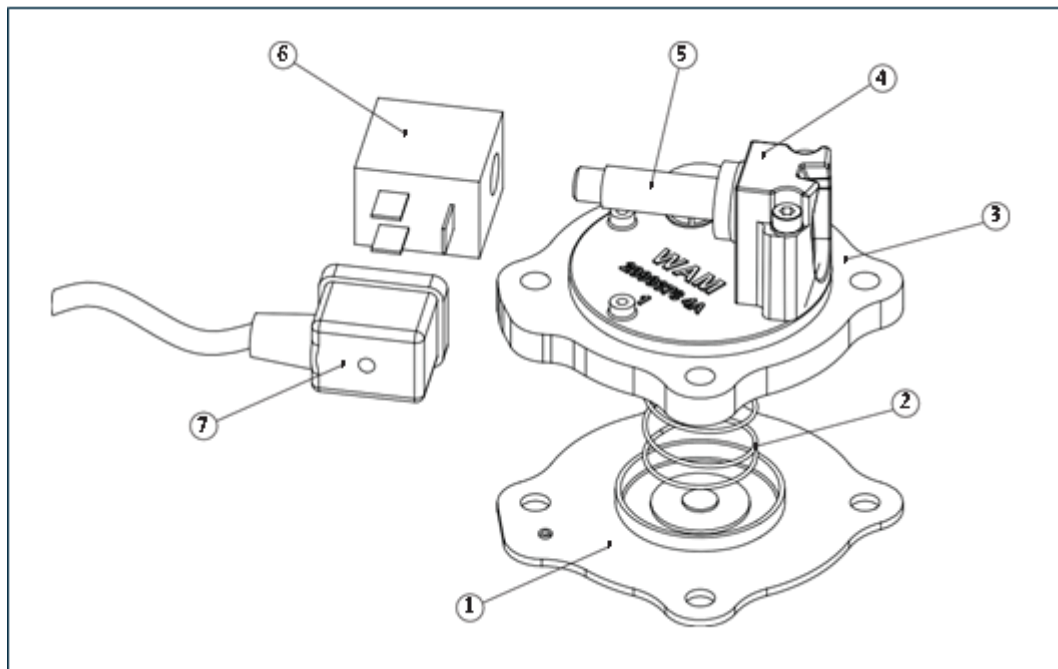
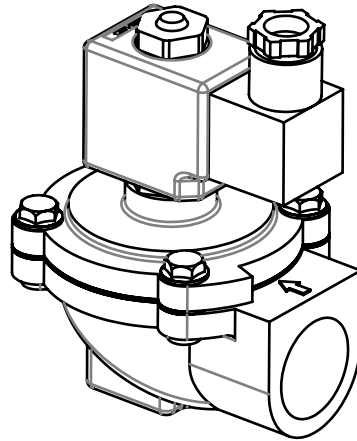


1-1 Jet pulse

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The jet pulse system works continuously and clean air is discharged from the top of the device. The jet pulse compressed air is periodically blown into the bags through the jet pulse solenoid valves and nozzles by the electronically programmed controller and causes the material to separate from the outer surface of the bags. The separated materials moved into the Silo.

In the device maintenance service , the jet pulse system must be checked. If you notice that the jet pulse system isn't working , open the electric door next to the device . in it's inside a 220 to 12 V power supply is installed. Make sure the board power supply is working correctly. Replace the part in case of failure.

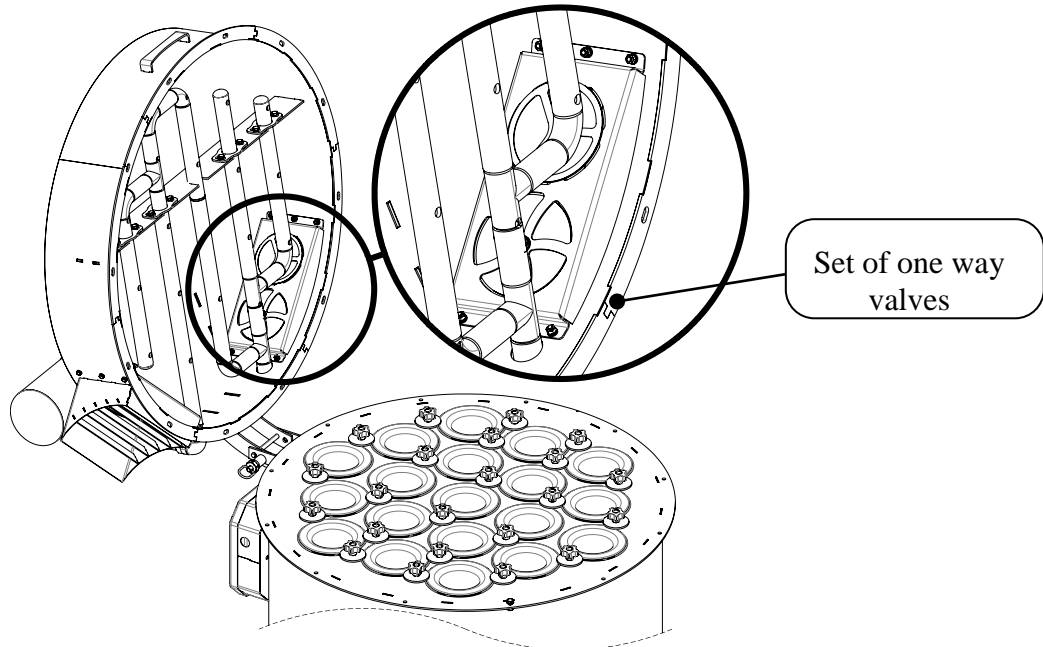


Jet pulse solenoid valve

One-way valves

One way valves , as the name suggests are devices that allow air to move in only one direction and prevent reverse flow.

