



## **Filtering unit BIG-1000**



**KLIMAWENT S.A. Poland**  
194 Chwaszczyńska street, 81-571 Gdynia  
phone: +48 58 629 64 80  
fax: +48 58 629 64 19  
e-mail: klimawent@klimawent.com.pl

User's manual – title: „Filtering unit BIG-1000”



*Manufacturer's name and address:*

**KLIMAWENT S.A.** Poland  
194 Chwaszczyńska street, 81-571 Gdynia  
phone.: +48 58 629 64 80  
fax: +48 58 629 64 19  
e-mail: [klimawent@klimawent.com.pl](mailto:klimawent@klimawent.com.pl)  
website: [www.klimawent.com.pl](http://www.klimawent.com.pl)

Copyright © by **KLIMAWENT S.A.**  
Gdynia 2021-03-02

Publication version: **EN 2021-03-02**  
*Number of pages: 19*

## TABLE OF CONTENTS

1.	INTRODUCTION .....	4
2.	APPLICATION .....	4
3.	MANUFACTURER'S DISCLAIMER .....	4
4.	TECHNICAL DATA .....	5
5.	STRUCTURE .....	5
6.	INSTALLATION AND COMMISSIONING .....	8
7.	OPERATION .....	9
8.	TROUBLESHOOTING GUIDE .....	13
9.	MAINTENANCE AND RECYCLING INSTRUCTIONS .....	13
10.	OHS MANUAL.....	14
11.	TRANSPORT AND STORAGE .....	15
12.	TERMS OF WARRANTY .....	15
13.	RESIDUAL RISK INFORMATION.....	15
14.	WIRING DIAGRAMS .....	17
15.	EXAMPLE OF THE EC DECLARATION OF CONFORMITY.....	18

## 1. INTRODUCTION

This user's manual is intended for the users of the **BIG-1000** device. Its purpose is to provide the users with instructions on the use, assembly, commissioning, and operation of the device.

### NOTICE



Carefully read this manual before installing the device at the workplace and using it.



Due to the continuous improvement of its products, the manufacturer reserves the right to introduce construction changes to increase the utility values and safety of use.

The design of the **BIG-1000** device considers the current state of knowledge and technology level and is following normative principles and regulations, and above all with the principles of safety and health protection set out in the following legal acts and meets the requirements of the following harmonized standards:

- ✓ Directive 2006/42/EC (MD),
- ✓ Directive 2014/35/EU (LVD),
- ✓ Directive 2009/125/EC (ErP),
- ✓ PN-EN ISO-12100:2012,
- ✓ PN-EN 60204-1:2018-12,
- ✓ PN-EN ISO 13857:2020-03,
- ✓ PN-EN 60529:2003/A2:2014-07,
- ✓ PN-EN 61439-1:2011.

## 2. APPLICATION

**BIG-1000** filtering units are designed to purify the air from dust and gaseous pollutants generated during various production processes, i.e. the removal of dry dust and fumes generated during welding, gas cutting of metals or during other processes in the chemical, food, pharmaceutical and plastics industries.

## 3. MANUFACTURER'S DISCLAIMER

### ! CAUTION



Unauthorized modifications to the device, including the installation of additional parts that are not part of the device or new equipment, are prohibited!



**PROTECT** all parts of the device against mechanical damage!



The manufacturer is not responsible for any injuries resulting from improper use!



Before assembling the device, check the strength of the structural elements to which it will be attached. Improper, careless or unstable mounting of the device may damage it, and also pose a real threat to people in the vicinity!



The device **CANNOT** be used for forcing air at temperatures above **+60°C!**



The device is **NOT SUITABLE** for forcing air containing moist dust!

**! WARNING – Possible damage to the device, fire or explosion!**


The device **CANNOT** be used for forcing a mixture with air of flammable substances in the form of gas, vapour, mist or dust, which can create an explosive atmosphere!



The device **MUST NOT** be used for forcing air containing **caustic contaminants** that may adversely affect the device!



**PROTECT** the appliance against sucking in **flames, cigarette butts, sparks** or other incandescent elements that may damage the appliance or cause a **fire or explosion** in the installation!



The device **MUST NOT** be used in an environment where static electricity can cause an explosion!

#### 4. TECHNICAL DATA

*Table 1 Technical data of the unit BIG-1000*

Type	Part no.	Maximum volume flow [m <sup>3</sup> /h]	Maximum negative pressure [Pa]	Electric supply [V; Hz]	Motor power [kW]	Sound pressure level [dB(A)]		Compressed air consumption [litr/h] See NOTE	Mass [kg]
						1m	5m		
<b>BIG-1000-O</b>	<b>804U44</b>	1500	2000	230V; 50Hz	<b>1.1</b>	75	61	225	136
<b>BIG-1000-R</b>	<b>804U49</b>								140

↓ NOTE

**! CAUTION**


The compressed air consumption depends on the set process times. Whenever process times change, you **NEED** to adjust your compressed air consumption – see 7.2.6.

#### 5. STRUCTURE

The device is produced in **2 versions**:

- A. **BIG-1000-R** as a mobile device with recirculating air outlet to the room, and
- B. **BIG-1000-O** as a stationary device equipped with an outlet connector to which the exhaust system should be connected.

