

## User manual

# DEHACO

## Negative pressure unit single-piece Negative pressure unit two-piece

*Specifications-Safety-Use-Maintenance*



*This manual is for the following types:*

<i>DEH 500</i>	<i>DEH 750</i>
<i>DEH 2000-1</i>	<i>DEH 2000-2</i>
<i>DEH 5000-1</i>	<i>DEH 5000-2</i>
<i>DEH 7500-1</i>	<i>DEH 7500-2</i>
<i>DEH 30000</i>	



### ATTENTION

*All persons involved in the initialisation, operation, maintenance, and repairs of this product should receive a copy of these instructions!!*

## 1. Foreword

This manual is compiled for all individuals involved in the installation, initialisation, operation and maintenance of the negative pressure unit.

All persons involved in the installation, initialisation, operation, maintenance and repair activities must:

- have the knowledge and qualifications required for their tasks.
- have read and understood this user manual.
- obey all safety regulations.
- if necessary possess sufficient and appropriate tools of good quality.

Store this manual carefully and include it in any resale of the negative pressure unit.

The following symbols and attention texts are used in this manual:



### **WARNING!**

***This text provides information relating to safety! Non-compliance can result directly in physical injury and/or machine damage!!***



### **ATTENTION**

***This text provides instructions, tips and information for optimal use.***

**2p**

This manual has been drawn up for the one- and two-piece negative pressure units of the type printed on the front page. The additional information specific to the two-piece version is added in a customized font, with a double line and "2p" in the margin. When you are using a single-piece unit, these parts of the manual do not apply to you!

Write down in the table below the data from the information plate of the negative pressure unit delivered to you! You need the type and serial number to order parts at your dealer or Dehaco.

CE	MODEL	
	SERIAL No.	
	VOLT	
	YEAR	
	FREQ/CURRENT	Hz/Amp
	CAPACITY	M <sup>3</sup> /h
	WEIGHT	Kg
DEHACO	MANUFACTURER DEHACO B.V. LISSE HOLLAND <a href="http://www.dehaco.nl">www.dehaco.nl</a>	

Model	.....
Serial no.	.....
Volt	.....
Year	.....
Freq/Curr	.....
Capacitiy	.....
Weight	.....

## EC declaration of conformity

ACCORDING TO ANNEX IIA OF THE MACHINE DIRECTIVE

WE,

Dehaco B.V.,  
Kruisbaak 25,  
NL-2165 AJ Lissebroek

*DECLARE ENTIRELY WITHIN THEIR OWN AREA OF RESPONSIBILITY THAT THE PRODUCT:*

### Negative pressure unit with filter unit

**BRAND:** Dehaco

**MODEL:** Negative Pressure Unit

**TYPE:**

<input type="checkbox"/> DEH 500	<input type="checkbox"/> DEH 750
<input type="checkbox"/> DEH 2000-1	<input type="checkbox"/> DEH 2000-2
<input type="checkbox"/> DEH 5000-1	<input type="checkbox"/> DEH 5000-2
<input type="checkbox"/> DEH 7500-1	<input type="checkbox"/> DEH 7500-2
<input type="checkbox"/> DEH 30000	

**SERIAL NO.:** \_\_\_\_\_

*TO WHICH THIS STATEMENT APPLIES, IS IN ACCORDANCE WITH THE PROVISIONS OF THE FOLLOWING DIRECTIVES:*

Machinery Directive 98/37/EC  
ROHS Directive 2002/95/EC  
EMC Directive 2004/108/EC  
Low voltage Directive 2006/95/EC

*AND IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND/OR OTHER NORMATIVE DOCUMENTS*

NEN-EN 292-1 (Safety of machinery, primary)  
NEN-EN 292-2 (Safety of machinery, technical)  
NEN-EN 1050 (Safety of machinery, risk analysis)  
NEN-EN 60204-1 (Safety of machinery, electrical equipment)  
NEN-EN 1822 (class HEPA H13 / ULPA filters)  
NEN-EN 5509 (User manuals)

*DRAWN UP AT:*

Lissebroek, date: \_\_\_\_\_

Dehaco B.V.  
Ing. Anco Doeswijk

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## 2. Introduction

Thank you for the purchase of a Dehaco Negative Pressure Unit!  
Consequently, you own a state of the art unit that you, when used correctly, can operate for years without breakdowns.

This manual is intended to familiarize you with the operation, to give instructions for safe use, and guidelines for regular maintenance.

