



GEOVENT

INSTRUCTION MANUAL



GEOFILTER GFB2 W3

GFB2 W3 3-1, GFB2 W3 6-2, GFB2 W3 9-3, GFB2 W3 12-4

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1.0 Introduction

This manual is made and designed in order to facilitate the best and most secure interaction with the product. The manual is relevant for people involved in transportation, stocking, installation, using, maintaining and all other thinkable interaction with the product.

The manual must be read in full and understood before interacting with the product.

When the manual has been read and understood in full, the table of contents can be used to find the relevant information in each case.

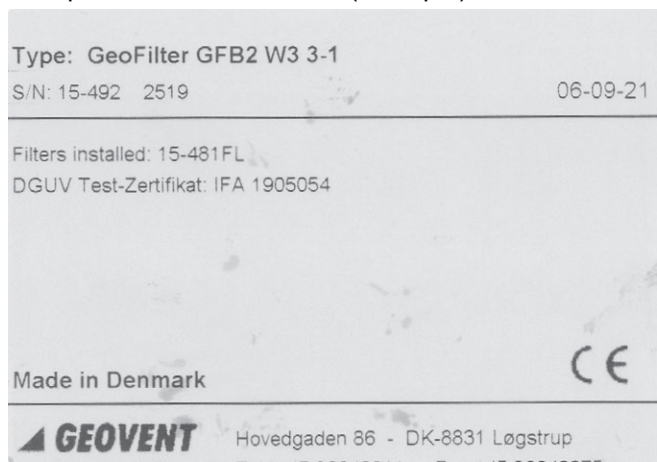
The product is manufactured by:

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This manual is to be used for all interactions with the product including: Transportation, stocking, installation, operation and maintenance.

This product is marked with: (example)



2.0 Safety

2.1 General safety

Carefully read this manual before use and observe the safety instructions in order to avoid injuries!
Keep this manual in a safe place!

Secure that all users of the product have read this manual and that they follow the instructions as described. Observe all instructions marked on the product! Observe the indications of the manufacturer. Never use the product if you are in doubt about how it works or what you should do. Observe all instructions marked on the product! Observe the indications of the manufacturer.

When doing maintenance or replacing filters, follow the instructions in chapter 7.0.

Power cables and pneumatic air hoses should be replaced at once, if they are damaged. This should only be done by authorised and qualified personnel.

Do not modify the product or use spare parts from other suppliers than Geovent, as this may hamper the product and the function.

All electrical installations must be carried out by an authorised electrician.

2.2 Danger

You must wear safety gloves when handling or using the product to protect your hands from scratches etc.

Be aware that the product may tilt when you move it. You must handle the product with care and tie it safely to the truck or the fork lift when it is in transport.

Place the product on a solid, flat foundation (e.g. a concrete floor) and anchor it. Allow space to perform filter changes.

When you change the filter cartridges, follow the instructions in chapter 7.3.

Disconnect the mains plug for all kinds of maintenance tasks.

While opening, cleaning and maintaining the unit or while changing parts, disconnect the unit from the mains supply and secure it from being restarted.

In case of an accident or a fire:

Call for help. Disconnect the product from the mains supply.

Follow the normal and local requirements in case of an accident or a fire.

In case of problems:

Disconnect the product from the mains supply.

Inspect the product to see if a repair is possible.

If a repair is not possible you should dispose of the product. Please follow the instruction for disposal in chapter 10.0.

3.0 Machine overview

3.1. Description

The GFB2 W3 is a filter unit which is used for different filtration purposes.

The filter unit is equipped with an automatic cleaning device which can be adapted to the intended use.

3.2 Intended use

The GFB2 W3 is used to filter the extracted air from industrial processes such as welding.

The filter is not to be used in areas categorised as ATEX zones, e.g. with dust from aluminium, flour, wood, and other mediums that present an explosion hazard.

The filter self-cleans automatically as a compressed air pulse is sent down through the filter cartridges, causing the particles on the filter to be blown off and collected in the bucket below.

The particle catch in the inlet functions as a diffusor and catches large particles, that could otherwise damage the filter cartridges. The particles fall into the bucket.

3.3 Machine specifications

3.3.1 Design

Casing: Galvanized steel (corrosion category III), with baffle plate in the inlet.

Filter cartridges: FT/18 99,9% v/0,3µm

Air pressure tank: Powder coated

Automatic control: Cleaning control with digital display for adjusting cleaning time, cleaning interval, and shut down cleaning.

Collection bucket: Galvanized steel – 24 liter capacity.

