Use and Maintenance Manual

Filtering unit UFO-A-5000

Contents:

1. Introductory Remarks

The purpose of the present User's Manual is to supply User with directions within the range of application, installation, start-up and the operational use of the **UFO-A-5000 filtering unit**.

Installing, start up and operational use are exclusively admissible after getting acquainted with the contents of the Use and Maintenance Manual.
With regard to the continuity of work carried on improvement of our products, we reserve for ourselves the revision possibility of the draft and technological changes improving their functional features and safety.

The construction of the **UFO-A-5000 filtering unit** meets the requirements of the current state of technology as well as the safety and health assurances included in:

– **2006/42/EC Machinery Directive** of the European Parliament and of the Council of 17 May, 2006 on machinery – amending the 95/16/EC (recast) /*Journal of Laws EC L157 of 09.06.2006, page 24*/

– **2014/35/EC Directive** of the European Parliament and of the Council of 26 February, 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
/*Journal of Laws EC L96 of 29.03.2014*/

The appliance meets the requirements included in:

– **2009/125/EC (ErP) Directive** of the European Parliament and of the Council of October 21th, 2009 establishing a framework for the setting of ecodesign requirements for energy-related products /*Journal of Laws L285 of 31.10.2009*/

– **327/2011** (**EU**) **Commission Regulation** of March 30th, 2011 on implementing the **2009/125 /EC Directive** of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input power between 125W and 500 kW /*Journal of Laws L90 of 06.04.2011*/

The device has been constructed and produced on the basis of following harmonized standards:

• **EN ISO-12100:2012**	– "Safety of machinery – Basic concepts, general principles for design. Risk assessment and risk reduction".
• **EN 60204-1:2018-12**	– "Safety of machinery – Electrical equipment of machines. Part 1: General requirements".
• **EN ISO 13857:2010**	– "Safety of machinery – Safe distances to prevent hazard zones being reached by upper and lower limbs".
• **EN 60529:2003/A2:2014-07**	– "Degrees of protection provided by enclosures (IP Code)"
• **EN 61439-1:2011**	– "Low-voltage switchgear and controlgear assemblies – Part 1: General resolutions".

2. Application

UFO-A-5000 filtering unit is manufactured in two versions **UFO-A-5000 RH** with the air outlet on the right side and **UFO-A-5000 LH** with the air outlet on the left. The device is designed for cleaning the air from the impurities arising during manufacturing processes. The appliance is used for removal of dry dust particles (**without aggressive compounds or impurities creating explosive hazard**) arising during welding, grinding of non-sparking materials, gas- or plasma metal cutting or during other dust-generating processes in following industries as chemical pharmaceutical, plastic-, food production and in other lines.
The device is equipped with cartridge filters with polyester fabric, capturing the dust particles at the outer surface of the filter. The filter regeneration system shakes cyclically the impurities from the filter surface (by means of compressed air). The maximum admissible temperature of the conveyed air is 60ºC

3. Reservations of Producer

Manufacturer accepts no liability for any damages in case of occurrence of one of the below mentioned causes:

A. Improper installing that is in contradiction with the present Use and Maintenance Manual.

B. Incorrect connection to the power supply (energising) or to the external compressed air installation.

C. Operational use that is in contradiction with the present Use and Maintenance Manual or with the valid regulations.

D. Installing of any additional elements that are not belonging to the original device structure or accessory set.

E. Structural changes or modification of the appliance, carried out on one's own or use of not original spare parts, not purchased at the manufacturer's.

F. Situations where the rules of technical supervisions and maintenance are not observed, according to the present Use and Maintenance Manual.

G. Forwarding the air containing viscous and aggressive contamination, as this would cause damage of filters, or conveying the air of temperature higher than 60ºC.

H. **In the course of operational use, pay attention that any ignition sources, i.e. glowing cigarette butts / embers must not get into the filtering chamber.**

4. Technical Data

Table No.1

Type	Maximum volume flow	Maximum vacuum	Motor rate	Supply voltage	Quantity of the cartridge filters	Acoustic pressure level	Consumption of the compressed air	Weight
	[m³/h]	[Pa]	[kW]	[V/Hz]	[pcs]	[dB(A)]	[Nm³/h]	[kg]
UFO-A-5000 RH / **UFO-A-5000 LH**	6300	4100	5,5	3x400/50	2	72	2,8	610

Cartridge filters: quantity – 2 pcs
diameter – Ø380 mm
height – 660 mm

Remarks:

- inlet diameter: Ø500 mm
- required pressure of the compressed air: minimum 0,6 MPa
- capacity of the waste container: 72 dm^3
- connection to the compressed air – diameter Ø12 mm (quick-connector)

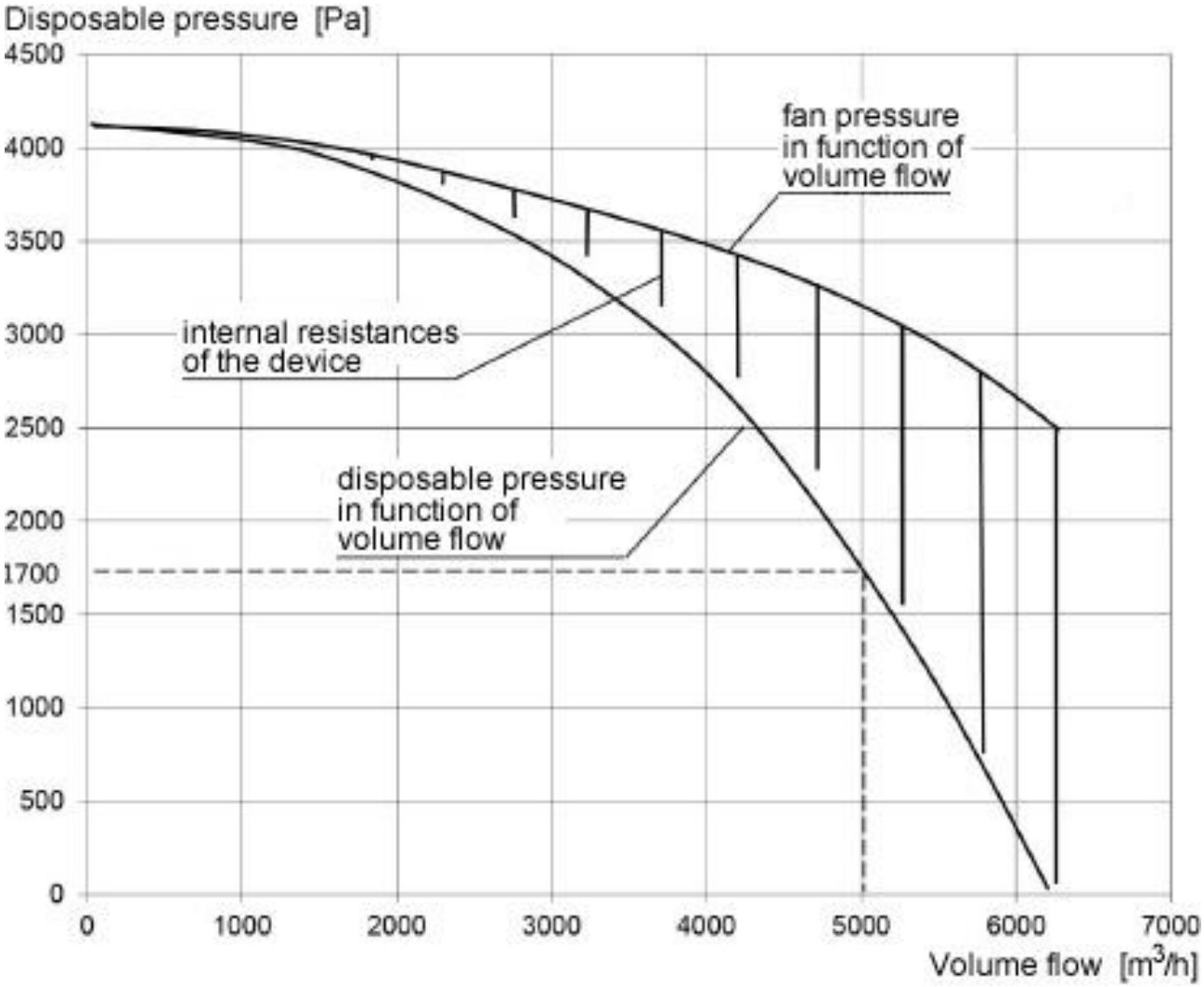


Fig. No.1 – Flow chart

Table No.2 – Replaceable parts – Cartridge filter – 2 pieces

	Type	Weight [kg]	Filtration efficiency [%]	Remarks
	PN206638U	4,2	99,9	Replacement frequency: 1 up to 2 years.