Make sure you know the contents of this manual before you start working with your Dehaco negative pressure unit, so you can make the best use of it!

CE	MODEL	
	SERIAL No.	
	VOLT	
	YEAR	
	FREQ/CURRENT	Hz/Amp
	CAPACITY	M <sup>3</sup> /h
	WEIGHT	Kg

 MANUFACTURER  
DEHACO B.V. LISSE HOLLAND  
[www.dehaco.nl](http://www.dehaco.nl)

This user manual, the information plate and the safety stickers on the negative pressure unit contain important information about the negative pressure unit and are as such part of the delivery.

In case of damage or loss they should be re-attached or made available again.

These parts may also be post-delivered through your supplier or Dehaco.



### ATTENTION! !!

*The safety regulations in this manual are the minimal instructions to be followed. These safety regulations are often supplemented with additional local safety instructions and are monitored by the responsible authorities.*

*Failing to follow safety regulations can have serious health consequences!*

### 3. General description

Dehaco provides an extensive range of negative pressure units. This equipment is used in workplaces where the airflow has to be controlled. This is the case for activities where hazardous or irritating dust particles are released, such as asbestos clean-up operations.

By using a negative pressure unit a vacuum is created inside the workspace that prevents contaminated air from escaping. In addition, the concentration of particles in the air is reduced and the polluted air is filtered.

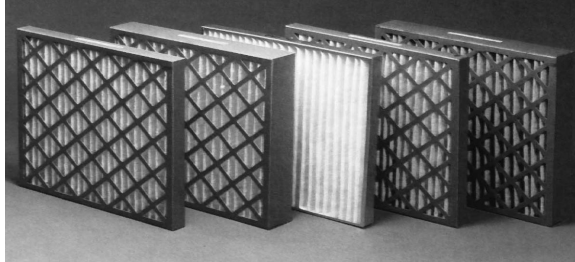


The required capacity of the device depends on the volume of the workspace and the number of leaks in the sheathing. When creating negative pressure at least 6 to 8 air changes per hour have to be assumed and a pressure of 30-40 Pascal.





A powerful fan creates a negative pressure, which aspires - polluted - air from the workspace through a HEPA absolute filter. A pre-filter is applied as well, which considerably extends the lifespan of the HEPA filter. The pre-filter can be replaced in the "infected area" without having to shut down the unit.



By means of a pressure difference measurement over the filter-unit the degree of contamination of the filter is indicated. The fan speed can be set, which makes the capacity adjustable, depending on the workspace volume and the pollution of the filter.



At the backside of the unit check valves have been installed, so that in case of a standstill no reverse air current can be developed. This prevents contaminated particles which are loosened by the 'dirty' side of the filter from getting back into the sealed-off zone. The valves also reduce the risk of drawing in "false" air when using one fan. These are important elements that contribute to the collective safety.



In order to work as efficiently and safely as possible with negative pressure units, Dehaco also offers advanced tools for monitoring and maintaining pressure, besides negative pressure units. Easy to operate and reliable equipment.



**2p**

In two-piece units the motor compartment with the fan can be separated from the filter compartment. Depending on the situation the filter compartment can be placed closer to the workplace, or the motor compartment further away from the workplace to cause less inconvenience due to air flowing out and noise. The filter compartment and motor compartment need to be connected by means of a hose. Coupled together without a hose the two-piece unit will function like a single-piece unit.

The DEH 30000 is a two-piece unit but can only function if connected. The division of the DEH 30000 is only for purposes of transport.

## 4. Intended use

The Dehaco negative pressure units have been developed for:

- The creation of negative pressure and filtration of air in a hermetically sealed-off space. Of course the capacity of the fan and the applied filter need to be adapted to the specific purpose.
- The scope is limited to:

