



**GEOVENT**

## INSTRUCTION MANUAL



# HIGHVACUUM UNIT

HVU 300, 350, 450, 550 and 700



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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:

Geovent A/S  
Hovedgaden 86  
DK-8861 Løgstrup  
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)

Type: HVU 550 Komplet unit		
S/N: 03-403	2500	18-04-23
Voltage: 3X400 V		
Current Type: AC		
Power: 9,2 kW		
Meas. Category: D, Static		
VSD: No VSD		
Made in Denmark		
		
		
Hovedgaden 86 - DK-8831 Løgstrup		
www.geovent.dk		
Tel. +45 86642211 - Fax +45 86643075		

## 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.

In case of an accident or a fire: Call for help.

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

The Geovent HVU is a compact high vacuum unit to collect dust, fumes or other particles. The product is supplied with different characteristics and with different types of accessories.

### 3.2 Intended use

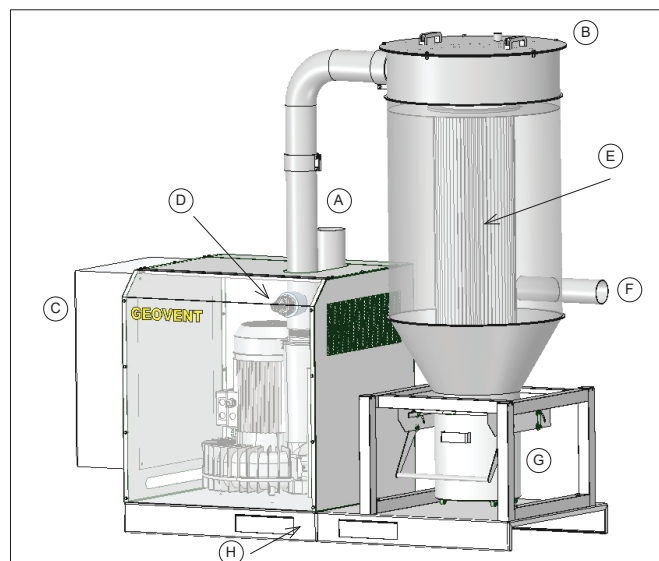
The Geovent High Vacuum Unit (HVU) is used, among other things, for vacuuming during car preparation and for e.g. grinding dust extraction.

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

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 Ø127 mm outlet
- B Removable lid
- C Control panel with automatic start/stop and filter cleaning
- D Safety valve
- E Filter cartridge - Alu-coated polyester fabric - antistatic
- F Ø127 mm inlet
- G Collection bucket 34 liters
- H Frame with slots for forklifts

**Shield:** Coated steel plate.

**Filter media:** Antistatic aluminum coated polyester filter with 99.9% filtration efficiency. Life expectancy under normal use: 4.000-8.000 hours.

**Motor/vacuum pump:** IP 55 standard motor with side channel blower in cast aluminum. Life expectancy in normal use: 20.000 hours

**Automation:** Control panel in steel IP 54

### 3.3.2 Technical data

#### Dimensions

Model	Power [kW]	Power consumption 100% load	Maximum air flow [m³/h]
HVU 300	7,5	15,5A	562
HVU 350	7,5	15,5A	562
HVU 450	5,5	11,1A	663
HVU 550	9,2	17,8A	782
HVU 700	11	21,6A	939

Model	Max vacuum [kPa]	Filter surface area [m <sup>2</sup> ]	Filtration level acc. to BIA-test
HVU 300	25	12	99,9%
HVU 350	30	12	99,9%
HVU 450	21	12	99,9%
HVU 550	30	12	99,9%
HVU 700	30	12	99,9%

Model	Sound pressure level ISO 3744	Compressed air tank 1" connection	Collection bucket
HVU 300	74,8 dBA	4 Liter	34 Liter
HVU 350	72,1 dBA	4 Liter	34 Liter
HVU 450	77,1 dBA	4 Liter	34 Liter
HVU 550	77,4 dBA	4 Liter	34 Liter
HVU 700	78 dBA	4 Liter	34 Liter

Model	Cabinet + cyclone ø700	Corrosion class	Weight
HVU 300	Powder coated	II	210
HVU 350	Powder coated	II	215
HVU 450	Powder coated	II	215
HVU 550	Powder coated	II	225
HVU 700	Powder coated	II	245

**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 sound level depends on several factors. For example, the location of the high vacuum unit (indoor/outdoor), the size of the room, the ambient temperature, shutdown delay and the connection (hose><pipe) of the unit also have an impact on the sound level.

