

# User manual

## Vacuum packaging machine

### Titaan 2-90



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## Introduction

Henkelman BV is specialised in the development, production and distribution of state-of-the-art vacuum packaging machines.

Our machines are 'Made in Holland'. And you can tell. They combine a tightly crafted and functional design with optimum ease of operation and a long life span. Installation is just a matter of 'plug & pack', and the smart design ensures that hygiene standards are maintained at all times.

This manual contains relevant information and instructions for installation, operating and maintenance of the machine.



- All people responsible for control must at least fully read and comprehend the chapters on control and safety of these operating instructions.
- All people responsible for the assembly, installation, maintenance and/or repair must read and comprehend all these operating instructions.
- The user is responsible for the interpretation and use of this manual in all circumstances. Please contact the supervisor in case of questions or doubts about the correct interpretation.
- This user manual must be kept in the proximity of the machine and must be easily accessible to users.
- All major services, adaptations to the line and any remarks must be kept in a log, see annex 10.1.
- No changes may be made to the installation/machine, without written permission of the supplier.
- Please contact the supplier for special maintenance adjustments that are not included in this user manual.
- Always meet the safety requirements as indicated in chapter 3.
- The correct functioning and safety of the system can only be guaranteed if the recommended maintenance is carried out on time and correctly.

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## Declaration of conformity

We, Henkelman BV  
Titaniumlaan 10  
5221 CK, 's Hertogenbosch  
The Netherlands

declare under our sole responsibility that the product:

machine type: Titaan 2-90

fulfils all the relevant provisions of the directives

2006/42/EG Machinery Directive  
2004/108/EG EMC-Directive

and is in conformity with the following standard(s) or other normative document(s):

<b>NEN-EN-ISO 12100</b>	Safety of machinery - general principles for design – Risk assessment and risk reduction
<b>NEN-EN 13857</b>	Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
<b>NEN-EN 349</b>	Safety of machinery – Minimum gaps to avoid crushing of parts of the human body
<b>NEN-EN 953</b>	Safety of machinery – Guards - General requirements for the design and construction of fixed and movable guards
<b>NEN-EN 13849-1</b>	Safety of machinery – Safety-related parts of control systems - Part 1: General principles for design
<b>NEN-EN 60204-1</b>	Safety of machinery – Electrical equipment of machines - Part 1: General requirements





The undersigned is authorised to compile the technical file.

The Netherlands, 's-Hertogenbosch, 28th December 2012  
Managing Director







## Overview of symbols


For all actions concerning operator and/or technician safety where caution is essential, the following symbols are used:

	Attention!
	Danger: High voltage!
	Danger: High Temperature!
	Tip: Provides a fast insight or tips to carry out certain actions easier and simpler.

## Pictograms

Several pictograms and warnings have been placed on the installation to point out any remaining risks for the user.

Pictogram	Description	Location
	Type plate	<ul style="list-style-type: none"> <li>On the back of the machine.</li> </ul>
	Warning tape	<ul style="list-style-type: none"> <li>On the parallel arms.</li> </ul>
	Warning sign "High Voltage"	<ul style="list-style-type: none"> <li>On the back of the machine.</li> </ul>
	Warning sign "Heat"	<ul style="list-style-type: none"> <li>On seal bars.</li> <li>On the vacuum pump</li> </ul>


	<p style="text-align: center;"><b>ATTENTION!</b></p> <ul style="list-style-type: none"> <li>Regularly check whether the pictograms and markings are still properly recognisable or legible. Replace them if this is no longer the case.</li> </ul>
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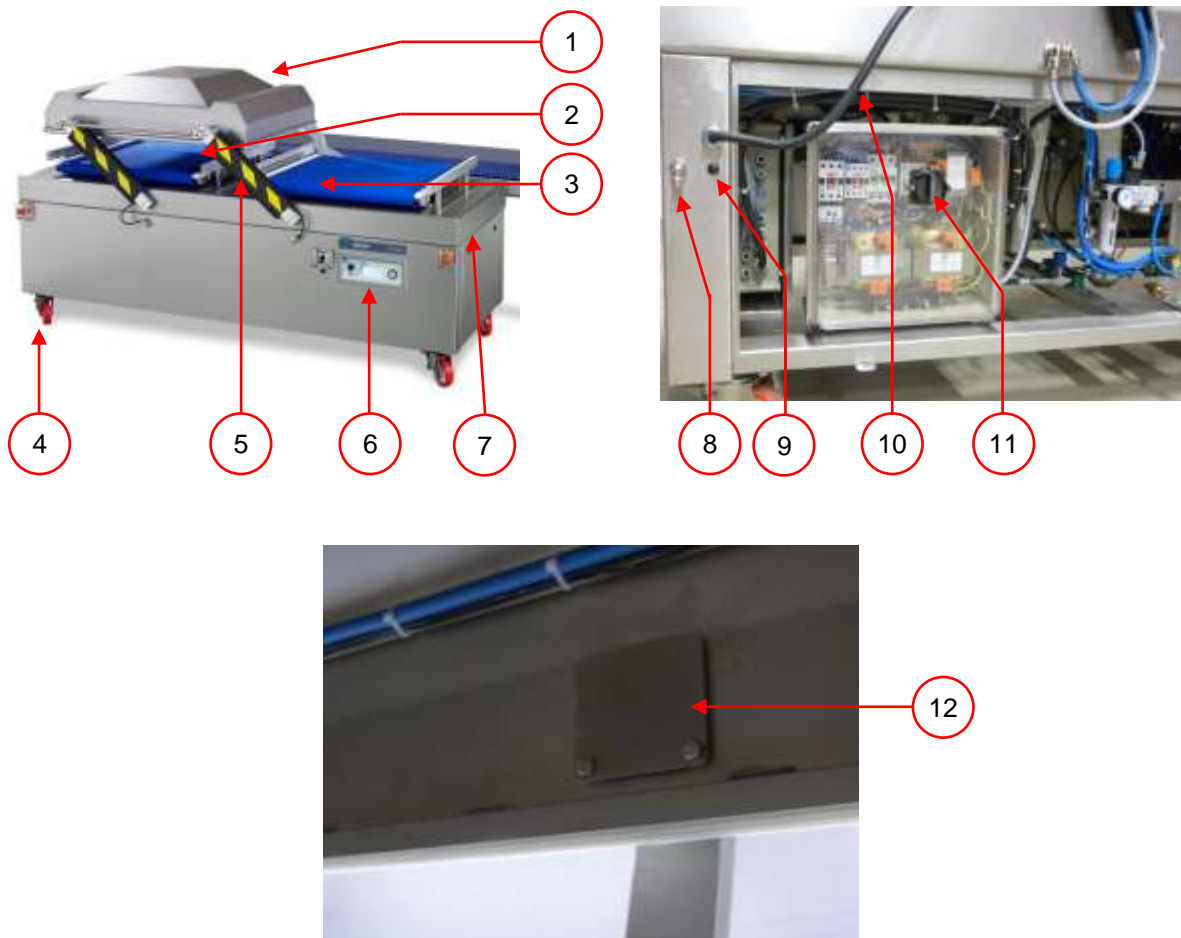
## 1. Technical information

Description	Value	Unit
<b>General</b>		
Operating ambient temperature	5 to 30	°C
Sound production;	< 70	dB(A)
<b>Machine dimensions</b>		
length	2.420	mm
width	1.160	mm
height	1.140	mm
weight	1.050	kg
<b>Maximum product dimensions</b>		
Length	820	mm
Width	900	mm
height	225	mm
Weight	50	kg
<b>Seal pressure (optional)</b>		
Size connection plug	6	mm
Minimum supply pressure	0	bar
Maximum supply pressure	1	bar
Air usage	5	l/min
<b>Pneumatic connection</b>		
Connection size	6	mm
Minimum supply pressure	6	bar
Maximum supply pressure	10	bar
Air usage	100	l/min
<b>Electrical connection</b>		
Power supply	3 phase	-
Voltage depending on country	See machine tag	V
Required fusing of the installation	See machine tag	A
Power connection	See machine tag	kVA
<b>Vacuum pump</b>		
Pump capacity	300	m <sup>3</sup> /h-
filling	6,5	litres
Oil type Ambient temperature 5-40°C	Viscosity VG100	