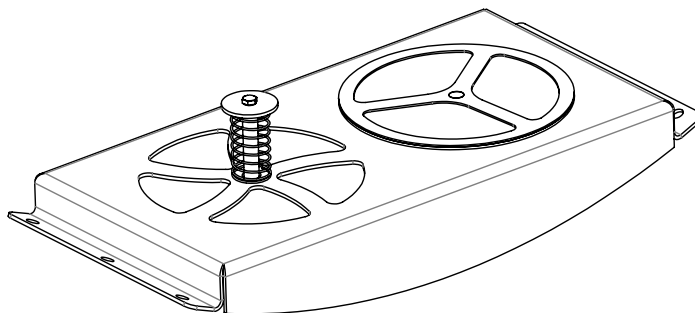
These valves are among the parts that operate automatically , that is , there is no handle or operator outside of it , in order to open and close.

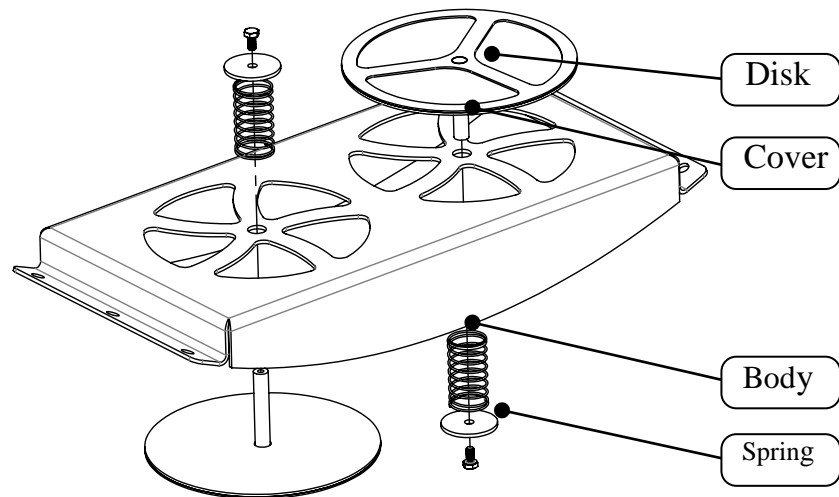


1-1-1 One – way valve mechanism

The internal components of the one – way valve that cause it to open and close automatically include the following :

- Cover •
- Disc •
- Body •
- Spring •





As you observed , the one – way valve mechanism is very simple and includes the same items mentioned.

1-1-2 One – way valve function

The way a check valve works is that its inner disc actually causes the check valve to open , allowing fluids to only move forward. Now when the speed of the fluid flow is reduced to the front or the direction of the fluid movement is completely reversed , the disk will close automatically . This will block the one way valve and prevent the movement of materials.

1-1-3 The reason for using a one – way valve

This valve is installed to prevent the entry of moisture into the device , because when the moisture enters the device , it combines with the dust around the filters and reduces the efficiency of the filters.

Electric box and control board

The power and control board section consists of the following sections :

