OPERATION MANUAL

FILTERING PLANT FA-9/18/27/36/45(45.SC)/60.Sc

FA-9.Bd/18.Bd/27.Bd/36.Bd/45.Bd

Content

1. General information

1.1. Symbols

Warning sign: ATTENTION! Important safety notices as for the people's work and strict execution of the stated instructions.

Information sign: Useful information

The (1) 2 sign is for the picture, table or numeration of the relevant part.

Protective gloves. Use protective gloves in order to avoid damage caused by sharp parts.

Workwear. Use protective clothing in order to avoid damages to your body during the assembly.

Footwear. Use safety footwear in order to protect your feet from heavy parts which can fall during the assembly.

Personal protective equipment for respiratory system and eyes.

1.2. Safety notices

The person who is in charge of the assembly, operation and maintenance of the plant must read this installation and operation manual, learn and follow the rules hereof.

The set up and primary starting up of the machine is authorized to qualified operators only or shall be managed by them. Take into consideration regulations and standards related to the assembly, observe the rules set for work places. Use personal protective equipment when using the filtering plant and its components.

Always stop the machine and unplug its components before starting the maintenance work.

1.3. Expected use of the plant

Local filtering plants of FA series are meant for the removal of chips, dust, sawdust from a number of machine-tools. It shall be installed in the workshop, close to the production equipment.

An innovative solution as for the supply of contaminated air to the plant differ the plants of these series from those designed for chip vacuum cleaners. The solution developed by the engineers of the company allows to prolong the service life of the filters and provides a long operation period of the plant within the declared parameters.

The plants with sleeve filters, made of powder painted steel, with an open body frame and a blower. They are produced in different models: from 1500 м^3/h to 14000 м^3/h.

The plant is equipped with a high suction power blower of high efficiency, a filter compartment with a reliable filter fastening system, bags, containers, intermediate bin for waste collection.

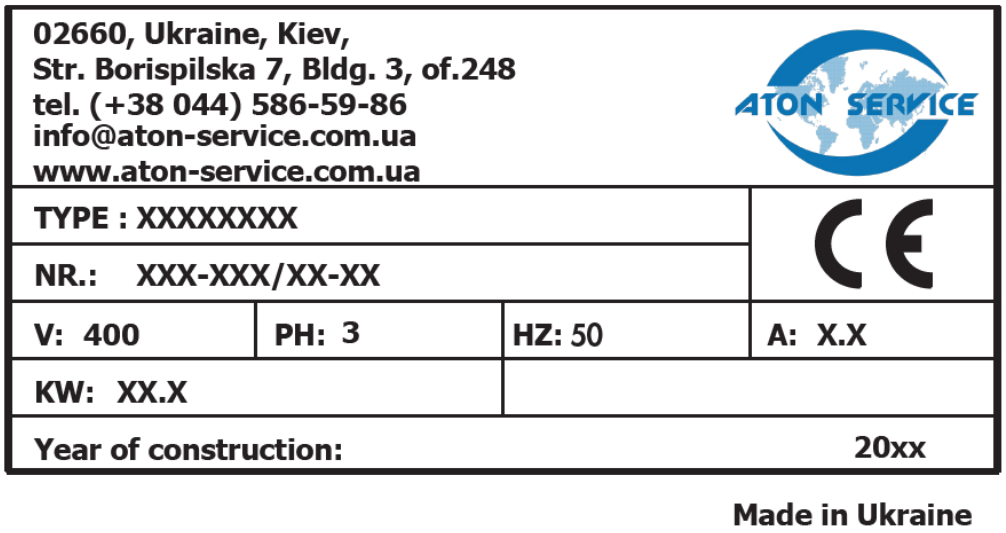
Filtering material – particle board, dry chips, PVC, foamed plastic
Can be used in — woodworking and furniture industry.

1.4. Plate

The identification mark is made on the plate which is pasted to the equipment and contains the information about the equipment. The plate shall be placed in plain view.

Identification plate:

- **Series and model**
- **Date of manufacture**
- **Serial number**



1.5. Technical data

The company Aton Service LLC supplies the following sizes of filtering plants of type FA to the market: FA-9, FA-18, FA-27, FA-36, FA-45, FA-60. The characteristics of each plant are stated in the table below:

Item	FA 9	FA 18	FA 27	FA 36	FA 45/ FA 45.Sc	FA 60.Sc
Air delivery, m^3/h	1500	3300	4800	6750	10000	14000
Total pressure, Pa	1500	2000	2500	2230	2000	2470
Power, kWt	1.5	3	5.5	7.5	11	18.5
Filtering surface,m^2	8.5	17	25	34	42.5	56.6
A, mm	1350	2260	3125	3915	4790/6700	7100
B, mm	870	903	903	903	1020	1120
H, mm	3450	3450	3450	3450	3450	3450
Weight	180	355	500	700	850	1038
Size of filtered particles	›10µm	›10µm	›10µm	›10µm	›10µm	›10µm
Way of accumulation	Bag	Bag	Bag	Bag	Bag/Bin	Bin
Accumulation volume (bag), m^3	0.23	0.23	0.46	0.69	0.69	1.1
Temperature	up to 80°	up to 80°	up to 80°	up to 80°	up to 80°	up to 80°
Blower	RM-AS 310/2/1.5	RM-AS400/2R/3	RM-AS450/2R/5.5	RM-AS450/2/7.5	RM-AS500/2R/11	RM-AS560/2R/18,5Es4
Type of filter	Sleeve filter ø200 x 1500mm	Sleeve filter ø 200 x 1500мм	Sleeve filter ø200 x 1500mm	Sleeve filter ø200 x 1500mm	Sleeve filter ø200 x 1500mm	Sleeve filter ø200 x 1500mm
Number of filters	9	18	27	36	45	60

