

UK



NBE

# PELVAC MANUAL

Version 3.000001

RTB - Ready To Burn



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Dear Customer,

Thank you for purchasing this NBE product which is designed and manufactured to the highest standards in the EU. In order for you to get the most out of your product, we strongly recommend that you carefully read this manual prior to installation and operation. In the event that you encounter any difficulties during installation or operation, we recommend that you first refer to this manual or the information provided in the support section on [www.nbe.dk](http://www.nbe.dk) or [www.nbe-global.com](http://www.nbe-global.com).

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# 1. DESCRIPTION :

With a **PELVAC** system you are able to transport pellets around corners, through walls, and at distances up to 15 meters. In short, you can transport your pellets in a multitude of ways that are difficult or impossible with auger conveyance.

## **1.1 Contents:**

PELVAC contains the following :

- Vacuum unit with controller, cyclone, 'air locking' rotary valve, and capacitive sensor
- 2.0 m Extraction Auger.
- 2.5 m Vacuum Hose.
- Wall Mount for Vacuum Unit

You can adjust running time etc. so that it is adjusted to your wood pellet silo.

## **1.2 Pellet Storage:**

If constructing your own pellet storage tank, make sure the sides of the tank are greater than 45 degrees.

## **1.3 Big bags:**

The system is also able to take pellets directly from a big bag with a suction spear ("accessories").

## **1.4 Dust:**

Wood pellet fines can be a big problem. Fines prevents the pellets from moving easily and; therefore, increases the risk that a wood pellet bridge or mound is created along the sides of the the extraction auger opening. This prevents the pellets from dropping down easily into the spiral. In contrast, good wood pellets, with minimal fines, will roll down easily to the auger.

## **1.5 Noise:**

Moving pellets with a vacuum is naturally noisy; however, you can minimize the impact of this noise by for example setting the timer to run during the day while you are at work, and eliminate running the system during the evening.

## **1.6 Wood pellets:**

PELVAC can handle wood pellets with max 35mm length, 8mm diameter, and with a max fines percentage of 1%.

## **1.7 Electrical Consumption:**

PELVAC uses approximately 10 kWh / ton vacuum transported.