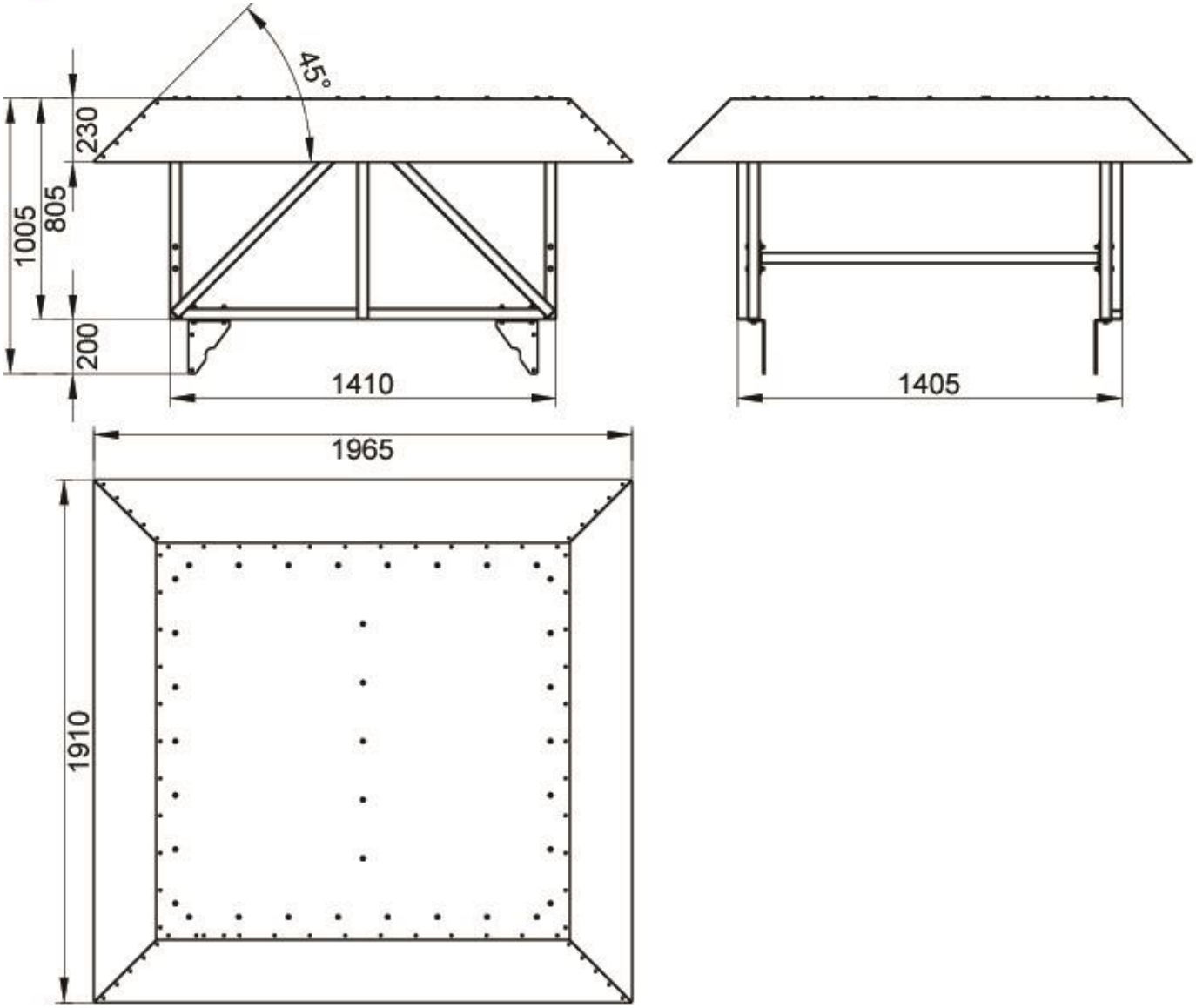


Fig. No.2 – Additional element – Fan cover OW-UFO-A-5000 – fan cover to be installed on the device

5. Structure and Function

UFO-A-5000 filtering unit is constructed of subsequent operational assemblies:

- Fan in a sound-absorbing housing
- Filtration chamber – as a middle part of the device, contains two cartridge filters. The chamber housing is equipped with an inspection door for filter replacement. Outside the chamber is located a switchgear to control the electromagnetic valves and for the fan function, (as described in details in Section 7).
  In the filtration chamber is formed a separate regeneration chamber, where are introduced outlets of the filters and Venturi orifices. There are two hatches for maintenance and inspection (of the compressed air installation). Outside the filtering chamber housing is installed the compressed air system, consisting of:
  - Compressed air tank – designed for operational pressure not exceeding 0,8 MPa. The container meets the requirements of the European Union Directive 2009/105/EC and the Guideline of the Minister of Economy of the December 23, 2005 (Journal of Laws 2005 No.259 Pos. 2171).
  - One electromagnetic valve of diameter 1,5” – to regenerate the cartridge filters.

- Supporting structure with the hopper chamber – under the hopper chamber is located a container for dust (capacity 72 dm^3).
- As additional equipment, (upon separate order) the device can be equipped with a fan cover, installed on the device (see Fig. No.2).
- Filtering units with a free (not plugged) outlet should be equipped with an air guide KP-UFO-A-5.