-> Asbestos removal



### **Warning!**

***The Dehaco negative pressure machines may under no circumstances be used in an explosion hazardous environment!***



### **ATTENTION**

***Each use other than described above exempts Dehaco from any liability!!!!***



## 5. Technical specifications

### a) Single-piece negative pressure units

	DEH>>	500	750	2000-1	5000-1	7500-1	30000
<b>Capacity</b>	<i>m<sup>3</sup>/hr</i>	500	750	2000	5000	7500	30000
<b>Voltage</b>	<i>V</i>	220-240					380-400
<b>Current</b>	<i>A</i>	2	2	7	14	12	21
<b>Plug</b>	<i>EEC</i>	10A-2p+A	10A-2p+A	16A-2p+A	16A-2p+A	16A-2p+A	16A-5p+A
<b>Gauge</b>	<i>Pa</i>	0-1000					
<b>Material</b>		Polypropylene, black					
<b>Weight</b>	<i>kg</i>	19	19	40	80	92	300
<b>Dim. l x w x h</b>	<i>mm</i>	370x440x490	370x440x490	910x500x570	1060x740x830	1420x740x840	1530x1410x1560
<b>Noise dBA</b>	<i>dB(A)</i>	78	80	86	90	83	85
<b>Pre-filter</b>	<i>% - μm</i>	95%-5μm	95%-5μm	95%-5μm	95%-5μm	95%-5μm	95%-5μm (3 pcs)
<b>L x w x h</b>	<i>mm</i>	290x290x45	290x290x45	375x375x95	595x595x95	595x595x95	595x595x95
<b>Absolute filter</b>	<i>% - μm</i>	99,997-0,3μm	99,997-0,3μm	99,997-0,3μm	99,997-0,3μm	99,997-0,3μm	99,997-0,3μm (3 pcs)
<b>L x w x h</b>	<i>mm</i>	305x305x69	305x305x69	381x381x292	610x610x292	610x610x292	610x610x292
<b>Stepless %</b>		No	30-100	30-100	50-100	30-100	33-67-100*
<b>Exhaust side</b>		Bottom	Sideways	Rear	Rear	Rear	Rear

\*) the DEH-30000 has no free adjustable speed, but 3 steps (33%-66%-100%).

Surrounding conditions:

- The unit has to be placed on a hardened, vibration-free floor/foundation.
- The unit can only be used in indoor spaces.
- The unit should remain dry.
- Appropriate temperature range +5°C to +40°C

**b) Two-piece negative pressure units**

**2p**

	DEH>>	2000-2	5000-2	7500-2
<b>Capacity</b>	m <sup>3</sup> /hr	2000	5000	7500
<b>Voltage</b>	V	220-240		
<b>Current</b>	A	7	14	12
<b>Plug</b>	EEC	16A-2p+A	16A-2p+A	16A-2p+A
<b>Gauge</b>	Pa	0-1000		
<b>Material</b>		Polypropylene, black		
<b>Weight</b>	kg	48	96	98
<b>Dim. l x w x h</b>	mm	1100x500x570	1250x740x830	1550x740x840
<b>Noise dBA</b>	dB(A)	86	90	83
<b>Pre-filter</b>	% - μm	95%-5μm	95%-5μm	95%-5μm
<b>L x w x h</b>	mm	375x375x95	595x595x95	595x595x95
<b>Absolute filter</b>	% - μm	99,997-0,3μm	99,997-0,3μm	99,997-0,3μm
<b>L x w x h</b>	mm	381x381x292	610x610x292	610x610x292
<b>Stepless %</b>		30-100	50-100	30-100
<b>Exhaust side</b>		Rear	Rear	Rear

Surrounding conditions:

- The unit has to be placed on a hardened, vibration-free floor/foundation.
- The unit can only be used in indoor spaces.
- The unit should remain dry.
- Appropriate temperature range +5°C to +40°C

## 6. Safety



**Warning!**

***Almost all accidents are a result of:  
diminishing of concentration,  
inattention,  
negligence,  
wrong estimations!***

***Work calmly and focused  
You have been warned!!***



**ATTENTION!**

***You must under all occurring circumstances  
also follow the local safety rules!!***



**WARNING!**

***There is an imminent danger of bodily injury, damage to machinery  
and the environment as a result of inexperienced and incompetent  
use.***

***At work keep bystanders at a safe distance!***



**WARNING !**

***Use hearing protection when working close to the machine***



**Warning!**

***Instructions described in this user manual apply to the negative  
pressure unit. Inquire also about the requirements for Personal  
Protective Equipment (PPE) in your specific work situation!!!***



**Warning!**

***The unit comes with a transit plate for closing off the front side with  
the (contaminated) filters during transport. If the unit is being used,  
this plate may only be removed under controlled conditions.***

Other safety instructions included in this manual are:



**Warning!**

***The output side of the unit produces excessive noise. Applying an exhaust hose can reduce it. In the close proximity in the clean zone PPE's will have to be used.***



**Warning!**

***Only an authorized person is allowed to replace the HEPA filter! Please check with your dealer or Dehaco!!***



**Warning!**

***The instructions described here only apply to the unit. Discontinuation should only take place after permission from the local authorities. Additional instructions from local authorities and facilities for personal protection are required.***

## 7. Storage

If the unit is not going to be used for a long time, store the unit in a dry, lockable space. The unit contains contaminated material and must be closed off for non-authorized personnel.