## 2. Description of the machine

	<b>FUNCTION</b>
	<ul style="list-style-type: none"> <li>• The Titaan 2-90 is a double chamber vacuum packaging machine. The movement of the lid and the discharge of the packed product are automated.</li> <li>• This chapter gives you an overview of the main components and functions. If detailed information is available in this manual you are directed to the specific sections.</li> </ul>

The figure below indicates the main components of the production system:




**Figure 1: Overview of the main components**

**Main components:**

Figure	Component	Description	See section
1: 1	Lid	<ul style="list-style-type: none"> <li>The function of the lid is to close the vacuum chamber during vacuuming.</li> <li>Since the Titaan has 2 working positions the lid can manually or automatically be moved from position 1 to position 2</li> <li>The lid consists of the following components               <ul style="list-style-type: none"> <li>The lid gasket.</li> <li>The seal bars</li> <li>Suction opening (figure 12)</li> </ul> </li> </ul>	6.8 2.2, 6.6
2 + 3	Working plate 1 + 2	<ul style="list-style-type: none"> <li>After the process is finished the lid is moved, automatically or manually, to the other position and the product is being removed by the conveyor belt to the back side of the machine.</li> <li>The working plates consists of the following components               <ul style="list-style-type: none"> <li>Conveyor belt.</li> <li>Silicon holders as counterpart for the sealing bars</li> <li>The seal bars</li> <li>Press air connections of the belts</li> </ul> </li> </ul>	2.2 2.2
4	Swivel wheel with brake (4x)	<ul style="list-style-type: none"> <li>The machine los provides with 4 swivel wheels. The makes it possible to move the machine very easily to another position.</li> <li>The swivel wheels are provided with parking brakes which must be activated the moment the machine is in position.</li> </ul>	
5	Parallel arm (4x)	<ul style="list-style-type: none"> <li>The parallel arms move the lid from one position to the other.</li> <li>The weight of the lid is compensated by springs so the lid can be placed in any position.</li> <li>In automatic mode the parallel arms are driven by 2 pneumatic cylinders.</li> <li>The movement of the parallel arms is being damped by a hydraulic damping system.</li> <li>The 2 parallel arms on the control side of the machine are provided with safety edges to avoid injuries.</li> <li>Grease nipples are available at the rotation point.</li> </ul>	2.4 2.5 6.1
6	Control panel	<ul style="list-style-type: none"> <li>See section:</li> </ul>	2.6.1
7	Machine frame	<ul style="list-style-type: none"> <li>The machine frame contains all the equipment necessary for the machine functions.</li> </ul>	
8	Pneumatic air connection	<ul style="list-style-type: none"> <li>See section:</li> </ul>	2.4
9	Seal pressure connection (optional)	<ul style="list-style-type: none"> <li>Where the standard version is using atmospheric pressure to press the seal bar to the vacuum bag during sealing, it is possible (option) to connect an external source to obtain a higher seal pressure.</li> <li>Consult the given section for detailed information concerning installation.</li> </ul>	4.3





Figure 1:	Component	Description	See section
10	Power cable	<ul style="list-style-type: none"> <li>See section:</li> </ul>	2.6
11	Main switch	<ul style="list-style-type: none"> <li>Connect the machine to the power supply</li> </ul>	2.6
12	Suction opening	<ul style="list-style-type: none"> <li>The opening where the air is sucked into</li> </ul>	
-	Seal installation	<ul style="list-style-type: none"> <li>See section:</li> </ul>	2.2
-	Pneumatic installation	<ul style="list-style-type: none"> <li>See section:</li> </ul>	2.4
-	Hydraulic installation	<ul style="list-style-type: none"> <li>See section:</li> </ul>	2.5
-	Electrical installation	<ul style="list-style-type: none"> <li>See section:</li> </ul>	2.6

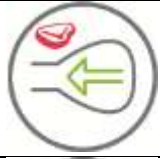

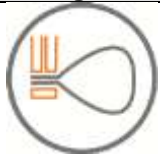

## 2.1. Description of the vacuum process / machine functions

	<b>FUNCTION</b>
	<ul style="list-style-type: none"> <li>The following steps are made during the automatic process. For the detailed procedures see chapter 5.</li> <li>This chapter gives you an overview of the process and the machine functions that are available.</li> <li>The functions H<sub>2</sub>O (and H<sub>2</sub>O Plus), 1-2 Cut-off seal require purpose-specific parts to be installed in the machine before they can be activated. Contact your supplier for more details</li> <li>In chapter 5.6 You'll find the information how to set the parameters to the correct values</li> </ul>



### 2.1.1. The automatic process / machine functions

The following steps are made during the automatic process.


Step	Process phase	Operation
1.	Prepare operation	<ul style="list-style-type: none"> <li>The operator puts the product in a vacuum bag and places this on the conveyor belt of a working plate with the opening on the sealing position.</li> </ul>
2.	Vacuumping	<ul style="list-style-type: none"> <li>The process vacuumping is being started by closing the lid</li> <li>Depending the options you have chosen for your machine and the product you are packing, the following functions are available:</li> </ul>
	<b>Function</b>	<b>Pictogram</b>
	Vacuum	 <ul style="list-style-type: none"> <li>During the cycle, air will be removed from the chamber until the set value has been reached. This value can be set in %. This is the percentage or value of the pressure in the vacuum chamber related to the normal outside atmosphere of 1 bar (0%). The whole process is sensor operated.</li> </ul>
	Vacuum +	 <ul style="list-style-type: none"> <li>Available if the vacuum setting is 99 %.</li> <li>Vacuum Plus is an option that continues the vacuumping process by an additional time to create the possibility for trapped air, inside the product, to escape.</li> </ul>
	H <sub>2</sub> O (option)	 <ul style="list-style-type: none"> <li>Available with the optional Quick Stop H<sub>2</sub>O sensor</li> <li>The principal of the Quick Stop H<sub>2</sub>O function is that it is a very sensitive sensor vacuum controlled system. The highly sensitive H<sub>2</sub>O sensor is capable to detect the moment that liquids from the product or the product itself, start to evaporate (boiling). At that moment the control system will interfere and switch to the next step in the process. It therefore prevents the product from: drying out, losing weight, and spatter out of the vacuum bag, polluting the seal, chamber and the oil in the pump.</li> </ul>
	H <sub>2</sub> O + (option)	 <ul style="list-style-type: none"> <li>Available with the H<sub>2</sub>O option.</li> <li>The H<sub>2</sub>O + function allows you to continue the vacuumping process for a certain time after reaching the moment of evaporation</li> </ul>

	Red meat (option)		<ul style="list-style-type: none"> <li>This function is especially designed for the packaging of fresh meat. It is added to the normal vacuum function to prevent degassing from the product during the sealing phase. This degassing could create air pockets and drip inside the package</li> </ul>
	Sequential vacuum		<ul style="list-style-type: none"> <li>With sequential vacuum it is possible to alternate vacuum and pause steps to create the opportunity for trapped air inside a product to escape from the core. In total it is possible to program a maximum of 5 steps.</li> </ul>
<b>3.</b>	<b>Sealing</b>		<ul style="list-style-type: none"> <li>The sealbars are pushed against the vacuum bag and seal the bag</li> </ul>
	<b>Function</b>	<b>Pictogram</b>	
	Seal		<ul style="list-style-type: none"> <li>When sealing, the material of the vacuum bag will be heated and pressed together to create a hermetic seal. The programming for this function is done in seconds.</li> <li>As an option a cut-off wire is available. The purpose of the cut-off wire is to remove the excess foil from the remaining flap.</li> </ul>
<b>4.</b>	<b>Devacuuming</b>		<ul style="list-style-type: none"> <li>The vacuum chamber is being devacuumed by letting air enter the chamber.</li> </ul>
	<b>Function</b>	<b>Pictogram</b>	
	<ul style="list-style-type: none"> <li>Soft air</li> </ul>		<ul style="list-style-type: none"> <li>Herewith it is possible to allow the air from outside, to slowly enter the chamber so the vacuum bag will shape itself slowly around the product and prevent sharp edges form the product to protrude the film, and so prevent leaks</li> </ul>
<b>5.</b>	<b>Open vacuum chamber</b>		<ul style="list-style-type: none"> <li>The lid moves to the other working plate.</li> </ul>
<b>6.</b>	<b>Remove the product</b>		<ul style="list-style-type: none"> <li>The conveyor belt moves the product from the working plate.</li> </ul>