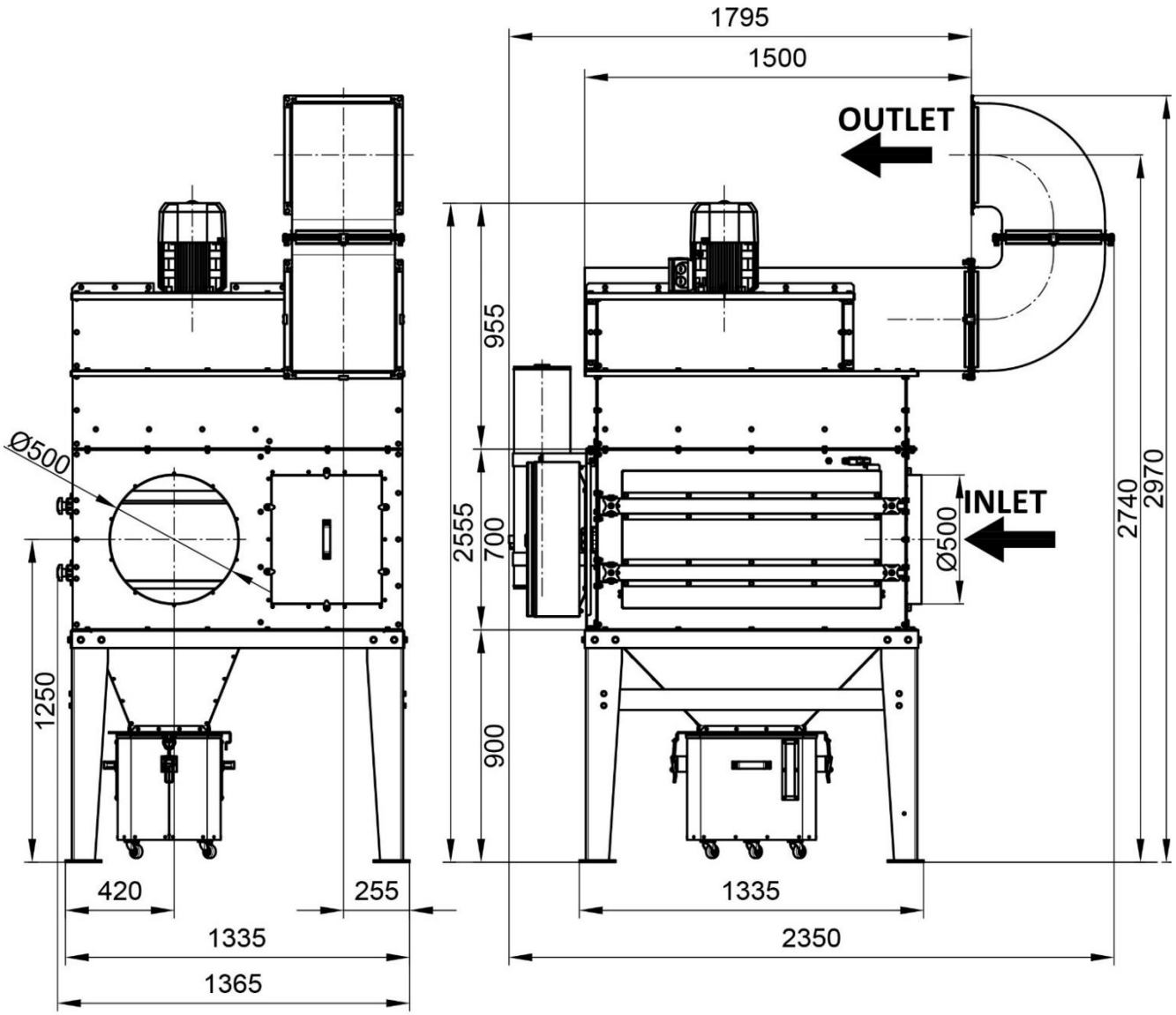


Fig. No.3a – UFO-A-5000 RH (with the air inlet on the right side) – dimensions

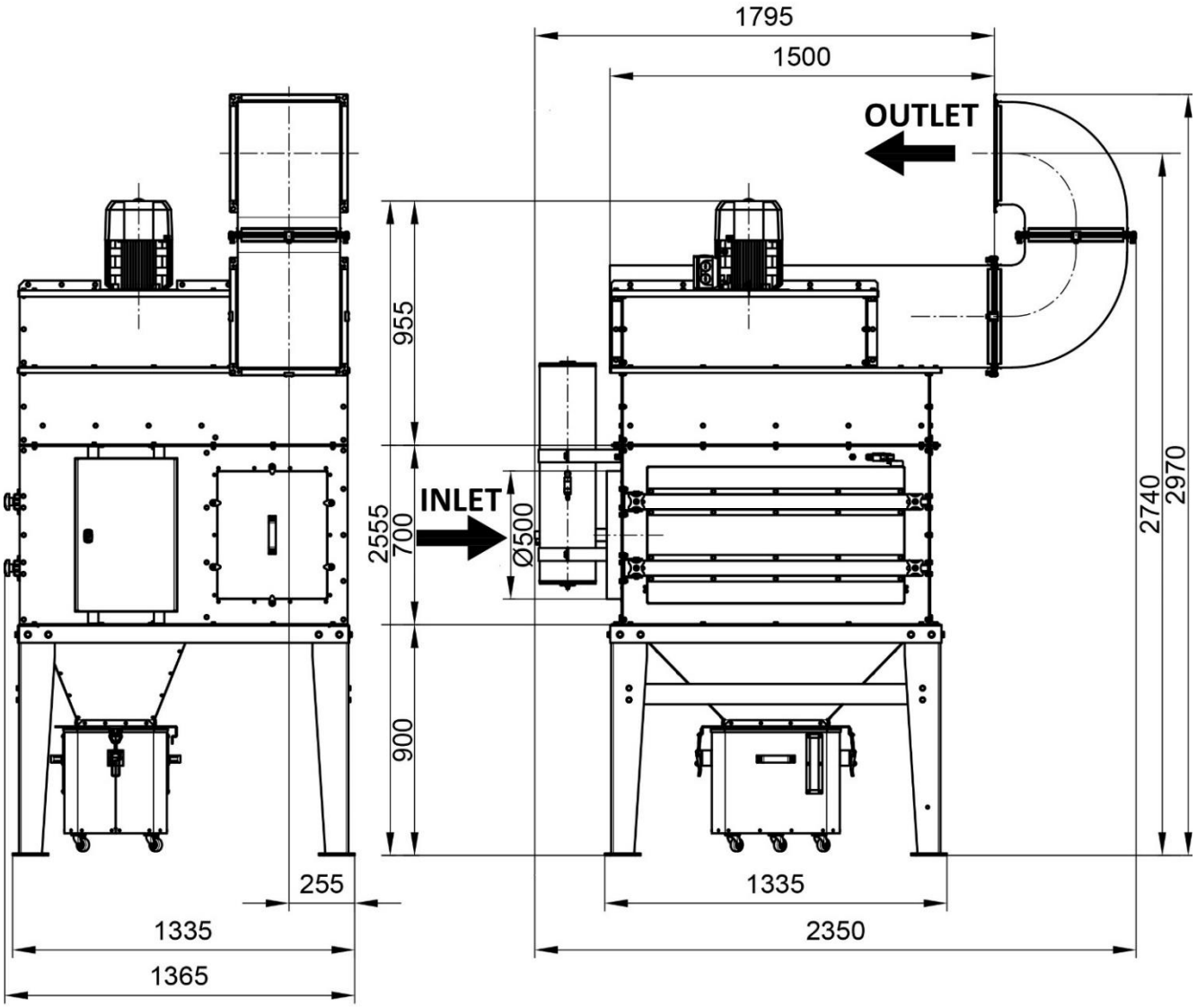


Fig. No.3b – UFO-A-5000 LH (with the air inlet on the left side) – dimensions

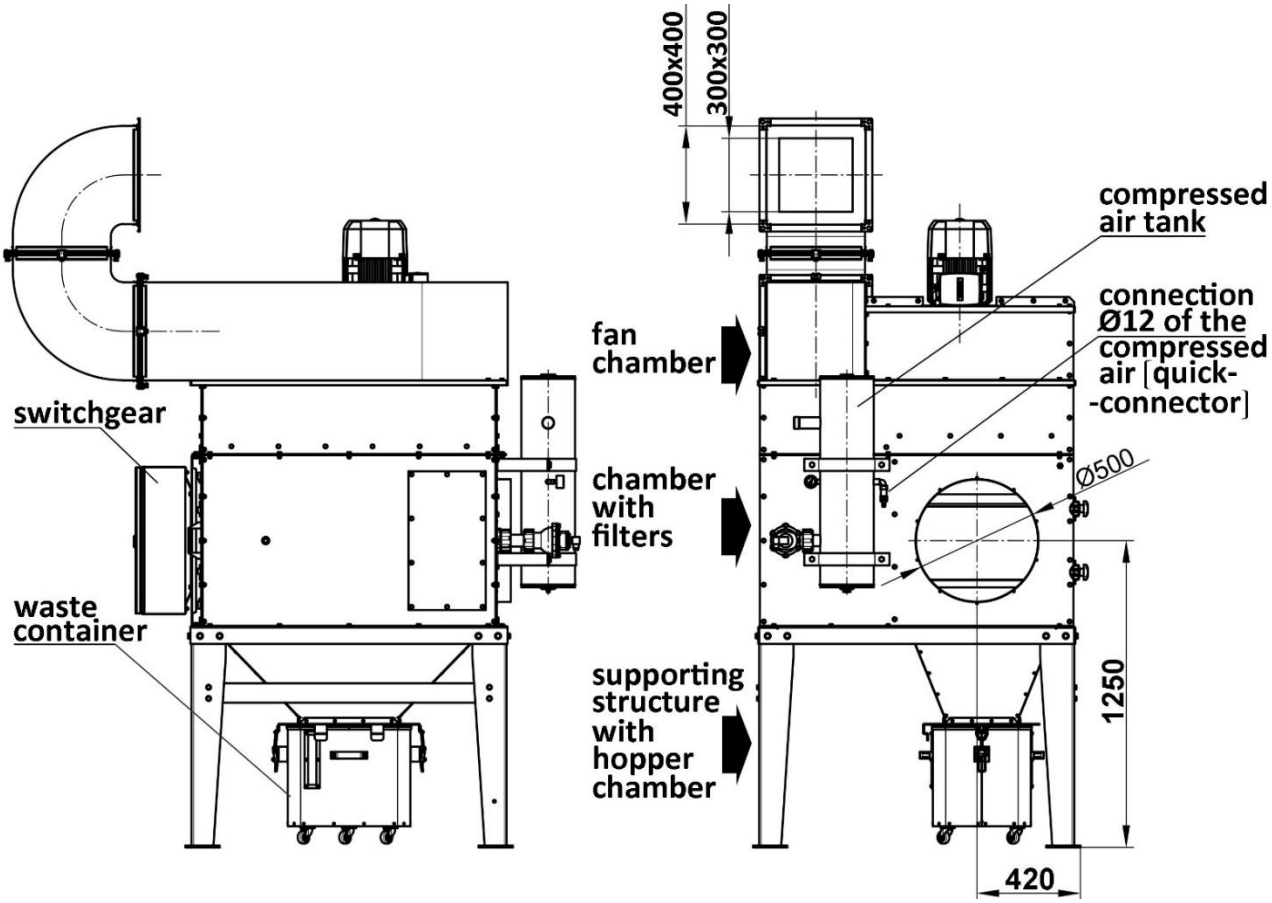


Fig. No.4 – UFO-A-5000 RH and LH – Structure and dimensions

UFO-A-5000 is delivered without silencers at the air inlet. As standard, at the outlet, the filtering unit is equipped with a square silencer set and two sound absorbing elbows, (as illustrated in Fig. No.4).
The system of automatic filters regeneration should be supplied from the external compressed air installation of pressure 0,6±0,8 MPa.

Switchgear – to operate the fan, and (depending on the time programme) controls the electromagnetic valves. It is delivered along with the device.
On one of the rear legs, there is fastened a clamp to connect the UFO-A-5000 with the local equilibrating profile.

6. Assembly and Start-up

6.1 Assembly description

UFO-A filtering unit is designed for installing inside the rooms (indoor application). In case of outdoor application, it is important to apply the fan cover (see Fig. No.2 – Additional element).
Before installing in the site of operation, first check whether the filtering unit is complete and if its elements are not damaged, without indents, etc. The filtering unit is delivered in two assemblies, so while installing use lifting devices. All these steps should be carried out by a specialist assembly team.
First, put the supporting structure with hopper chamber and the filtration chamber on the floor. The supporting frame must be levelled and its legs fastened firmly to the floor.

Having installed the first assembly, put the fan assembly (in the sound absorbing chamber with the square silencer) on the filtration chamber.

As these assemblies of large dimensions, handle with care while they are installed. In the upper part of the fan chamber are located handles for lifting during the transport and installing.
After the chamber of filters and the supporting frame with hopper chamber are put together, it is important **to seal them up with** "**silicone**" (i.e. their contact surface) and screw tight with bolts. The bolts, screws and "silicone" are delivered by the manufacturer along with the device. Having assembled those elements, connect them by means of an equilibrating cable.

Compressed air tank and electromagnetic valves are delivered to the customer in an assembled state. Having installed the filtering unit, connect it to the external compressed air installation 0,6÷0,8 MPa. The compressed air should be without oil contamination and free of humidity.
The coupling should be equipped with a cut off valve, air filter and a dewaterer. Those elements <u>are not delivered</u> along with the device. Diameter of the compressed air coupling is Ø12 (quick-connector).

WARNING Connection to the power supply system has to be carried out by an authorized person with electrical qualifications and strictly according to the enclosed Connection Diagram – Fig. No.5.

Having executed the connections, **<u>check the rotation sense of the fan impeller by examining the rotations of the cooling rotor of the motor</u>** – it must be according to the arrow on the housing. In case of inconsistency, swap the two phases in the supply system. This ought to be carried out, exclusively after the device is disconnected from the power supply system. To load or replace the cartridge filters, open the front door (of the chamber of filters).

WARNING Prior to opening the chamber door, disconnect the power supply system!

Subsequently, unscrew (release) the screw locks (4 pieces) – to such a swing extent that the locks can be bent fully aside and User can open the door widely to the right angle.

Insert the subsequent filter cartridges onto the slide-guides and push them to the wall of the electro-valve chamber. Finally secure the filters with a bar and screw knobs. Close the door accurately and tighten up the screw locks of the door.
Having replaced the filters, restore the power supply.

Before the operation use, the filtering unit must be fastened firmly to the floor. The device is designed for:

- operation with a system consisting of several local exhausts, for example extraction arms connected to the main ducting, joining them to the inlet fitting pieces,
- general ventilation connected with air filtration, for example for work in a system push-pull.

After the device is switched on, the automation control system provides continuous work of the fan and automatic regeneration of the filters by cyclical impulses of compressed air. The cartridge filter ought to be replaced for new, after approximately 1÷2 years of use.

CAUTION:

1. The device application for **plasma cutting** – the real efficiency of the device will be twice lower then the nominal value. For example: UFO-A-10000 of nominal flow **10000 m^3/h**, its real volume flow during plasma cutting will be **5000 m^3/h** – that provides extraction for one table segment of dimensions 2100 x 500 mm.

2. On demand of Customer the filtering unit can be equipped with an activated carbon impregnated nonwoven (spunbond) filter – for filtering the gases arising during welding processes.