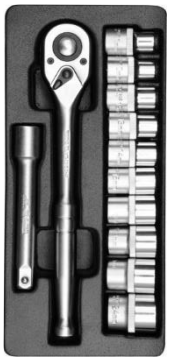
Item	FA 9.Bd	FA 18.Bd	FA 27.Bd	FA 36.Bd	FA 45.Bd
Air delivery, m3/h	1500	3300	4800	6750	10000
Total pressure, Pa	1500	2000	2500	2230	2000
Power, kWt	1.5	3	5.5	7.5	11
Filtering surface,m^2	8.5	17	25	34	42.5
A, mm	1630	2540	3405	4195	5070
B, mm	870	903	903	903	1020
H, mm	2820	2820	2850	2850	2920
Weight	180	355	500	700	850
Size of filtered particles	›10µm	›10µm	›10µm	›10µm	›10µm
Place of accumulation	Container	Container	Container	Container	Container
Accumulation volume (container), m^3	0,12(0,2)	0,35(0,6)	0,55(0,95)	0,8(1,4)	0,99(1,7)
Temperature	up to 80°	up to 80°	up to 80°	up to 80°	up to 80°
Blower	RM-AS 310/2/1.5	RM-AS400/2R/3	RM-AS450/2R/5.5	RM-AS450/2/7.5	RM-AS500/2R/11
Type of filter	Sleeve filter ø200 x 1500mm	Sleeve filter ø 200 x 1500мм	Sleeve filter ø200 x 1500mm	Sleeve filter ø200 x 1500mm	Sleeve filter ø200 x 1500mm
Number of filters	9	18	27	36	45

2. Preliminary operations for assembly

2.1. Necessary tools

A set of tools necessary for the assembly of the plant: a screw gun with a set of caps (or a set of ratchet heads), caulk gun, a set of screw keys, ladder.




2.2. Personal protective equipment

Protective gloves. Use protective gloves in order to avoid damage caused by sharp parts.

Protective clothing. Use protective clothing in order to avoid damages to your body when assembling.

Footwear. Use safety footwear in order to protect your feet from heavy parts which can fall when assembling.

2.3. Completeness of equipment

Before the assembly work, make sure that all the necessary parts and components are available on the basis of the list of components of the plant.
Depending on the efficiency of the plant it may consist of the following parts:

- Motor blower;
- Filter mounting panels;
- Receiving chamber;
- Filters;

- Accumulation chamber (bag/container/intermediate bin);
- Support legs of the plant.
- Blower support.
- Control panel.

3. Assembly

3.1. Preliminary guidance

- During the assembly it is recommended to insert the screws into their mounting points without complete clamping.
- The following is the description of the base model assembly. The overall size of modular parts and their number vary for other models.
- All connections must be filled with a sealant in order to avoid penetration of dust during the assembly.

3.2. Assembly steps

- Connect lower filter mounting panels.
- Connect upper filter mounting panels.
- Connect the legs (4 items in total) to the lower filter mounting panel.
- Connect the upper filter mounting panel to the top part of the legs.
- Install the receiving chamber on the upper filter mounting panel (an entrance hole on the side of legs with mounting holes for the blower support).
- Fix the blower support.
- Fix the blower onto the blower support and connect it to the entrance hole of the receiving chamber.
- Fix the junctions for the bags/container fixing panels/intermediate bin.
- Fix filtering elements. Starting with the most remote hole fix them firstly on the top and then on the bottom. In order to assemble, compress the first convex of the ring and insert it in the hole. The other convex of the ring shall be left on the outside of the panel.

4. Setting up and power connection

4.1. Power connection

The power connection must be carried out by an authorized company which has relevant certificates in accordance with the regulations in force.

For safety reasons, it is recommended to install a switch near the blower, which will be clearly visible to the serviceman who performs the maintenance. Thus you can avoid accidental start of the blower during the maintenance.

STARTING

Check that all screws are fixed, check the rotation of blower blades inside the blower frame by turning them manually. Check the presence of lubricants in turning parts.

The blower, the dosing control valve and the screw conveyor activate when you start the aspiration system. At first the blower starts, after a short period of time (KT1) the screw conveyor starts and finally after a short period of time (KT2) the dosing control valve activates. If the dosing control valve is stopped, the screw conveyor stops as well. In case of the activation of the limit switch of the screw conveyor, the screw conveyor stops. If the level sensor activates, the "Full bin" indicator lights up, and the system stops after a short period of time (KT3).

After the start, it is necessary to check the direction of blower blades rotation (it must coincide with the direction of the arrow indicated on the body frame). If they do not coincide, change the phase positions (only for three phase connections). Check motor currents (they must not exceed the rated values indicated on the motor plate). The verification must only be performed within the designed conditions. Check the temperature of bearings after the first hours of operation. If the temperature is high, stop the machine in order to cool the bearings up to the room temperature. Check the screws after several hours of operation. Avoid consecutive start of the motor as it leads to overload and overheat of electric parts. Let the engine cool down before each restart.

WARNING: The power connection must be carried out in accordance with the operation manual with respect of all safety rules.

ATTENTION! After the power connection check the accuracy of blower rotation. The electric cabinet and metal parts must be grounded.

The plant must be connected to the electrical network of ~380V through the circuit breaker.
The power connection is carried out through a power connector of a power socket **16, or 32A-400V-3P+N+PE**, as shown in picture 1.