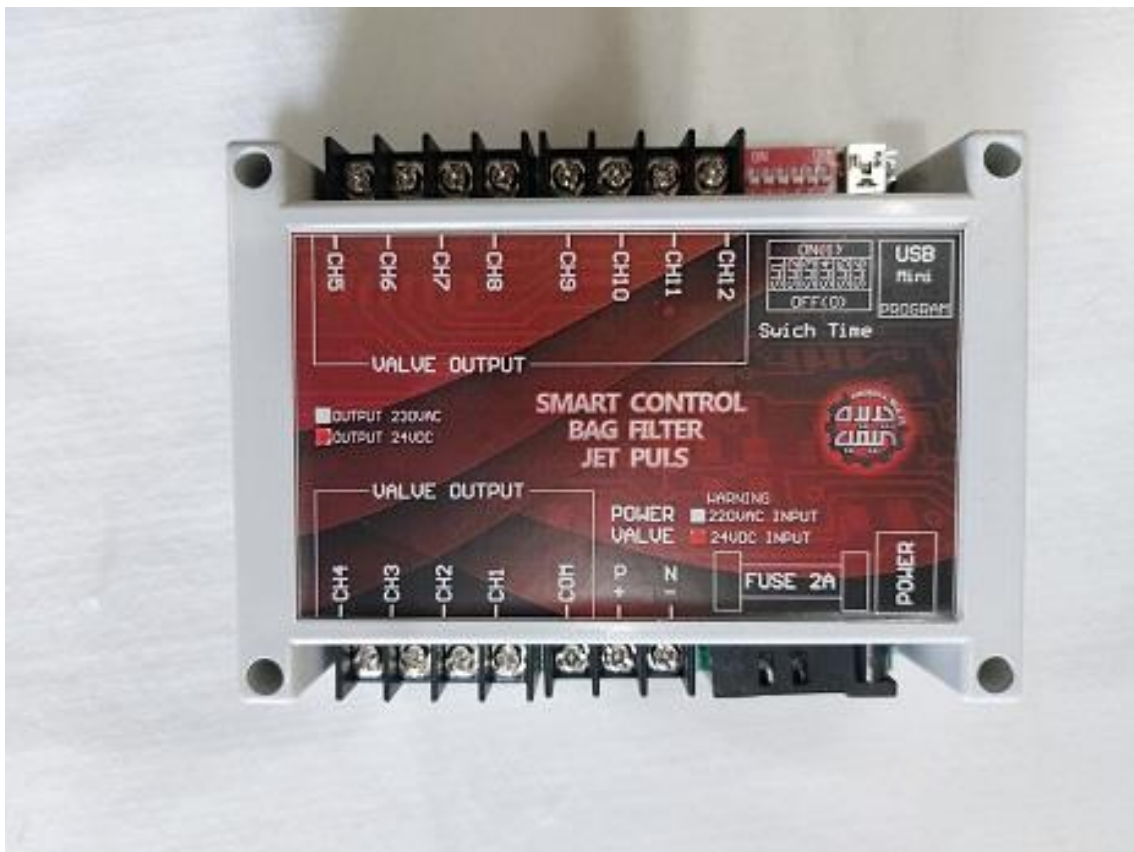
1-1-4 Jet pulse control board

The most important part of the device is its control board. This board is designed in such a way that by increasing the dust level on the surface of the bags and reducing the dust level on the surface of the bags and reducing the air flow passing through the filters , the system control board activates the jet pulse cleaner. This cleaning system can simultaneously operate the dust collector (online) or work when the dust collector isn't active (offline)

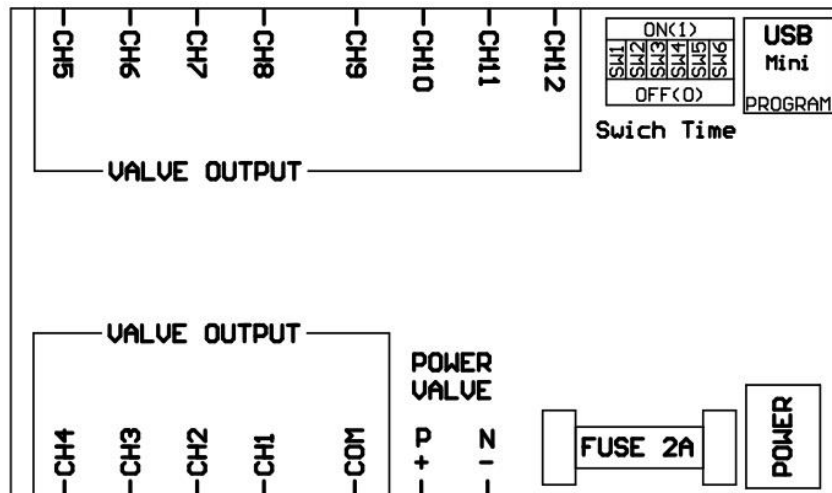
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The machine operator simply turns on or off the jet pulse system of the machine. According to the setting made , this device can automatically send the necessary command to the solenoid valves with a certain routin and also in order to increase the efficiency of the system , save air consumption and increase the bags life , it is possible that the system only be active when emptying the cement bunker.

A fuse is installed in this board so that if the valves are damaged , the main control board will not be damaged. Solenoid valves are switched with transistors , there is no limit to the number of switches and the individual channels of the board are isolated with an (opti – cobbler) , in order not to damage in industrial environments.



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1-1-1 Jet pulse board wiring

This board can be installed and use for 220 V or 24 V electric valve. The input voltage + , -, p , N which are marked on the device , we should have the voltage input of the solenoid valves for which it is programmed.

Tip : the input (power) has the ability to connect a 24 V DC adaptor to power solenoid valves.

- (+) to the positive input of the power supply (in 24 V model)
- (-) to the negative input of the power supply (in 24 V model)
- (p) as the input of the feeding phase (in 220 V model)
- (N) as input null feed (in 220 V model)

- The outputs are for connecting the solenoid valves marked with ch in the controller.

Tip : The voltage output of the solenoid valves is specified on the device box and if you use a 24 V DC adaptor , the output of the solenoid valves is 24 V DC.

Note: The voltage output of the Solenoid valve is specified on the device box and if the power supply of Solenoid valves is 220 Volts AC , 220 Volt AC is connected to the power input , a 12 volts of 2 amp Adaptor.

Caution

Under no circumstances should it be connected to a 220 V city direct current + , - , P,N,AC .

Otherwise the device will be damaged and will not be included in the warranty. This board is protected by a 2 amp glass fuse.



If the jet pulse doesn't work , check the fuse first.

Explanations , connections	<u>Inputs</u>
Powering Jet pulse board and Electric valves with 24 V adaptor of 2 Amper	POWER
Powering the jet pulse board and Solemoid valves with a 24 V 2 Amper (if the adaptor doesn't have a silencer) , pay attention when connecting to the positive and negative signs , connect + to + and – to -.	POWER VALV
Changing the timing of the Solenid valves , the top switch is on and the bottom is off.	SWITCH TIME
Explanations , connections	<u>Outputs</u>
Solenoid valve output 1	CH1
Solenoid valve output 2	CH2
Solenoid valve output 3	CH3
.....
Explanations , connections	<u>Inputs</u>
Powering the jet pulse board and	POWER

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solenoid valves with a 24 V adaptor	
Powering the jet pulse board and solenoid valves with a 24 V adaptor (if the adaptor doesn't have a silencer) when connecting to the positive and negative signs on the device and the adaptor , be careful to be connected to the positive and negative.	POWER VALV
Common to all solenoid valves	COM