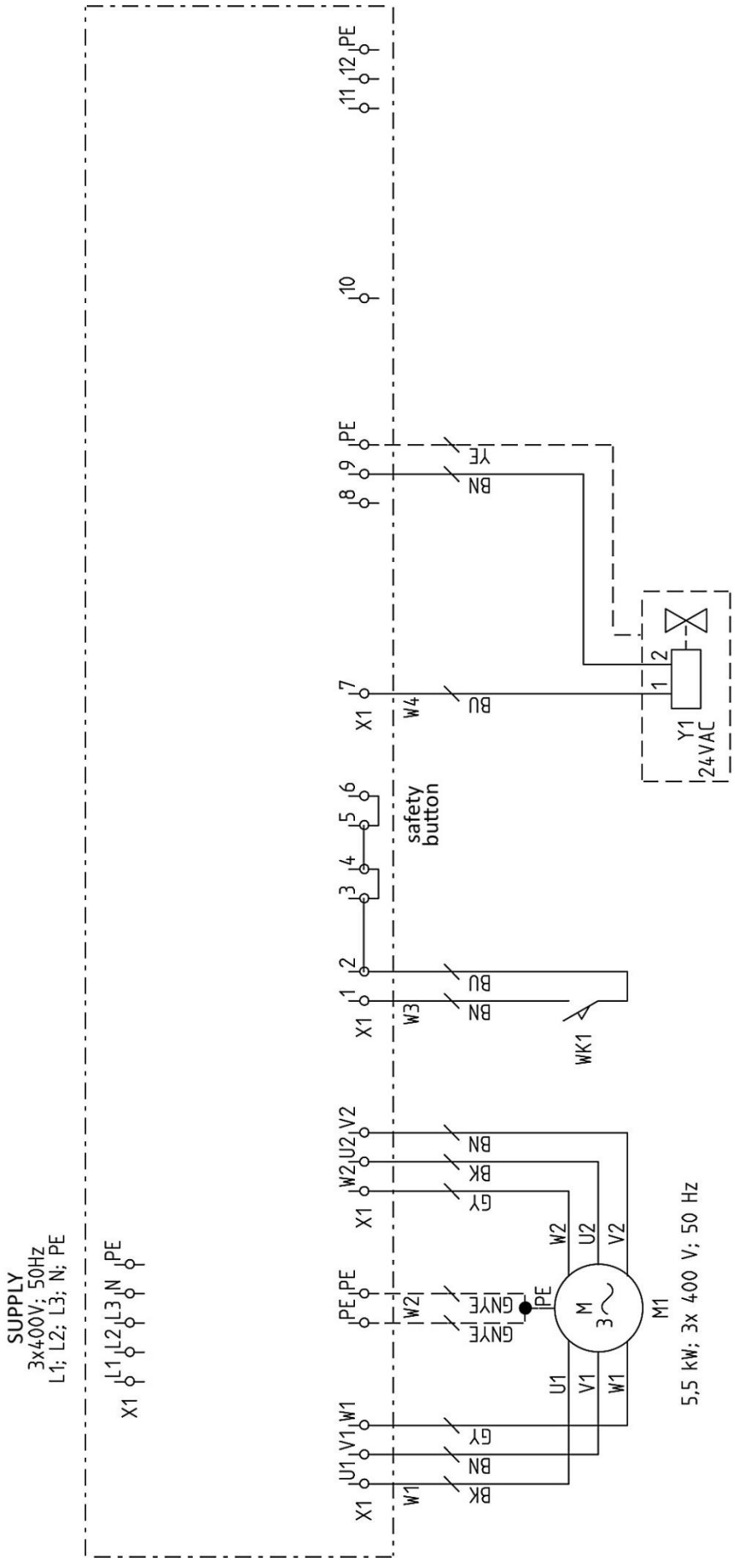


Fig. No.5 – Connection Diagram UFO-A-5000

7. Operational Use

UFO-A-5000 has been developed for cooperation with a system of local exhausts, for example extraction arms, connected to the main ducting that is joining them with the inlet fitting pieces.

The **ZE-UFO-A switchgear** is delivered along with the appliance and controls the device function providing cleaning of the filters surfaces by cyclical impulses of compressed air.

1. Structure of the control unit

a. external part – consisting of a control panel, containing subsequent elements:

- white lamp **H1** – continuous light: indicates that the system is energized with the supply voltage.
- green lamp **H2** – continuous light: the contactor (controlling the motor) is switched on; blinking light: the fan can be started;
- red lamp **H3** – alarm – blinking light during the emergency; after confirmation by pressing the **S2** "**STOP**" button, the lamp lights continuously – until the moment when the failure is fixed.
  Press the **S2** "**STOP**" button one more time, to stop the **H3** light.
- yellow lamp **H4** – signalling of the regeneration of the filters.
- green button **S1** "**START**" – applies signal onto the coil of the contactors – operates the fan motor; after the fan is switched on, its work is indicated by the signalling lamp; simultaneously the filters are regenerated.
- red button **S2** "**STOP**" – interrupts the circuit of the contactors coil – the fan motor stops;
  the control system is further energised and is in readiness for the fan restart; the final regeneration stage of the filters is in progress.
- yellow button **S3** "**MANUAL REGENERATION OF THE FILTERS**" – operates the additional cycle of the filters regeneration while the fan is switched off.

Controller – serves as a timer controlling the function of the electromagnetic valves.