## 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

To ensure a flawless function, the product must be installed indoors in e.g. an engineering room with sound ventilation.

Outdoor installation is not recommended, and a canopy must always be used as a minimum if indoor installation is not possible.

We do not recommend outdoor installation, as the risk of water and condensation in the product increases, and the electronic components do not function at temperatures below 5°C.

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 before the inlet and after the outlet, as this could reduce the performance of the product.

### 5.2 Installation

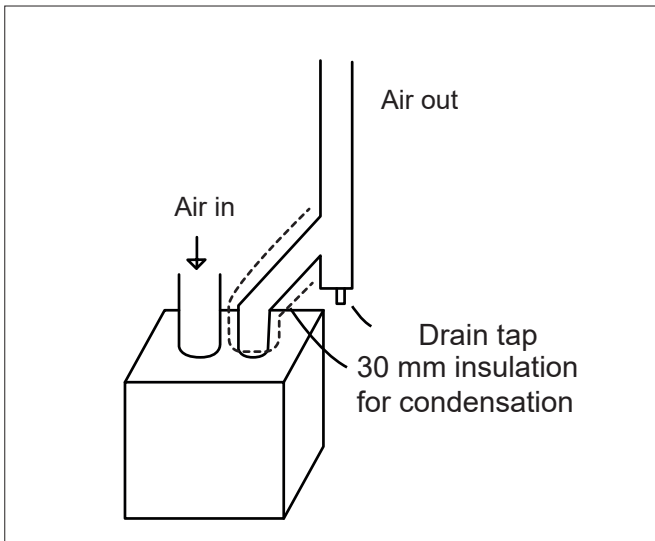
The following installation should only be carried out by a trained installer.

#### 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. In addition, allowance shall be made for filter changes (i.e. minimum headroom of 800 mm).
2. The piping is connected to the HVU. On the inlet side the pipe can be fixed e.g. by means of a snap lock system.  
Remember to seal the joint with sealant and/or tape!
3. To ensure free mixing, the discharge should be directed two meters above the roof ridge towards the atmosphere with a discharge velocity of at least 8 m/s.
4. 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.

5. It is important to install the product so that it is not possible for rainwater to penetrate. An example of a well-functioning installation is shown in this drawing.



Penetrating rainwater can cause the side channel blower to jam and be destroyed.

6. The connection of the electrical components of the HVU should only be carried out by an authorized electrician.

7. For connection options, see separate panel documentation (located in the panel).

#### Connection of compressed air:

8. Connect clean and dry compressed air. A pressure regulator must be installed. We recommend to install a water separator just before the HVU.

### 5.2.2 Mounting of accessories

#### Mounting of frequency inverter

We have the possibility to deliver with frequency inverter and/or pressure control. See manual for pressure control.

For setting options for external frequency inverter - refer to the manual of the frequency inverter.

#### Automatic start/stop

External start/stop can be fitted (e.g. micro-switch at quick coupling/outlet or on/off button on energy arm). In case of manual operation there is a timer which makes the HVU switch off automatically after 15-30 minutes.

### 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.

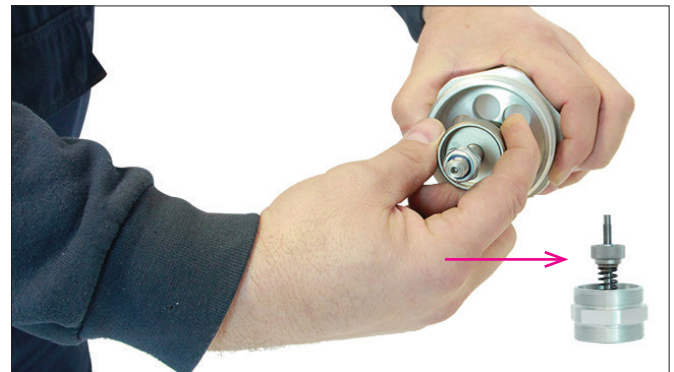
#### Vacuum protection

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



#### Adjustment of the vacuum safety device

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



1. Adjust to loosen or tighten the spring.



2. Then tighten the lock nut to secure the spring position.



## 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.

#### Periodic maintenance:

- All electrical parts should be checked annually.
- The annular chamber blower/motor 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

### 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. The filter medium 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.