3.3.2 Technical data

Dimensions

Model/Dimension	A [mm]	B [mm]	Inlet [mm]
GFB2 W3-3-1	810	635	ø315np
GFB2 W3-6-2	810	635	ø315np
GFB2 W3-9-3	855	935	ø400np
GFB2 W3-12-4	900	1235	ø500np

Model/Dimension	Outlet [mm]	Clearance [mm]	Weight [kg]
GFB2 W3-3-1	ø315np	min. 927	95
GFB2 W3-6-2	ø315np	min. 927	145
GFB2 W3-9-3	2xø315np	min. 927	190
GFB2 W3-12-4	3xø315np	min. 927	230

Compressed air: 3,5 - 6 bar - Clean and dry air
 Air consumption: 3 L compressed air per shot
 Power supply: 24VDC or 230VAC (standard)
 Temperature: -10°C - +65°C
 Corrosion class: III
 Sealing class.: Class C

Temperature extracted air Max 80°C
 Temperature surroundings -10°C - +65°C
 Relative humidity must be below < 90%

Differential pressure drop

Typical pressure drop: 1.000-1.500 Pa

3.3.3. Combination of filter units

A combination of the filter units is possible to enable higher suction volumes. For this purpose, the filter units must be connected in parallel.

Possible combinations and reference values are given in Chapter 14.2. listed.

3.3.4. Combination of fans and filters

The filter systems can be operated with different fans. An overview of the combination of fans and filters is given in Chapter 14.2. shown.

4.0 Transport, handling and storage

During transport in a truck or in another means of transportation the product must be securely packed in a box or a pallet and covered with a water proff material. The product must be securely stowed in the truck so that it will neither tilt nor shift during transport.

During transport over a short distance e.g. in a stock or a factory, the product can be moved by means of a forklift or a stabeler. When moved it must be secured that the product does not tilt or shift. And it must be secured that the limitations of the means of transportation is not exceeded.

Secure that there are no people around the product, when the product is moved.

The product must be placed in a dry place and covered securely, in order to secure that moist, metal parts or other substances do not damage the product. It is not allowed to place anything on top of the product.

5.0 Assembly, installation and start of operation

5.1 Location

We recommend that the filter unit is placed indoor. Out-doors placing can give problems with condensation or water coming into the filter unit (due to the vacuum in the filter unit). Further there may be a problem with the electronics.

If the filter unit is placed out-doors, anyway, we suggest that the filter unit is placed under a protective roof or in a shelter to shield the filter from rain. Adding a termal insulation will reduce the risk for condensation.

Before installing the filter unit, please make sure that the optimum place for installation is selected. Is there room enough for the filter unit? Is there space enough for carrying out satisfactory service and change of filter cartridges?

Place the GFB2 filter upon a solid, flat foundation (e.g. a concrete floor) and anchor it.

5.2 Installation

The filter is delivered complete, fully mounted and pre-programmed from factory, ready to be connected to the ducting system and the mains. The installation procedure described below must be made by an authorized installer

Procedure:

1. Place the product upon a solid, flat foundation (e.g. a concrete floor) and anchor it. Allow space to perform filter changes.

2. Attach the product to a circular duct on both the clean side and the dirty side (the bottom tube connection is always the dirty side). Remember to seal the connection with joint filler and/or tape!
3. To ensure proper dilution, the exhaust should be at least two metres over the rooftop towards the atmosphere with a minimum exhaust speed of 8 m/s.
4. All electronic components must be installed by an authorised electrician. Protect the cable and connector from heat, moist, oil and sharp edges.

IMPORTANT:

Cleaning pressure can be adjusted from 3.5 to 6 bar pure dry air as needed. Increasing the cleaning pressure to more than 6 bar gives a risk of damaging the filter cartridges.

Sort and dispose the packing material according to local regulations.

5.3. Control and test of the security system

When the product is installed you must secure:

- a. That the filter is placed on a solid, flat foundation and anchored to the ground or the wall so that it cannot tilt.
- b. That the doors of the product is securely closed.

6.0 Timer control panel

6.1 Operating the filter

The filter is delivered as standard with timer control.



Menu

How to access programming

Press SET

Press + and - to select the required function.

Press OK to confirm.

Increase or decrease the value of the parameter

Press OK to confirm and exit.

Press SET again to exit programming mode.

Display

The display shows Off if terminals 14 and 15 are broken.

The display shows -0- if terminals 14 and 15 are closed but 12 and 13 are broken (fan switch)

Cleaning function

The Cleaning function is programmable. The pulse and pause time control can be set in the function menu.

The pause should be adjusted for the current application. From factory, it is set to shoot every 350 seconds. The timer setting may be changed in F3.

Shot down cleaning (fan)

The function allows one or more cleaning sequences (the number selected in F13), when the fan is turned off.

The pulse time is always as selected in F02, while the pause time is selected in F14.

The display alternately shows the number of seconds to cleaning and the code "PCC".

List of Functions

- F02:** Pulse time.
Possible values: 0.5 - 5.00. Step 0.01
Default = 0.20
- F03:** Pause time, between shots:
Possible values: 001 - 999. Step 1
Default = 175
- F04:** Number of valves.
Possible values: 01 - 16
Default = Automatic
- F05:** Output voltage.
Possible values: d24 / a24 / 115 / 230.
Default = a24
- F06:** Manual cleaning cycle.
Possible values: The number of valves set in F4
Press SET to activate.
- F13:** Shut down cleaning cycles.
Possible values: 01 - 99. Step 1
Default = 01
- F14:** Pause time between cleaning cycles after fan stop.
Possible values: 001 - 999. Step 1
Default = 8.
- F15:** Service timer.
Possible values: 001 - 999. Step 1 (1=10 h)
Default = 100 (1000 h)
- F16:** Service alarms.
Possible values: 0 (off) -1 (on).
Default = 0 (off)
- F17:** Reset service timer.
Possible values: 0 (off) -1 (reset).
Default = 0 (off)

Note: The service timer will be reset and the F17 will be reset to 0 by setting F17 to 1.