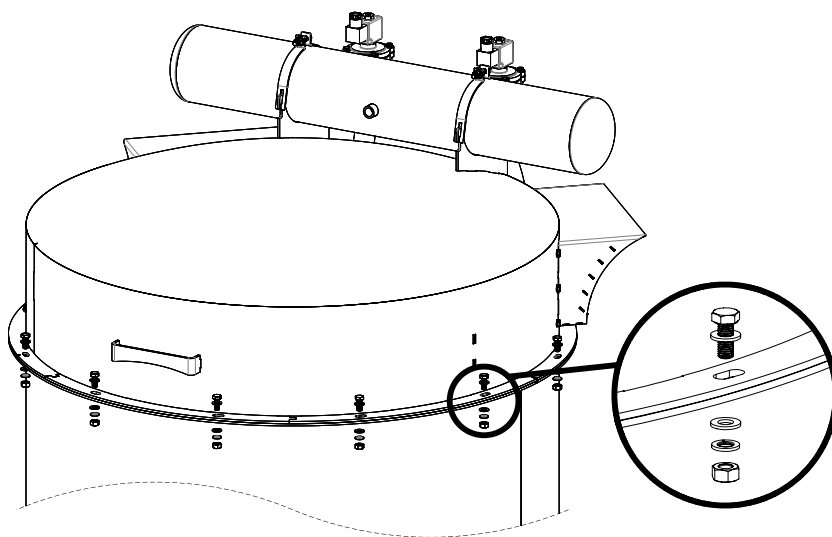
Part 1 , maintenance , repairs and troubleshooting

1-1 filter replacement

The only replaceable part in the silo is the bags. If the filters fail , cement dust will come out of the filter outlet .Before changing the bags , it's better to open the filters and check that the dust doesn't come out from the edges of the basket. If the dust was removed from the side of the filters , tighten the screws of the filters so that the filter bag isn't removed from the installation site.

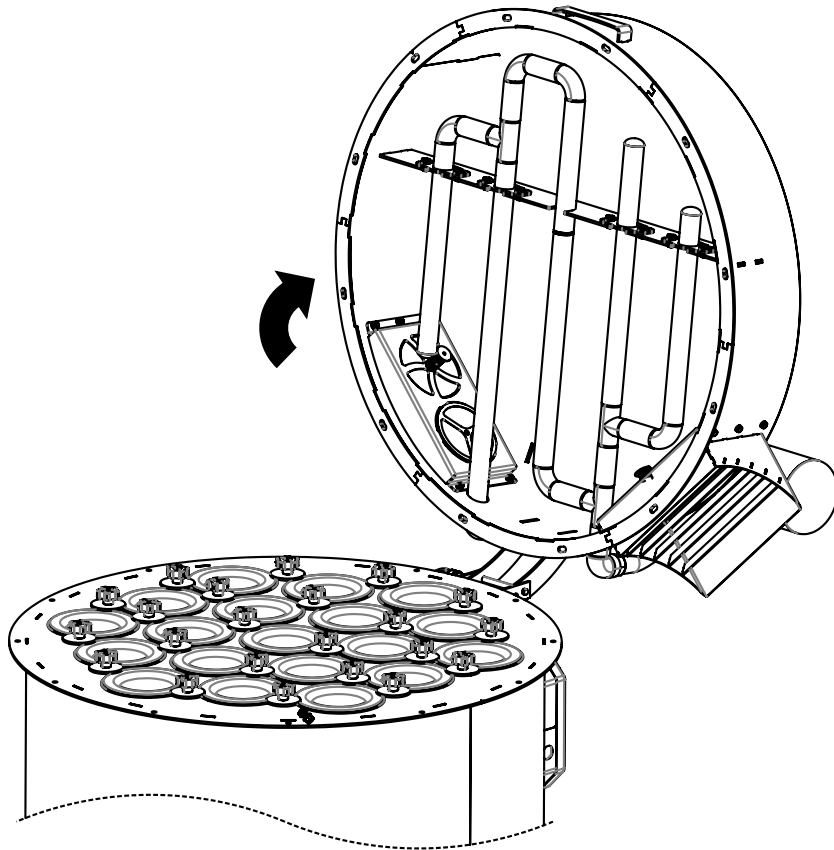
If you find that the bags are torn and the pollution has come out of the filters , you should replace the filter bag.

When choosing the filters , make sure that they are according to the specifications given by Padide Kimia Sepahan company . The filter replacement steps are as follows.

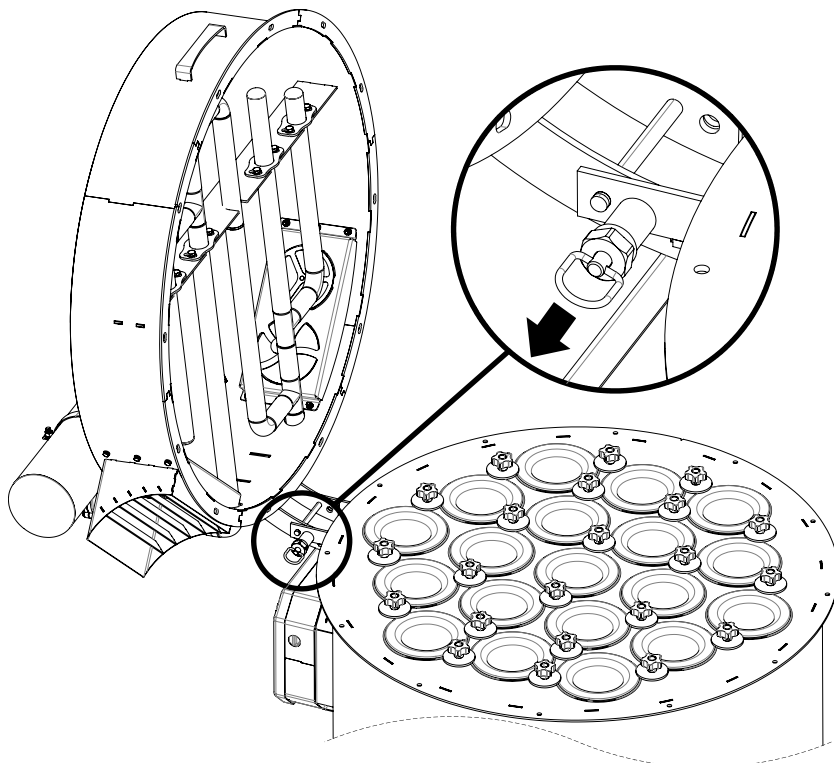


Open the screws of the filter door.