## 2.1.2. General functions

	<b>Function</b>	<b>Pictogram</b>	<b>Operation</b>
	Oil pump cleaning		<ul style="list-style-type: none"> <li>The pump cleaning program ensures that the pump is thoroughly rinsed. During the program the pump and oil reaches operation temperature so that the oil absorbs the moisture and contaminants and filters them. The high temperature enables any moisture in the pump to evaporate minimising the risk for corrosion</li> </ul>
	Menu		<ul style="list-style-type: none"> <li>Menu is used to change machine settings such as language, printing options</li> </ul>

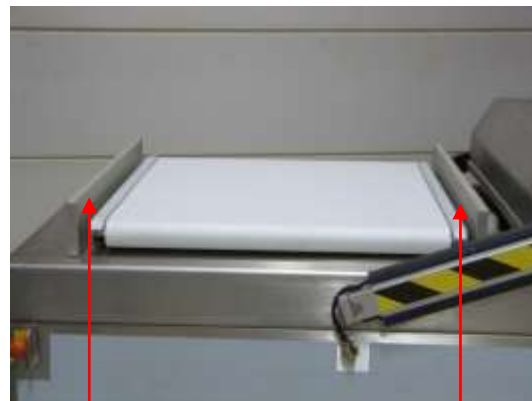
## 2.2. The sealing system

	<p><b>FUNCTION</b></p> <ul style="list-style-type: none"> <li>• The sealing system closes the bag opening(s) to maintain the vacuum and/or gas in de bag.</li> <li>• As an option the end of the bag can be cut off by the seal bar.</li> </ul>
---	---



1

1



2


2

**Figure 2: Overview of sealing system**

Figure 2	Component	Description	See section
1.	Seal bar	<ul style="list-style-type: none"> <li>• The function of the lid is to close the vacuum chamber during vacuuming.</li> <li>• Since the Titaan has 2 working positions the lid can manually or automatically be moved to the other position</li> <li>• The seal bar consists of the following components <ul style="list-style-type: none"> <li>• Sealing wire(s): during sealing the sealing wire(s) are heated for a certain time to melt the sides of the vacuum bag together.</li> <li>• Teflon tape: sealing and cut-off tape are covered with Teflon tape to avoid the bag to stick to the seal bar.</li> </ul> </li> <li>• Consult the given section for detailed information concerning maintenance.</li> </ul>	6.6
2	Silicon holder	<ul style="list-style-type: none"> <li>• Opposite each seal bar is a silicon holder on the machine frame.</li> </ul>	
	Seal Mechanism	<ul style="list-style-type: none"> <li>• The seal bars are pressed to the vacuum bag using bellow actuators.</li> <li>• The bellow actuators are positioned in the vacuum chamber. By connecting the bellow actuators with the outside atmospheric pressure they expand and press the seal bar to the bag.</li> <li>• Extra seal pressure (option) can be used if necessary.</li> </ul>	



### 2.3. The vacuum pump

	<p><b>FUNCTION</b></p> <ul style="list-style-type: none"> <li>The vacuum pump creates the vacuum and brings it to the vacuum chambers.</li> </ul>
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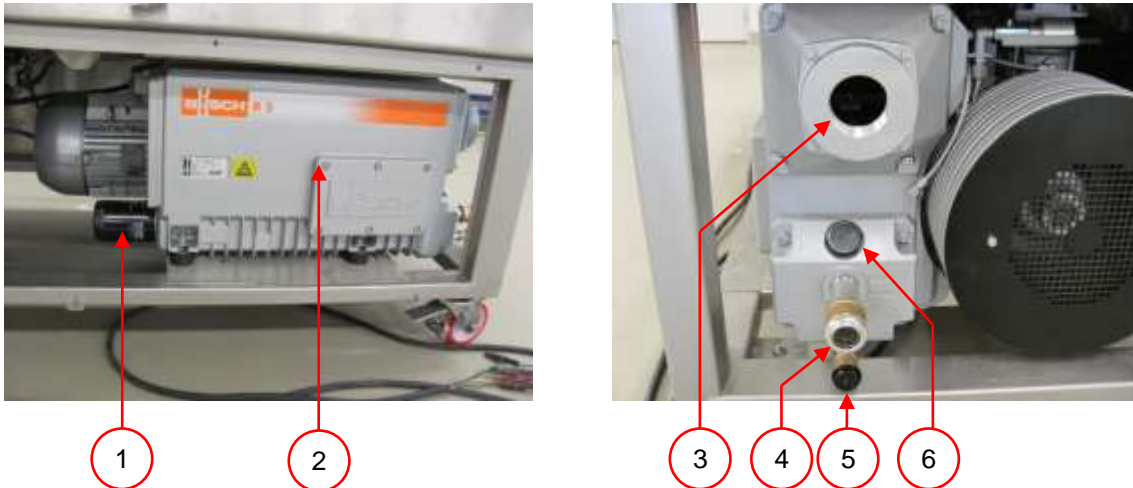




Figure 3: Overview of vacuum system (covers removed)

Figure 3	Component	Description	See section
1	Oil filter	<ul style="list-style-type: none"> <li>Filters the oil in the vacuum pump.</li> <li>Consult the given section for detailed information concerning maintenance.</li> </ul>	6.1
2	Vacuum pump	<ul style="list-style-type: none"> <li>Creates the vacuum for the process.</li> </ul>	6.1
3	Oil exhaust filter cover	<ul style="list-style-type: none"> <li>Filters the exhaust air and absorbs oil vapours.</li> <li>Consult the given section for detailed information concerning maintenance</li> </ul>	6.1
4	Oil inspection glass	<ul style="list-style-type: none"> <li>The oil inspection glass indicates the maximum and minimum oil level of the vacuum pump.</li> <li>The oil inspection window is visible with the machine covers in place.</li> </ul>	6.1
5	Oil drain plug	<ul style="list-style-type: none"> <li>To drain the oil form the vacuum pump</li> </ul>	
6	Oil fill plug	<ul style="list-style-type: none"> <li>To fill the vacuum pump with oil</li> </ul>	

## 2.4. Pneumatic installation

	<p><b>FUNCTION</b></p> <ul style="list-style-type: none"> <li>• Providing pneumatic power in distribution for the automatic movement of the lid and the drive of the conveyor belts.</li> <li>• See the pneumatic diagram for the further structure and operation of the pneumatic installation.</li> </ul>
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	<p><b>ATTENTION!</b></p> <ul style="list-style-type: none"> <li>• Work on the pneumatic installation may only be carried out by a technical expert.</li> <li>• Only trained technicians are allowed to perform adjustments on the flow control valves.</li> </ul>
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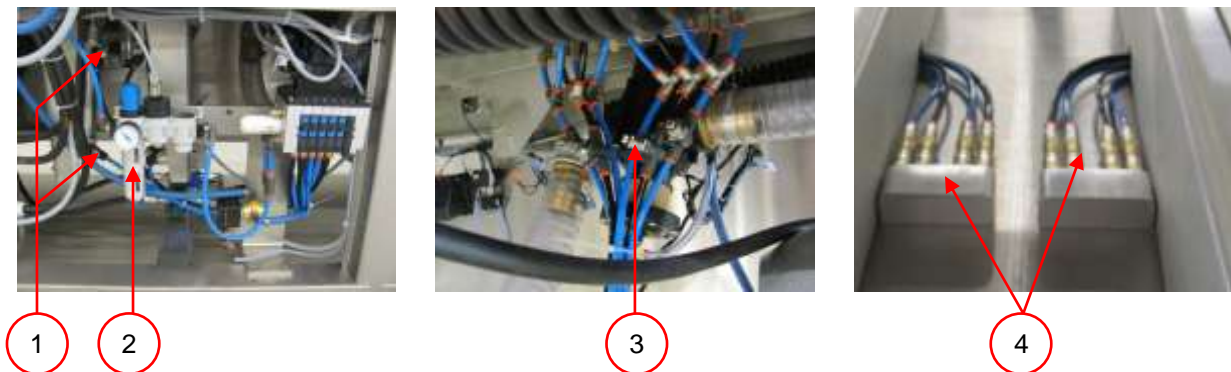