Picture 1

During the power supply the accident may occur, which is indicated by the signal lamp of the button (see picture 2). It means that you need to change the order of the phases on your circuit breaker panel (after an auto protection).
The signal lamp turns on if:

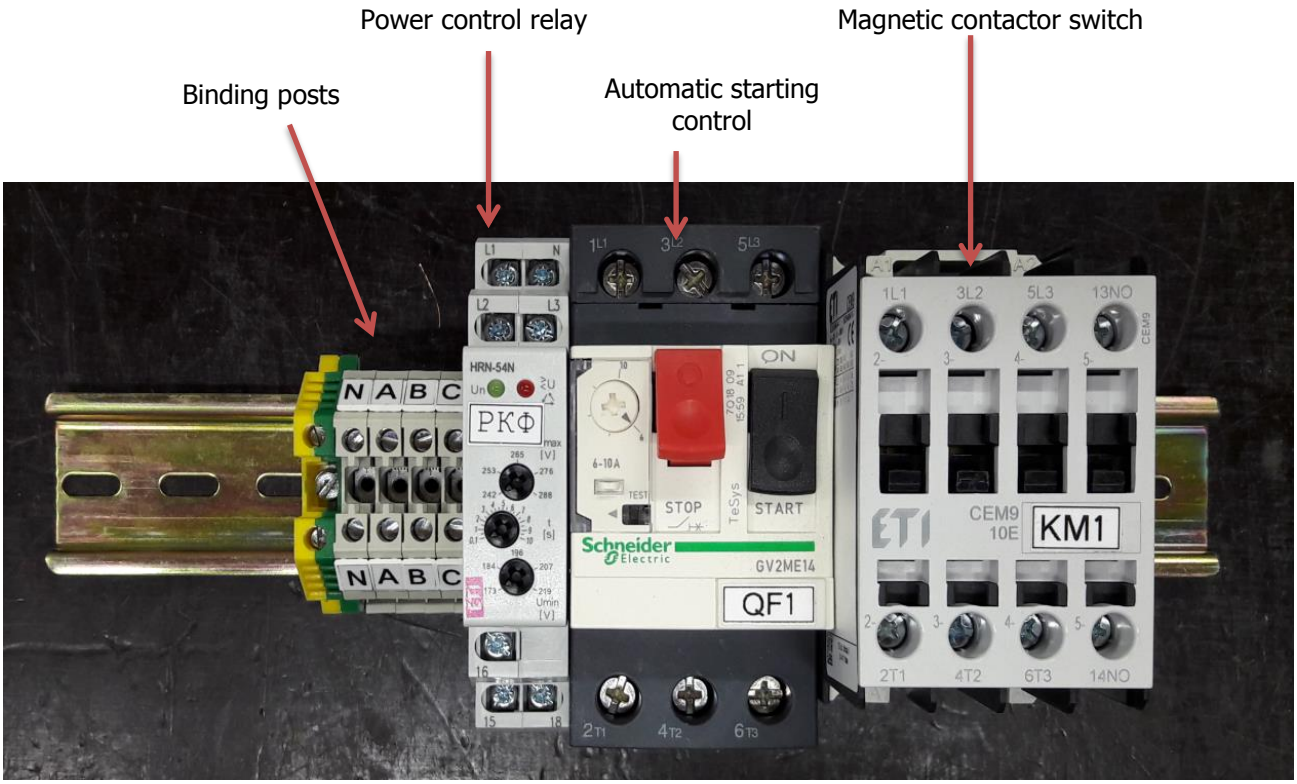
- the order of phases was changed
- one of three phases is missing
- zero conductor disappeared
- exceeded value of PCR set point
- automatic starting control is on

Picture 2

The signal lamp must not light up.

Start — Stop

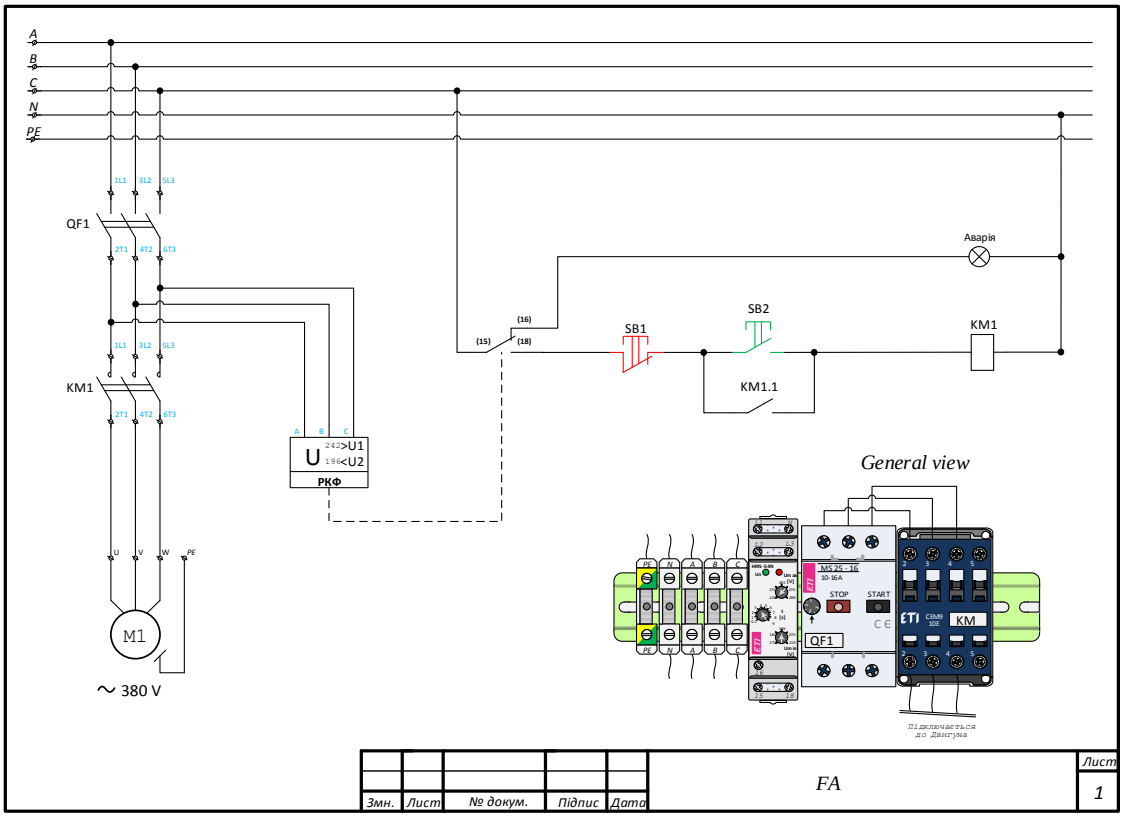
The plant starts by pressing the green button.
The plant stops by pressing the red button.