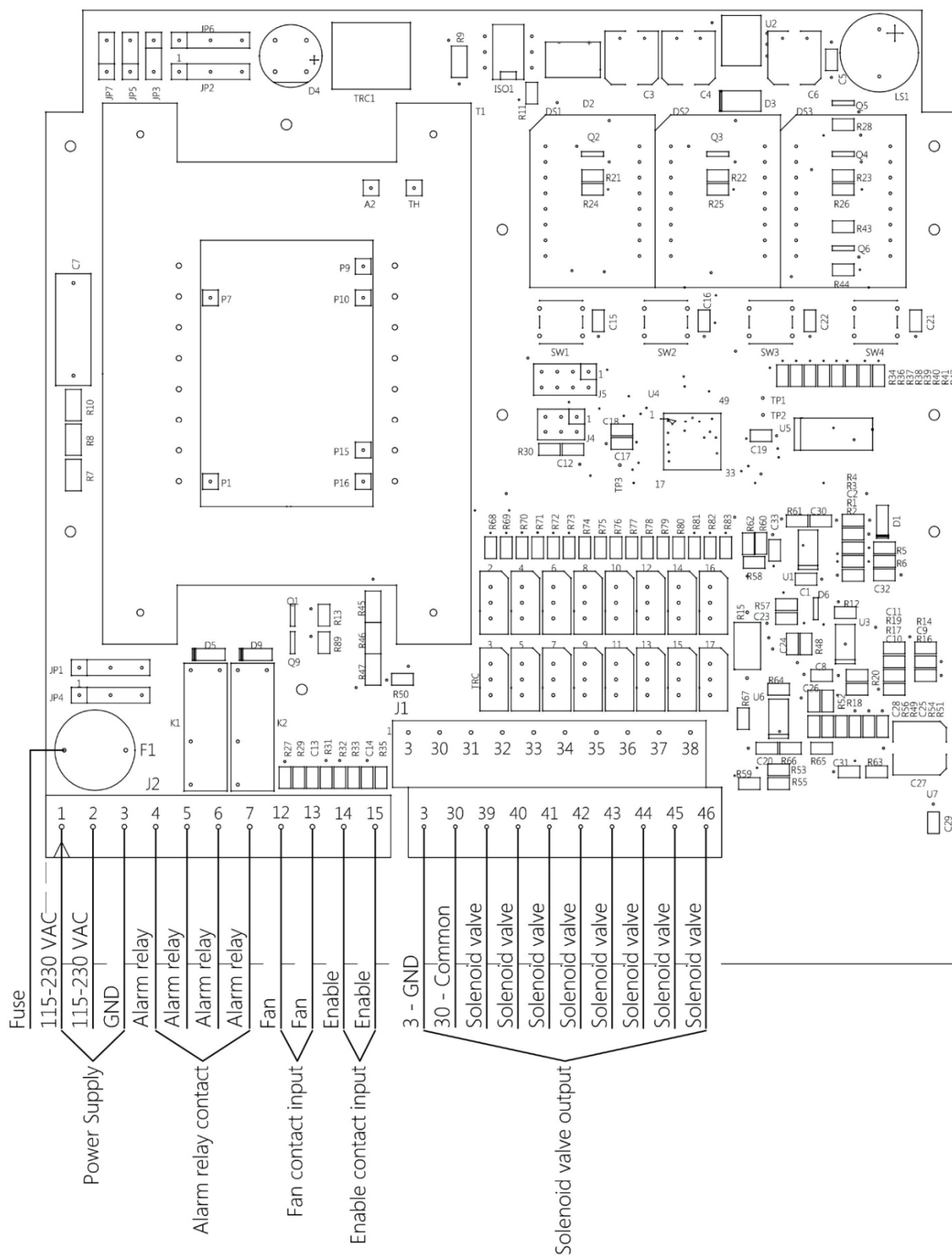
Alarms:

The unit runs a number of checks during the start-up cycle and during normal operation.

The possible alarms and respective solutions are shown in the following table.