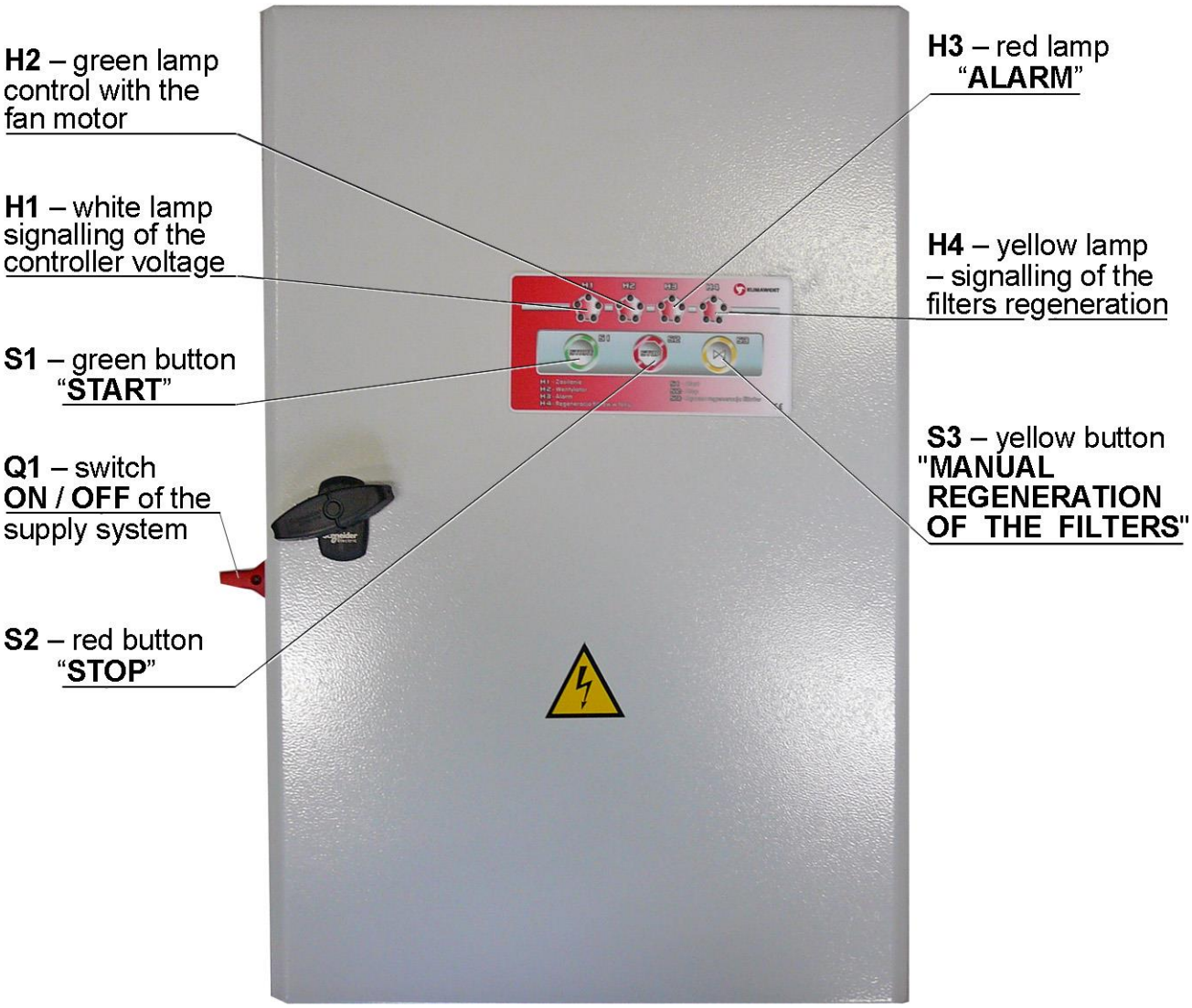


Fig. No.6 – Switchgear – front

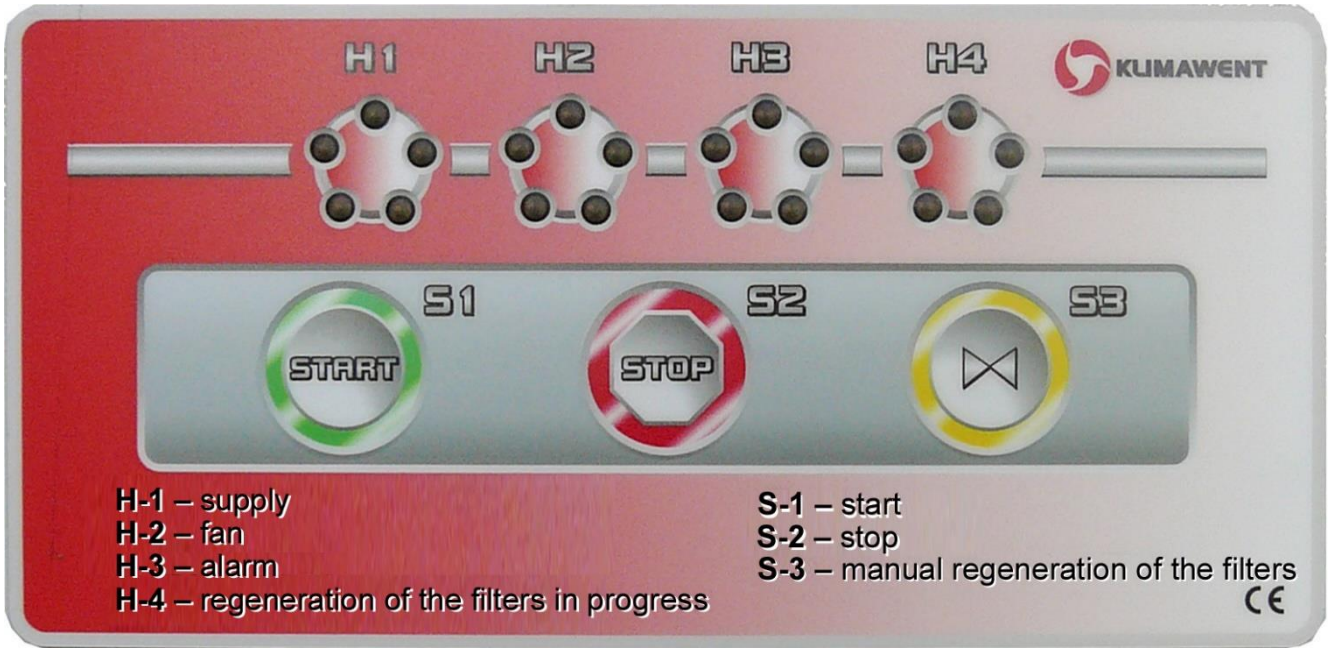


Fig. No.7 – Control panel

b. internal part – consisting of subsequent elements:
- supply disconnector – **Q1** – to switch ON and OFF the power supply system
- motor protective switch – **Q1M** – protects the fan motor from short-circuit- overload and not complete phases function effects
- over-current disconnector **F1** – protection for the transformer circuit and the controller
- over-current disconnector **F2** – protection for the circuit of the electromagnetic valves
- contactors **K1M**, **K2M**, **K3M**
- **B1** – controller **UFOv5.1** – controls the function of the electromagnetic valves
- supervisory relay **CKF**
- time relay **K1T**
- keyboard
- terminal strip

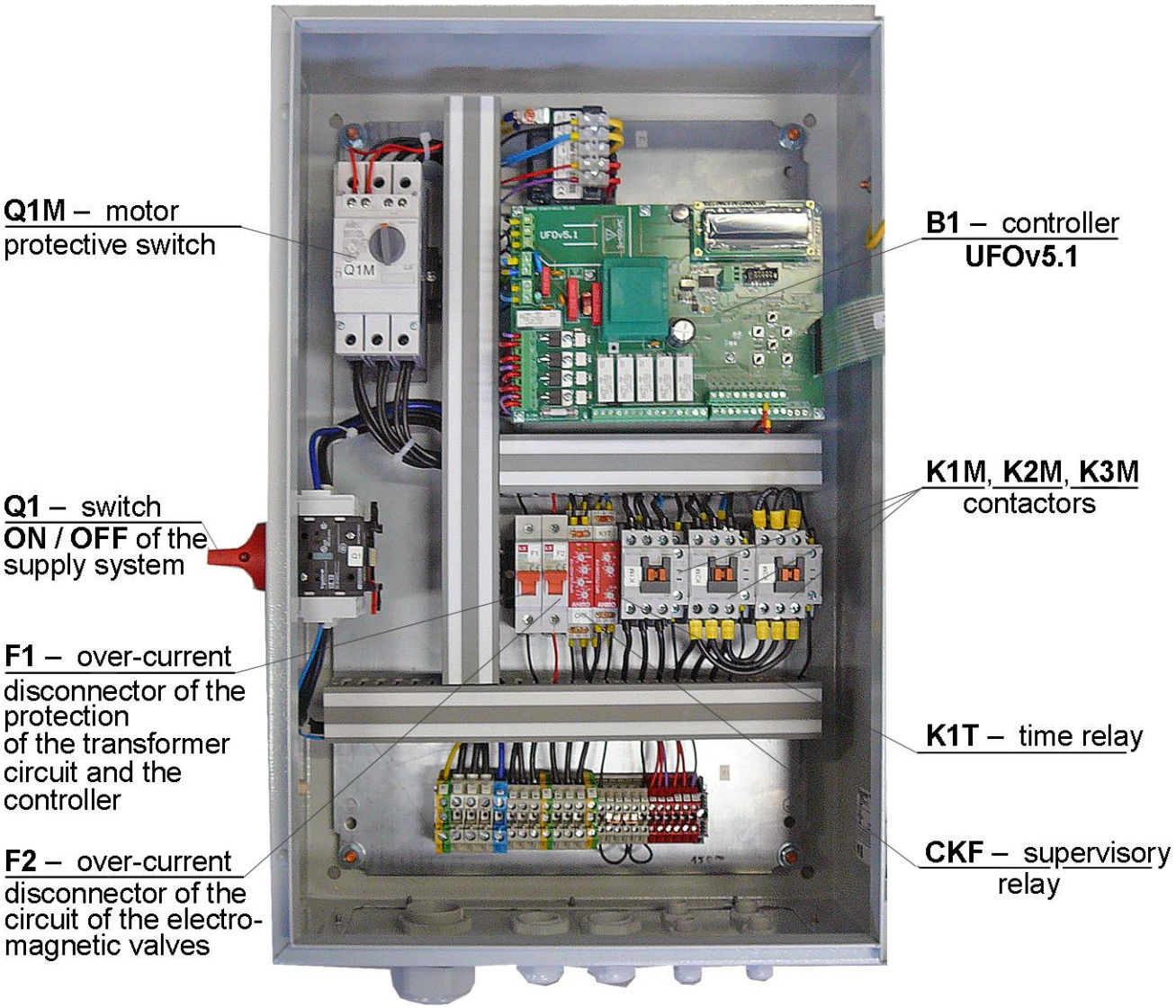


Fig. No.8 – Switchgear – inside

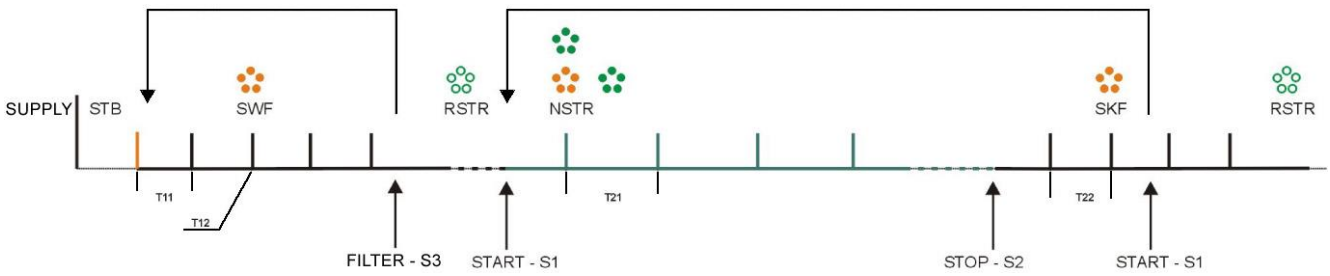
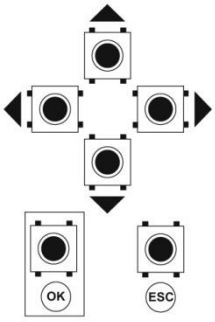


Fig. No.9 – Time chart of work regimes

NAVIGATION

The **UFOx5.1** controller includes a built-in control keyboard, for setting the work parameters. The keyboard is installed on the right side and consists of 6 micro-switches.



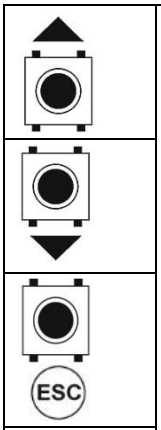
RETURN TO THE MANUFACTURER'S SETTINGS – press the **ESC** button and hold it through 10 seconds.

