



GEOVENT

INSTRUCTION MANUAL



HIGH VACUUM

HVU ELITE

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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.

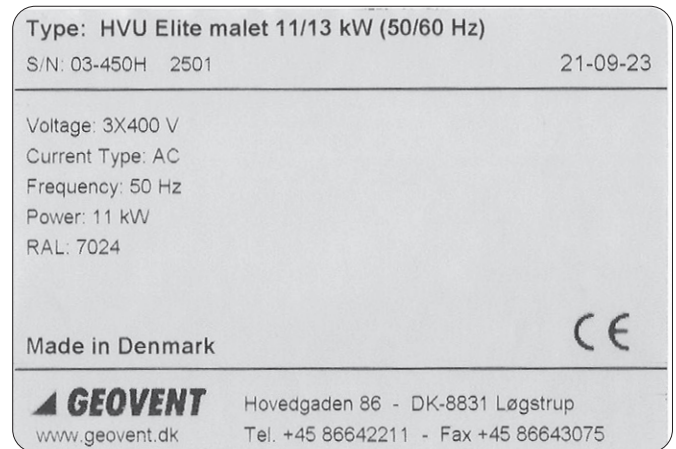
The product is manufactured by:

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DENMARK

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E-mail: salg@geovent.dk
www.geovent.com

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.

When doing maintenance follow the instructions in chapter 7.0.

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

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.

Follow the instructions in chapter 7.0 when the product is maintained.

When handling the product be sure that there is no risk for the installer, and secure that there are no people around the product, secure that the product cannot fall down risking to injure persons or subjects.

The product 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.

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

Geovent HVU Elite is a compact high vacuum unit for collecting dust, smoke and other particles. The unit is prepared for outdoor use.

3.2 Intended use

The Geovent High Vacuum Unit is used, among other things, for vacuuming during car preparation and for e.g. grinding dust extraction.

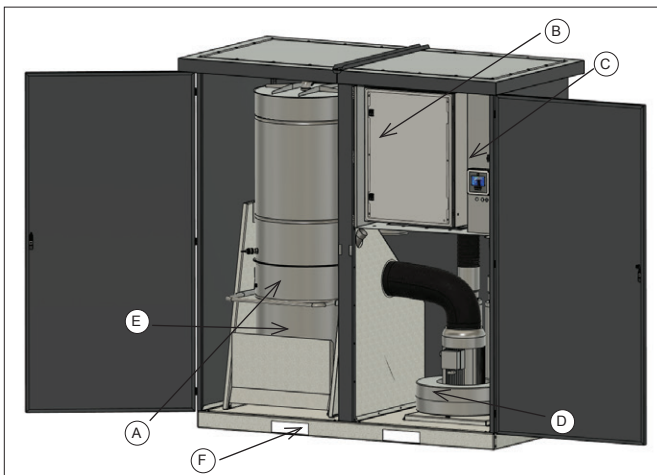
The unit is equipped with a two-stage filter cyclone with a compressed air cleaning system. Filtration degree of 99.9%.

Geovent HVU Elite is suitable for use in connection with vacuuming cars at service stations, EV charging stations, etc., where control and payment systems can be integrated.

The unit can e.g. be used for extraction of grinding dust from hand-held rotary sanders, fixed belt sanders and bench grinders, brake dust from cars and trucks as well as general workplace cleaning etc.

3.3 Machine specifications

3.3.1 Design



- A Filter cyclone
- B Control panel with automatic start/stop and filter cleaning
- C Frequency inverter
- D Side channel blower
- E 150L collection bucket
- F Frame prepared for lifting with e.g. a forklift

Enclosure: Painted and galvanized steel plate.

Filter media: Antistatic aluminum coated polyester filter with 99.9% filtration efficiency. Life expectancy in normal use: 4,000-8,000 hours.

Motor/side channel blower: IP 55 standard motor with side channel blower in cast aluminum. Life expectancy in normal use: 20,000 hours.