Figure 4: Overview of pneumatic installation (covers removed)

The installation includes the following pneumatic components

Figure 4	Component	Description	Section / location
1	Flow control valve (4x)	<ul style="list-style-type: none"> <li>• Speed adjustment of the drive cylinders of the lid</li> </ul>	
2	Pressure reducing valve	<ul style="list-style-type: none"> <li>• Adjustment of the pressure</li> </ul>	
3	Flow control valve. (4x)	<ul style="list-style-type: none"> <li>• Speed adjustment of the drive motor and cylinder of the conveyor belts</li> </ul>	
4	Connectors	<ul style="list-style-type: none"> <li>• The hoses of the drive motor and cylinder of the conveyor belt can be disconnected.</li> </ul>	
-	Pneumatic air connection	<ul style="list-style-type: none"> <li>• The pneumatic system can be connected to the air supply.</li> </ul>	
-	Cylinder (2x)	<ul style="list-style-type: none"> <li>• Movement of the lid</li> </ul>	Figure 1:
-	Cylinder (2x)	<ul style="list-style-type: none"> <li>• Movement of the conveyor belt</li> </ul>	
-	Drive motor (2x)	<ul style="list-style-type: none"> <li>• Drive of the conveyor belts</li> </ul>	

## 2.5. Hydraulic installation

	<p><b>FUNCTION</b></p> <ul style="list-style-type: none"> <li>The hydraulic installation functions as a damper on the movement of the lid.</li> </ul>
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	<p><b>ATTENTION!</b></p> <ul style="list-style-type: none"> <li>Work on the hydraulic installation may only be carried out by a technical expert.</li> <li>The system is filled under atmospheric pressure. Depending on the position of the lid a low pressure can be present in the system.</li> <li>Only trained technicians are allowed to perform adjustments on the flow control valves.</li> </ul>
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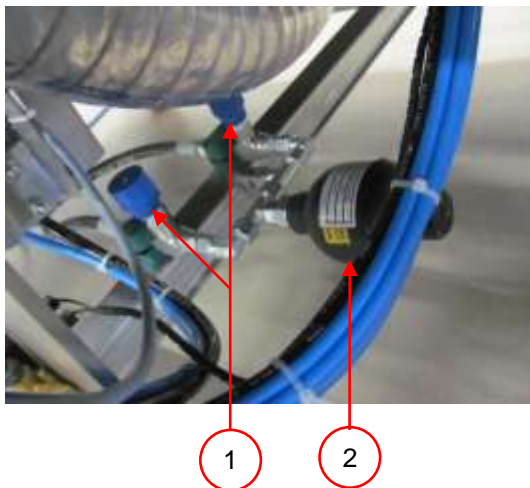




Figure 5: Overview of hydraulic installation (covers removed)

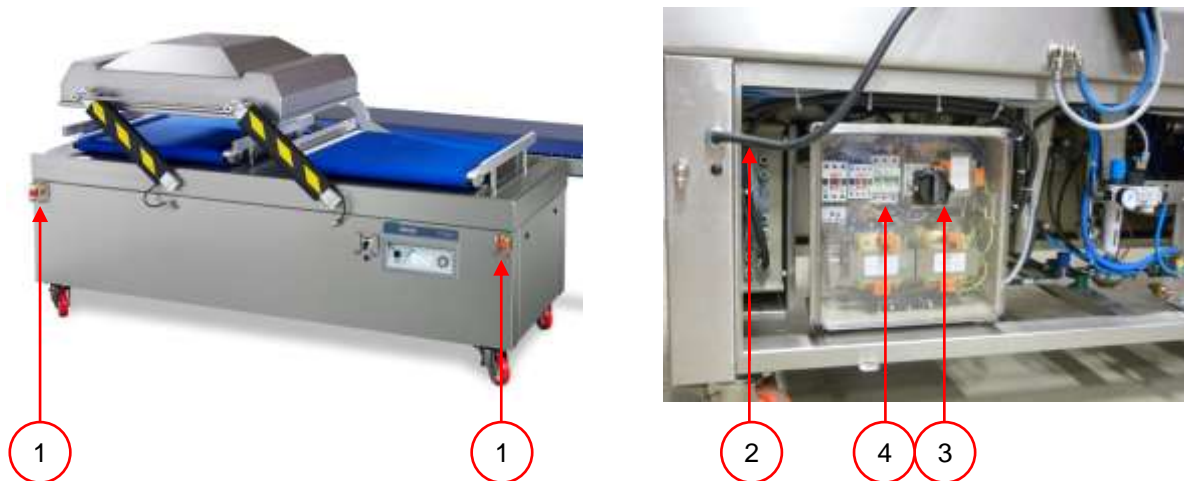
The installation includes the following components

Figure 5	Component	Description	Section / location
1	Flow control valve (2x)	<ul style="list-style-type: none"> <li>Damp the speed of the cylinder and lid.</li> </ul>	
2	Accumulator	<ul style="list-style-type: none"> <li>Takes up the difference in volume depending on the position of the cylinder.</li> </ul>	
-	Cylinder	<ul style="list-style-type: none"> <li>Is driven by the movement of the lid and circulates hydraulic oil through the system</li> </ul>	

## 2.6. Electrical installation

	<p><b>FUNCTION</b></p> <ul style="list-style-type: none"> <li>• The electrical installation provides the power supply for the vacuum pump, the sealing system and the controls</li> <li>• See the wiring diagram for the further structure and operation of the electrical installation</li> </ul>
---	--

	<p><b>ATTENTION!</b></p> <ul style="list-style-type: none"> <li>• Work on the electrical installation may only be carried out by a technical expert.</li> </ul>
---	---




**Figure 6: Overview of the electrical installation**

The installation includes the following components

Figure 5	Component	Description	Section / location
1	Emergency stop (2x)	<ul style="list-style-type: none"> <li>• Stop all movements of the lit</li> </ul>	
2	Power supply cable	<ul style="list-style-type: none"> <li>• To connect the machine to the power outlet</li> </ul>	
3	Main switch	<ul style="list-style-type: none"> <li>• Connect the machine to the power supply</li> </ul>	
4	Circuit breaker	<ul style="list-style-type: none"> <li>• Protection against overload or short circuit.</li> </ul>	7