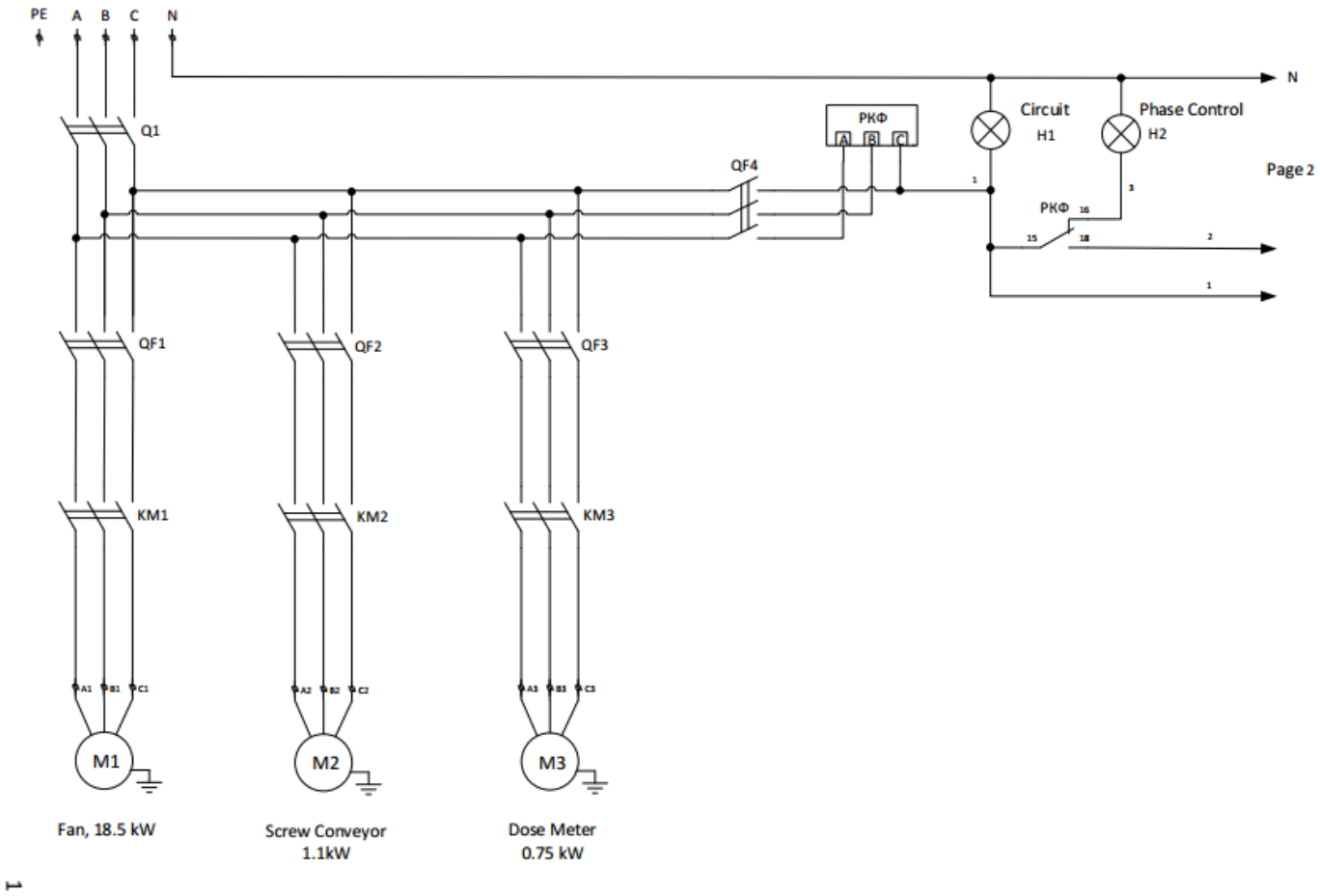
Capacity, kW	Model	RPM	Electric current, A
3	6SM/100L-2	2840	6.03
4	6SM/112M-2	2880	7.88
5.5	6SM/132SA-2	2900	10.53
7.5	6SM/132SB -2	2920	14.14
11	7SM/160MA-2	2930	20.1
15	7SM/160MB-2	2930	27.2