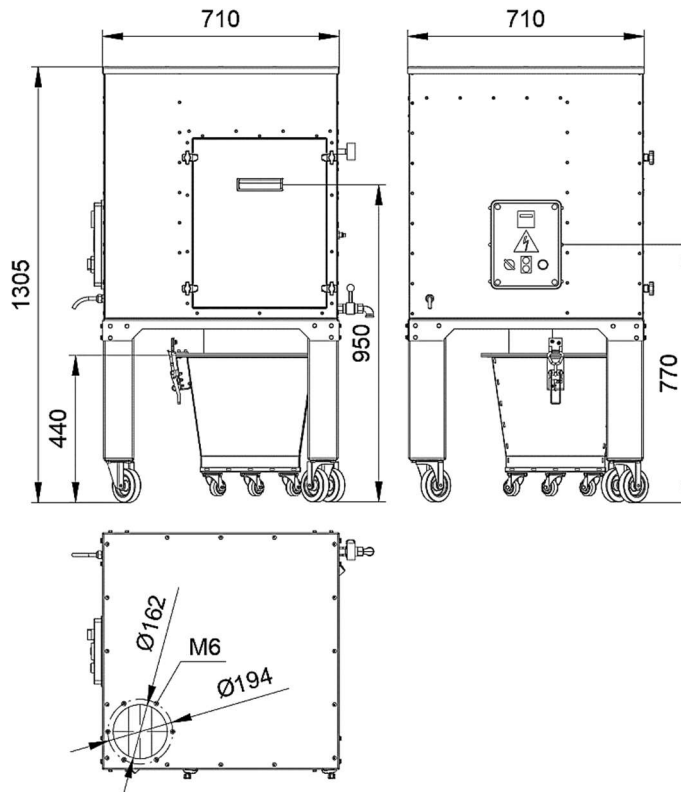
The **BIG-1000-R** and **BIG-1000-O** devices include:

- housing made of steel sheet,
- radial fan,
- spark arresting baffle,
- highly effective cartridge filter made of polyester paper with an efficiency of 99.9%,
- filter made of non-woven fabric impregnated with active carbon (accessory),
- a pneumatic filter regeneration unit, consisting of a compressed air tank, an electromagnetic valve and a drain valve for compressed air installations,
- pressure gauge (pressure measurement in the compressed air tank),
- container for collected dust (with a capacity of 30 litres),
- an electric unit designed to start the device and control its operation,
- a set of 4 road wheels for the mobile version (in the stationary version, the device stands on 4 legs, which must be attached to the floor),
- 5 m power cord with plug.

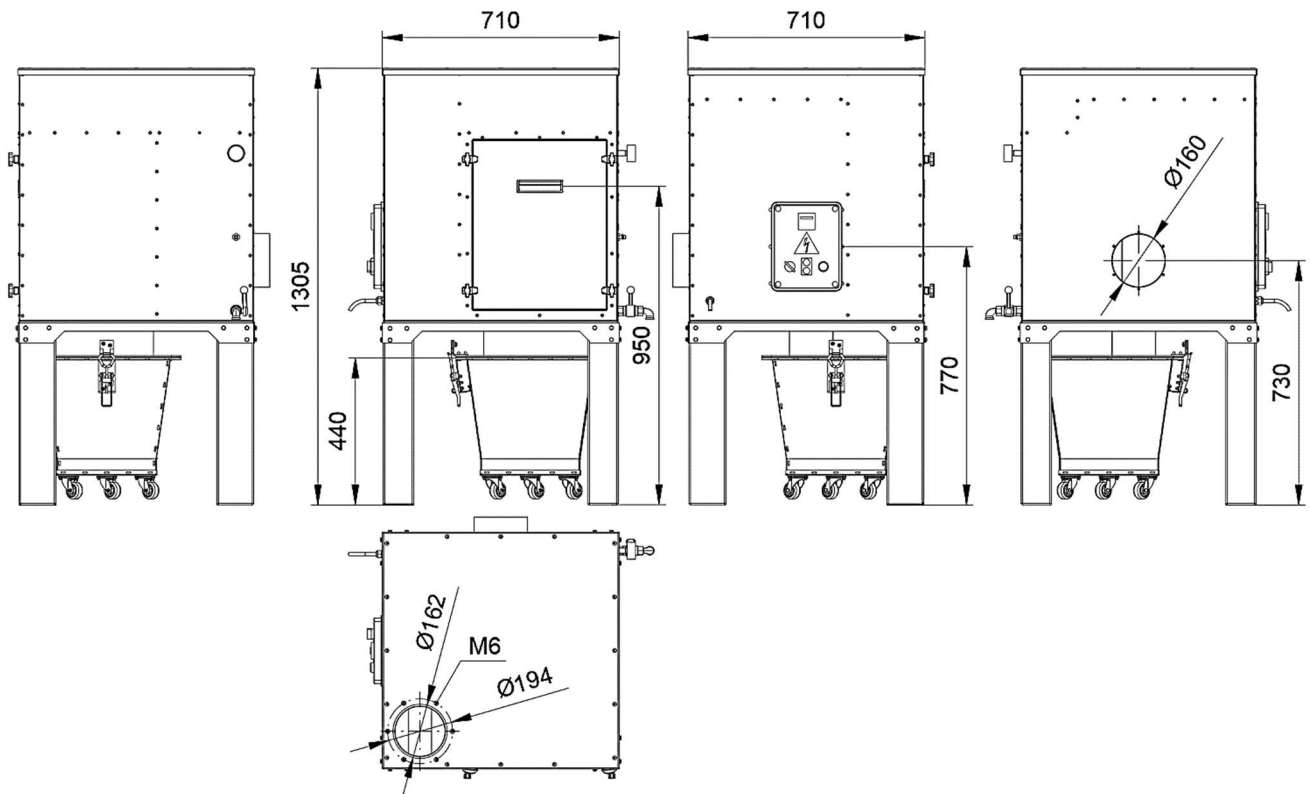
The mobile version of the device – **BIG-1000-R** does not have an outlet connection. Purified air flows into the room through the openings in the bottom cover of the device – see Picture 1 and Picture 3. The **BIG-1000-R** is equipped with **4 road wheels**.