### 2.6.1. Control panel

	<p><b>FUNCTION</b></p> <ul style="list-style-type: none"> <li>• The machine can be operated</li> <li>• Programs can be changed.</li> <li>• See chapter 5 for operating and programming instructions.</li> </ul>
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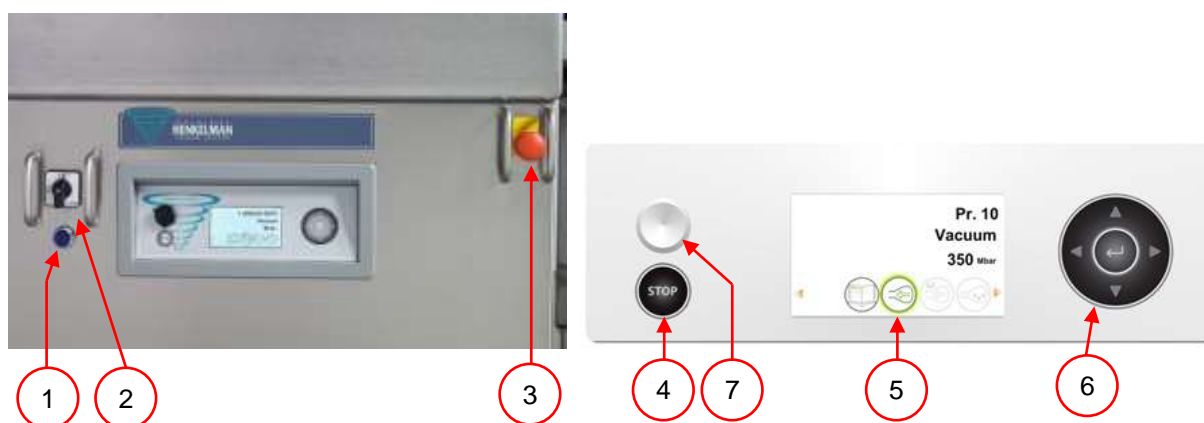


Figure 7: control panel

Figure 7	Element	Explanation
1	Reset Button	<ul style="list-style-type: none"> <li>• After an emergency stop or after starting the machine the emergency stop can be reset by pushing the button.</li> <li>• The button lights up if a reset is necessary.</li> </ul>
2	Switch “0 – 1”, production mode switch.	<ul style="list-style-type: none"> <li>• Position “1” = automatic mode: after manually closing the lid the first time the machine will work automatically.</li> <li>• Position “0” = manual mode: after a cycle is ready the lid must be moved manually and the next vacuum / sealing cycle must be started manually.</li> </ul>
3	Emergency stop	<ul style="list-style-type: none"> <li>• Stops all movements of the lid and belts</li> </ul>
4	Stop button	<ul style="list-style-type: none"> <li>• The ‘stop’ button can be used during a packaging cycle to interrupt the complete cycle. The cycle will skip all functions and terminate the cycle.</li> </ul>
5	Screen	<p>The screen has four possible modes: See figure 8</p> <ul style="list-style-type: none"> <li>• Start-up mode: it shows the current date and time during the start-up of the machine. It also displays the software version installed. The user is not able to undertake any action.</li> <li>• Navigation mode: it shows a program with its functions. The user can navigate through the different programs and view the current settings of each function.</li> <li>• Setting mode: Where the user can view and adjust all settings.</li> <li>• Cycle mode: When the machine has started a packaging cycle, animations of the functions are shown together with</li> </ul>

Figure 7	Element	Explanation
		the current values of the functions.
6	Control buttons	<ul style="list-style-type: none"> <li>There are five control buttons, to navigate through the navigation- and setting mode.</li> </ul>
7	Button on/off	<ul style="list-style-type: none"> <li>This button turns on/off the machine.</li> </ul>

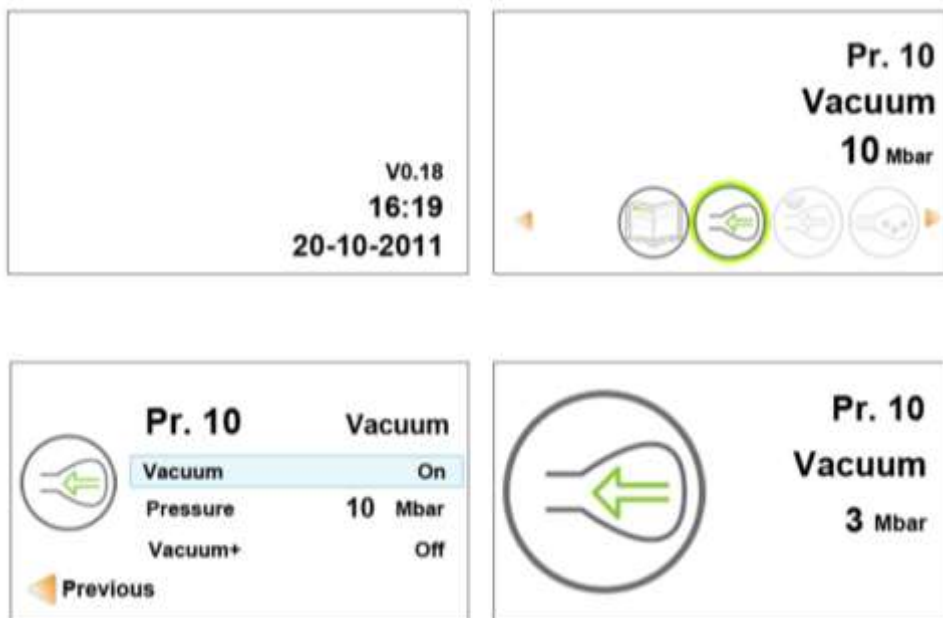



Figure 8: Four possible modes of the screen

## 2.6.2. Settings

	FUNCTION
	<ul style="list-style-type: none"> <li>To avoid unauthorised changing of settings and adjustments, there are three different levels of authorisation. With an authorisation code you can access the different levels.</li> <li>Users have limited access in changing the settings of the machine. They can only adjust the printer settings through the printer icon in the navigation mode.</li> <li>Owners of the machine are authorized to change the machine settings and all functions settings. An authorization code is requested, when the 'enter' button is pressed while the menu icon is selected in the navigation mode. When the owner's code has been put in, the machine settings menu will be opened. When logged in, the function settings can be changed as well. To do so, you need to go back to the navigation mode by pressing 'left' ◀.</li> <li>The users authorization code: 0000</li> <li>The owners authorization code: 1324</li> </ul>



**ATTENTION!**

- The machine will remember the last used authorization mode, even when the machine has been shut down. Therefore you might need to manually change the authorization setting after you have finished.

No.	What to do	Action	Result
1	Select another setting	<ul style="list-style-type: none"> <li>• Press 'up' ▲ or 'down' ▼</li> </ul>	
2	Edit selected setting	<ul style="list-style-type: none"> <li>• Press 'enter'</li> </ul>	
3	Adjust variable	<ul style="list-style-type: none"> <li>• Use 'up' ▲ or 'down' ▼</li> </ul>	
4	Confirm variable	<ul style="list-style-type: none"> <li>• When the desired setting is found, press 'enter'</li> </ul>	
5	Back to navigation mode	<ul style="list-style-type: none"> <li>• When all settings are set, press 'left' ◀ to return</li> </ul>	

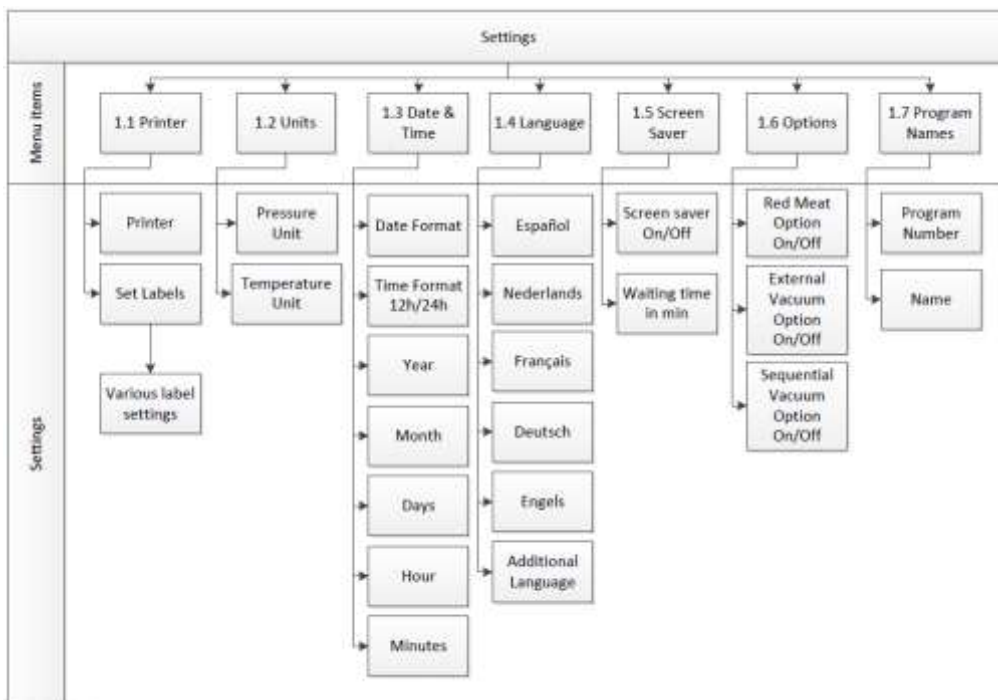




Figure 9: Settings overview: The sitemap shows all possible settings for all functions