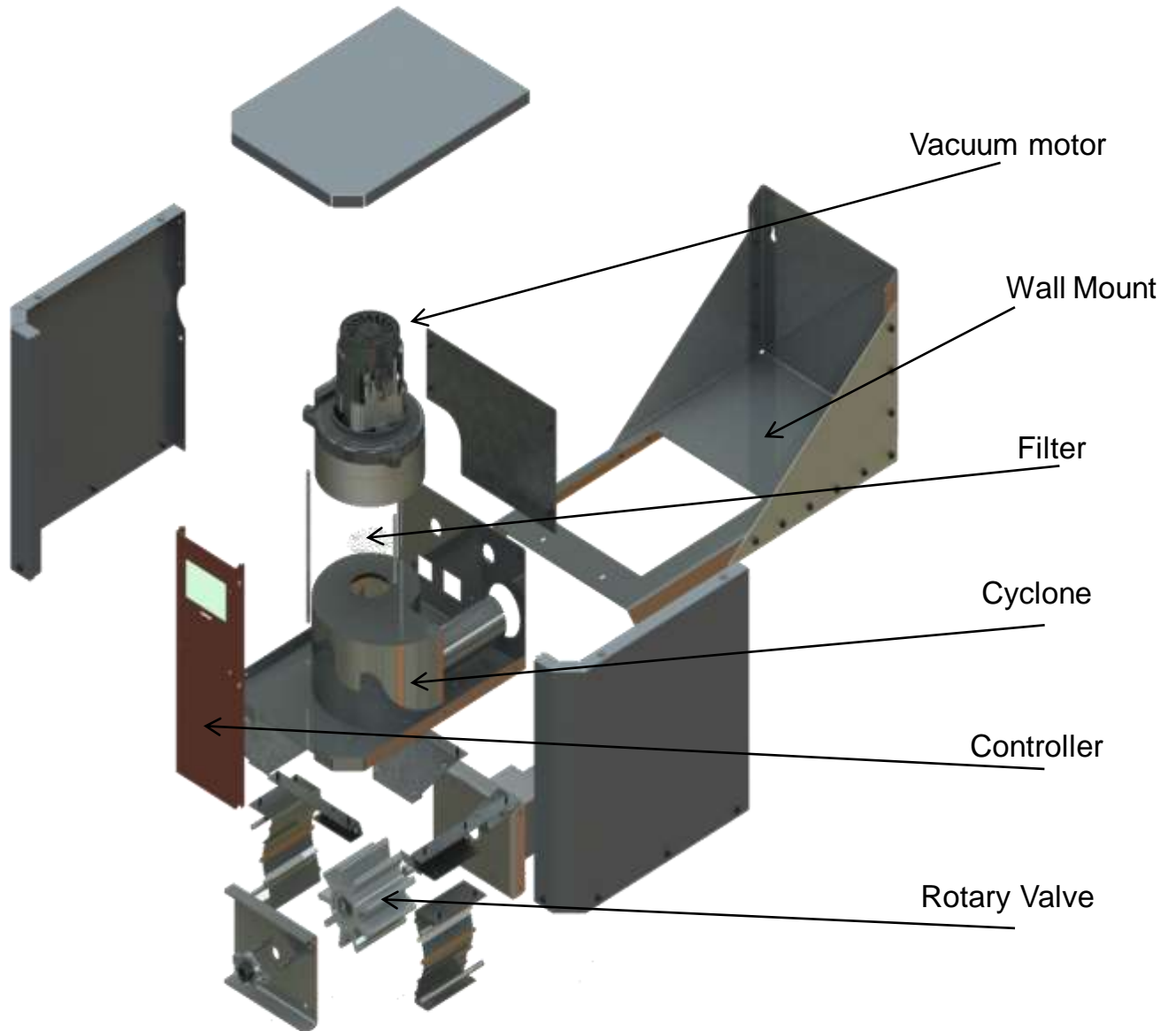
## **1.8 Extraction Auger :**

The extraction auger is built with an electric motor that rotates the spiral ensuring a controlled flow of pellets that minimizes pipe blockage.



# 2. TECHNICAL DATA:

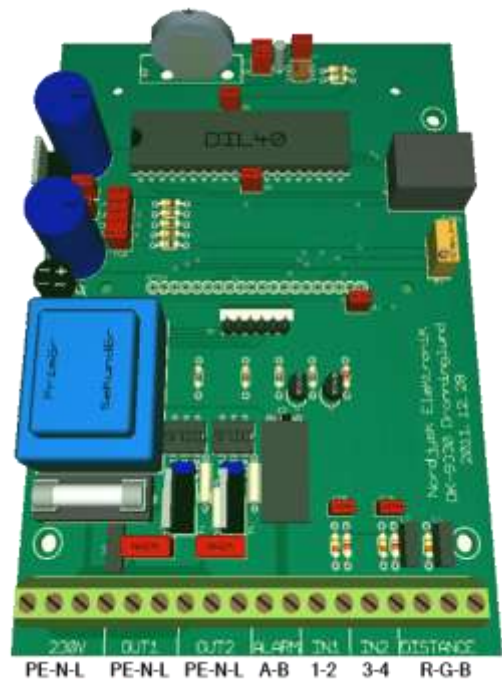
## 2.1 Technical data



# 2. TECHNICAL DATA:

## 2.2 Technical data

	Standard
Vacuum motor	600 w
Rotary valve motor	20 w
Hose diameter	50 mm
Max ceiling height	2,5 m
Max. Transport range with smooth pipes.	15 m
Capacity	60 kg/hour
Noise level:	70 dB
Connection VAC / Hz	230/50
Extraction auger motor	60 w
Electrical Consumption/ ton	10 kW
Max. Wood pellet length	35 mm
Max. Wood pellet diameter	8 mm
Max. wood pelet fines	1 %