The stationary version of the device – **BIG-1000-O** has an outlet connection. The unit must be connected to an exhaust system that will remove the purified air outside the room – see Picture 2 and Picture 4.

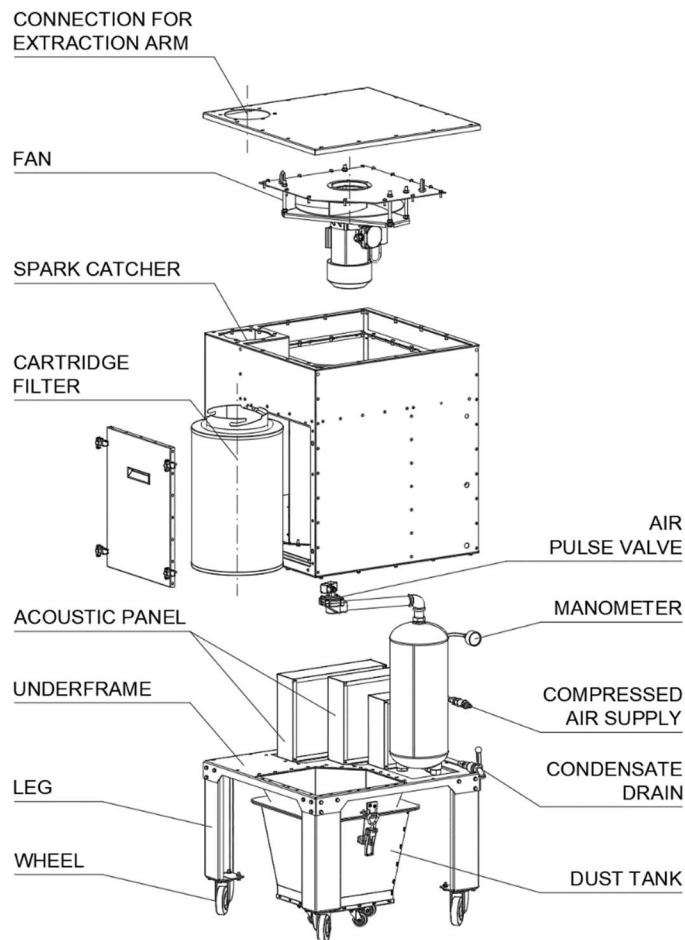
The **BIG-1000-R** and **BIG-1000-O** devices have baffles, the so-called "spark catcher", reducing the risk of sparks entering the device, which may appear in the suction arm during operation of the unit, e.g. during welding, etc.