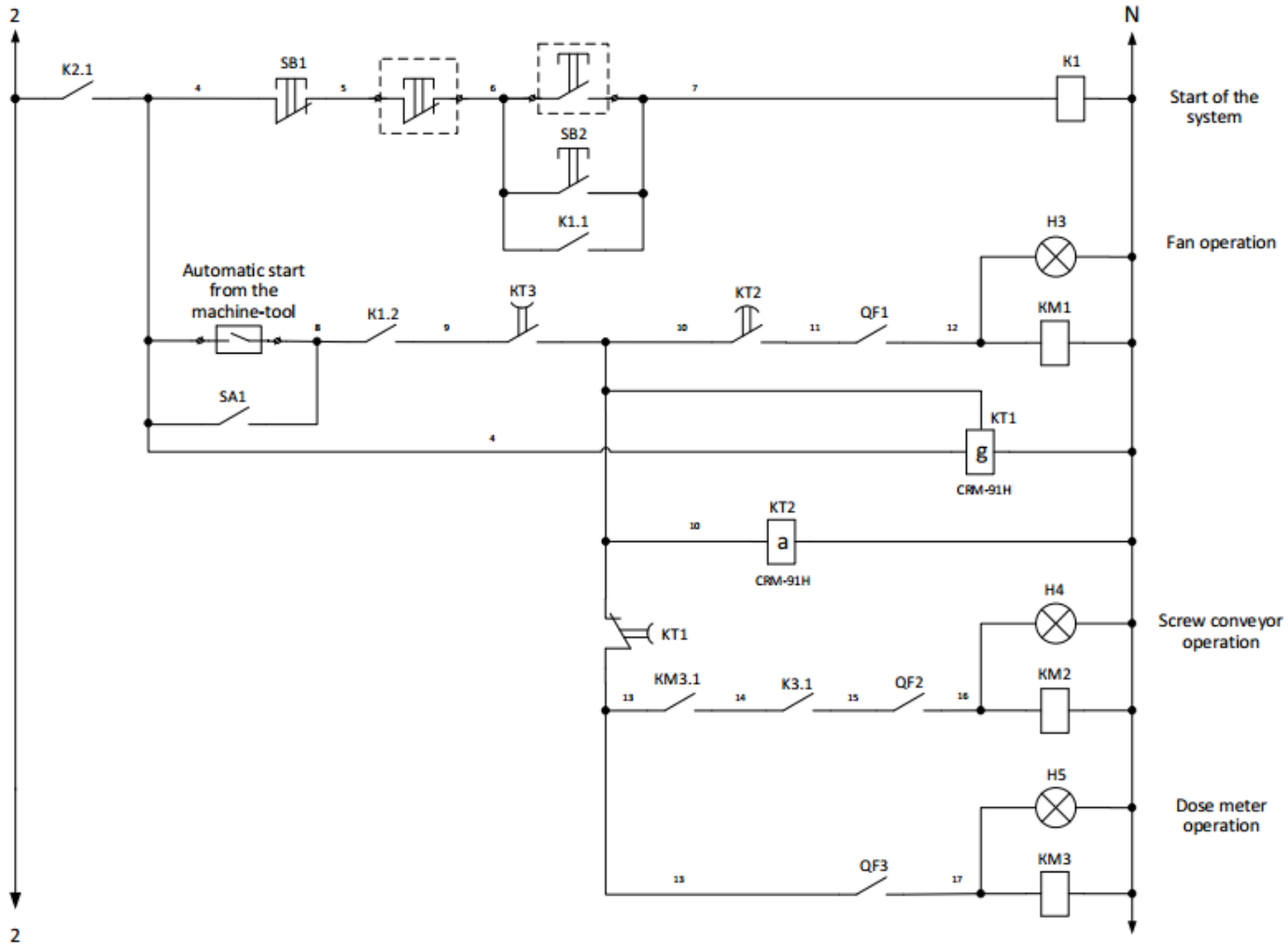
Pay attention that the electric current may change depending on the model and pairs of poles of the motor.