#### 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. 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.
4. The collection bucket is then dismantled using the snap locks. The bucket can then be carefully pulled out. Empty the bucket into a plastic bag suitable for the purpose. The bag and the contents must be restored in accordance with the applicable rules.
5. Put the bucket back in place and secure it under the cyclone.

#### 7.3.2 Exchange of filter cartridges

6. The top/lid of the cyclone is removed by disconnecting the snap lock, after which the lid with the compressed air tank is removed. Be careful to disconnect the compressed air and power supply first and not to damage the compressed air tank when putting it aside.
7. Next, remove the 3 M10 bolts with a 17 mm wrench that secure the filter media to the unit.
8. Carefully lift the contaminated filter media and place it in a large waste bag, which is then sealed properly.
9. Insert the new filter media and secure it to the unit with the 3 M10 bolts.
10. Carefully slide the top/lid into place and secure it with the snap lock (Remember to connect power and compressed air!).
11. The contaminated filter media is then restored according to local rules and regulations.

## 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 dealer!

## 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.

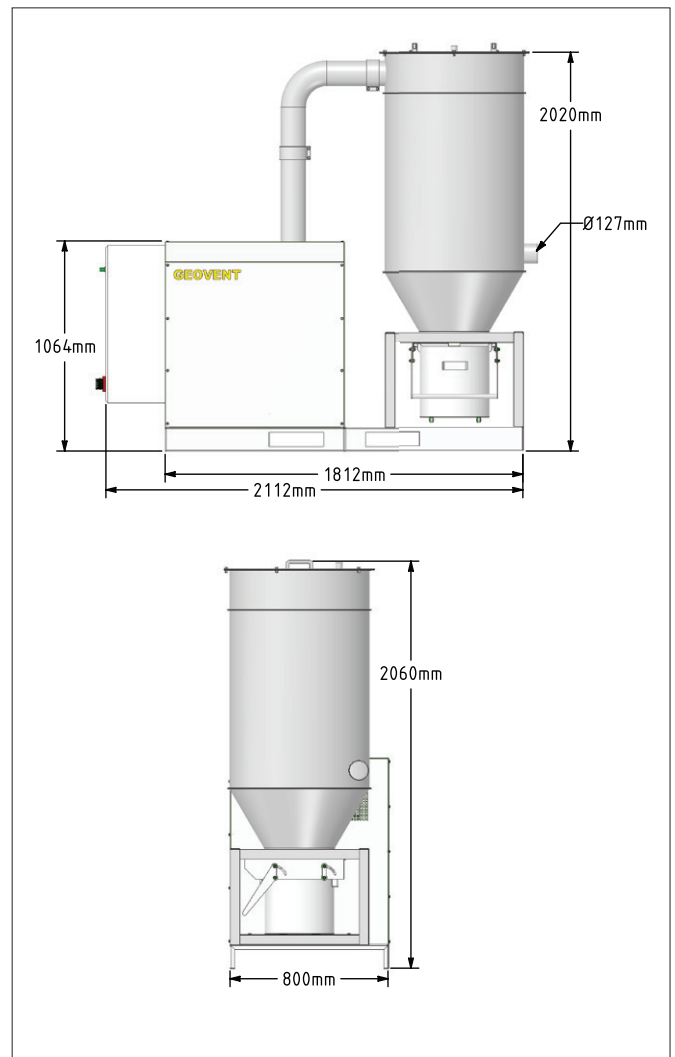
Dismantle plastic parts and dispose of it according to local regulations.

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





## 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](http://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 300  
HVU 350  
HVU 450  
HVU 550  
HVU 700

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: 08.05.2023

Position: Director  
Name: Thomas Molsen

Signature: 



## 14.0 Spare part list

Art. No.	Description
92-211	Breaker switch 16A
03-260	Replacement cartridge ø225 for HVU - 5 m <sup>2</sup>
13-700A	MultiBox for high vacuum 30 kPa 0-10V
13-727	AirBox Lite HV





***GEOVENT***

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