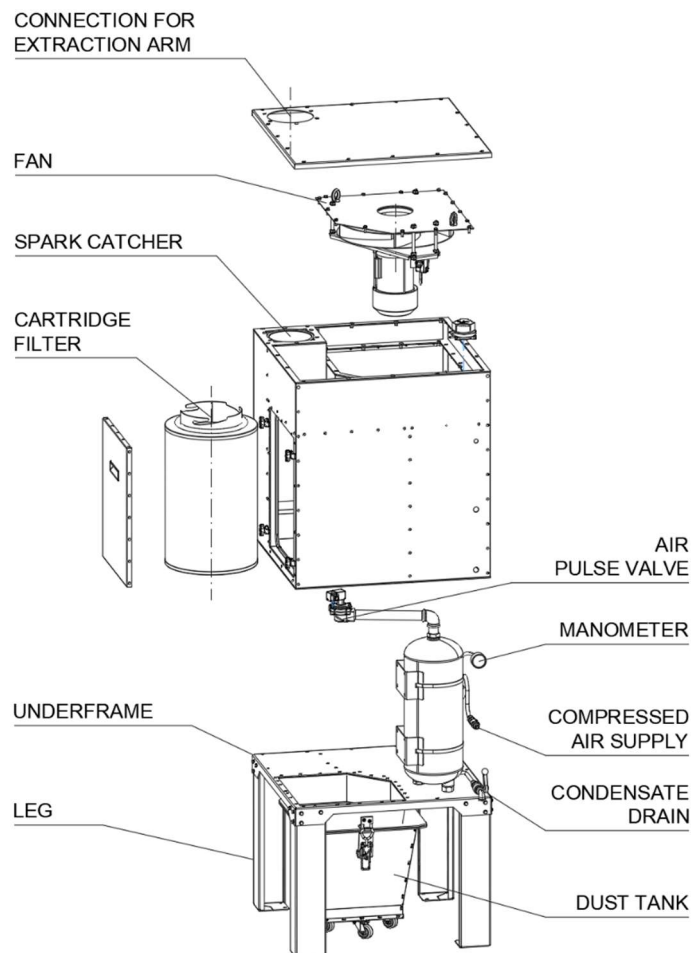
Picture 1 BIG-1000-R



Picture 2 BIG-1000-O




Picture 3 Structure of the unit BIG-1000-R




Picture 4 Structure of the unit BIG-1000-O

### 5.1. Spare parts (consumables)

Type	Part no.	Efficiency [%]	Diameter [mm]	Length [mm]	Mass [kg]
	<b>PN105032T 800F20</b>	99.9%	Ø320	500	4.2

### 5.2. Additional equipment

Type	Part no.	Mass [kg]	Notes
	<b>FCR-BIG-1000 838F73</b>	0.6	The complete filter consists of the carbon fleece along with the protective net. All these elements are placed inside the cartridge filter.
	<b>WFCR-BIG-1000 838W95</b>	0.3	Carbon fleece is a filter replaceable element.

## 6. INSTALLATION AND COMMISSIONING

### 6.1. ASSEMBLY

Unit **BIG-1000-R** requires the installation of **4 wheels** to legs before use.

Unit **BIG-1000-O** does not require any assembly.

### 6.2. INSTALLATION

Unit **BIG-1000-O** requires fixing the leg to the ground.



The **BIG-1000-R** and **BIG-1000-O** units enable cooperation with **ERGO-L-R** extraction arms of manufacturer **KLIMAWENT S.A.** in lengths of **2 or 3 m** and a connection diameter of  $\varnothing 160$  mm.

Additionally, the **BIG-1000-O** device enables the installation of an arm with a length of up to **4 m**.

### ! CAUTION



**BIG-1000-O** unit **MUST** have its legs attached to the ground when the **ERGO-L-R 4m** arm is mounted on the device!

### NOTICE



To select the appropriate extraction arm adapted to work with the **BIG-1000** unit, please contact the manufacturer **KLIMAWENT S.A.**

### ! CAUTION



The device **MUST** be connected to the compressed air network, free from any impurities, oil and moisture and prepared by an appropriate filtering and reduction unit ensuring stable parameters!

**Before starting**, the unit should be connected to a **compressed air system** with a pressure of **0.6 to 0.8 MPa**. The device should be connected to an electric power supply of **230V** and **50Hz**.

## 6.3. COMMISSIONING

Before starting the device for the first time, do the following:

- A. Check that the electrical parameters are matched to the motor.
- B. Check the correctness and durability of the PE conductor connection.
- C. Check the correct selection of the protection in the circuit powering the device.
- D. Check the correctness of the selection of the capacity of the compressed air system connected with the cartridge filter regeneration system: **minimum 225 litres/h**.
- E. Check that the extraction arm is correctly selected and attached to the device.

### ! WARNING – Possible damage to the devices



The **BIG-1000-R** unit **CANNOT** work with the **ERGO-L-R** extraction arm longer than **3 m**! The unit may fall over!

## 7. OPERATION

### 7.1. TERMS OF USE

The filtering unit **BIG-1000** should only be used indoors, protected from the influence of precipitation and moisture at a temperature of **-10°C** to **+40°C**.

Connect the devices to the process network of compressed air, free from any **impurities, oil and moisture** and prepared by an appropriate filtering and reduction unit ensuring stable parameters. **Moisture** or **oil** in the transported air and in the air used to regenerate the filters **can damage** the filters!

### ! CAUTION



The device **CANNOT** be used for forcing air at temperatures above **+60°C**!