Scheme for: FA-9/18/27/36/45/9.Bd/18.Bd/27.Bd/36.Bd/45.Bd

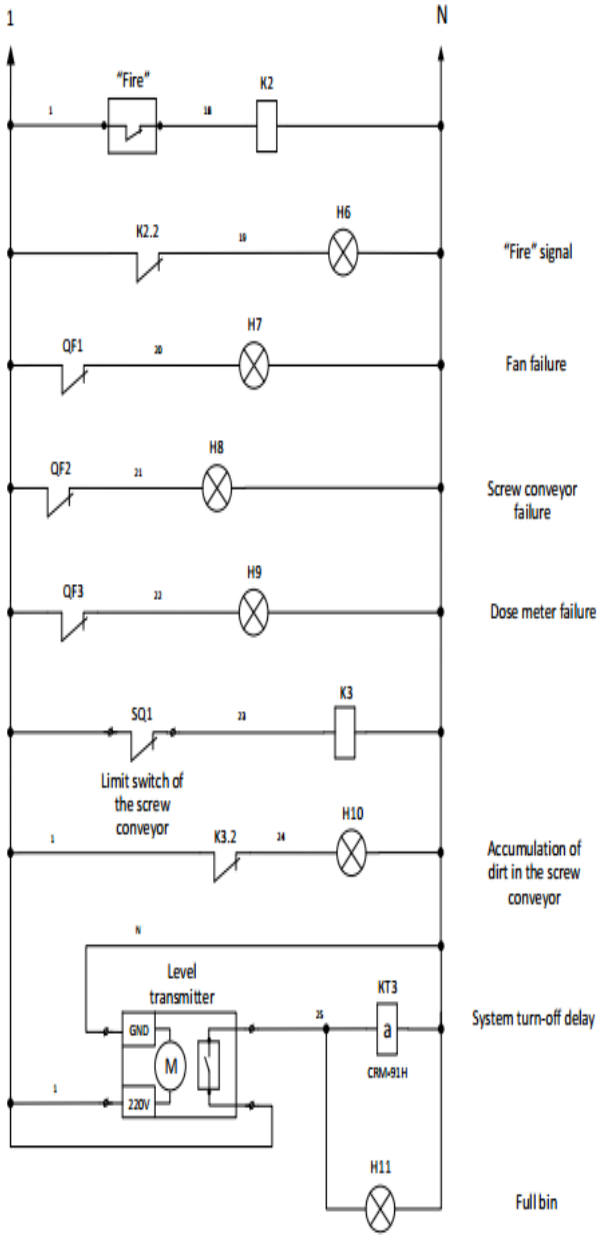


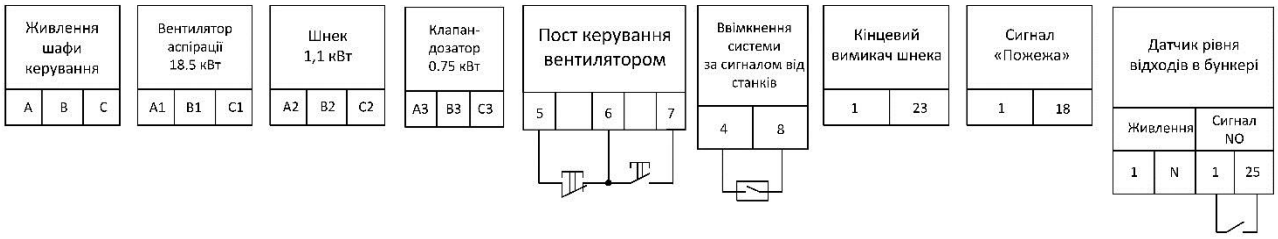
Scheme for: FA-45.Sc/60.Sc




2
N
K2.1
SB1
SB2
K1
K1.1
Start of the system
H3
Fan operation
Automatic start from the machine-tool
K1.2
KT3
KT2
QF1
KM1
SA1
KT1
CRM-91H
KT2
CRM-91H
H4
KT1
KM3.1
K3.1
QF2
KM2
Screw conveyor operation
H5
Dose meter operation
QF3
KM3
2

List of components:
Q1 — main switch.
QF1 — automatic switch of the blower.
QF2 — automatic switch of the screw conveyor.
QF3 — automatic switch of dose meter.
QF4 — automatic switch of control circuit 400 V
F1 — automatic switch of the control panel of filter cleaning system.
РКФ — power control relay.
KT1 — KT3 — timer-relay circuit.
K1 — K3 — electromagnetic relay.
KM1 – KM3 – contactor.





SB2 

Start fan button

SB1 

Stop fan button

H1 

Electric power presence lamp

H3 

Fan operation signal lamp

H4 

Screw conveyor operation signal lamp

H5 

Dosing control valve operation signal lamp

H10

Clogged screw conveyor signal lamp

H6

"Fire" signal lamp

H2

Circuit condition signal lamp.
In case of failure check phase sequence, phase presence and voltage. Change settings of max and min voltage if necessary

H7

Fan failure signal lamp.
Solution – turn on the automatic switch QF1

H8

Screw conveyor failure signal lamp
Solution – turn on the automatic switch QF2

H9

Dosing control valve failure signal lamp
Solution – turn on the automatic switch QF3

H11

Full bin signal lamp

5. Operation of the plant

Contaminated air is fed to a blower which works on injection. The air enters the receiving chamber being distributed to filtering elements. Big and medium sized fractions of dust immediately enter the dust collectors. Small and partially medium sized fractions of dust are filtered through filter fabric. The filtered dust is gradually accumulating on the filtering element and is carried by an airflow into the dust collector (bag, container, intermediate bin).

5.1. Operation conditions

Indoor environment:

- Air temperature -10°C +45°C
- Air humidity up to 90%
- Max induced air humidity up to 50%
- Max altitude above sea level 1000 meters.

The equipment is not designed for the treatment of a gas other than atmospheric, unless otherwise agreed by the written consent provided by the manufacturer.
The plant is designed and manufactured for the treatment of any air mixture and incombustible dust.
Other flammable materials may be transported only providing the written consent of the manufacturer.
Do not use filtration systems for the filtration of the air which contains paint, big and long fractions of sawdust, rag, alien metal objects or any other items that can damage the blower, the filter and the plant.
Do not remove filter elements, bags / accumulating containers. They can be removed only during maintenance or in order to repair, only when the control cabinet is disconnected. Do not carry out any operations with the running plant.

6. Maintenance

ATTENTION! All operations must be carried out with disconnected equipment.

6.1. Cleaning of equipment, cleaning / substitution of filters

In order to clean the equipment, perform the following actions:

- Disconnect the equipment from the power supply by turning the main switch to the "Off" position and wait for the full stop of the blower.
- Detach the bags/containers, dispose them of the accumulated material.
- Carry out a visual inspection of the filtering elements. If any deposits of dust appear on the filter, clean the filter.
- If the filters are damaged, disconnect the locking rings of the filter and change it.
- Clear the plant from possible dust deposits.
- Install waste bags/containers.

The operations listed above must be carried out with the use of personal protective equipment.

ATTENTION! Beware of any source of combustion (cigarettes, flames, sparks) when performing cleaning operations.

6.2. Regular control

Regular monitoring of the state of the plant and filter elements is very important as it ensures the appropriate safety level and prevents the risk of explosion and fire, which can be provoked by the deposit and accumulation of flammable particles inside the filtering plant. During the motion, the deposit and the accumulation of flammable particles create potentially explosive dust cloud, that is why you should minimize the volume of these deposits and accumulations. Deposits may also inflame after the contact with hot surfaces, sparks and flame.

6.3. Regular maintenance

Every 600 running hours:

- Check the noise of motor spinning parts, blower blades, bearings.

Every 1200 running hours:

- Check clamping screws of connected parts.

Every 2400 running hours:

- Check the balance of blower blades.

Every 1600 running hours:

- Carry out cleaning and lubricating of bearings, change them if necessary.

Every 16 running hours:

- Carry out a visual inspection of the screw conveyor and a dust discharge (if applicable) through the inspection hole.

Every 180 running hours:

- Check the gear motor (if applicable).

Every 260 running hours:

- Check the gear motor at the dose meter (if applicable).

Every 650 running hours:

- Detach and clean filtering elements, change them if necessary.

Every 160 running hours:

ATTENTION! Do not run the blower with all slide gates closed.

- Cleaning the main pipes: open all the slide gates, start the blower and run it for several minutes (do not operate with woodworking machines when cleaning).
- Cleaning separate parts: open the slide gates of separate parts which are to be cleaned, start the blower and run it for several minutes (do not operate with woodworking machines when cleaning).