Navigation on the "linear" menu:
UP – next screen
DOWN – previous screen

Navigation on the "nested" menu:
RIGHT – lower level of the menu
LEFT – higher level of the menu

How to change the editable parameter:
OK – marking (illumination) of the parameter
RIGHT, **LEFT** – displacing the cursor between the fields that are possible to be marked
UP, **DOWN** – change the value of the illuminated parameter
OK – confirm and leave the edition mode
ESC – leave the parameters without confirmation

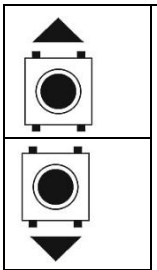
GENERAL MENU



Status = RUN
Board = OK

STATUS screen
(Status):
RUN – a mode of work **NSTR**, the **OUT1** output is switched on
STOP – the state of stop, the **OUT1** output is switched off

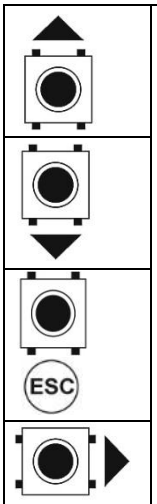
(Board):
OK – correct state of the functional elements of the board **UFOv5.1**
EO1 – alarm of the memory of the data
EO2 – alarm of the sensor of the temperature measuring
EO3 – alarm of the **RTC** clock



Tu, 10:00, **MANUAL**
status **RUN** = **NSTR**

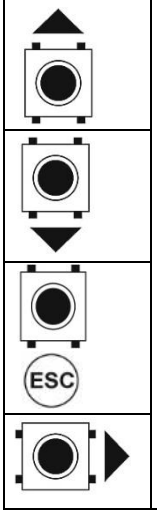
MASTER screen
(Status **RUN**):
STB – state of initialising the controller's work, directly after the power supply is switched on
NSTR – normal status of work of the fan power supply
RSTR – readiness (stand-by) status for the switching on the status **RUN** of the **NSTR** status
SWF – initial regeneration (shaking) of the filters
SKF – final regeneration stage of the filters
!**STOP** – the device is being stopped after the alarm vanishes (operator needs to delete it)
ALPR1 – alarm signal of low-pressure 1
ALPR2 – alarm signal of low-pressure 2
ALPR3 – alarm signal of low-pressure 3
ALPR4 – alarm signal of low-pressure 4
AL24V – alarm signal of lack of the supply **24VAC** for the electromagnetic valves
ALRS – alarm signal from the motor disconnector

(MANUAL):
MANUAL – mode of continuous work
PROG – mode of work as a function of time programmer



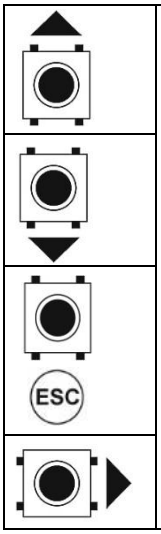
MODES ->

Screen MODES
Sub-menu of the setting groups MODES

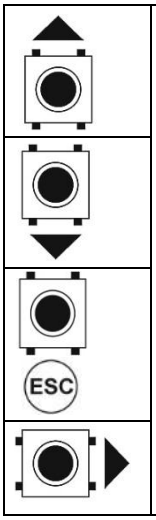


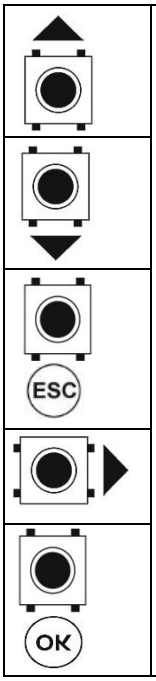
SETTINGS ->

Screen SETTINGS
Sub-menu of the adjustments group SETTINGS

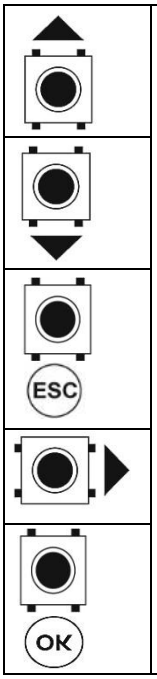
	COMMUNICATION ->	**Screen COMMUNICATION** [1)] Sub-menu of the settings COMMUNICATION

[1)] The function is not active in the program version 2.0 up to 2.2

	**INPUTS /** -> **OUTPUTS**	**Screen INPUTS / OUTPUTS** Sub-menu of the settings INPUTS / OUTPUTS

	**Day** = **Tu** hour 10:00 **Lang** = PL	**Screen SETTING OF TIME** To adjust the days of the week and the time

Sub-menu MODES



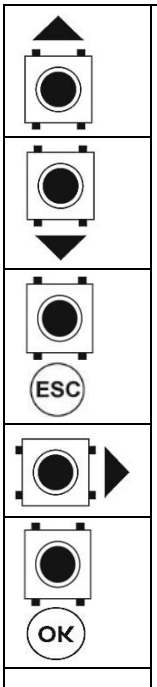
MODE = **MANUAL**
MODE **SWF=ON**

Screen MODES 1/6
[MODE]:{**MANUAL** I **PROG**}

MANUAL – work in a continuous mode
PROG – work in the function of setting of the time programmer

[MODE **SWF**]:{**OFF** I **ON**}

OFF – blocking the initial regeneration (shaking) **SWF**
ON – activated initial regeneration **SWF**



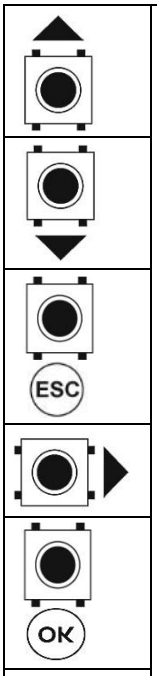
TEMP REG = NONE
AL24V akt = OFF

Screen MODES 2/6
[**TEMP REG**]:{**NONE** I **HEAT** I **COOL**}

NONE – disconnected the controlling with output **OUT5** in function of temperature
HEAT – activated function of heating by means of the output **OUT5**
COOL – activated function of cooling by means of the output **OUT5**

[**AL24V** akt.]:{**OFF** I **ON**}

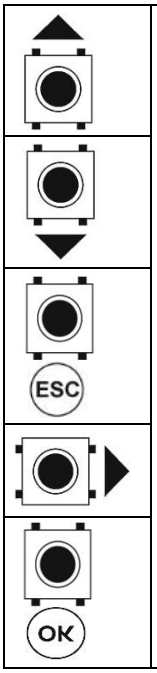
OFF – blocking of the occurring alarm in case of lack of the supporting power supply **24VAC** for outputs of electro-valves **T1÷T4**
ON – alarm **AL24V** activated



mPR1 = **AS** **mPR2** = **AS**
mPR3 = **AS** **mPR4** = **AS**

Screen MODES 3/6
[mPRi]:{**AS** I **AL**}

AS – signalling of the alarm and disconnection of the status **NSTR** by changing the state at inputs **DI0** up to **DI3**
AL – signalling of the alarm, by changing the status at inputs **DI0** up to **DI3**



ALPR akt = OFF
Cons. START = OFF

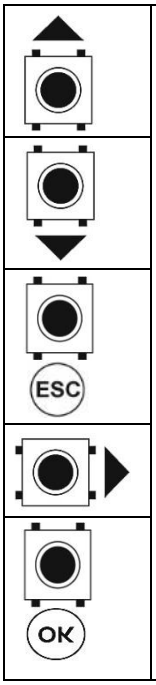
Screen MODES 4/6
[ALPR AKT.]:{**OFF** and **ON**}

OFF – blocking of the occurring alarm **ALPRi** at the inputs **DI0** up to **DI3**
ON – alarm **ALPRi** at the inputs **DI0** up to **DI3** activated

[Cons. START]:{**OFF** and **ON**}

OFF – blocking of the possibility of switching on by means of the input **DI5** of the status **NSTR**
ON – stop of the status **NSTR** active

Input **DI4** makes the same function as the button **START S1** on the elevation console



Cons. STOP = OFF
Cons. REGEN = OFF

Screen MODES 5/6
[Cons. STOP]:{**OFF** I **ON**}

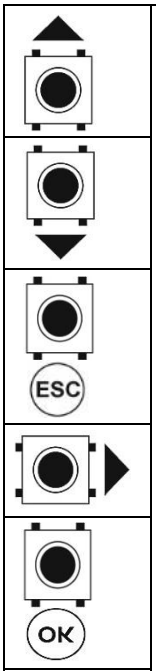
OFF – blocking the possibility of stop, by means of the input **DI5** of the status **NSTR**
ON – stop of the status z **NSTR** active

Input **DI5** realises the same function as the button **STOP S2** on the elevation console

[Cons. REGEN.]:{**OFF** I **ON**}

OFF – blocking of the possibility of activation of filters regeneration, by means of the input **DI6**
ON – the operated regeneration is active

Input **DI6** fulfils the same function as the button **FILTER S3** on the elevation console



DI8 START = OFF
DI8 STOP = OFF

Screen MODES 6/6
[**DI8 START**]{**OFF** I **ON**]

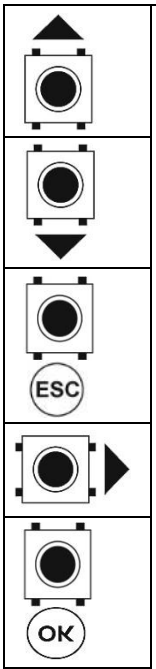
OFF – blocking of the possibility of activation, by means of the input **DI8** of the state **NSTR** (switching on within the level)
ON – switching on the status **NSTR** active (switching on within the level)

[**DI8**. STOP]:{**OFF** I **ON**}

OFF – blocking the possibility of switching off, by means of the input **DI8** of the status **NSTR** (switching on within the level)
ON – stop of the status **NSTR** active (switching on within the level)

In case when [**DI8**. **START**]=**ON** and [**DI8**stop]=**ON** input **DI8** fulfils the function of remote control **ON** / **OFF** of the status **NSTR**

Sub-menu SETTINGS

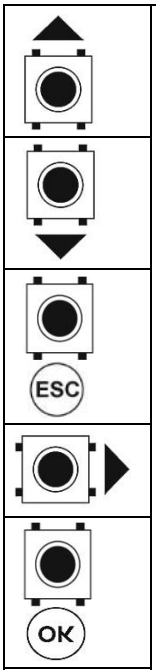


Time **T11** = 10s
Lsekwen Lon = 02

Screen SETTINGS 1/6
[Time **T11**]:{1-99sec}

Time **T11** – idle time (break) between the supply impulses of the electro-magnetic valves – during the status **SWF**

[**Lsekwen Lon**]:{0-9 cycles}
Lsekwen Lon – number of sequences – 4 cycles of pulsing each