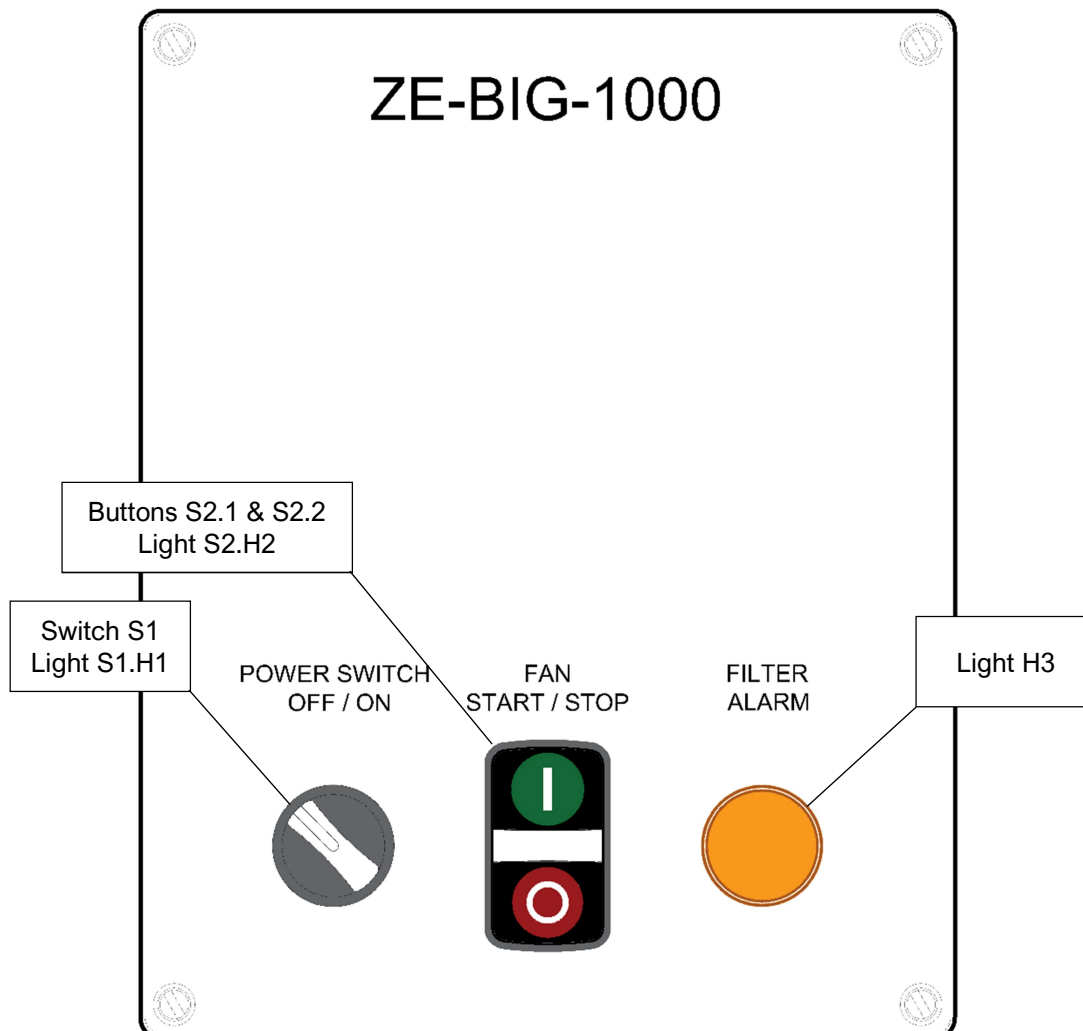
## ! CAUTION



The device is **NOT SUITABLE** for forcing air containing moist dust!

### 7.2. USE

The device is operated using the electric unit panel – see Picture 5.



Picture 5 Unit electrical assembly panel of unit BIG-1000

#### 7.2.1. Turning on the device

## ! CAUTION



The **device is live** after inserting the plug into the socket.

- Set the switch **S1** to the **ON** position. The voltage will appear in the power circuit, then the controller operation will be initiated and the white light **S1.H1** located in the **S1** switch will light up.
- After a short time from turning on the power, the filter will be regenerated - the pulse valve will open and close, blowing compressed air into the filter, which will clean the filter from dust accumulated on its surface. Filter regeneration takes place every **4 minutes**.

#### 7.2.2. Starting the fan

Press the **S2.2 "START"** button located in the centre of the control panel. The operation of the fan is indicated by the lighting of the white lamp **S2.H2**.

**NOTICE**

Filter regeneration takes place automatically while the fan is running. Regeneration takes place every **4 minutes**, and the process lasts as long as the fan is running.

**7.2.3. Stopping the fan**

- A. Press the **S2.1 “STOP”** button located in the centre of the control panel. The fan will coast to a stop. The green light **S2.H2** will go out.

**7.2.4. Turning off the device**

- A. Set switch **S1** to the **OFF** position. The white lamp **S1.H1** will go out.

**7.2.5. Working time control**

There is a working time counter on the electric unit door, which allows you to check the time of use of the appliance.

When cleaning, filter replacement or other maintenance work, it is advisable to make a note of the number of operating hours. This will help in the future to predict the moment of service work and plan it when it is not in use.

**7.2.6. Modification of process Times**

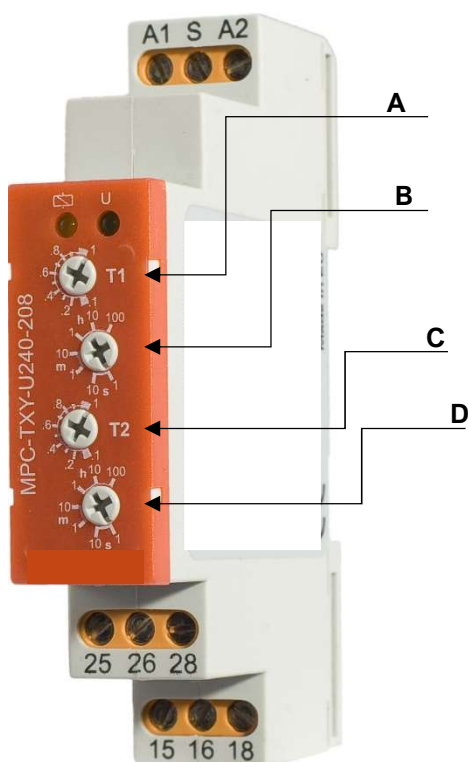
The **BIG-1000** device is equipped with a **modular clock** that controls process times during the operation: i.e. time opening of air pulse valve **T1** and time between valve openings **T2** – see Picture 6.