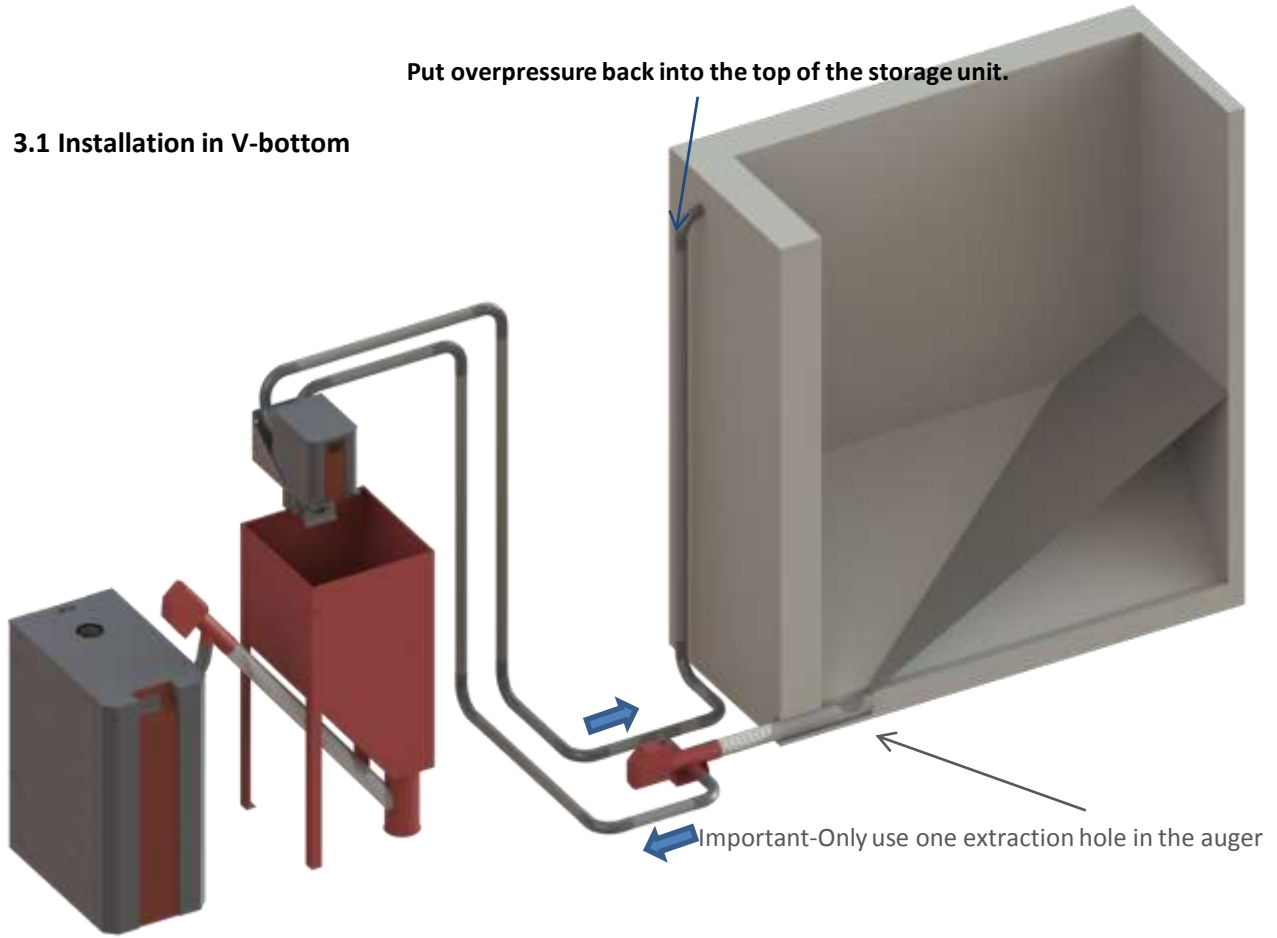


## 2.3 Print diagram

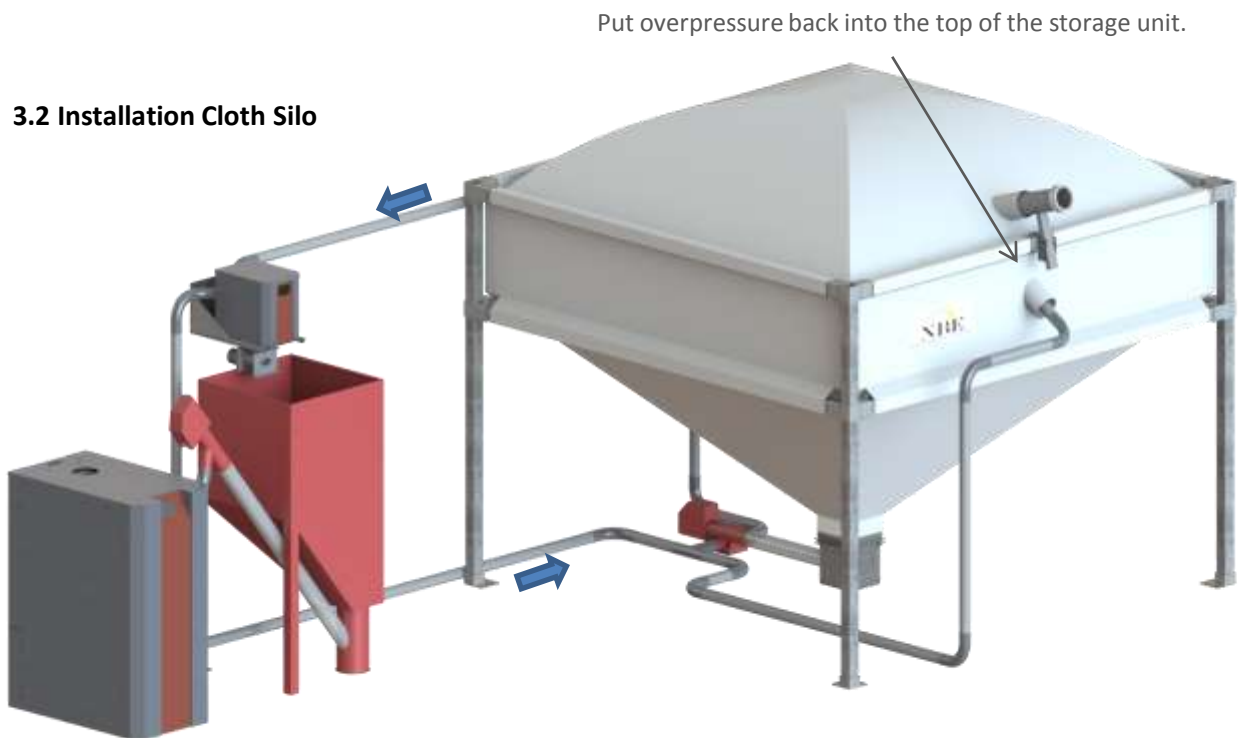
EQUIPMENT	INPUT / OUTPUT	CONNECTION
Supply	230V	PE / N / L
Vacuum	OUT1	PE / N / L
Extraction Auger	OUT2	PE / N / L
Alarm	ALARM	A / B
Contact Cyclone	IN1	1 / 2
Do not use	IN2	3 / 4
Distance Sensor	DISTANCE	Red / Green / Blue

# 3. INSTALLATION:

## 3.1 Installation in V-bottom



## 3.2 Installation Cloth Silo



# 4. CONTROLLER:

## 4.1 Controller:



MAIN MENU  
TRANSPORT  
TIMING  
CONSUMPTION  
VARIOUS  
LOG  
MANUAL

TRANSPORT	
Driving time	30 min
Auger	100 %
Distance start	30 cm
Distance Stop	25 cm