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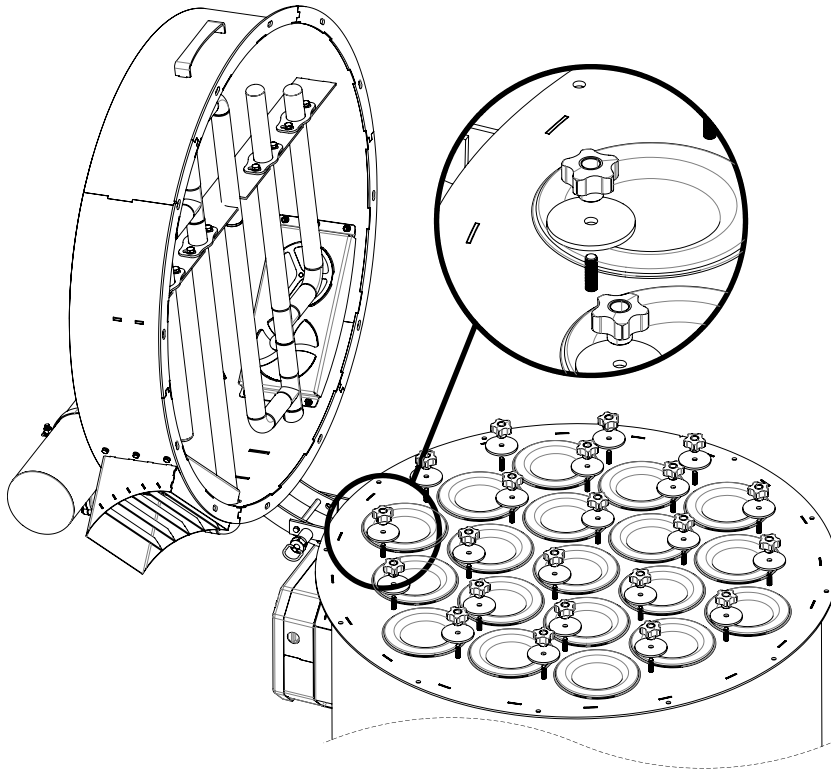


Open the filter door.

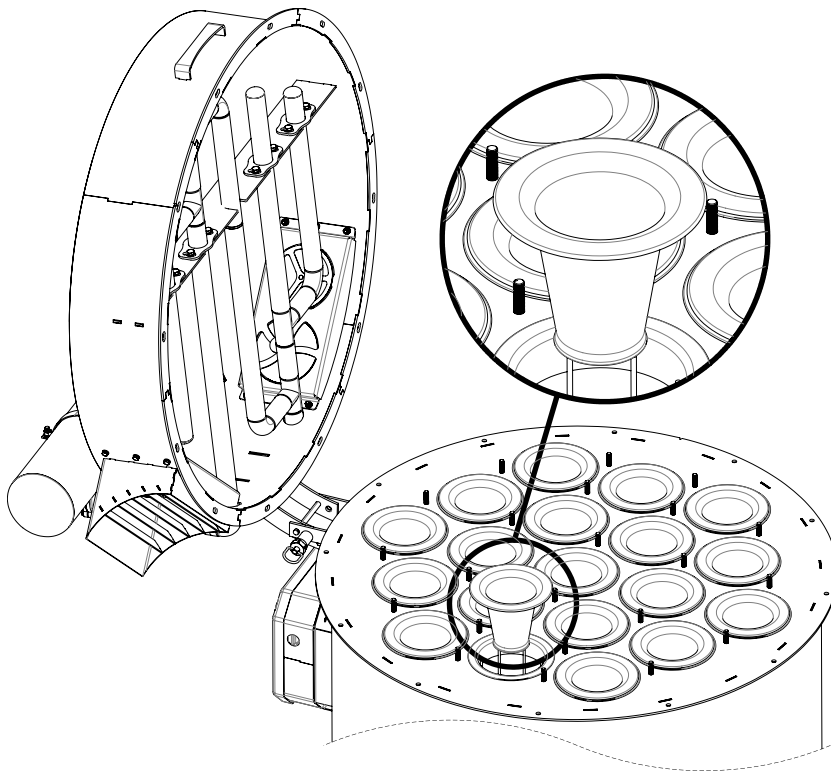


Activate the door
safety lock.

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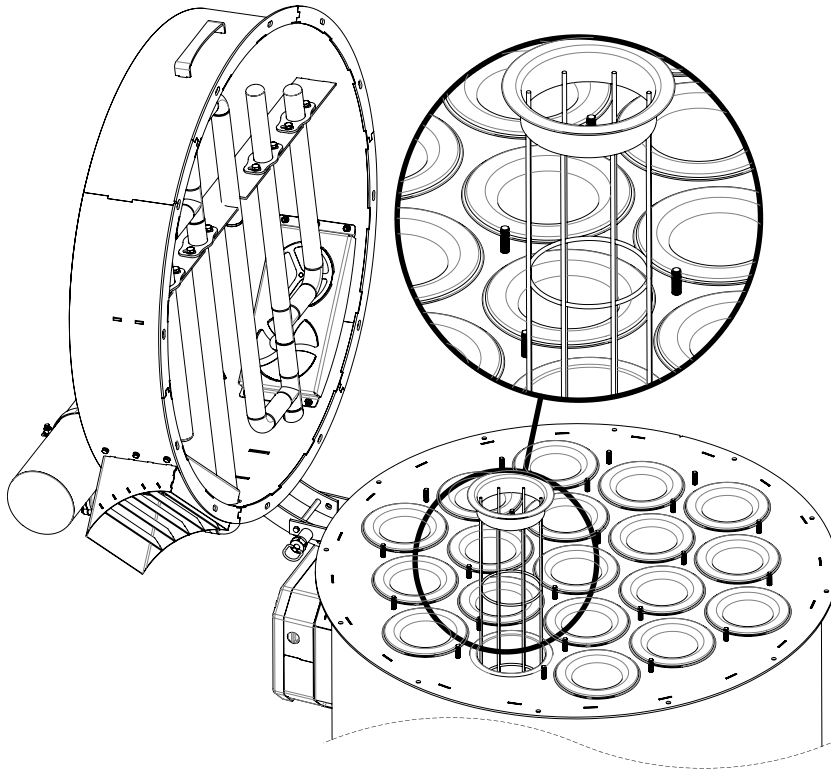