## 8. Transportation

The negative pressure units are relatively light in weight and equipped with casters -with brakes- and handles.



**Warning!!**

**Avoid damage!**

***Always be cautious when transporting the negative pressure units. Have damages always repaired directly.***

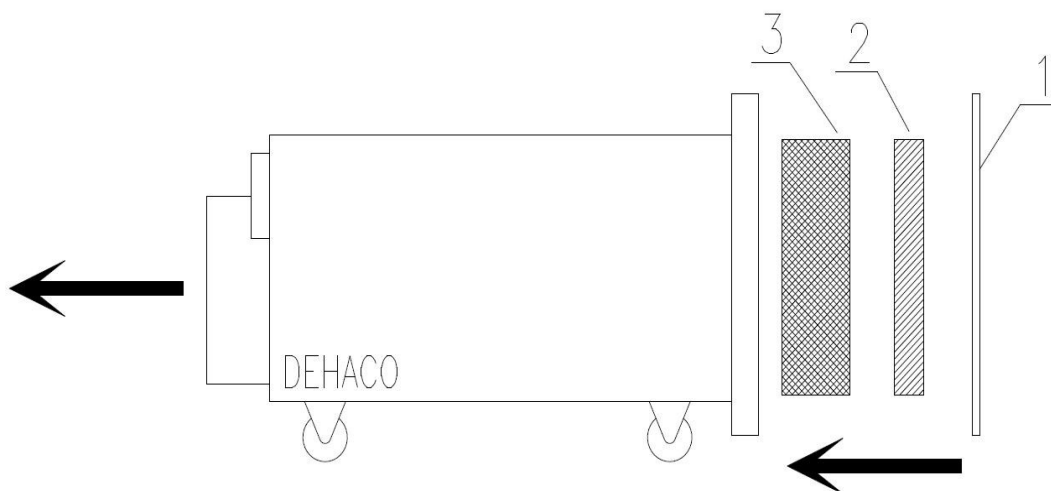
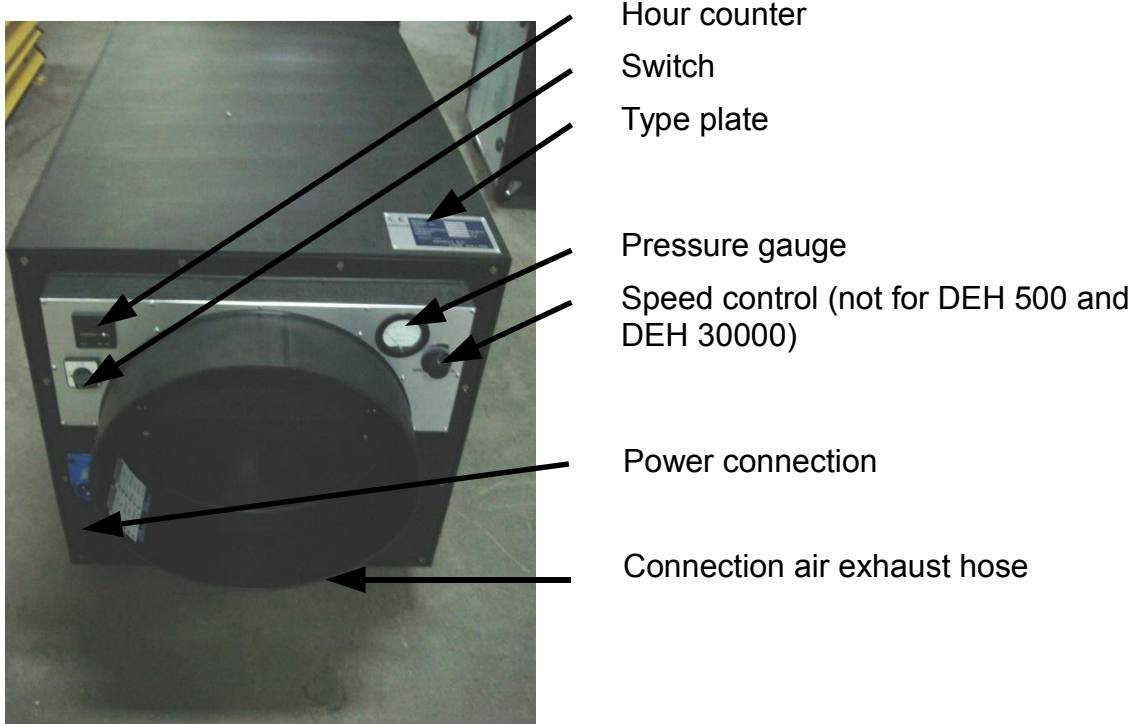
The machines are designed to be transported by means of a fork-lift. The forks must be placed in between the unit wheels.