### 3. Safety

#### 3.1. General

	<ul style="list-style-type: none"> <li>• Never pack products that can be damaged by the vacuum</li> <li>• Never vacuumize alive animals.</li> <li>• The guarantee and / or liability expires if damage is caused by repairs and/or changes not made by supplier or one of its authorized distributors.</li> <li>• In the case of malfunctions contact the supplier.</li> <li>• High pressure cleaning is not permitted. This can cause damage to electronics and other parts.</li> <li>• Avoid water entering either the extraction nozzle of the chamber or the blow-off opening of the pump. This causes irreversible damage to the pump.</li> <li>• The working space around the installation must be safe. The installation's owner has to take the necessary safety precautions that are required to be able to operate the installation safely.</li> <li>• It is prohibited to start the installation in an area with a danger of explosion.</li> <li>• The installation was developed in such a way that production is safe in normal control circumstances.</li> <li>• The installation's owner must ensure that the instructions of this user manual are followed.</li> <li>• The safety protection devices present may not be removed.</li> <li>• The correct operation and safety of the system can only be guaranteed if the maintenance is carried out correctly and on time as prescribed.</li> <li>• If any work has to be carried out on the installation, the installation must be disconnected and locked from the power supply, and if applicable from air supply and flush gas.</li> <li>• Resetting the emergency stop is only permitted if there is certainty that the installation is used safely and that no one is in the working space.</li> </ul>
---	--

	<ul style="list-style-type: none"> <li>• Only authorised people indicated by the employer may carry out work on the electrical installation.</li> <li>• Keep electrical control cabinets closed to prevent contact with high voltage parts.</li> <li>• Ensure through internal procedures and surveillance that all applicable power supplies are switched off.</li> <li>• The installation may not be used during inspection and maintenance and the main switch needs to be turned off and blocked.</li> <li>• For repairs or maintenance to the electrical circuit, switch off the main power supply and block it.</li> <li>• Never carry out any welding work on the installation without disconnecting the cable connection to the electrical components first.</li> <li>• Never use the power supply of the control cabinet to connect other machines.</li> <li>• All electrical connections have to be connected to the terminal strips according to the electrical diagram.</li> </ul>
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### 3.2. During normal use




- Before starting up the installation, make sure that no work is being carried out on the installation and it is ready for use.
- Unauthorised persons are not allowed to enter the installation area. Ensuring this is the task of the machine operator(s).
- Contact the service engineer of your technical department or dealer immediately if changes like lid adjustment, unusual vibrations or unusual noise appear.
- Parts of the sealing system can reach a high temperature. Contact with these parts can cause injuries.

### 3.3. Operating staff




- Operating staff must be 18 years or older.
- Only people, who are authorised to do so, may work with or on the installation.
- Only work for which one has been trained may be carried out. This applies to maintenance work as well as normal use.
- The installation may only be operated by **trained** staff.
- The operating staff must be familiar with all situations, so fast and effective action can be taken in case of emergencies.
- If the operating staff notices any errors or dangers, or disagrees with the safety measures, they have to report to the owner or the supervisor.
- Earplugs are compulsory.
- Safety shoes are compulsory.
- Proper working clothing is compulsory.
- Everybody needs to meet the safety regulations, if not; they could endanger themselves or others. Always meet work instructions strictly.

## 4. Installation

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>Consult chapter 1: Technical data for the correct specifications concerning placement and connections.</li> </ul>
---	--

### 4.1. Transportation and placement

	<p><b>ATTENTION</b></p> <ul style="list-style-type: none"> <li>The machine must be moved or transported in an upright position</li> <li>Transportation of the machine by crane is not possible.</li> <li>Transportation of the machine by forklift is possible taken in account the guidelines of Figure 10.</li> <li>Place the machine on a flat, level surface. This is essential for problem free operation of the machine.</li> <li>Moving the machine on its wheels on an uneven floor can result in loss of stability of the machine. Always move slowly and carefully.</li> <li>Enough space must be left around the machine for good ventilation. The space must be at least 5 centimetres.</li> <li>Take account of the instructions in chapter 3 for all actions to be carried out. Not following up or ignoring these can lead to serious injury.</li> <li>Make sure all the wheel brakes are engaged before the machine is switched on.</li> <li>Make sure all the covers are put in place.</li> </ul>
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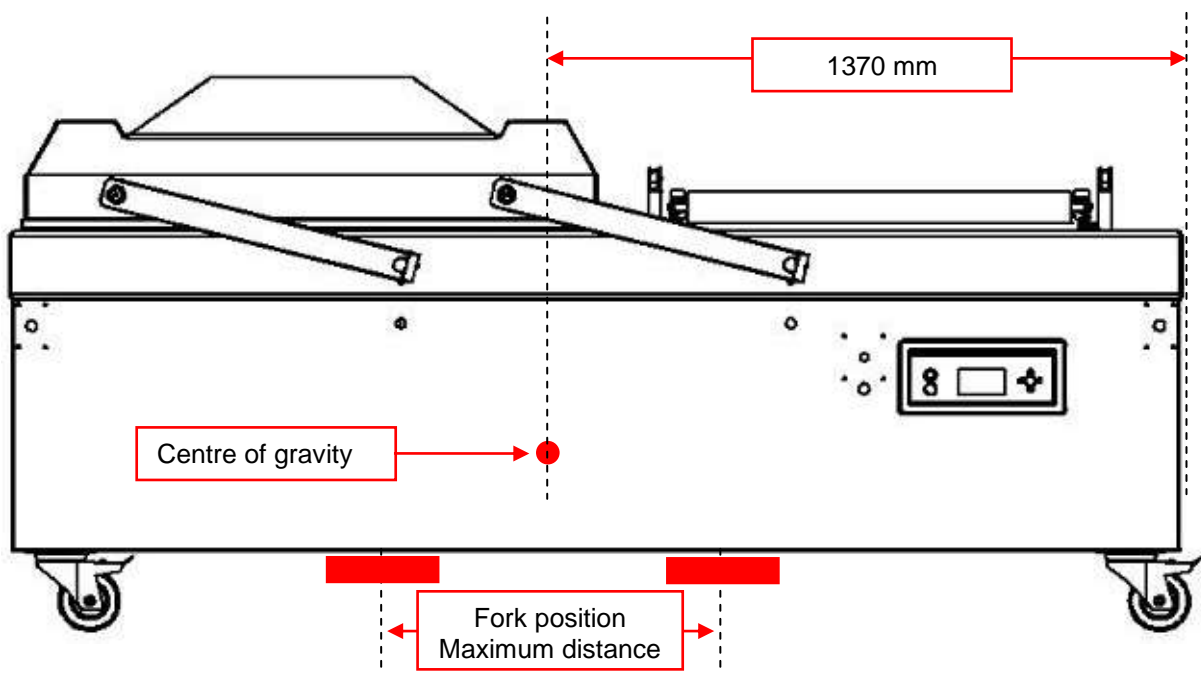