Open the screw
holding of the filter.

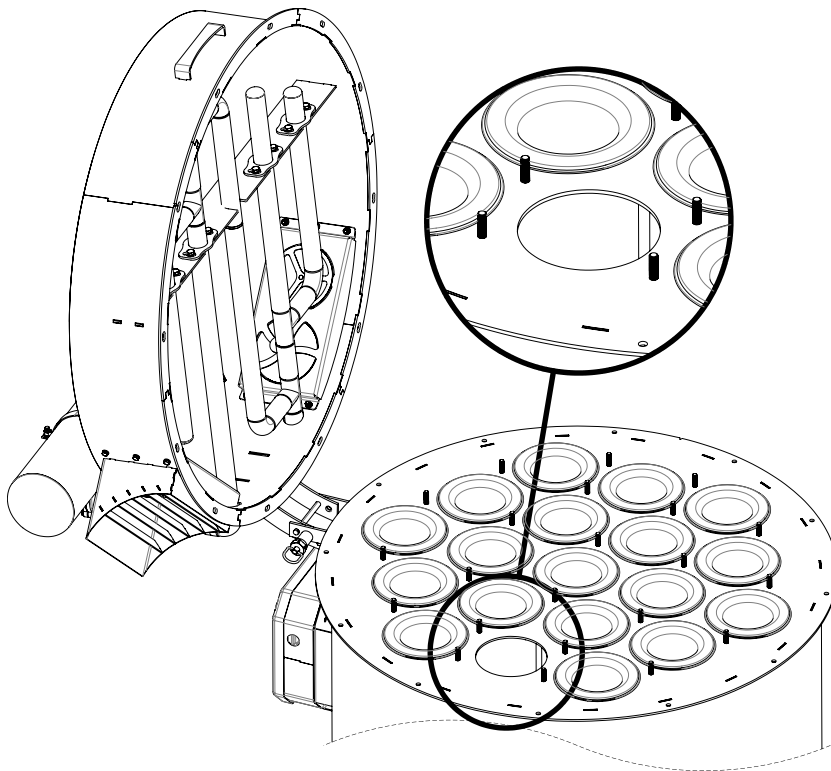


Remove the venturis
from the filters.

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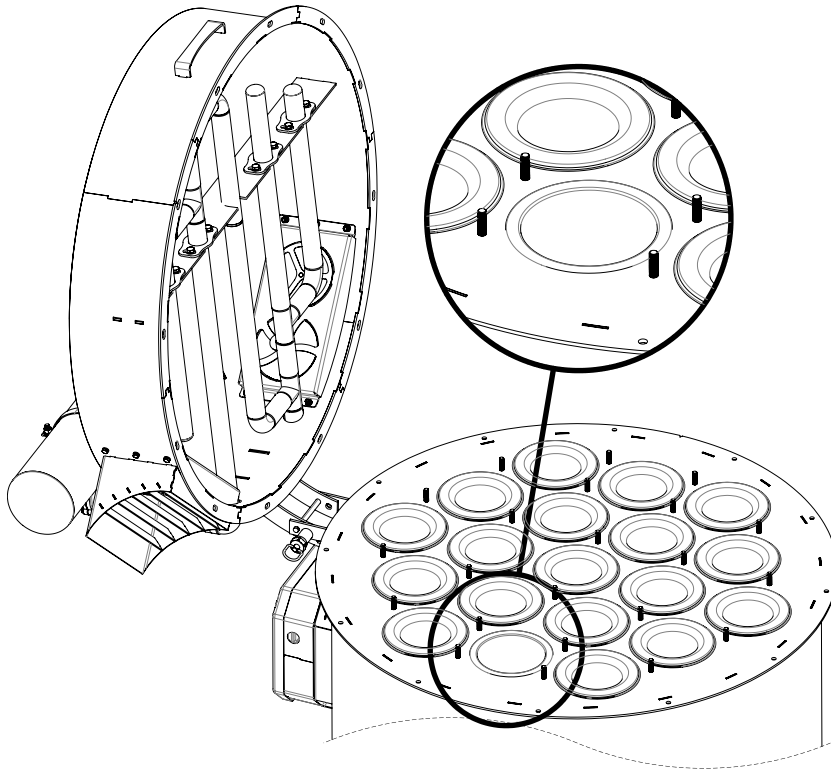


In the next step ,
remove the baskets.