When transporting the negative pressure unit on a lorry or trailer always secure it with sufficient tie-down straps!

## 9. Operation

### a) Overview of the unit

Depending on the type the position of the components may vary slightly:



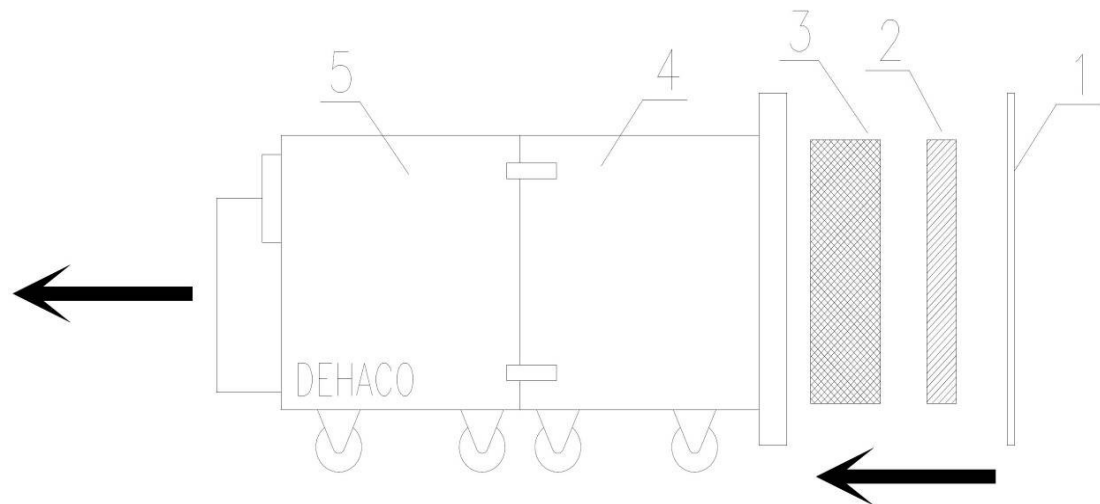
1= Transit plate

2= Pre filter

3= HEPA absolute filter



**2d**



- 1= Transit plate
- 2= Pre filter
- 3= HEPA absolute filter
- 4= Filter compartment
- 5= Motor compartment

**b) Installing the negative pressure unit**

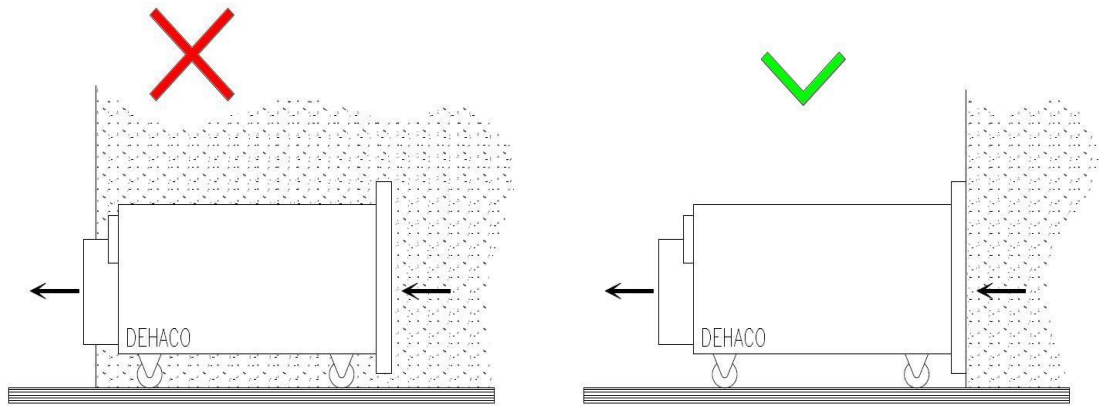
**ATTENTION**

*Check first if the switch is "Off". If the negative pressure unit was stopped the last time by removing the power cable, it will start immediately when the power plug is inserted!*

**ATTENTION**

*Take care of all PPE's required for the job before you start to work!*

The unit has to be placed outside the contaminated zone. In no case may the unit be placed inside the zone. In case of doubt, consult the technically responsible person first.