Alarm	Description	Action
E01	F05 set to 24Vdc - ac jumper detected.	24Vdc , switch the device off and move the ac/dc jumpers to dc. 24Vac , Press OK, then press SET, set the function F05 using +/-, select A24 and press OK to confirm.
E02	F05 set to 24Vac - dc jumper detected.	24Vac , switch the device off and move the ac/dc jumpers to ac. 24Vdc , Press OK, then press SET, set the function F05 using +/-, select d24 and press OK to confirm.
E03	F05 set to 24Vac or 24dc. Voltage out of range detected.	24V valves , switch the device off and move the output voltage selection jumper to 24V. If the jumper is in the correct position , press OK then SET, select the F05 function with +/- set the correct current and press OK.
E04	F05 set to 115V or dc. Voltage out of range detected.	115V valves , switch the device off and move the output voltage selection jumper to 115V. If the jumper is in the correct position , press OK then SET, select the F05 function with +/- set the correct current and press OK.
E05	F05 set to 230 V. Voltage out of range detected.	230V valves , switch the device off and move the output voltage selection jumper to 230V. If the jumper is in the correct position , press OK then SET, select the F05 function with +/- set the correct current and press OK.
E06	The current of the solenoid valve is lower than the minimum threshold or disconnected solenoid valve.	Check that the solenoid valve is connected correctly and the respective data. The alarm is self-reset.
E07	The current of the solenoid valve is higher than the maximum threshold.	Check that the solenoid valve is connected correctly and the respective data. The alarm is self-reset.
E08	Output short circuit. Alarm cannot be reset	Switch the filter off, check the solenoid valve, and switch the filter back on.
E11	Maintenance deadline reached.	Carry out maintenance.

Connections diagram



6.2 When the product has been installed

When assembly of the filter is complete, installed correctly and ready for use, there will not be any interaction between the user and the filter besides emptying the bucket. Naturally, the user should be aware of whether there is correct suction in the exhaust system.

IMPORTANT: It is imperative that the cleaning cycle intervals are adjusted according to the load put on the filter.

First when installing and secondly after a period where it is evaluated if the intervals between cleaning shots should be shorter or longer.

If the shots are fired too often, the energy cost will be higher.

Are the shots fired too seldom there will be more strain on the fan making filtration more costly and ineffective and it will shorten the lifespan of the filter cartridges.

7.0 Control, test and maintenance

7.1 Control

Before finally putting the filter into operation its function should be tested and the cleaning cycle adjusted, so that it fits the application, in which it will be used.

Check that the pause interval on the cleaning system is appropriate for the actual amount of dust – adjust if necessary (see instructions for filter operation).

Check for vibration or noise issues during use of the product. Check that the entire system is completely sealed. In case of squeaking sounds, locate leakage and seal with joint filler.

We recommend checking the ventilation system to ensure, that it is delivering the amount of air which the system is proportioned for. Measure the amount of air and regulate using the regulation valve. In the event of overcapacity, the power usage can exceed the capacity of the fan motor, thereby causing the motor to burn out. See the manual of the fan.

7.2 Maintenance

A qualified service engineer should check the entire system at least once a year.

Periodic maintenance of the filter:

- All electronic parts should be checked yearly
- Check that the supply of compressed air is clean and dry to avoid condensation causing damage to the filter cartridges and solenoid valves.
- Check the pressure loss over the filter and change the filter cartridges if pressure loss exceeds 2.000Pa.

- Regularly check the filter's clean side for dust particles and change filter cartridges in the event of leakage.

Alarm

When the alarm is activated, the filter cartridges needs to be changed. Follow the instructions in chapter 7.3.



Emptying the collection bucket

Empty the bucket when it reaches around 2/3 capacity, otherwise it may place further strain on the filter cartridges. Follow the instructions and illustrations below.

Always use appropriate protective equipment



1. Disconnect valve.



2. Pull the handle up.



3. Pull/roll out bucket.



4. Loosen the hand screw.



5. Pull down the flap, then it is possible to remove the bag.



6. Empty the bag for air.



7. Use a strip to close the bag.



8. Put a new bag in the bucket. Make sure the bag is placed correctly. Avoid breaking the bag when the bucket is placed back in position.



9. Pull up the flap and tighten the hand screw.



10. Place the bucket back in position and push the handle down while holding the bucket in place. Reconnect the valve to the bucket.



11. Connect the valve

Opening and closing the door



1. Turn off the main power.
2. Loosen the bolts, turn the latch 90° to the left.
3. The door opens (the filter cartridges can be replaced)
4. After replacing the filter cartridges, close the door.
5. Turn the latch 90° to the right, while holding the door in place.
6. Tighten the bolts until the latch is tightly secured to the door.

Security Check:

1. Check that all 4 latches are tight so they cannot be loosened by hand.
2. Pull the handle to be sure that it is locked.

7.3 Replacing the filter cartridges

The filter cartridges should be changed after about 4.000 – 8.000 hours of operation or after a maximum of 4 years. This depends partially on the strain on the filter, and partially on what its use has been.

Procedure:

1. The power supply must be disconnected and unable to be activate during servicing.
2. Before opening the door of the filter, it is important

to take the necessary personal safety precautions such as wearing a respirator and gloves that meet the Working Environment Authority's rules for working with contaminated dust.