<b>MAX Driving time:</b>	Max. Driving time when the system is out of the distance sensors area (over 100 cm). When the distance is within this area, the distance will be reduced with 1 cm / 10 min, otherwise the system reports <b>"empty for pellets"</b> .
<b>Extraction auger:</b>	% driving time on the extraction auger so that the duty cycle is not overfilled and blocked.
<b>Distance Start:</b>	The system starts up when the distance sensor exceeds this value.
<b>Distance Stop:</b>	The system stops when the distance sensor is under this value.
<b>MAX Distance:</b>	Exits the timer function if the pellets exceed this distance.
<b>Filling alarm</b>	The pellet level should increase by 1 cm on the "XX" minutes, otherwise the system is stopped by an alarm.

# 4. CONTROLLER:

## 4.2 Betjening:

MAIN MENU  
TRANSPORT  
TIMING  
CONSUMPTION  
VARIOUS  
LOG  
MANUAL

TIMING	
MO-FR Start 1	12.05
MA-FR Start 2	OFF
MO-FR Start 3	OFF
SA-SU Start 1	OFF
SA-SU Start 2	OFF
SET CLOCK	9.35
SET WEEKDAY	SAT
SET DATE	25
SET MONTH	2
SET YEAR	16

### MO-FR Start 1-3:

Specify when the vacuum system should run.  
You can choose up to 3 periods during the day, Monday- Friday.  
The system will run until the hopper is full.  
*(The capacity sensor / distance sensor registrates that the silo i full)*

### SA-SU Start 1-2

Specify when the vacuum system should run.  
You can choose up to 3 periods during the day, Saturday- Sunday.  
The system will run until the hopper is full.  
*(The capacity sensor / distance sensor registrates that the silo i full)*

### Set Clock:

Specify the time.

### Set Weekday:

Specify the current day of the week.

### Set Date:

Specify the date.

### Set Month:

Specify the month.

### Set Year:

Specify the year.



# 4. CONTROLLER:

## 4.3 Controller:

MAIN MENU  
TRANSPORT  
TIMING  
CONSUMPTION  
VARIOUS  
LOG  
MANUAL

CONSUMPTION	
Consumption ( KWH )	0
Reset consumption	NO
Vacuum	1000 W
Duty cycle	20W
Auger	25W
Timer vacuum	35

**Consumption kWh:**

Displays how many kWh of electricity the system has used

**Reset kWh:**

Resets the kWh counter

**Vacuum:**

Displays how much the vacuummotor consumes.

**Duty cycle:**

Displays how much the vacuummotor consumes.

**Auger:**

Displays how much the vacuummotor consumes.

**Timer vacuum:**

Amount of hours the vacuummotor has driven (life expectancy around 500 hours)

## 4.4 Controller:

MAIN MENU  
TRANSPORT  
TIMING  
CONSUMPTION  
LANGUAGE  
LOG  
MANUAL

VARIOUS	
Language	DANISH

**Language:**

Specify language.

Choose between Danish, English etc.

# 4. CONTROLLER:

## 4.5 Controller:

MAIN MENU  
TRANSPORT  
TIMING  
CONSUMPTION  
VARIOUS  
LOG  
MANUAL

**LOG:** The last 50 events are logged here.

LOG		
1 MON	05.34	RUN
2 MON	03.55	RUN
3 SUN	22.45	RUN
4 SUN	21.34	RUN
5 SAT	23.55	RUN
6 SAT	20.12	RUN

## 4.6 Betjening:

MAIN MENU  
TRANSPORT  
TIMING  
CONSUMPTION  
VARIOUS  
LOG  
MANUAL

**Activate Auger:** Activates extraction auger motor manually. For example, use to test function.

**Activate Vacuum:** Activates vacuum motor manually. For example, use to test function

**Timeout:** Output will automatically turn off after 2 minutes of running.



# 5. FAQ:

## **Is the PELVAC system noisy ?**

Yes, transporting pellets via a vacuum system is noisy; however, you are able to use the timer function in the controller to have it run during work hours or prevent the system from running during unwanted hours; such as during the evening.