#### ATTENTION

*If the unit is placed wrongly it will not function properly; the unit as well as the clean zone will be contaminated!*



#### Warning!

***The output side of the unit produces excessive noise. Applying an exhaust hose can reduce it. In the close proximity in the clean zone PPE's will have to be used.***



2p



The two parts are linked by means of 4 clamps. If the unit is used as a single unit: the rules are similar to single-piece units.

Check whether the clamps are locked properly.

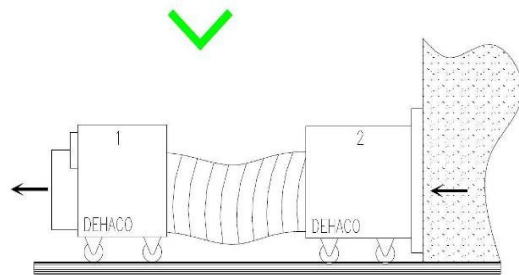
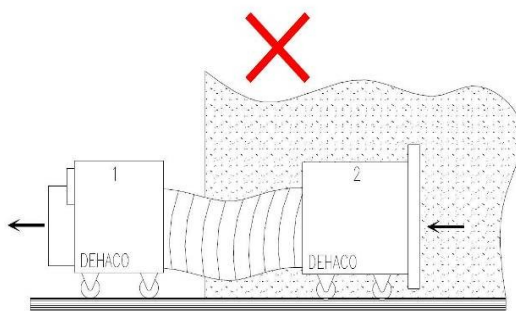
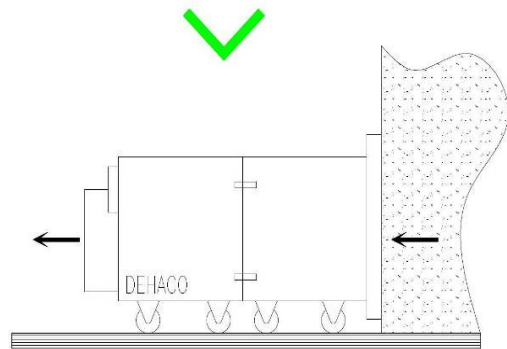
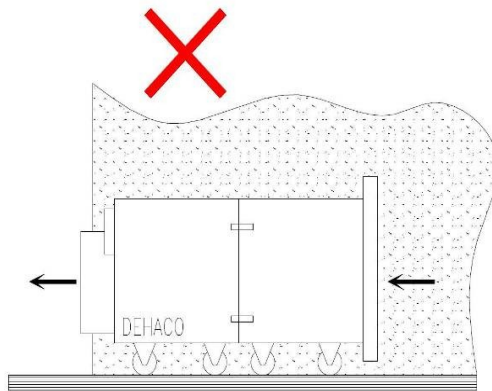
Is the unit to be used as a split version, proceed as follows:

- Undo the four clamps.
- Pull the filter compartment and motor compartment apart.
- Attach a flexible hose to the filter compartment (NOTE: Connect airtight!).
- Pull the hose connector out of the motor compartment in order to connect the hose.



(pictures: right compartment: hose connector pulled in and out)

Place the filter compartment in the desired position near the sealed-off zone



Position the motor compartment in such a way that the exhaust air and/or the noise do not cause any nuisance

- Connect the flexible hose to the motor compartment. (NOTE: Connect airtight!)




#### ATTENTION

*When using the unit in the separated version, the suction capacity will diminish, depending on the length of the hose!*

**c) Starting up**

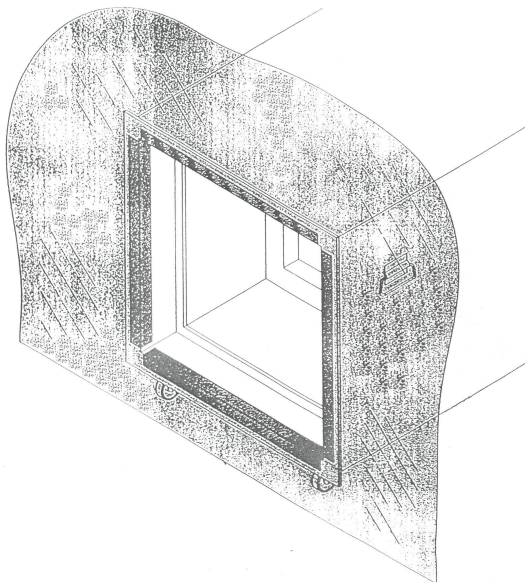
1. Make sure the unit is placed properly.
2. Make sure the exhaust hose for the clean air is properly connected and causes no nuisance.
3. Check the sealed-off zone visually for leaks.
4. Make sure the on/off switch is on the position "off".
5. Connect the power cable to the unit.
6. Start the unit at low speed with the on/off switch.
7. Make sure the unit is actually working.