3. Loosen all screws on the top door of the filter unit.



4. Open the door on top of the filter unit.



5. Loosen all screws holding the filter cartridge in place.



6. Pull a plastic bag over the filter cartridges.



5. Turn the filter cartridges to remove it.



6. Empty the bag for air and use a strip to close the bag.



7. Dispose of the used filter cartridges according to local rules for hazardous waste.

8. Mount the clean filter cartridge by repeating the above steps in reverse order.

9. Check the filter cartridges for functionality and leakage before use.

How to optimize your filter

1. Clean the filter cartridges using correct air pressure
2. Correct the cleaning pause time
3. Ensure that the filter cartridges is dry
4. Enable shut down cleaning

8.0 Cleaning

The outside of the product is cleaned by means of a vacuum cleaner or a damp cloth.

NOTE: Do not clean the product during operation. Turn the product off before cleaning.

The filter self-cleans automatically as a compressed air pulse is sent down through the filter cartridges, causing

the particles on the textile of the filter to be blown off and collected in the bucket below.

Do not open the doors during operation to avoid injury.

Cleaning of the inside of the product is not recommended.

When the doors of the product are opened, you must wear protection gloves, eye protection and a suit covering your body.

9.0 Troubleshooting

In the event of problems caused by increased pressure loss, low amounts of air etc., go through the following points:

Dust proceeds to come out of the inlets

The cleaning system is having to “blow” too much dust off the cartridges at one time and the dust is seeping into the tubes. Reduce the pause interval on the filter control until the dust no longer comes out through the inlets.

Pressure loss increases quickly during use and air level falls accordingly

The cleaning system cannot keep up with the dust level.

- Reduce the pause interval until the pressure loss is normal again. If this fails, the filter cartridge must be changed.
- Increase cleaning pressure (to a maximum of 6 bar, as the filter cartridges could otherwise be damaged).
- Increase after-cleaning.

Dirty filter alarm lamp

The alarm lamp is activated if the differential pressure is too high over the filters. The filter cartridges need to be replaced before resuming operation.

10.0 Dismantling, disabling and scrapping

Deactive the product by disconnection the electrical mains. Dismantle the compressed air pipes and other tubes etc.

When you dispose of the product you should dismantle the filter elements as described in chapter 7.3.

It is very important that the instructions of this manual is followed in order to avoid contamination of people and the environment!

The inside of the product must be cleaned by means of a vacuum cleaner with a filter which suits the purpose.

Dismantle the electronics, wires and cables and put these into a suitable bag. Afterwards dispose of it according to local regulations.

Dismantle the metallic parts by unscrewing screws and bolts. Afterwards cut the larger pieces into smaller pieces and dispose of it according to local regulation.

BEWARE of sharp edges of the metallic parts which could harm persons etc.

The packing material must be sorted according to local regulation in order to be able to reuse the material.

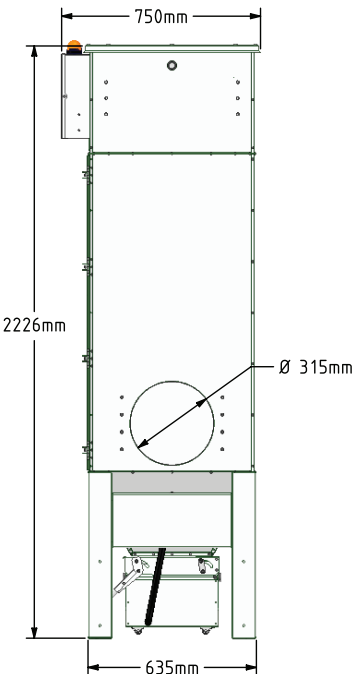
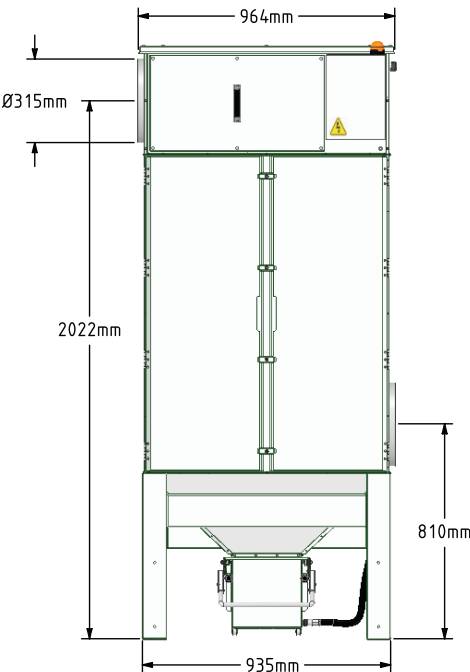
MULTI COUPLING DIAGRAM - TERMINALS, MULTIBOX AND FREQUENCY INVERTERS