Automation: Control panel in steel cabinet IP 54.

3.3.2 Technical data

Dimensions

Drive power	11-13 kW
Connection voltage	400V
Nominal frequency	50Hz
Nominal current	21,6 A
Circuit breaker	50A
Protection class	IP 54
Max. vacuum	30000 Pa
Max. volume flow	1085 m ³ /h
Max. number of suction points	12
Collection container	150L
Dimensions L x B x H (including filter unit)	2140x1070x2202
Total weight	685 kg
Installation location	Outdoors
Min. spatial requirement around the product	1 m front and on the left side 0.5 meters backward and the right side
Operation	Front
Outlet	ø127 mm

Temperature of extracted air Max. 40°C
Ambient temperature -15°C - +40°C

Temperature control panel 5 - 40°C

Relative humidity must be <90%

The device is noise reduced. The noise from the device may vary depending on the temperature of the device and its surroundings and the connections used.

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.

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

Before installing the product, ensure that an optimal location is chosen. Is there enough space for the product? Is there space for maintenance and filter changes?

Place the product on a level and stable base (e.g. a concrete concrete floor) and secure it.

Avoid as far as possible bends immediately after the outlet, as this could reduce the performance of the product.

5.2 Installation

The following installation should only be carried out by a trained installer.

5.2.1 Installation

Procedure:

1. Place the HVU on a solid foundation (e.g. a concrete floor) where there is no possibility for vibrations to be transmitted.
2. The piping is connected to the HVU.
Remember to seal the joint with sealant and/or tape!
3. The entire system/piping should always be thoroughly inspected for leaks. Leaks must be sealed. The system must not be used for the following 24 hours.
4. The connection of the HVU's electrical components should only be carried out by an authorized electrician. Detailed description follows below.
5. For connection options, see separate panel documentation (located in the panel).

Compressed air:

6. There is a water separator and pressure reduction built into the unit.

Control panel

Before putting into service:

During transportation, the control panel is exposed to vibrations etc. In addition, dust may enter the cabinet. During installation and commissioning, dust may also enter the cabinet.

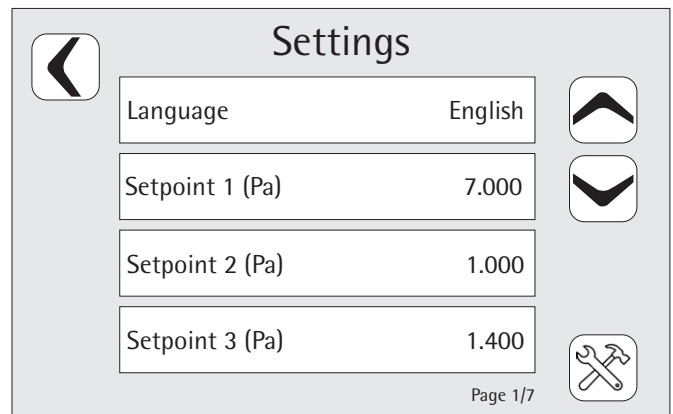
Therefore, before the control panel (and the installation it is part of) is put into use, all components should be checked for dust, which should be removed.

The checklist below can be used:

1. Visual inspection.
2. Clean/vacuum the control panel if necessary. Do not blow compressed air into the control panel.
3. Check/tighten the electrical connections with the correct torque according to the manufacturer's instructions.
4. Check all cables for correct cable termination.
The above must be carried out in voltage free condition.
5. Verification. Perform measurements and tests according to EN60 204-1, chapter 18.
6. Main circuits are checked individually.
7. Check that the control circuits are functioning correctly.
8. Check for correct signals from sensors and measuring equipment.

MulitBox IV factory settings:

Setpoint 1	7,000 Pa
Disable alarm	ON
P-factor	0.001
I-factor	0.001
DP Sens 40kPA	ON



Setpoint settings

If you want to make changes to the setpoints, you can use the menu.