**! CAUTION**

The compressed air consumption depends on the set process times. Whenever process times change, you **NEED** to adjust your compressed air consumption!



It is **NOT** recommended to modify the time parameters!

**FRONT VIEW**

**A** – Time scales rotary selector (**T1**)

**B** – Time multiplier (**T1**)

**C** – LED

**D** – Time scales rotary selector (**T2**)

**E** – Time multiplier (**T2**)

**TIMESCALES**

Incrementation of **A** and **C** scales:

1sec; 10sec; 1min; 10min; 1hours; 10hours; 100hours

**MULTIPLIERS**

Incrementation of **B** and **D** scales:

0.1; 0.2; 0.4; 0.6; 0.8; 1

**EXAMPLES**

**Example 1:** T1 = 0,5 sec: set **B** = 1 sec and **A** = 0.5

**T1** = 1 × 0.5 = **0.5 sec**

**Example 2:** T2 = 4 min: set **D** = 10 min and **C** = 0.4

**T2** = 10 × 0.4 = **4 min**

**Picture 6 Modular timer**

### 7.2.7. Original manufacturer settings

Process parameters:

- Air valve opening time – **T1 = 0.5 sec**
- Time (interval) between air pulses – **T2 = 4 min**
- Pressure switch pressure setting – **B1 = 2000 Pa**

## ! CAUTION



**DO NOT** change the set point of the operating parameters! In case of required correction of these parameters, contact the manufacturer **KLIMAWENT S.A.**

### 7.3. ALARMS

The electric unit is equipped with the **H3** light signalling excessive dirtiness of the filter. The pressure switch installed inside the device controls the airflow resistance through the filter and in case of excessive flow resistance it activates the alarm on the control panel in the form of yellow **H3** light.

When the **H3** alarm appears, remove the filter from the unit and clean the filter manually or mechanically using a device designed for this purpose – see 7.4 and 9.1.2.

After cleaning or replacing the filter with a new one, the **H3** light turns off.

### 7.4. CHANGE FILTER

To replace the filter, do the following:

- Open the inspection door.
- Remove the filter from its socket by turning the filter counterclockwise. Rotate the filter smoothly, without jerking the filter pleats.
- Insert the clean filter into the slot by turning it in the opposite direction. Rotate the filter smoothly, without jerking the pleats, until you feel resistance.
- Close the inspection door.

When replacing the filter, check its condition, i.e. the condition of the surface of the filter paper, seal, etc.– see 9.1.2 – Guidelines for cartridge filters.

### 7.5. EMPTYING THE COLLECTIVE CONTAINER

The dust container is attached with clamps. Open the clamps and empty the tank.

Be careful when emptying. Always use **personal protective equipment** when emptying the tank, cleaning it from sediments, inspection.

## ! CAUTION – Dusty atmosphere!



**Wear** eye protectors during service at the device!



**Wear** a dust mask when servicing the equipment!

## 8. TROUBLESHOOTING GUIDE

*Table 2 Typical disturbances and remedies*

Disturbances	Possible causes	Remedies
Reduced suction force	Filter obstruction	Clean the filter or replace it with a new one
No odour absorption	Used nonwoven fabric with activated carbon	Replace nonwoven with activated carbon
The appearance of dust in the solenoid valve chamber	The cartridge filter is damaged	Replace damaged filter
Fan vibrations	Impeller damage	Contact the manufacturer <b>KLIMAWENT S.A.</b>
	Damage to motor bearings	
The extraction arm automatically falls	Joint friction brake incorrectly adjusted	Adjust the friction joint according to the instructions for the extraction arm
The extraction arm automatically rotates around its axis	The unit is not level	Place the unit on a level part of the floor
Stopping the device - no light <b>S1.H1 "POWER SWITCH"</b> . The fan does not turn on.	The <b>Q1M</b> circuit breaker tripped	Check the operation of the <b>Q1M</b> circuit breaker
	Damage to switch <b>S1</b>	Check the operation of the <b>S1</b> switch
	<b>F1</b> protection disabled	Check the operation of the <b>F1</b> protection

## 9. MAINTENANCE AND RECYCLING INSTRUCTIONS

### 9.1. MAINTENANCE

The design of the unit allows for continuous operation, provided that it is properly used and that it is **regularly maintained**. All maintenance is performed **by the user**.

**Table 3 Recommended inspection and maintenance periods**

Period	Action
Day-to-day control and activities	Clean the surface of the suction cup and mesh from sediment and debris to ensure proper suction power. In the case of welding dust, spray the preparation preventing the spatter from sticking.
	Check the visual condition of the cartridge filter each time the container is emptied.
	Regularly clean the device and its components to avoid excessive build-up of dust inside and out.
Once every 1 month	Check the condition of hoses for mechanical and thermal perforation. Replace with a new one if damaged.
Once every 2 ÷ 3 months	Adjust the articulation and telescope clamps if they lose their self-locking.
Once every 12 months	Clean the internal surfaces of pipes and cables of accumulated sediment to prevent possible ignition due to high temperature.