Dimensions

GFB2 W3-3-1

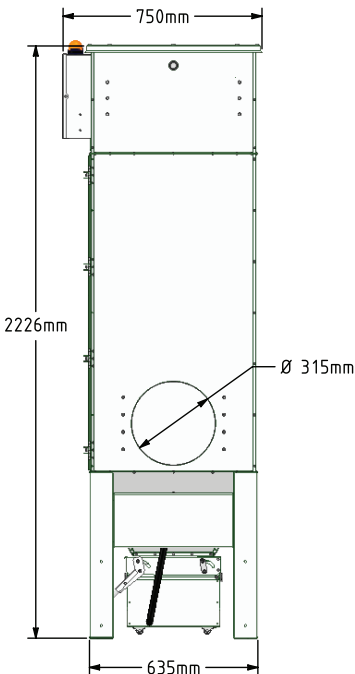
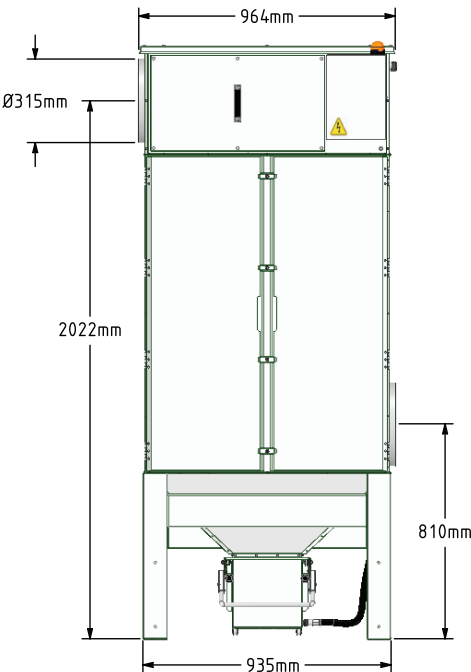
Inlet mm: Ø315np
Outlet mm: Ø315np



Dimensions

GFB2 W3-6-2

Inlet mm: Ø315np
Outlet mm: Ø315np

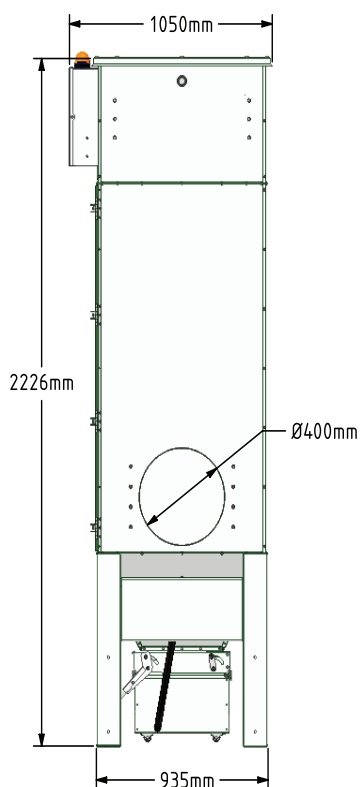
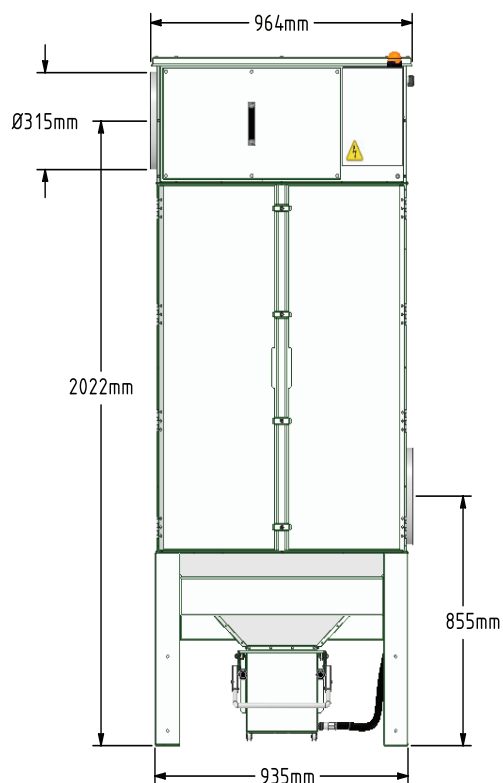