## **Is the PELVAC system dusty?**

The PELVAC system is a closed loop system; however, part of the over pressure in the air return is redirected back to the silo. If your silo is not completely air tight or does not consist of breatheable dust reducing fabric, then some dust can escape.

## **What is the max distance you can transport pellets?**

Max distance is up to 15 meters when installing the system with smooth vacuum tubes and when vertical suctions are minimized below 2.5 meters.

## **What is the max vertical suction height?**

A lot of suction is required to transport pellets vertically and should be minimized as much as possible; however, it should not be a problem to perform vertical lifts of up to 2.5 meters.

If you require more suction power, consider upgrading to a 1000 watt vacuum motor that will give you 30% more power.

## **How often should you clean the vacuum filter?**

It depends. Normally it is not needed to clean the filter as the filter is designed only to prevent large fines from passing through, but all wood pellets are different and some can cause blockages more easily than others. If you are repeatedly having pressure loss in the vacuum you may want to begin a regular cleaning schedule of the filter to prevent downtime.

## **How often should you change the vacuum motor?**

Typical lifetime of the motor is 500 hours ( about 30 tons of pellets ) and should be replaced. However, with the price of a new vacuum motor around 60 euros, it still remains as a very inexpensive solution.

## **Will dust in the pellets be a problem?**

Pellets with less than 1 % dust, typically, do not pose any problems.

## **Can I run the system without a filter in the cyclone?**

No! The metal filter protects the vacuum from pellets. Wood pellets that are sucked into the vacuum will damage the vacuum motor.

## **Where can I purchase smooth vacuum pipes?**

Contact your NBE dealer.

## **Where can I purchase the pipe bends for the 50 mm pipes?**

These fittings are common at any home building or plumbing store.



# 6. TROUBLESHOOTING:

## **Wood pellets are jamming the rotary valve in the vacuum unit.**

1. Turn down the **Durtycycle %** under Menu **TRANSPORT**. This will prevent the rotary valve from over filling.
2. Make sure that your wood pellets are no longer than 35 mm.

## **There is not enough suction.**

1. Check that all the connections are tight.
2. Check the filter for any build up of dust.
3. Check that the running time is not too long; which can over fill the cyclone with pellets.
4. Check that the vertical lift height is no taller than 3.5 meters.
5. Check that the transport distance is no more than 15 meters.
6. Check that all pipes are of the same dimension.

## **There is no power to the system.**

1. Make sure that there is power on the contact.
2. Check to see if the fuse ( 7A ) is functional. Replace if necessary.

## **The extraction auger cannot empty the silo.**

1. Check that the sides of the silo are greater than 45 degrees.
2. Make sure that there is no more than 1 % dust in the pellets.



# 7. FARE OG RISIKO:



Never touch or handle the auger when the system is powered. There will be no warning when the system starts.



The system is provided with an electric current of 230V / 50Hz. An incorrect installation or improper repair can cause life-threatening electric shock. Electrical connection must be performed by the person who has the right skills and competences. Performing electrical installation must be performed in respect to the current local rules. Always disconnect the system from the power supply before starting maintenance work and servicing. The system must be connected to a separate electrical circuit, which is equipped with the proper circuit breaker and residual current device.



Never climb into a pellet silo without proper ventilation. Enough wood gas can be toxic and even deadly.



Always read the manual prior to installing and repairing the system. If necessary, seek out professional help.



The system may only be serviced by knowledgeable professionals. If you are in doubt about the safe operations and use of this equipment, please contact your dealer.



# 8. CE MÆRKNING

**NBE** hereby confirms, that this product has been produced in accordance with:

Low Voltage Directive	2006/95/EC
Electromagnetic Compatibility Directive	2004/108/EC
Machine Directive	2009/125/CE



This symbol indicated on the product confirms that the product has been produced in accordance with the above directives.

## 9. Producent:

NBE Production A/S  
Kjeldgaardsvej 2  
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DENMARK  
0045-88209230  
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**NOTE:** We are not liable for any misprints and changes in product specifications and composition of this manual.



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