**ATTENTION**




*After positioning and starting outside the sealed-off zone, the machine has to be fixed airtight to the zone by means of a suitable tape. This connection has to be perfect, because the zone will be under vacuum and therefore much effect arises on these fixations.*

8. Enter the zone, with your complete individual personal protective equipment, and cut a hole in the plastic at the height of the unit. This hole should be smaller in size than the filter.



9. Remove the transit plate.
10. Remove any glue remains from the inside of the filter opening.
11. Fix the foil airtight with duct tape to the inside of the filter opening of the unit.
12. Check whether the pre-filter has been installed correctly.
13. Set the desired pressure with aid of the rotary knob and in accordance with the standard prescribed by the local authorities.

**ATTENTION!**



*If the required negative pressure is not reached: check the construction of the zone and the airlock first. Check also whether the required volume of air is removed from the zone. You can increase the number of negative pressure units up to the point where you reach the right negative pressure and are able to sustain it. These units can be connected electrically to an automatic start-up system.*

#### d) Operational monitoring

The negative pressure unit can be controlled during its use by means of a monitor. (Dehaco has several monitors in its programme).  
The pressure in the sealed-off zone should remain below the value that is prescribed by the (local) authorities.

Check the negative pressure at regular intervals and make a note on the registration form. The frequency depends on the amount of dust released.

If the pressure drops in comparison to the initial value, the filter may have been congested and needs to be replaced (see Chapter 10.b). If, after replacing the pre-filter, the gauge is indicating more than 750 Pascal, the HEPA filter will need to be replaced.



***Warning!***

***Only an authorized person should replace the HEPA filter! Please check with your dealer or with Dehaco!***

#### e) Shutdown



***Warning!***

***The instructions described here only apply to the unit. Discontinuation should only take place after permission from the local authorities. Additional instructions from local authorities and facilities for personal protection are required.***

1. You are in the contaminated zone with your complete personal protection equipment.
2. Remove the dirty pre-filter. **Treat it as contaminated waste.**
3. Remove all pollution visible from the inside of the unit with a vacuum cleaner or a dust cloth.
4. Do **not install a new pre-filter.**
5. Place the transit plate on the unit.
6. Tape the seams airtight all around.
7. Turn the unit off with the on/off switch.
8. Remove the power cable.



## 10. Maintenance

### a) Preventative maintenance



**ATTENTION!**

*Regular preventative maintenance reduces the risk of disruptions during work.*

*Repair identified damage or abnormalities first before starting to work, in order to prevent greater damage!*

- Check daily whether the cover of the fan is present and not damaged.
- Check daily whether the power cables have not been damaged and placed in such a manner that the power cannot be interrupted easily.
- Keep the unit clean and dry. With a clean unit there is no confusion about contamination.
- Change the pre-filter regularly. The gauge and visual inspections determine the frequency.
- Check the unit casing regularly for damage, cracks, etc.

### b) Changing the pre-filter

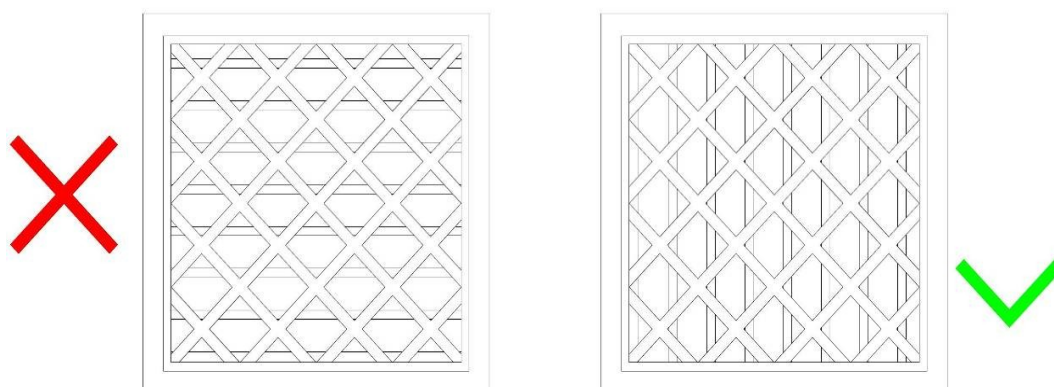


**ATTENTION!**

*The pre-filter is polluted with contaminated material and should be treated as such.*