6.4. Assembly / Disassembly of blower blades

- Unscrew the blower and remove it.
- Disassemble the inlet nozzle of the blower.
- Take off the fixing screw and spacer that fix blower blades on the shaft.
- Remove the blower impeller with the help of a puller by inserting the spacer between the blower support and the shaft to avoid damages to the shaft.
- Assemble in reverse order.

6.5. Disassembly of blower blades support

- Remove the blower blades as described above
- Unscrew the support and change, if necessary, interior parts of the support and bearings.
- Assemble in reverse order

6.6. Cleaning of blower blades

Blower blades must be statically and dynamically aligned so that there is no vibration. Regularly check the cleanliness of blower blades. Oil fume, resins, air humidity and other factors contribute to the adhesion of dust, grease and other materials to blower blades, which leads to its disbalance resulting in damage of the motor and the body frame of the blower.

The markers are enhanced noise and vibration.

In order to clean blower blades, firstly check that the motor is disconnected. All actions must be carried out through the inspection window of the blower. Clean blower blades with the brush. When cleaning you should clear all contaminants. If they remain, it may result in disbalance.

Aton Service LLC declines any responsibility in case of damages to the motor, the body frame and blower blades, that were caused by the adhesion of dust.

6.7. Filtering elements

- Fix filtering elements. Starting with the most remote hole fix them firstly on the top and then on the bottom. In order to assemble, compress the first convex of the ring and insert it in the hole. The other convex of the ring shall be left on the outside of the panel.
- Damage of filter fabric results the through airflow.
- Average life. Given that the filtering element is used correctly with inviscid materials, without penetration of foreign objects that can damage the fabric of the filter, without any humidity, the average life of the filtering elements constitutes 12 months.

6.8. Complementary maintenance

In cases where the installed blower transports very dusty air or where pneumatic transport of material of different origin is carried out, specific maintenance is required. Blower blades may get dirty very often. For this reason, working parts

should be verified more often. It is recommended to authorize the serviceman to conduct and bear the responsibility for the maintenance of blowers.

7. Other terms

7.1. Verification

ATTENTION! The following operations must be carried out by qualified servicemen with disconnected equipment.

Object of verification	Frequency of maintenance	Work to be done
Cleaning	Cleaning should be carried out so that deposits and accumulations of dust do not remain for more than one working shift.	Exterior and interior cleaning
Filtering elements	Once a month	Verification
Screws and nuts	After the first 500 running hours, then once a year	Check the tights
Caution plates	Every 6 months	Check that the plate is legible and undamaged

7.2. Troubleshooting tips

ATTENTION! The following operations must be carried out by qualified servicemen with disconnected equipment and only after contacting the Supplier of the equipment.

PROBLEM	POSSIBLE CAUSE	SOLUTION
The system does not intake the air right after the assembly.	Wrong rotation direction of the blower.	Check the rotation direction. (see the arrow at the body frame of the blower)
The dust goes through the filtering elements	Damaged filters Expired average life The filter is out of the pockets	Change filtering elements Fix the filter
The dust goes out of accumulation bags/containers	Damaged bag / container Wrong fixation (leakness appears)	Change the accumulation bag/container Check the fixation of the bag/container

7.3. Blower running problems and their solutions

Problem	Possible cause	Solution
Insufficient volume of moving air	♦ Wrong rotation direction ♦ Partial clogging of air pipes or air intake areas ♦ Insufficient RPM number ♦ Dusted blower blades ♦ Clogged filters	• Change phases of the motor • Clean air pipes, check slide gates • Check the voltage and the state of electrical contacts • Clean blower blades • Clean the filters more frequently
Complicated start	♦ Excessive power drain ♦ Insufficient torque of the electric motor	• Change the electric motor • Check the data about the electric motor in accordance with the technical documentation

The power drain of the blower exceeds the one indicated in technical documentation	♦ Dusted filters ♦ Adhesion of dust to blower blades ♦ Partially clogged air pipes / air intake areas	• Clean the filters more frequently • Clean blower blades • Clean air pipes and check slide gates
Excessive noise	♦ Disbalanced blower blades, displaced in relation to the body frame.	• Check the accuracy of assembly and the state of blower blades
Excessive vibration	♦ Disbalanced blower blades or other spinning parts ♦ Wrong assembly and fixation of the blower	• Cleaning or change • It is recommended to install a blower on the basis of concrete plates or onto a sufficiently rigid frame.

7.4. Diagnostics

Conclusion	Possible cause	Solution
Reduced pressure	Flexible hoses are too long or pressed.	Change the hose, eliminate the pression, install a more powerful blower.
	There are open points, for example, the bag / container is not fixed hermetically.	Check the correct installation of the bag / container
	Wrong direction of blower blades	Contact the Supplier for further actions
Reduced efficiency	Clogged air pipes or aspiration pipes	Clean air pipes, check slide gates
	Insufficient RPM number	Check the voltage and the power connection of the motor
	Wrong rotation direction	Check the accuracy of the power connection
	Adhesion of dust to blower	Disconnect the system and

	blades	clean blower blades
	Loss of air caused by disrupted air tightness or by badly connected air pipes.	Check the air tightness of joints
	Blower blades are partially blocked or damaged	Check the mounting position of blower blades and its condition
Reduced pressure	The pressure is lower than the designed one	Change the blower
Complicated start of the blower	The blower works at zero power	Change the blower
	Damaged bearings	Check the condition, lubricate, change if necessary
	Disbalanced blower blades that contact the body frame	Check the condition

7.5. Warranty conditions

- The warranty term constitutes 12 months as of the date of signing of the invoice or Act of Acceptance, but does not exceed 18 months as of the moment of dispatch, unless otherwise stated in the contract.
- The warranty shall mean the obligation of the Supplier to provide the Buyer for free with the nondefective part (component) instead of a defective one if the defect is due to the manufacturer's fault. The substitution of the part (component) shall be carried out as soon as possible, but not later than 30 business days as of the written claim of the Buyer related to the detected defect on the basis of the reclamation act. The claim related to the substitution of the part (component) shall be made by the Buyer solely in writing form and shall contain the model of the equipment, its serial number and the description of the defect.
- Assembly (disassembly) of the component shall be carried out by the Buyer. The Buyer may charge the Supplier with this operation. The operation and payment conditions shall be agreed separately.