Dimensions

GFB2 W3-9-3

Inlet mm: $\varnothing 400\text{np}$

Outlet mm: $2 \times \varnothing 315\text{np}$

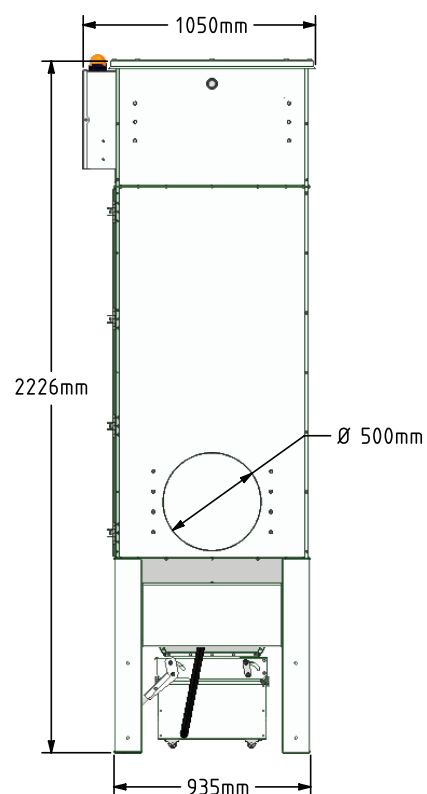
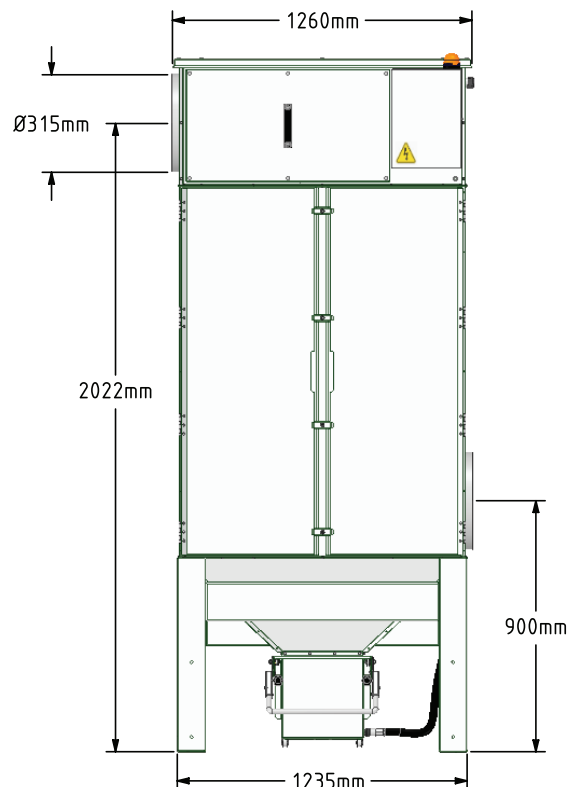


Dimensions

GFB2 W3-12-4

Inlet mm: $\varnothing 500\text{np}$

Outlet mm: $3 \times \varnothing 315\text{np}$



12.0 Liability

Warranty

Geovent A/S grants a warranty for products, which are defective, when it can be proved that the defects are due to poor manufacture or materials on the part of Geovent. The warranty comprises remedial action (reparation or exchange) until one year after the date of shipment.

No claims can be made against Geovent A/S in relation to loss of earnings or consequential loss as a result of defects on products from Geovent.

Wear on parts such as filter cartridges and hose is not included in the warranty.

User liability

In order for Geovent to be capable of granting the declared warranty, the user/fitter must follow this instruction manual in all respects.

Under no circumstances may the products be changed in any way, without prior written agreement with Geovent A/S.

Please refer to the current sales and delivery conditions at www.geovent.com

13.0 Declaration of conformity

The manufacturer: GEOVENT A/S
HOVEDGADEN 86
DK-8831 LØGSTRUP

hereby declares that:

The product: GFB2 filter W3
Model: GFB2 W3-3-1, GFB2 W3-6-2,
GFB2 W3-9-3, GFB2 W3-12-4

complies with the relevant parts of the following directives and standards:

Directive 2006/42 / EC of the European Parliament and of the Council of 17 May 2006 on machines and amending directives 95/16 / EC

This declaration is no more valid if changes are made to the product by others than the manufacturer.

Authorized to collect the technical file:

Lise Cramer

Date: 02.01.2023

Position: Director
Name: Thomas Molsen

Signature :