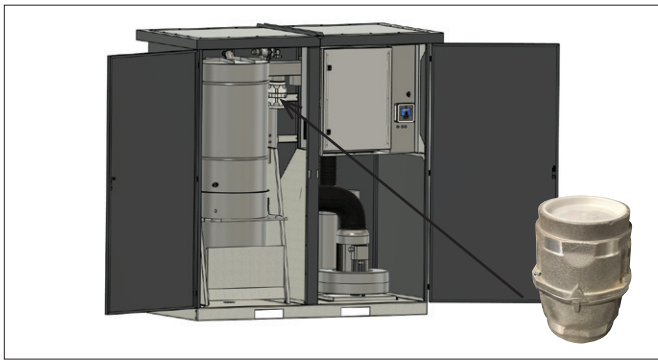
Click on the setpoint 1 icon and change the value. Click the checkmark to accept and click yes to save the changes.

5.3 Checking and testing the system

After installation, check if there is any vibration or sound disturbance.

Check that the whole system is completely tight. In case of squeaking, the leakage should be localized and sealed with sealant.

It is recommended to check whether the HVU delivers the air volume for which the system is dimensioned. Therefore, measure the air flow and make sure that it does not exceed the motor's ampere rating.



Vacuum protection

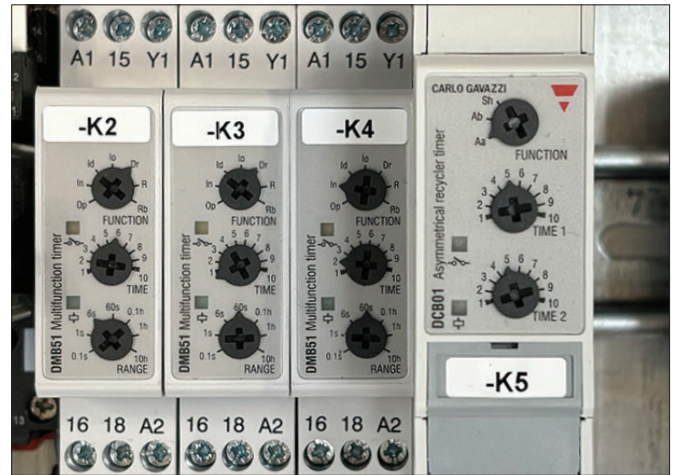
The relief valve is roughly adjusted at the factory. The relief valve must be readjusted at the installation.

Adjusting the relief valve

Adjust so that the relief valve does not open during normal operation, but opens when blocked.



Adjust to loosen or tighten the spring.



Cleaning cycle adjustment

Max cleaning time (K4)	2 min
T1 Pulse (K5)	0.1 second
T2 Break (K5)	1-10 seconds

6.0 Commissioning

The HVU must **not** run for longer periods (max. 15-30 min.) without open outlets in the duct system, otherwise the side channel blower will overheat and break down. If necessary, use the built-in start/stop function.

After use, it is recommended to keep a flap open for 1-5 seconds, so that particles are sucked away from the vertical piece, and thus do not fall down the next time the system is used.

6.1 After installation

Check the installation according to chapter 5.3.

7.0 Control, test and maintenance

7.1 Control

Check the installation according to chapter 5.3.

7.2 Maintenance

The entire system should be inspected at least once a year by a qualified service technician.



For all work on electrical installations, the safety switch **MUST** be disconnected and locked **BEFORE** starting work.

Periodic maintenance:

- All electrical parts should be checked annually.
- The side channel blower is in principle maintenance free due to the factory sealed special ball bearings. Replacement of worn bearings should only be carried out by a qualified service technician.

Control panel

Periodic check:

The control panel should be subjected to a control panel test at least once a year.