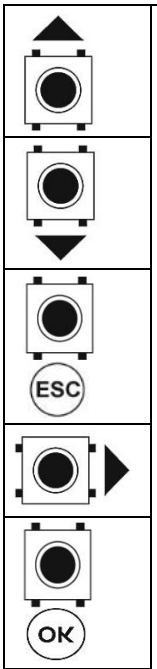


Time T12 = 0,5s
Ton PowPause = 10s

Screen SETTINGS 2/6
[Time **T12**]:{0,1 – 5 sec}

Time **T12** – duration of the impulse of the supply of the electro-valves

[**TonPowPause**]:{1 - 50 sec}
TonPowPause – duration of the status **STB** (initialising of the system after the power supply is switched on)

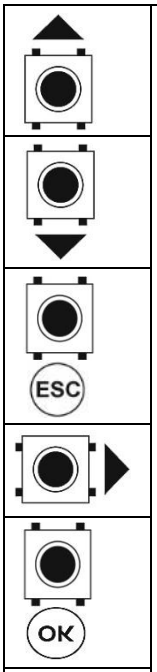


Time T21 = 01min
Status Zas 24V = ON

Screen SETTINGS 3/6
[Time **T21**]:{1-90min}

Time **T21** – duration of the break (idle time) within the status **NSTR** between the impulses of the power supply of the electromagnetic valves

(**StanZas** 24V) – state of the fuse of the transformer **24VAC** of the power supply of the electromagnetic valves

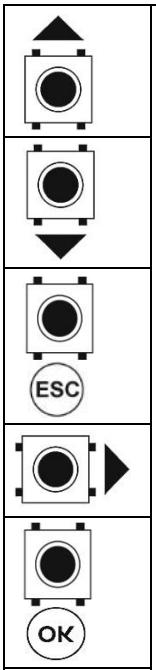


Time T22 = 0.5s
Lsekwen Loff = 02

Screen SETTINGS 4/6
[Time **T22**]:{1-99sec}

Time **T22** – duration of the break (idle time) between the impulses of the power supply of the electro-valves, during the status **SKF**

[**Lsekwen Loff**]:{0-20}
Lsekwen Loff – number of sequences (4 cycles of pulsing each) – of pulsing – for the status **SKF**

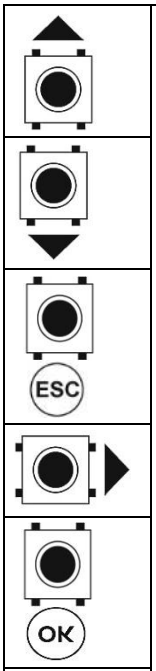


Time T31 = 20s
Akt PoziomWe = HI

Screen SETTINGS 5/6
[Time **T31**]:{1-99sec}

Time **T31** – delay time of the reading (reception) of the signal, from the inputs of the pressure control, within the circuit of the electro-valves

[**AktPoziomWe**]:{**LO** I **HI**}
AktPozimWe – the level of signal (from the input of pressure control) is active

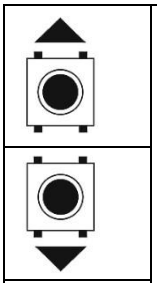


Tset = 21 ^{0}C

Screen SETTINGS 6/6
[Tset]:{10÷60}

Tset – the applied temperature for the controlling with heating or cooling – depending on the parameter [**TEMP REG**]

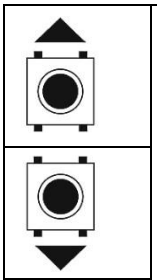
Sub-menu INPUT / OUTPUT



DI: 000111000
DO: 101010

Screen INPUTS / OUTPUTS 1/3

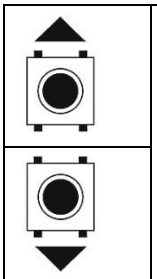
(**DI**) – status of the digital inputs – from **DI0** up to **DI9**
(**DO**) – status of the digital outputs – from **DOUT0** up to **DOUT5**



AIN: -- %
TO: 0000

Screen INPUTS / OUTPUTS 2/3

(**AIN**) – status of the analogue input 0-10V
(**TO**) – status of the outputs of impulses **T1**-**T4**

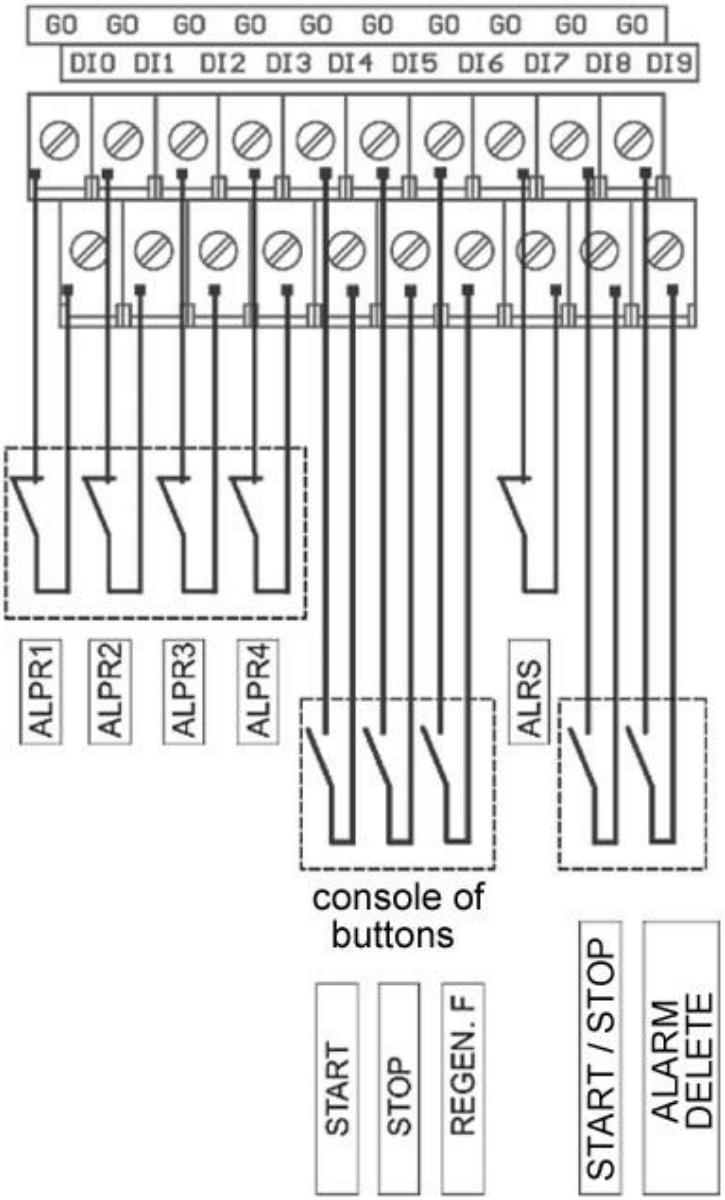


Tb=+25.5 ^{0}C
StanZas 24 = OK

Screen INPUTS / OUTPUTS 3/3

(**Tb**) – measuring of temperature on the controller
(**StanZas 24V**) – the state of transformer fuse **24VAC** of the power supply of the electromagnetic valves

Digital inputs



– inputs **DI4**, **DI5**, **DI6** response to the rising edge (emulation of the elevation keyboard)
– inputs **DI8** and **DI9** response to the level (the functions of inputs are activated from the level of the controller menu)
– inputs **DI0-DI3**, **DI7** are alarm inputs (masking of the alarms for **DI0-DI3** activated from the level of the controller menu)

Digital outputs

All digital outputs are relay outputs.

DOUT0	separable output of the control system of the fan contactor
DOUT1	switchable output, collective signal of the alarm
DOUT2	switchable output, indication of the fan work
DOUT3	switchable output, indication of the filters regeneration
DOUT4	switchable output, indication of the correct supply of the board and of the electromagnetic valves
DOUT5	switchable output, control with the cooling or heating in the function of mode, applied temperature and temperature measured by the sensor on the board of the controller (Screen **MODES 2/6**, Screen **SETTINGS 6/6**, **Screen INPUTS / OUTPUTS 1/3** and **3/3**

States of emergency (**alarm**)
The alarm from the inputs of the pressure controls (pressostats) **DI0** up to **DI3** (additional signalling by means of **H3** lamp):
Appearance of any of the alarms **ALPR1** – **ALPR4** activates the alarm lamp **H3** lighting pulsatively, as well as switches on the acoustic signal (buzzer).

To confirm the alarm, press the **S2** (**STOP**) button. The occurrence of the alarm blocks the system function – until the alarm stops. After the alarm reason is fixed, press the **S2** (**STOP**) button one more time – this will delete the **H3** lamp.

In case of the adjusted parameter {**Cons. STOP = ON**} the alarm can be confirmed, and subsequently deleted by means of the input **DI5**.

CAUTION: The activated alarms **ALPR1** – **ALPR4** can be blocked by a parameter {**ALPR akt. = NIE**} on the Screen **MODES 4/6**.

The alarm from the input (**that confirms the function of the motor disconnector**) – **additional signalling by means of H1**:

All the time, the system controls the status of the disconnector of the fan motor. In case of the signal of contact opening – occurs an immediate interruption of the system function. The alarm is signalised by the **H1** lamp lighting in blinking. Whereas, when the alarm appears on the controller display (on the **Master Screen**) – a message **ALRS** emerges.

The **ALRS** alarm activates the **H3** alarm lamp lighting pulsatively. The alarm has to be confirmed with the button **S2** (**STOP**). The alarm causes blockage of the system, until the alarm disappears. After the alarm reason has vanished, press the **S2** (**STOP**) one more time – this will switch off the lamp **H3**.

In case of the adjusted parameter **CONS. STOP** = **ON** the alarm can be confirmed, and subsequently it can be deleted with input **DI5**.

The alarm indicating the lack of supply of the electro-valves (**additional signalling with H3**).

The signal controlling the correctness of power supply **24VAC** is for operating the electromagnetic valves. The controller indicates on display the lack of supply in case when for example the fuse is burned out.

When the alarm occurs – on the controller display (on the **Master Screen**) appears a message **AL24V**. Alarm of the **24VAC** supply fade is read out within a 10 seconds of delay.