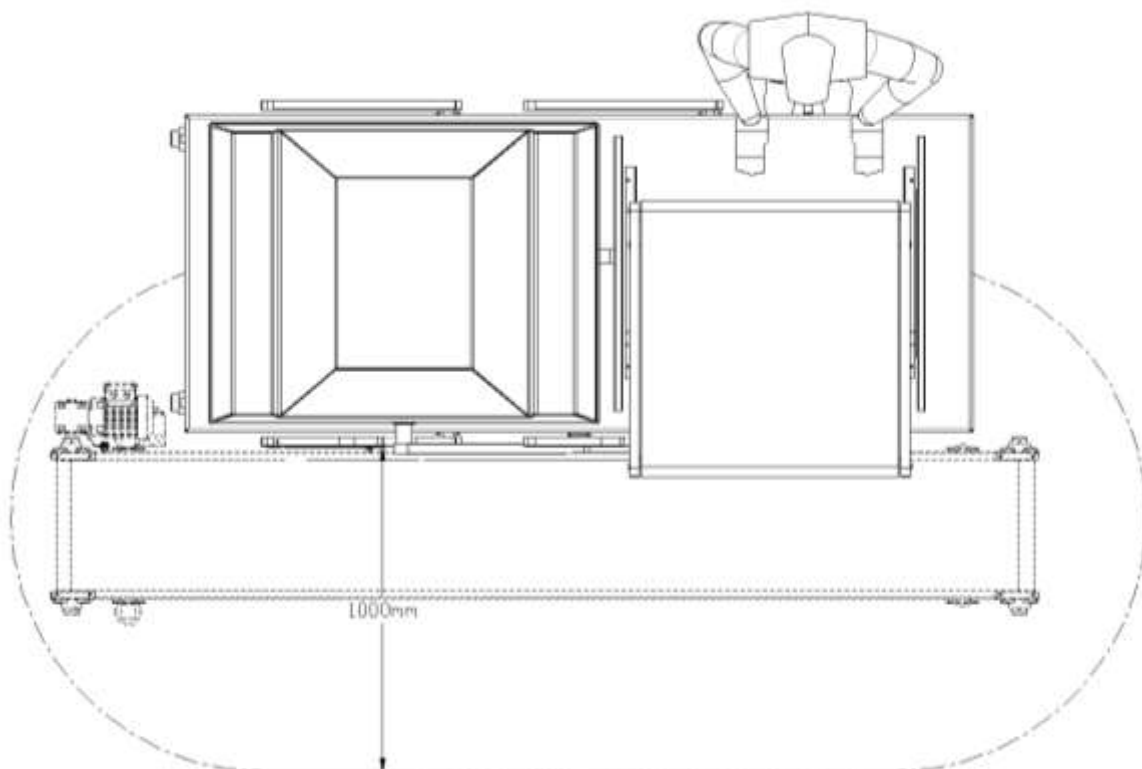


Figure 10: lifting points forklift


## 4.2. Close off the rear side of the machine.

	<p style="text-align: center;"><b>ATTENTION</b></p> <ul style="list-style-type: none"><li>• The operation side is the front side. On this side squeezing between the parallel arms and the machine frame at the rotation point is protected with safety edges.</li><li>• It is the responsibility of the user to avoid access to the rear side and squeezing between the parallel arms or moving conveyor belts if the machine is used in automatic mode.</li><li>• Avoiding access can be achieved by placing fences, tables or conveyor belts to the back side of the machine.</li><li>• Consult EN ISO 13857 for the safety distances you need to respect.</li></ul>
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**Figure 11: Avoiding access can be achieved by placing fences, tables or conveyor belts.**

### 4.3. Connecting the machine

	<p><b>ATTENTION</b></p> <ul style="list-style-type: none"><li>• Check that the voltage stated on the machine tag is the same as the mains voltage.</li><li>• Mount according to local legislation and connection data (see chapter 1) the correct plug on the cable.</li><li>• Always connect the machine correctly to an earthed socket to avoid a fire hazard or electrical chocks (earth connection is green/yellow).</li><li>• Check the correct rotation direction of the vacuum (Figure 12). Operating the machine with an incorrect rotation direction will result in pump damage and a bad vacuum level. After you connect the machine to another 3 phase power supply the rotation direction must be checked again. If the rotation direction is incorrect 2 fazes must be interchanged in the plug. Only electrical engineers are allowed to work on the electrical installation.</li><li>• The power cable must always be free and nothing may be placed on it.</li><li>• Replace the power cable immediately if it is damaged.</li><li>• Connect the machine to the air supply. Use a quick connector or lockable shut-off valve to disconnect in case of for instance maintenance easy.</li><li>• Connect the flush gas (if applicable) Use a quick connector or lockable shut-off valve to disconnect in case of for instance maintenance easy.</li><li>• Connect the air supply for extra seal pressure (if applicable). Use a quick connector or lockable shut-off valve to disconnect in case of or for instance maintenance easy.</li></ul>
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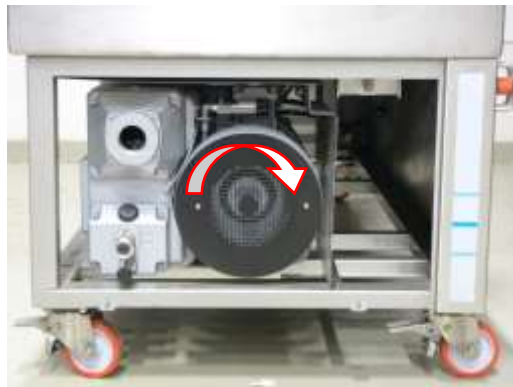


Figure 12: rotation direction vacuum pump motor

#### 4.4. Starting the machine for the 1<sup>st</sup> time



##### ATTENTION

- Check if there is enough oil in the pump (Figure 5:4). If not, please fill oil.
- Start up and use the machine (chapter **Fout! Verwijzingsbron niet gevonden.**)

## 5. Operation


	<p><b>ATTENTION</b></p> <ul style="list-style-type: none"> <li>• Take account of the instructions in chapter 3 for all actions to be carried out. Not following up or ignoring these can lead to serious injury.</li> </ul>
--	---

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>• Henkelman has provided the machine with sample programs.</li> <li>• It is possible to optimise these program for your products by changing the parameters of the programs see chapter 5.6</li> </ul>
--	---

### 5.1. Starting-up


No:	What to do	Action	Result
1	Switch on the power	<ul style="list-style-type: none"> <li>• Switch on the main switch of the main control cabinet (Figure 6:3).</li> </ul>	The control is ready for use
2	Switch on the compressed air	<ul style="list-style-type: none"> <li>• Open the valve/ connect the quick connector.</li> </ul>	The pneumatics are ready for use
3	Connect the seal pressure (if applicable)	<ul style="list-style-type: none"> <li>• Open the valve/ connect the quick connector.</li> </ul>	The seal pressure is ready for use
4	Switch on the Machine	<ul style="list-style-type: none"> <li>• Operate the On/ Off button (Figure 7:7)</li> </ul>	The machine is ready for use
5	Reset the controls	<ul style="list-style-type: none"> <li>• Push button reset (Figure 7:2)</li> </ul>	

## 5.2. Production

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>The Titaan can be used for automatic or manual production. In manual mode you'll have to move the lid manually to the next position and remove the vacuumed product from the other position. In automatic mode you only have to put the vacuum bag with the product in position manually, all the other actions are being performed automatically.</li> </ul>
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No.	What to do	Action	Result
1	Make sure the installation has started up	<ul style="list-style-type: none"> <li>See chapter 5.1</li> </ul>	
2	Select the desired program	<ul style="list-style-type: none"> <li>Use the control buttons 'up' ▲ or 'down' ▼ (Figure 7:6).</li> </ul>	
3	Select the production mode.	<ul style="list-style-type: none"> <li>Put the production mode switch (Figure 7:1) in manual or automatic mode.</li> </ul>	
4	Put the 1 <sup>st</sup> products in position	<ul style="list-style-type: none"> <li>Put the products in the vacuum bag.</li> <li>Place the bag onto the conveyor belt. Make sure that the opening(s) are positioned correctly on the sealing position(s)</li> </ul>	
5	Start the process.	<ul style="list-style-type: none"> <li>Close the lid.</li> </ul>	The packaging cycle starts.
6	Put a product on the next position	<ul style="list-style-type: none"> <li>See step 4</li> </ul>	
7a	Proceed: automatic mode selected.	<ul style="list-style-type: none"> <li>After the packaging cycle is ready automatically the lid moves to the other position and the conveyor belt brings the sealed product to the next position.</li> <li>Repeat step 6 until the all the products are vacuumed.</li> </ul>	
7b	Proceed: manual mode selected.	<ul style="list-style-type: none"> <li>After the packaging cycle is ready the lid will open.</li> <li>Move the lid manually to the other position and close is.</li> <li>Remove the sealed product from the conveyor belt.</li> <li>Repeat step 6 and 7b until the all the products are vacuumed.</li> </ul>	