The checklist below can be used:

1. The control panel **MUST** be voltage free **BEFORE** starting any maintenance work.
2. Visual inspection, both internally and externally.
3. Clean the control panel, both inside and out, being careful, especially around vents and filters.
4. Inspect the electrical connections for discoloration due to high temperature. (May occur as a result of increased resistance due to a poor/loose connection) If discoloration is found, clean the contact points and make the connection correctly. Replace the component if necessary.
5. Check/tighten the electrical connections with the correct torque according to the manufacturer's instructions.
6. Tighten the mechanical connections.
7. Inspect for damage to the paint and repair if necessary.
8. Check switches and circuit breakers.
9. Maintain adequate IP rating: Inspect gaskets for damage and replace it if necessary.
10. In general, each component should be maintained according to the manufacturer's instructions.
11. Verification. Perform measurements and tests according to EN60 204-1, chapter 18.
12. SRP/CS: Check all safety-related parts of the control system. Note: SRP/CS should be checked more often than once a year.
13. If components that are part of the SRP/CS have exceeded their expected lifetime, they must be replaced - regardless of their condition.
14. If the control panel has been exposed to extreme conditions (e.g. due to lightning, fire, water damage), all defective material must be replaced and the above procedure performed.

7.3 Replacing filter

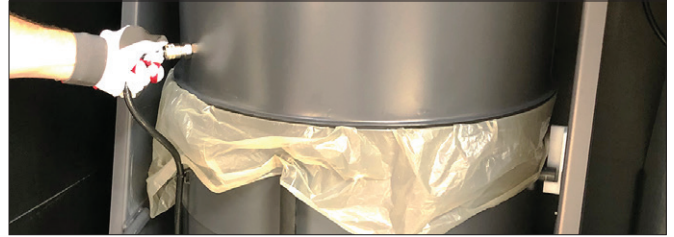
7.3.1 Emptying of bucket

Emptying of the collection bucket should be done when it is approx. 2/3 full, otherwise it can strain the filter medium.

If the bucket contains sharp or very heavy items, the bag may tear before it is full. Change it in good time so that the bag does not tear when the bucket is emptied.

Procedure:

1. Disconnect the power at the breaker switch. It should be ensured that the circuit breaker cannot be activated during service.



2. Disconnect/remove the compressed air connection.

3. Wait 5 minutes for the dust to settle in the bucket.

4. Before dismantling the dusty filter or emptying the bucket, it is important that the service technician wears the necessary personal safety measures, such as respiratory protection and gloves that comply with relevant regulations for working with contaminated dust.



5. Take the ramp down.



6. Lift up the handle and pull the bucket out of the cabinet.



7. Empty the bucket, then seal the bag securely.

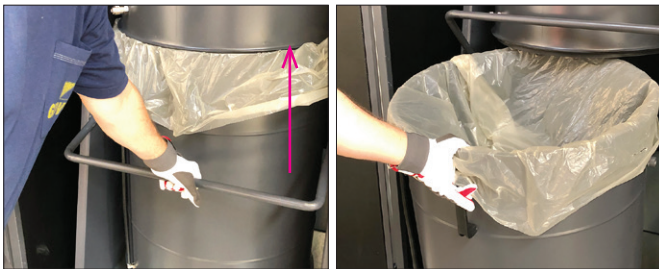


8. Insert a new bag. Slide the bucket back under the cyclone, press the handle down to lift the bucket up under the cyclone again.

7.2.2 Replacing the filter media

The filter media should be replaced after approx. 4,000-8,000 hours of operation or max. 4 years. This depends, for example, on the load on the filter.

1. Disconnect the power at the repair switch. Ensure that the switch cannot be activated during service.
2. Before dismantling the filter cartridge, it is important that the service technician wears the necessary personal safety measures, such as a respirator and gloves that comply with the working environment authority's regulations for working with contaminated dust.



1. Lift the handle and pull out the bucket.



2. Remove the M10 nut at the bottom of the cyclone.



3. Carefully pull down the contaminated filter cartridge and place it in a suitable waste bag, which is then sealed securely.