When the **AL24V** alarm appears, the **H3** lamp starts blinking and the acoustic signal (buzzer) activates. The alarm has to be confirmed with the **S2** (**STOP**) button.
The alarm effects in blockage of the system, until the alarm disappears. After the alarm reason has vanished, press the **S2** (**STOP**) one more time – this will switch off the lamp **H3**.

CAUTION: The activated alarms **AL24V** can be blocked by a parameter {**AL24 akt**.= **NIE**} on the Screen **MODES 2/6**.

High efficiency and filter cleaning executed by the automatic filter regeneration system (repeated air impulses) provide long durability and reliable function of the filter cartridges and limits its maintenance to the minimum.

The impurities are separated (by the pneumatic impulses) from the filter surface. Subsequently they fall through the discharge hopper chamber into the waste container. The waste container must be emptied systematically.
Periodically, the pneumatic installation of filters regeneration ought to be dewatered by opening the discharge valve.
The condensate water (dripping) must be discharged from the system. Subsequently, close the dewatering valve at the moment when the discharging air is **clean** and **dry**.

The construction of the extraction fan and motor guarantees the work of the unit without the routine everyday technical maintenance. In case when defective function of the device is noticed, submit the device to technical revision (see Section 8).

WARNING **Any repair activity and technical revisions are admissible to be carried out exclusively after the device is disconnected from the power supply system.**

8. Troubleshooting Guide

Table No.3

	Problem	Possible reason	Corrective action
1.	Dust particles are emerging outside the device – observed after a period of correct functioning of the device	The cartridge filter is faulty	Replace the defective filter
		Defect or deformation of the sealing (gasket) of the cartridge filter.	Replace the faulty sealing
2.	Dust is emerging outside the appliance	The cartridge filter has got defective or released/untight	Replace the faulty cartridge filter or correct its mounting
		Another (as mentioned in the instruction) sort of the dust is noticed	Contact the manufacturer
		Low filtration efficiency	Contact the manufacturer
3.	Decrease of air volume flow efficiency – observed after a period of correct functioning of the device	Filters regeneration proceeds incorrectly – due to too low pressure of the external compressed air	Correct the air pressure to the value of 0,6 – 0,8 MPa in the air supply system.
		The cleaning time and work time are not adjusted appropriately.	Correct the settings of the micro-controller operation according to the present manual
		Too high humidity of the filters, caused by the humid compressed air from the external installation	Dewater the compressed air tank, examine the state of the compressed air system
		Dust is emerging outside – due to temperature higher than +40°C of the inlet air	Limit the temperature of the inlet air

9. Maintenance

9.1 Cartridge filters

Upon every emptying of the waste container (under the hopper), examine visually the state of the cartridge filters. First disconnect the power supply.
Through the front revision door, check the mounting correctness of the elements, the state of the filtration surface, pollution degree, search for failures, etc.

At the moment when the suction volume capacity evidently drops, and it keeps low level for a longer time, take out the filters and clean them manually (with compressed air).

Additionally, undertake control when the device is functioning incorrectly in another way. When the cartridge filters are damaged of naturally worn out, replace them for new ones. While replacing, put the filters subsequently on the guide profiles and push them tightly to the wall of the electro-valves chamber. Subsequently tighten the filters with a profile straps and screw knobs. Close tightly the door of the chamber of filters and tighten up the screw locks of the door. Having replaced the filters connect the device to the power supply again.
Upon normal functional wear out, the cartridge filters must be replaced after 1 to 2 years of operational use.

9.2 Fan

After every year of operational use – clean and examine the impeller, the state of the fan motor itself, according to the instructions of the motor manufacturer. In case of incorrect function of the fan, contact with the manufacturer. When it is necessary to replace the fan or the motor, this can be executed exclusively by a specialised team.

9.3 Compressed air tank

The compressed air tank should be examined and submit to maintenance – according to the regulations on pressure devices. Periodically, check all the connections applied on the tank, and make dewatering through the drainage fitting piece that is installed for this purpose at the bottom part of the tank.

9.4 Electromagnetic valves

The applied electromagnetic valves do not require current maintenance. It is sufficient to check the state of electrical connections, the state of grounding and tightness of the pneumatic installation. It is recommended to replace the valves after 2 years of use, but not later than 4 years. For this purpose contact the manufacturer of the filtering unit.

9.5 Pneumatic silencers

On the electromagnetic valves are placed pneumatic silencers 3/8” to reduce the noise level duduring the compressed air “shot”.
After two months of use, the silencers must be disassembled and cleaned. For control periods see Table below.

9.6 Suggested periods of control and maintenance of the filtering unit

Table No.4

Current control of the function after the waste container is filled up.	Empty the container from the deposited dust.
Routine (current) control	Systematically clean the device and assemblies, so the dust particles would not deposit on the ele-ments.
Upon each emptying of the waste container	Check visually the cartridge filters, through the door of the chamber of filters.
Every 2 months	Clean the pneumatic silencer (located on the electro-magnetic valve) – soak in the extraction naphtha and clean it.
Once a month	Examine the state of the device grounding and check the conductivity between all the assemblies of the filtering unit.
Every 2 ÷ 3 months	General visual inspection of the supporting structure and the housing, check the screw connections.
Every 12 months	Examine the state of electrical connections and the installation of the compressed air, the connections of the electromagnetic valves.

Every 12 ÷ 18 months	Visual inspection of the compressed air tank and its dewatering system. When this is necessary (due to the environmental conditions and the state of the compressed air installation) carry out the inspection more frequently.
Fan – every 12 months	After every year of use, clean and examine the fan and the fan motor – according to the instructions of the motor manufacturer.

10. Occupational Health and Safety

- Installing, start-up and use of the filtering unit are possible – exclusively after getting acquainted with the contents of the present Use and Maintenance Manual.
- For the sake of safety, **connect the device to the power supply system according to the enclosed electrical diagram** and in compliance with the being in force regulations within the range of personal protection from electrical shock.
- **Any work related to connection to the electrical power system ought to be carried out only by an authorised person with testified electrical qualification.**
- Maximum operational pressure of the supplied compressed air (for safety reasons) should not exceed 0,8 MPa.
- **Any repair activities as well as waste container emptying should be carried out after the fan is switched off and the device is disconnected from the power supply system.**
- The fan (as a rotary appliance), constitutes a potential source of hazard, therefore installing, start-up and servicing should be carried out by a qualified team only.

11. Transport and Storage

The **UFO-A-5000** filtering unit has to be transported in two assemblies in foil, placed on transport pallets. For the transport time the device should be kept in vertical position and protected from an uncontrolled overturn and displacement / slide.

As the device is a thin-wall construction, thus safety measures are needed while lifting, unloading, and installing of its subsequent assemblies.
The unit has to be stored in a dry and properly ventilated room.

12. Terms of warranty

The period of warranty for the purchased device is indicated in the “Card of Warranty”. The warranty does not comprise:

- mechanical damage and malfunctions caused by User,
- device failures caused during the operational use that is in contradiction with the purpose of the application and with the present Use and Maintenance Manual,
- damages being effected during improper transport, storage or incorrect maintenance.

Infringement of the Section 3 “Reservations of Producer” of the Use and Maintenance Manual and especially modifications undertaken by User on one’s own shall cause the loss of warranty validity.

13. Sample of the Declaration of Conformity

Declaration of conformity EC No. ……..

Manufacturer (eventually the authorized representative / importer):
name: **KLIMAWENT S.A.**
address: **81-571 Gdynia, Chwaszczyńska 194**

A person, authorized for issuing the technical documentation: Teodor Świrbutowicz, KLIMAWENT S.A.

hereby declares that the appliance:
name: **Filtering unit**

type/model: **UFO-A-5000**
serial number: …….. year of production: ……..

meets the requirements of the subsequent European Directives:

- **2006/42/EC Machinery Directive** of the European Parliament and of the Council of 17 May, 2006 on machinery – amending the 95/16/EC (recast) /*Journal of Laws EC L157 of 09.06.2006, page 24*/
- **2014/35/EC Directive** of the European Parliament and of the Council of 26 February, 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
  /*Journal of Laws EC L96 of 29.03.2014*/

The appliance meets the requirements included in:

- **2009/125/EC (ErP) Directive** of the European Parliament and of the Council of October 21th, 2009 establishing a framework for the setting of ecodesign requirements for energy-related products
  / *Journal of Laws L 285 of 31.10.2009* /
- **327/2011** (**EU**) **Guideline** of March 30th, 2011 on implementing the **2009/125/EC Directive** of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input po-wer between 125W and 500 kW /*Journal of Laws L No. 90 of 06.04.2011*/

The device has been constructed and produced on the basis of following harmonized standards:

• **EN ISO-12100:2012**	– "Safety of machinery – Basic concepts, general principles for design. Risk assessment and risk reduction".
• **EN 60204-1:2018-12**	– "Safety of machinery – Electrical equipment of machines. Part 1: General requirements".
• **EN ISO 13857:2010**	– "Safety of machinery – Safe distances to prevent hazard zones being reached by upper and lower limbs".
• **EN 60529:2003/A2:2014-07**	– "Degrees of protection provided by enclosures (IP Code)"
• **EN 61439-1:2011**	– "Low-voltage switchgears and controlgear assemblies – Part 1: General resolutions".

……	……	……
place, date	signature of authorised person	name, surname, function of the signatory

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District Court Gdańsk-Północ
in Gdańsk, VII Wydział Gospodarczy
of the National Register of Court
KRS 0000308902 company stock
13.779.200 zł paid in total

NIP: 958 159 21 35
REGON: 220631262
Bank Account: **Santander Bank Polska S.A.**
56 1500 1025 1210 2007 8845 0000

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804U17 UFO-A-5000 RH 24.05.2019/EN
804U22 UFO-A-5000 LH 24.05.2019/EN