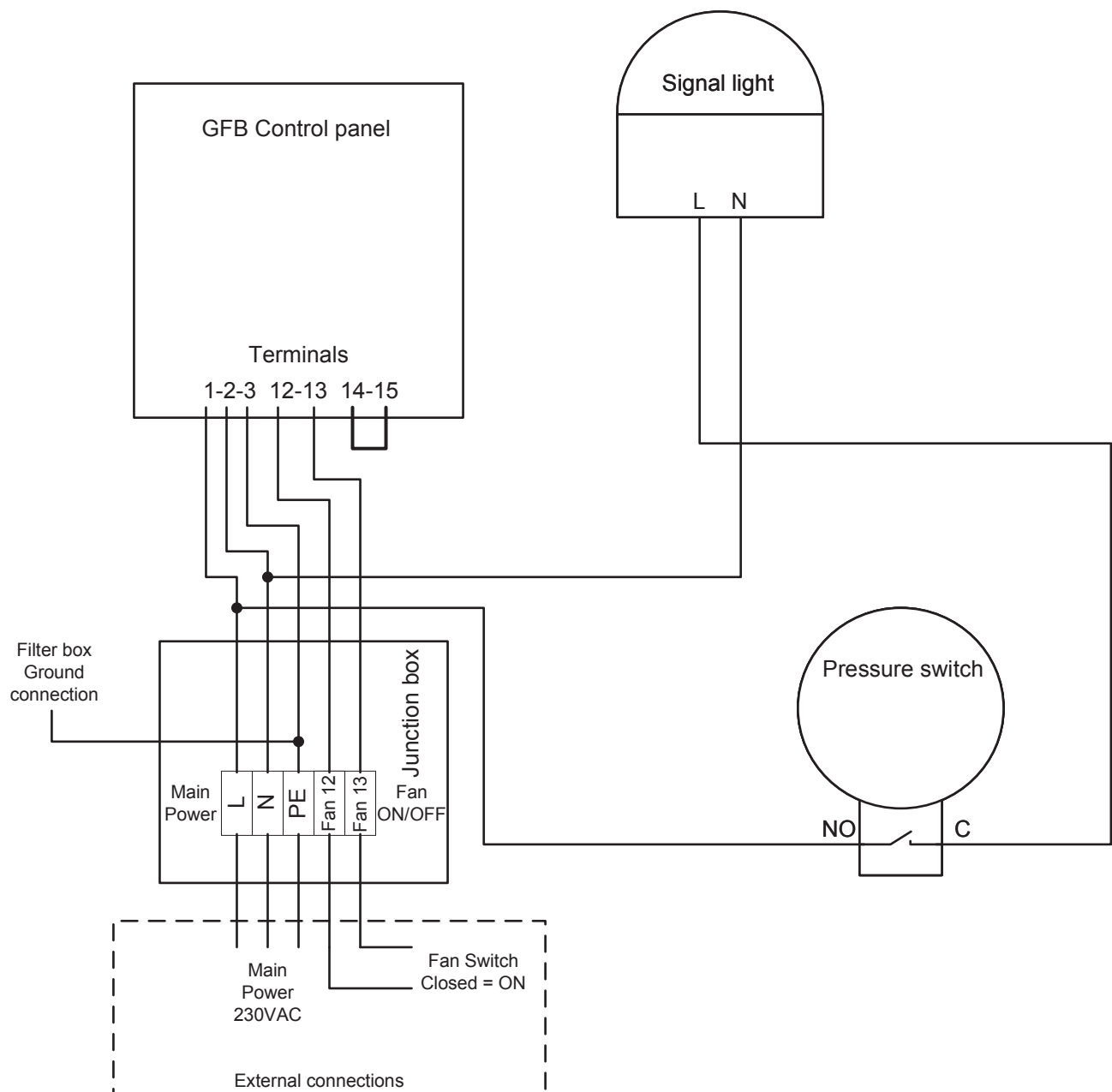
14.0 Spare part list

Art. No.	Description
92-214	Timer control panel GFB2 (mounted as standard)
93-VNP-208	Solenoid valve 24V
13-729G	Pressure switch
13-082	Alarm lamp
15-482FL	Filter cartridge FT/18 10m ² ePTFE
15-346	Plastic bags for collection bin
15-345	Plastic bags for collection bin

Combination options for filter units and fans

FILTER TYP	Art. No.	Num-ber of cartrid-ges	Filter area [m ²]	Typical air volu-me min [m ³ /h]	Typical air volu-me max [m ³ /h]	Fan	Art. No.	Typical pressure at min air volume [kPa]	Typical pressure at max air volume [kPa]	FRQ
GFB2 W3 3-1	15-460W3	3	30	1.000	1.800	MHF-500-3 4 kW	36-550	3,7	2,6	
						MEF-400-3 5,5 kW	35-206A	2,9	2,8	x
						MSFG-250-3 4.0 kW	33-002	1,7	1,7	
GFB2 W3 6-2	15-461W3	6	60	1.500	3.600	MEF-450-3 5,5kW	35-706	2,7	2,7	
						MEF-400-3 5,5 kW	35-206A	2,9	2,8	x
						MSFG-250-3 4.0 kW	33-002	1,7	1,6	
GFB2 W3 9-3	15-462W3	9	90	2.500	5.400	MEF-500-3 7,5kW	36-500	3,3	3,2	
						MEF-450-3 5,5 kW	35-706	2,6	2,3	
						MEF-400-3 5,5 kW	35-206A	2,8	2,1	x
GFB2 W3 12-4	15-463W3	12	120	4.000	7.200	MEF-500-3 7,5kW	36-500	3,4	2,8	
						MEF-500-3 11 kW	36-501	4,2	4,1	x
						MEF-450-3 5,5kW	35-706	2,7	1,8	
GFB2 W3 18-6	15-464W3	18	180	6.000	10.800	MEF-630-3 15kW	35-750A	3,3	3,3	x
(2xGFB2-9-3)						MEF-560-3 18,5kW	35-804	4,4	3,9	
GFB2 W3 24-8	15-465W3	24	240	8.000	14.400	MEF-630-3 22kW	35-750	4,5	4,2	x
(2xGFB2-12-4)						MEF-630-3 15kW	35-750A	3,3	2,9	x
						MEF-560-3 18,5kW	35-804	4,3	3,2	
GFB2 W3 36-12	15-466W3	36	360	10.000	21.600	LEF-800-3 37kW	36-600	4,2	3,8	x
(3xGFB2-12-4)						MEF-630-3 22 kW	35-750	4,2	2,8	x
GFB2 W3 48-16	15-467W3	48	480	12.000	28.800	LEF-900-3 37kW	36-700	4,3	3,6	x
(4xGFB2-12-4)										

Coupling diagram





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