- Starting up and adjustment operations, and installation works of the equipment (if required) shall be carried out by the Supplier's specialists or by the third parties who are authorized by the Supplier to conduct these operations, otherwise if these works were carried out by unqualified staff and caused the equipment to malfunction, warranty liabilities no longer apply.
- In case of a defect detection, the Buyer must notify the Supplier within 05 (five) business days as of the moment of the defect detection, in writing form, by sending (registered letter with notification) the reclamation (defective statement).
- The Supplier must provide a specialist within 05 (five) business days after the receipt of the reclamation in order to examine the equipment and, if necessary, to draw up a Reclamation act.
- The Reclamation act shall be signed up by the Parties within 05 (five) business days as of the day it was drawn up.
- Warranty liabilities no longer apply in the event if the Buyer violates any of the following stipulations:
  - the equipment is used for its intended purpose or in accordance with the relevant instructions of the Supplier or the manufacturer;
  - regular maintenance of the equipment is carried out in accordance with the requirements of the Operation Manual;
  - any engineering changes and adds-on shall be made solely upon the Supplier's written consent;
  - the integrity of the seals provided by the operational documents is ensured;
  - the operation of the equipment is carried out by the persons who underwent relevant training and are familiar with the operation conditions, authorized and forbidden methods of work, maintenance order, safety rules (for example, they acquired knowledge during start-up and adjustment works);
  - observance of all conditions of transportation, preservation and shipping of equipment;
  - observance of operation conditions and connection of the equipment (power and pneumatic connections) and their conformity with the Operation Manual of the equipment;
  - use only original spare parts authorized by the manufacturer;

- compliance with the conditions of humidity in premises where the equipment is operated (plants for internal use).

- Warranty liabilities of the Supplier do not apply in case of damages caused by force majeure events as well as cases of natural wear and exploitation of components and spare parts, such as:
  - driving belts;
  - rubber blades, plastic articles and woven fabrics;
  - light bulbs, fuses and similar parts;
  - running screws, screw nuts, gear segments, gear wheels.
- Equipment or its components, which are included to the Buyer's reclamation (defective statement), must be provided to the Supplier's representative in order to verify its validity within 14 calendar days as of their breakdown. Otherwise, the replacement of the spare part (component) will be provided on a fee paid basis.
- The warranty excludes defects which were caused by the following factors:
  - unskilled operation or external influence (e.g. scratches, dents, other deformations);
  - dirt of any origin;
  - maintenance and other use of the equipment that was carried out by unskilled staff who did not undergo training provided by the company of the Supplier or have not received permission from the Supplier;
  - damages caused by improper transportation of the equipment by the Buyer.
- The Operation Manual provided by the Supplier to the Buyer is mandatory to follow. The Buyer has the right to request in writing an additional copy of the Operation Manual, and the Supplier has the right to provide it in paper or electronic form.
- The Buyer's claims as for damages that may be due to the stop or standing time of the equipment, are not accepted nor considered by the Supplier.
- Warranty is applied only for components or details change, which, according to the Aton service LTD assessment, had the factory's defect. Any other obligations, any other responsibility, full or partial, for other losses, direct or indirect, coming from the usage or impossibility of usage of equipment are excluded.

7.6. Safety notices

The filtering plant removes dust and accumulates it in bags/containers. If the dust is

flammable (e.g. wood, plastic, aluminum, magnesium, etc.) and it comes into contact with a source of ignition (open flames, sparks), there is a risk of fire. The Buyer must follow the instructions contained in this Operation Manual and act in accordance with the fire safety regulations. Special attention must be paid to internal cleaning operations, as well as to cleaning of external parts in order to avoid excessive accumulation of flammable dust. Make sure that no sources of ignition, such as coals, sparks, open flames, cigarettes or any other sources can get through air intake holes.

7.7. Transportation, packaging and storage

- Transportation (if operated by the Buyer). Every equipment shall be verified and tested before the dispatch. The warranty period starts with the date of supply and covers the quality of production and material. The customer of transportation bears the responsibility for damages occurred during transportation. Disassembled filtering plant is packed in plastic or cardboard. All waste from packaging must be disposed of in accordance with the legislation in force. Transportation must be carried out carefully to avoid overturn and fall of the equipment. Lifting and transportation must be carried out by appropriate vehicles and lifting equipment. Transportation must be carried out in accordance with the regulations in force to avoid possible accidents.
- Discharge. In order to discharge the equipment, you must use the help of professional loaders or qualified staff with the relevant experience in discharge of this kind of equipment.
    - Do not remove components that are used to block parts of the equipment during transportation until all parts are discharged and placed.
    - Follow the instructions when moving the components. Use the marks for elevation and mounting.
- Storage and moving (if carried out by the Buyer). The equipment must be protected from the effects caused by atmospheric factors, dust and possible fall of foreign objects on the equipment. If there is a big period of time between the date of delivery and the date of assembly, it is necessary to periodically (every week) check the blower by scrolling it manually in order to avoid damaging the bearings. It is forbidden to leave the blower blades inactive for a long period of time. The manufacturer is not responsible for damages to equipment caused by a long standing time.
- The size and the weight are shown in Technical Data table, point 1.5.

8. Marks