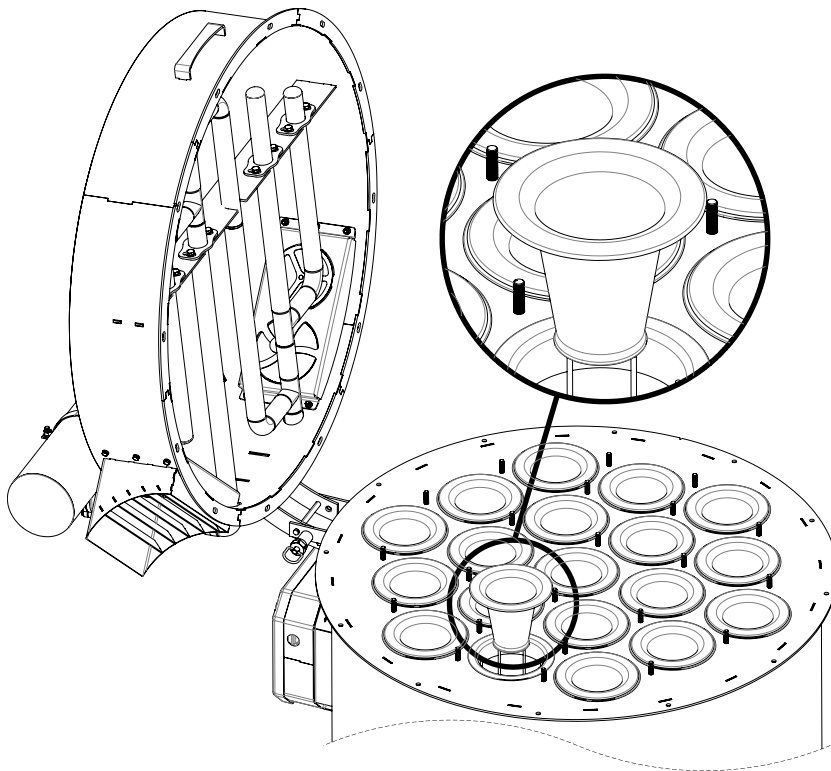


Next , remove the
bags.

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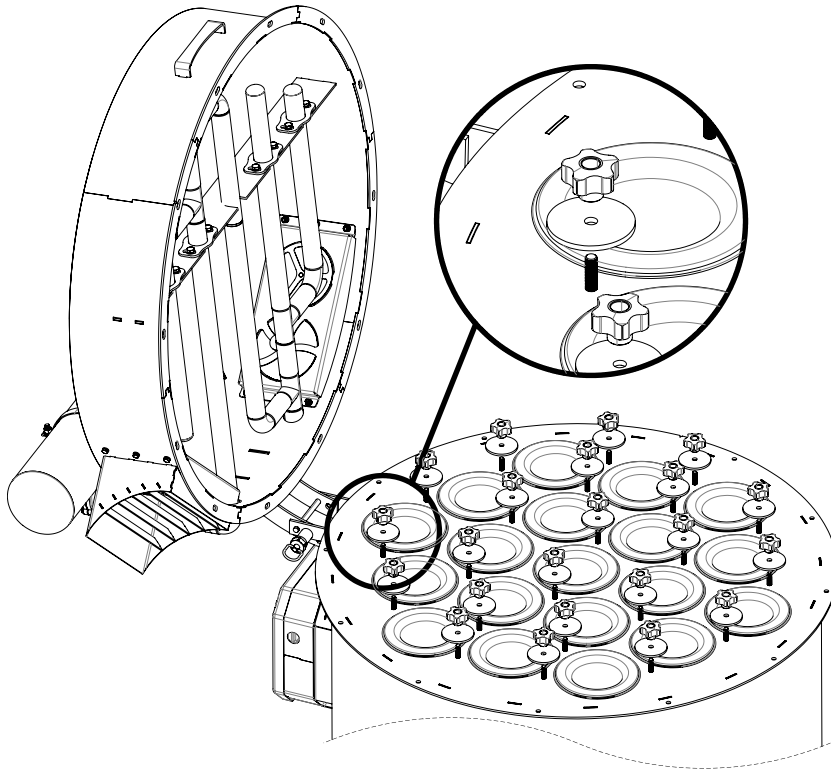


To install new bags ,
clean the machine first
. hang the bags
without the basket
inside the device , so
that the top ring of the
bag sits well on the
floor.

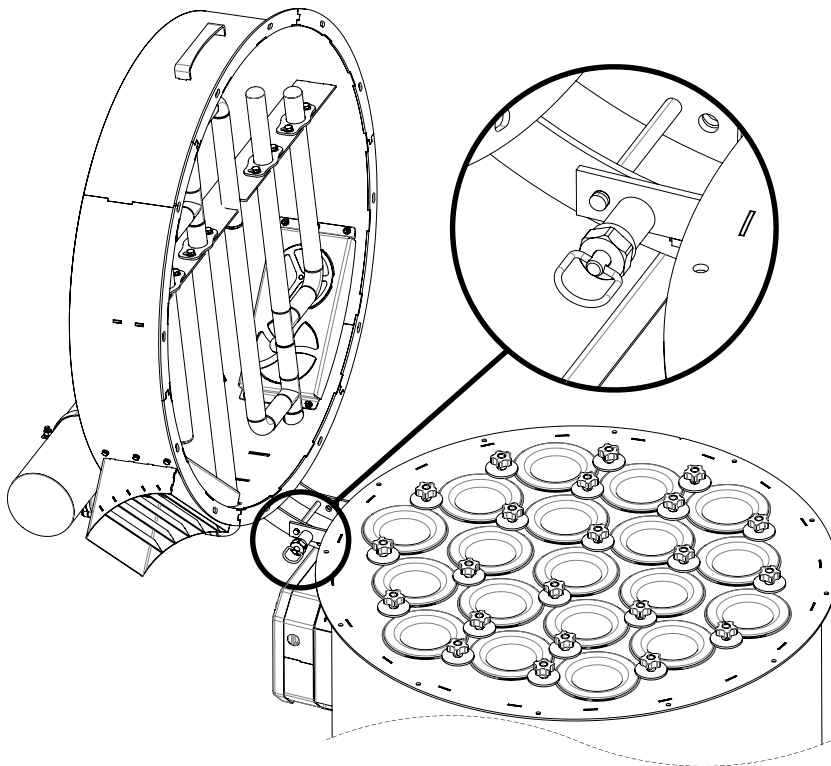


Put the basket inside
the bags and install a
Venturi inside each
basket.