### 9.1.1. General guidelines

- A. At least every **12 months**, check the technical condition of the fan and the electric motor following the principles of operation of electric drive devices.
- B. Cartridge filters should be replaced after a period of operation from 1 to 2 years or when the regeneration in the device does not give the expected result in the form of a constant return to the required output of the device.

### 9.1.2. Guidelines for cartridge filters

- A. Check the condition of the cartridge filter during each operation of emptying the tank for dust. Check the correct fit of the filter mounting elements, the condition of the filtering surface, the degree of contamination, the presence of damage or foreign bodies, sticky and difficult to remove deposits, moisture, etc.

#### ! CAUTION



Moisture or oil in the transported air and in the air used to regenerate the filters can damage the filters!



Connect the devices to the process network of compressed air, free from any impurities, oil and moisture and prepared by an appropriate filtering and reduction unit ensuring stable parameters.

- B. When the **H3** alarm occurs, remove the filter from the unit and clean it manually or mechanically using a device designed for this purpose – contact the manufacturer **KLIMAWENT S.A.**
- C. The filter shall also be inspected in the event of other malfunctions in the operation of the device. In the event of normal wear or damage or perforation of the cartridge filter, replace it with a new one – see 5.1 Spare parts (consumables).

### 9.1.3. Guidelines for compressed air tank

The compressed air tank must be checked and maintained following the regulations for pressure equipment. Periodically check all tank connections and drain the tank through the valve installed for this purpose in the lower connector of the tank.

### 9.1.4. Guidelines for solenoid pulse valve

The applied solenoid (air pulse) valve does not require ongoing maintenance. It is enough to check the condition of electrical connections, grounding and tightness of the pneumatic system.

## 9.2. RECYKLING AND CASSATION

#### ! CAUTION



When the product is transferred for cassation, the provisions on the erasing of machines withdrawn from use and/or recycling of waste should be applied. No part of the equipment belongs to the hazardous waste group.

## 10. OHS MANUAL

#### ! CAUTION



The device as a machine meets the safety requirements of **Directive 2006/42/EC** but requires additional safeguards for safe use. Follow the instructions in this manual.



Start-up and operation of the device may only take place after reading this manual. The device is not dangerous if it is operated following this manual!

**! CAUTION**

The manufacturer is not responsible for any injuries resulting from improper use!



Before assembling the device, check the strength of the structural elements to which it will be attached. Improper, careless or unstable mounting of the device may damage it, and also pose a real threat to people in the vicinity!

**! WARNING – Possibility of serious injury or death!**

The device **CANNOT** be used for forcing a mixture with air of flammable substances in the form of gas, vapour, mist or dust, which can create an explosive atmosphere!



**PROTECT** the appliance against sucking in flames, cigarette butts, sparks or other incandescent elements that may damage the appliance or cause a fire or explosion in the installation!



The device **MUST NOT** be used in an environment where static electricity can cause an explosion!

**11. TRANSPORT AND STORAGE**

The device should be stored in compliance with the following rules:

- The device should be stored in a place (room) that protects against external factors.
- The storage place should be dry and dust-free at the temperature between **-10°C** and **+40°C**.

**12. TERMS OF WARRANTY**

The warranty period is specified in the **WARRANTY CARD** of the device. The warranty does not cover:

- A. mechanical and electrical damage to the device caused by the user,
- B. damage resulting from use contrary to the intended use or failure to observe these manual,
- C. damage resulting from improper use, transport and storage.

**! CAUTION**

Failure to comply with point **3 - MANUFACTURER'S DISCLAIMER** of this manual, especially if the device is modified or used contrary to its intended use, the warranty is void!

**13. RESIDUAL RISK INFORMATION****! WARNING****HAZARDOUS MATERIALS AND SUBSTANCES**

The device itself is not a source of dust emission, because it has a sealed housing, but due to the purpose of the device for air cleaning, dust accumulates inside, on the internal surfaces and in the tank. Each time the tank is emptied, the user comes into contact with potentially harmful process dust.