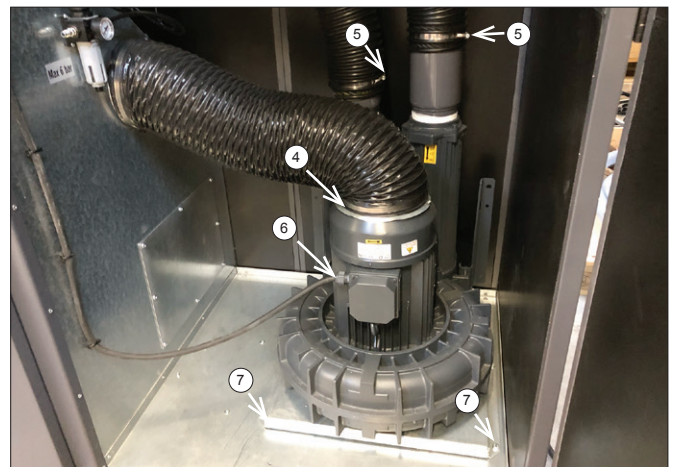
4. Insert the new filter cartridge into the cyclone and tighten with the M10 nut.

5. Slide the bucket back under the cyclone, press down the handle to lift the bucket up under the cyclone again.

6. Send the contaminated filter cartridge for destruction according to local rules and regulations.

7.2.3 Repairing the side channel blower

1. Stop the unit and disconnect the power supply.



2. Remove the cooling hose at the top of the engine.

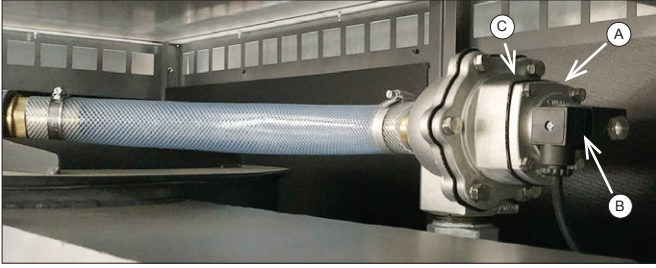
3. Remove the hoses on the inlet and outlet.

4. Remove the power cable from the side channel blower.

5. Remove the 4 M8 bolts from the base of the side channel blower.

6. Place a pallet or similar up to the base and pull the side channel blower onto the pallet.

7.2.4 Repairing the solenoid valve



If the solenoid valve is not functioning properly, it will most frequently be the coil (A), connector (B) or the valve (C) that needs to be replaced.

8.0 Cleaning

The outside of the product is cleaned with a vacuum cleaner or a cloth.

9.0 Troubleshooting

In the event that problems occur, the following items should be reviewed:

Air volume or pressure is less than stated

- Incorrect running direction of the fan wheel.
May be due to incorrect electrical installation.
Double check the direction of rotation. Switch the 2 phases if necessary.
- Leaky duct system.
- Poor inlet/outlet options close to the side channel blower can reduce performance (e.g. 90° bend before inlet)
- Damaged wheel.
- The rotation speed is set too low.
- If the temperature differs significantly from the laboratory measurements where the temperature was 20°C with an atmospheric pressure of 101.4 kPa.
- The dampers are not adjusted correctly.
- The duct or the unit is blocked by e.g. a screwdriver.

Vibrations and noise

- The foundation is not level/stable.
- External elements have entered the unit/duct system.
- Damaged wheel or motor.
- The wheel is loose.
- The wheel is running in the wrong direction.
- Loose bolts or screws.

The motor is overloaded

- Motor is wired incorrectly.
- Defective motor - contact your!

10.0 Dismantling, disabling and scrapping

Deactivate the product by disconnection the electrical mains. Dismantle compressed air pipes and other pipes or wires etc. and dispose of it according to local regulations.

Clean the collection bucket and remove the filter cartridges as described in chapter 7.3.

Before dismantling the product it is important that the service technician wears the necessary personal safety measures, such as respiratory protection and gloves that comply with the relevant regulations for working with contaminated dust.

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

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.