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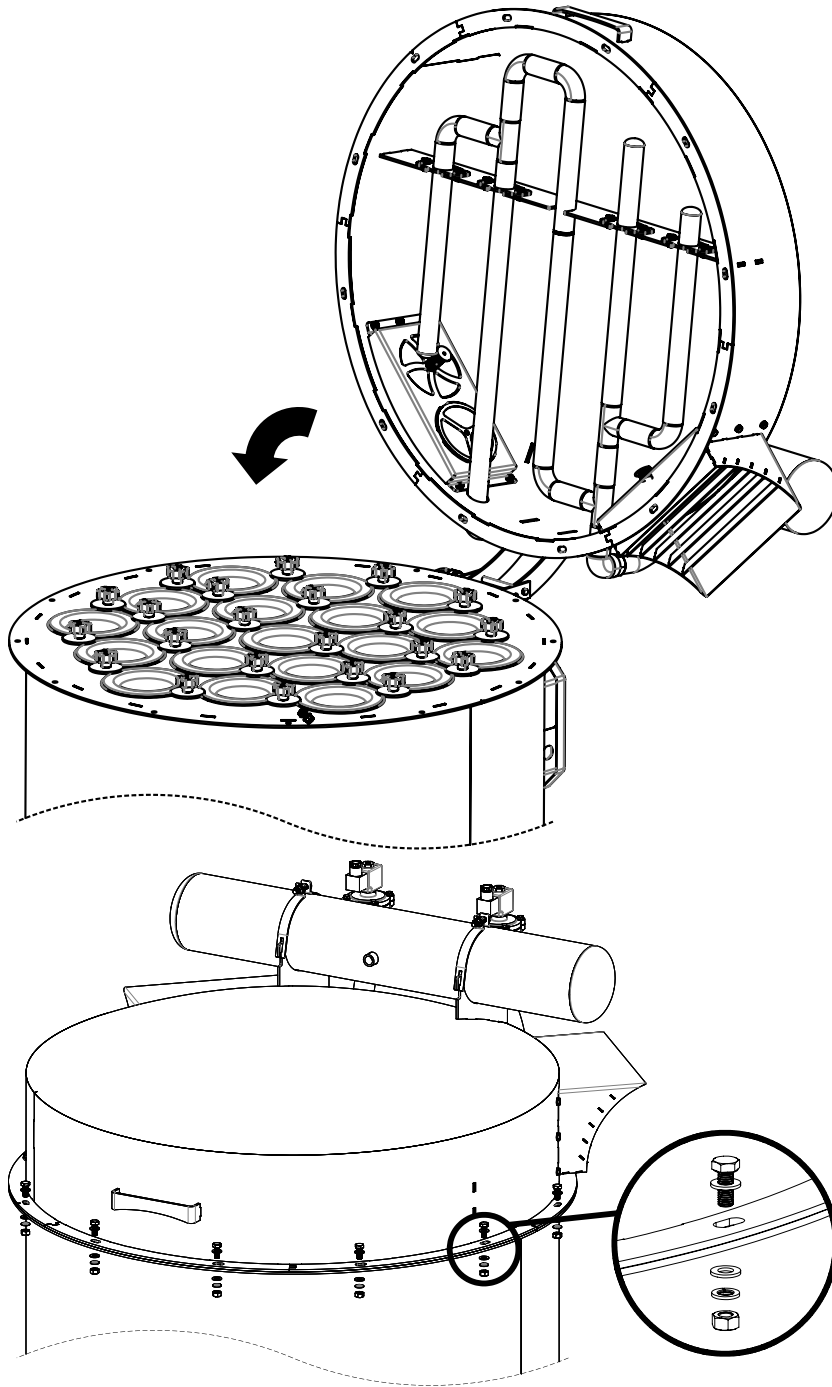


Carefully tighten the screws and washers and make sure the filters are securely in place.



Disable the door safety lock.

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Clos the filter door

Close and tighten the
door screws .
Now the device is
ready to work.

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1-1 Troubleshooting

Solution	Problem reason	Problem
Refer to the filter replacement section.	Filters aren't installed correctly	The clean air outlet contains dust
If necessary , replace the filters . use only the original parts of the padide kimia sepahan. Refer to the filter replacement section.	Filter damage , dented end caps , gasket damage or holes in the filter environment .	
Tighten the filter screws. Refer to the filter replacement section.	The filter holder is loose.	
Check that all access doors are in place and secure.	The access hatch doesn't open or close tightly.	Insufficient air flow
Replace with the original replacement filters of Padide kimia sepahan. Refer to the filter replacement section.	Filters need to be replaced.	
Check that at least 7 times of pressure be available . refer to the compressed air supply section.	Lack of compressed air	
Use a multimeter to check the supply voltage of the timer board. If necessary , check and replace the fuse on the time board.	Jet pulse cleaning	
Turn off the machine and check the source of compressed air. Check for failure , valve failure , pneumatic tube failure or diaphragm failure by removing the diaphragm cover on jet pulse valve. If the pulse valves , electric valves or pipes are damaged , replace them.	Jet pulse valves leak compressed air.	
Check the supply voltage of the board using a multimeter. If necessary , check	Electronic board failure	

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and replace the fuse on the timer board. If the fuse is good and there is input power , but no voltage output from the solenoid valves , replace the timer board.		
Check the power supply and replace it if it is defective.	Power supply failure	

Note:

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