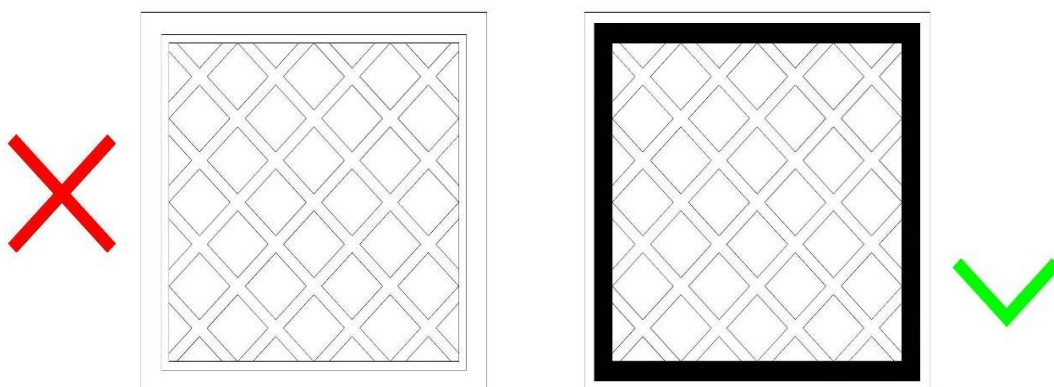
*The pre-filter may only be changed if the unit is linked to a contaminated zone on the site.*

1. Make sure the unit is located in a suitable space.
2. Check whether the unit is switched “on”.
3. Remove the transit plate if it is still present.
4. Remove the dirty pre-filter. Treat it as contaminated waste.
5. Remove all pollution visible from the inside of the unit with a vacuum cleaner or dust cloth.



6. Insert a new pre-filter in the unit.

**Make sure the folds are positioned vertically!** (see figure)



7. Tape the seams with suitable tape all around (see figure).

8. The unit is now ready to be used again.

## 11. Malfunctions

Follow the instructions in the table below if the negative pressure unit is not functioning properly. If this does not result in a satisfactory solution, call your dealer or Dehaco.

The fan is not running:	
1.	Make sure the power cord is plugged in and not damaged.
2.	Make sure the on/off switch is positioned on 'on'.
3.	The unit has a technical problem, contact the dealer.
The fan is running, but the required pressure cannot be reached:	
1.	The transit plate is still positioned in front of the filter. Remove the transit plate.
2.	The pre-filter is dirty/blocked. Replace the pre-filter.
3.	The absolute filter is dirty/blocked. Have the absolute filter replaced by the dealer or an authorized person.

## 12. End of life

Electrical tools, accessories and packaging have to be reused in an environmentally sound manner.



Do not discard electrical tools with the garbage!

Under the European directive 2002/96/EC on obsolete electrical and electronic equipment and the implementation of the directive into national law, power tools that are no longer usable have to be collected separately and reused in an environmentally sound manner.



### **ATTENTION!**

*You always have to comply with the local regulatory requirements and guidelines on safe working and responsible disposal that are applicable at the time!*

If, after prolonged use, the negative pressure unit reaches its technical end, the last HEPA filter has to be removed by an authorized person. Consult with him on the current state of the legal regulations on waste recycling machinery..

## 13. Warranty

Dehaco B.V. offers a warranty on material and construction defects for 12 months after delivery of the negative pressure unit. For the terms of warranty we refer to our general terms of delivery.

Dehaco B.V. accepts no responsibility for the direct or indirect damage caused by the temporary failure of the negative pressure unit, but will do its utmost to keep the standstill period to a minimum!

The warranty on the negative pressure unit is considered null and void if:

- It turns out modifications have been carried out without written permission by Dehaco B.V.
- Instructions in this manual have not been followed.
- It is a matter of demonstrably incompetent use.

\* \_ \* \_ \*

PROJECT	:	
BRAND	:	
SERIAL NO	:	
NAME MECHANIC	:	

[illegible]