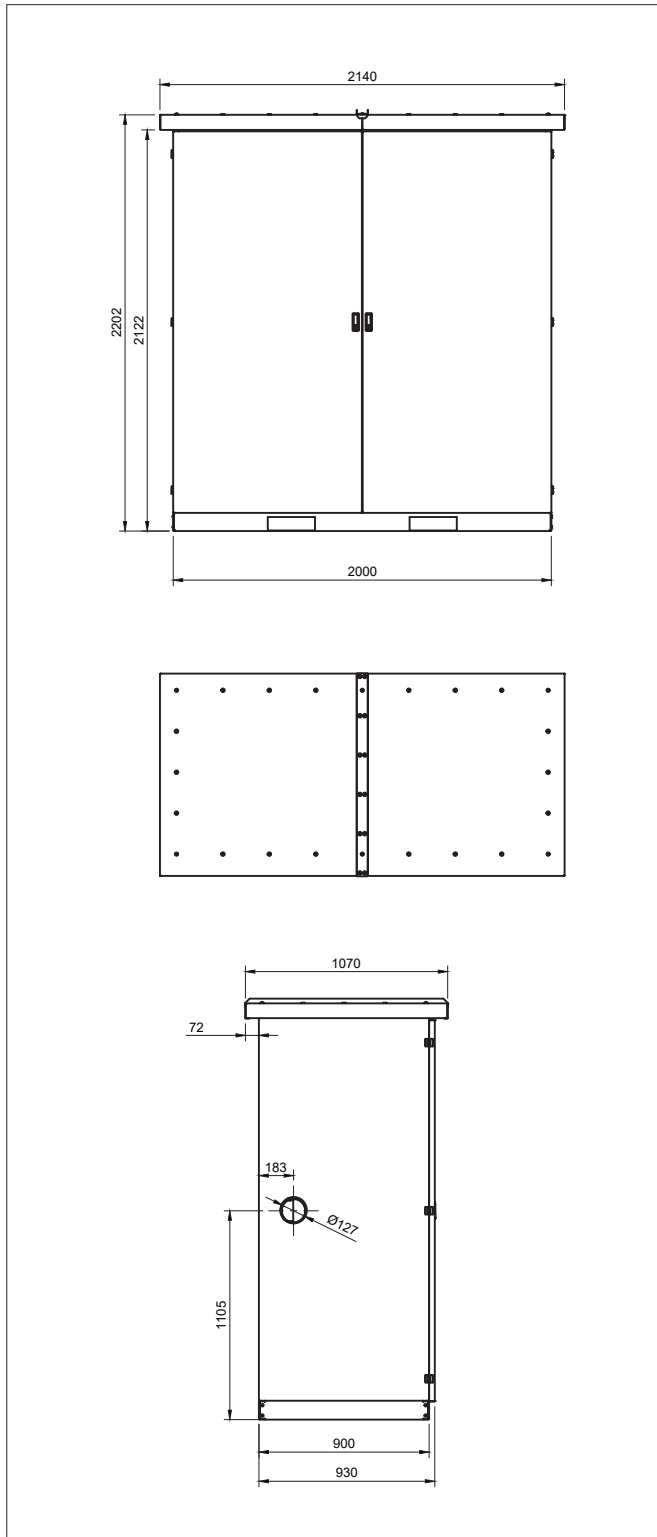
Dismantle plastic parts and dispose of it according to local regulations.

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

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

11.0 Dimensions

HVU Elite



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 (repairation 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: HVU
Model: HVU Elite

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

DIRECTIVE 2014/34/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres (recast)

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: 14.11.2024

Position: Director
Name: Thomas Molsen



Signature: _____



14.0 Spare part list

Art. No.	Description
03-265	Filter cartridge HVU Elite ø400x800 mm
13-700A	MultiBox for high vacuum 30 kPa 0-10V
03-810AF	Relief valve
03-457	Plastic bags for collection bin 1000x1000 mm, 10 pieces per roll



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