**BE CAREFUL WHILE CLEANING, MAINTENANCE AND EMPTYING THE TANK.  
WEAR DUST MASKS AND SAFETY GLASSES!**

**RECOMMENDED MARKING NEAR THE DEVICE**



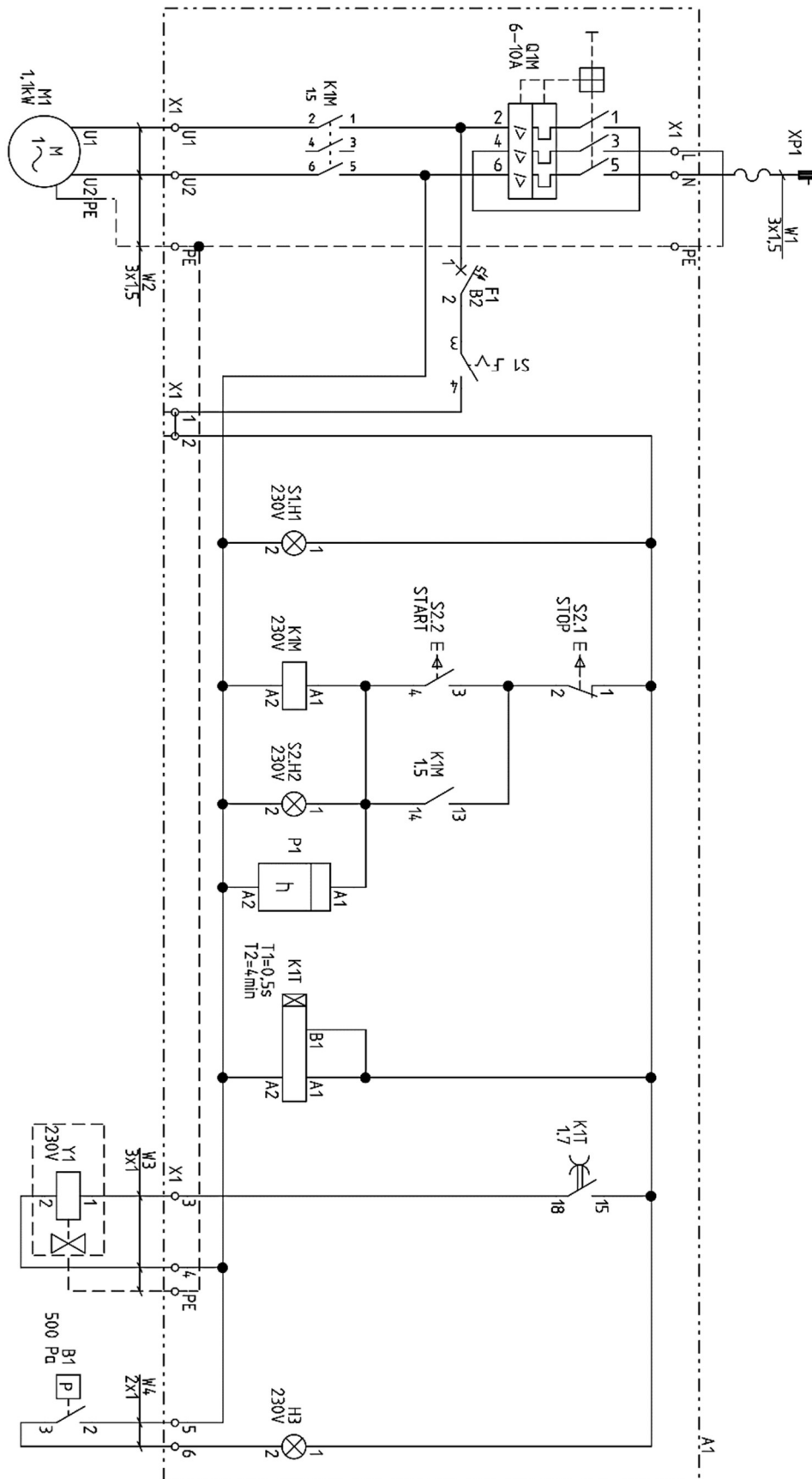
**ATTENTION:** Wear eye protection when servicing the device!



**ATTENTION:** Wear a dust mask when servicing the device!



## 14. WIRING DIAGRAMS



Picture 7 Electrical diagram

**NOTE:** Motor switch setting – Q1M:  $I_t = 1.1 \times I_n$ , where  $I_n$  is the rated current of the electric motor.

## 15. EXAMPLE OF THE EC DECLARATION OF CONFORMITY



### EC DECLARATION OF CONFORMITY

No. \_\_\_\_\_

Manufacturer (or, if necessary, its authorised representative/importer):

*name:* **KLIMAWENT S.A.**

*address:* **Poland, 81-571 Gdynia, 194 Chwaszczyńska street**

A person authorised to prepare the technical documentation:

*name and address:* **Teodor Świrbutowicz, KLIMAWENT S.A.**

hereby declares that the product: **Filtering unit**

type / model:

**BIG-1000-O**

Serial number: \_\_\_\_\_

Year of manufacture: \_\_\_\_\_

Meets the requirements of the following European Directives:

**Directive 2006/42/EC (MD)**

**Directive 2014/35/EU (LVD)**

**Directive 2009/125/EC (ErP)**

Meets the requirements of the following harmonised standards:

**PN-EN ISO-12100:2012,**

**PN-EN 60204-1:2018-12,**

**PN-EN ISO 13857:2020-03,**

**PN-EN 60529:2003/A2:2014-07,**

**PN-EN 61439-1:2011.**

place, date

signature of the  
authorised person

first name, last name,  
signer function

**KLIMAWENT S.A. Poland**

194 Chwaszczyńska street, 81-571 Gdynia

**phone: +48 58 629 64 80**

**fax: +48 58 629 64 19**

**klimawent@klimawent.com.pl**

**804U44 BIG-1000-O  
804U49 BIG-1000-R  
EN 2021-03-02**