### 5.3. Move to the next cycle step

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>For some products it can be necessary to move in the packaging cycle to the next step in the program before the vacuuming time or level is reached.</li> </ul>
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No.	What to do	Action	Result
1	Move to the next step in the packaging cycle.	<ul style="list-style-type: none"> <li>Push “right button (▶)” (Figure 7:6)</li> </ul>	The next step is started

### 5.4. Stop program

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>Programs like packaging programs or the oil cleaning program can be stopped at any moment.</li> </ul>
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No.	What to do	Action	Result
1	Stop the program	<ul style="list-style-type: none"> <li>Push “stop button” (Figure 7:4)</li> </ul>	The program is stopped and the vacuum chamber will be aerated.

### 5.5. Reset after emergency stop

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>After an emergency stop is pushed or after the parallel arm safety switch has been activated, the controls must be reset.</li> </ul>
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No.	What to do	Action	Result
1	Rectify the cause of the emergency stop	<ul style="list-style-type: none"> <li>Make sure the installation is safe before resetting.</li> </ul>	
2	Readjust the emergency stop button	<ul style="list-style-type: none"> <li>Extract the button or release the button depending on the type.</li> </ul>	
3	Reset the emergency stop	<ul style="list-style-type: none"> <li>Press the reset button (Figure 7:1) on the control panel</li> </ul>	The installation is ready for use



## 5.6. Change the program settings


	<p><b>FUNCTION</b></p> <p>Users can view machine programs and the active functions in the navigation mode. This is the mode that appears immediately after the start up. Figure 13 shows a screenshot of this mode.</p>
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Figure 7	Element	Explanation
1	Program Number/Name	<ul style="list-style-type: none"> <li>The program represents the current selected pre-set program. By switching to another program, other functions will be active. The program choice depends on the product that will be packaged.</li> </ul>
2	View the functions	<ul style="list-style-type: none"> <li>These functions are active or inactive. If the function is activated, it will be displayed in colour tone. When it is inactive it is displayed in soft tone.</li> <li>If the Plus functions are activated, the + illustration is displayed in colour. If inactive they are displayed in soft tone</li> </ul>
3	Function active/inactive	<ul style="list-style-type: none"> <li>The selected function is highlighted by the green circle. The name and current value of this function appears on the screen.</li> </ul>
4	Menu	<ul style="list-style-type: none"> <li>Machine settings can be adjusted through the menu icon on the left in the function overview.</li> </ul>

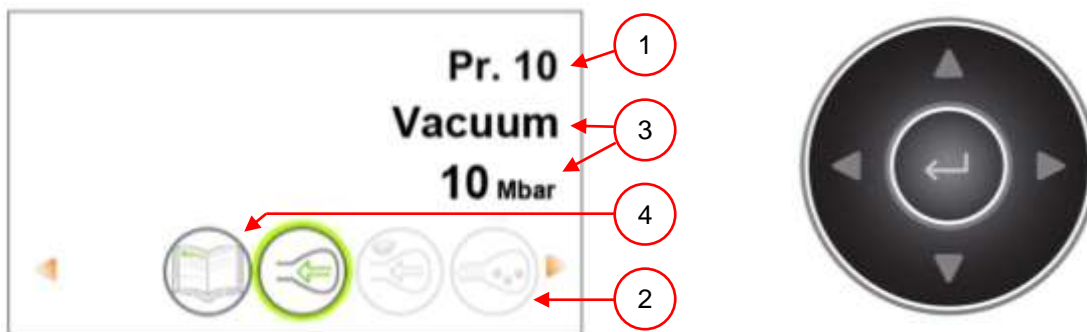



Figure 13: Program screen and control buttons


No.	What to do	Action	Result
1	Select the desired program	<ul style="list-style-type: none"> <li>Use the control buttons 'up' ▲ or 'down' ▼</li> </ul>	
2	View the functions	<ul style="list-style-type: none"> <li>Use the control buttons 'left' ◀ or 'right' ▶.</li> </ul>	
3	View/edit function settings	<ul style="list-style-type: none"> <li>Press 'enter' when the function is selected. Users can view the pre-set settings and the owner can also edit them. (see section 5.7)</li> </ul>	
4	Edit machine settings	<ul style="list-style-type: none"> <li>Press 'enter' when the menu is selected (only accessible for the owner) (see section 6.2.6)</li> </ul>	

## 5.7. Guideline for function values

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>For each function, values can be set when you are authorized as an Owner. In order to understand the consequence of the set value, the table below explains the consequences of giving a low or high value for each function.</li> </ul>
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Function	Range	Conditions
Vacuum	2-700 mbar 30-99.8%	<ul style="list-style-type: none"> <li>As a rule of thumb: the higher the vacuum, the less oxygen remains in the package and thus the longer is the shelf life of the product. There are exceptions to this rule.</li> </ul>
Vacuum +	0-20 sec	<ul style="list-style-type: none"> <li>This is the time that the vacuuming continues after the maximum vacuum has been reached. This to allow entrapped air to escape from the product. Remark: vacuum must be set to 99%.</li> </ul>
Red Meat	2-700 mbar 30-99.8%	<ul style="list-style-type: none"> <li>As a rule of thumb: the higher the vacuum, the less oxygen remains in the package and hence the longer the shelf life of the product.</li> </ul>
H <sub>2</sub> O	2-700 mbar	<ul style="list-style-type: none"> <li>If the pressure decreases, the boiling temperature of water decreases. This law of physics might cause a product to boil. Besides polluting the machine this creates a weight and quality loss to the product that is being packed. By enabling the H<sub>2</sub>O function, this special sensor will detect this point of evaporation and arranges the program to continue from vacuuming to sealing. The value that can be set is the maximum vacuum value that can be reached. Please note that this vacuum value can only be reached if the product does not start to boil.</li> </ul>
H <sub>2</sub> O Plus	0.1-5.0 sec	<ul style="list-style-type: none"> <li>This is the time that the vacuuming continues after detecting the evaporation point. Because of the evaporation there might occur a minor shockwave pushing all remaining air from the bag. The best way to determine the right time is trial and error.</li> </ul>
Sequential Vacuum	2-700 mbar 30-99.8%	<ul style="list-style-type: none"> <li>In case the Vacuum Plus time is not effective enough to allow entrapped air to escape, the Sequential Vacuum should be enabled. In a maximum of 5 steps vacuuming is alternated with a holding time. Each step creates a deeper vacuum than the previous step.</li> </ul>
Seal time 1-2 Cut-Off time	0,1-6,0 sec	<ul style="list-style-type: none"> <li>This is the time that sealing wire and/or the cut-off wire is heated. The longer the time, the more heat is transferred to the bag.</li> </ul>
Soft-air	1-20 sec	<ul style="list-style-type: none"> <li>The time that the air is softly released in the chamber after sealing has taken place. To best way to determine the right time is trial and error.</li> </ul>
Pump Cleaning	15 minutes	<ul style="list-style-type: none"> <li>No settings to be determined</li> </ul>

## 6. Maintenance

	<p><b>ATTENTION!</b></p> <ul style="list-style-type: none"> <li>• Always disconnect the machine from the power supply using the main switch to “0” or by disconnect the power plug.</li> <li>• Always disconnect the air supply (if applicable)</li> <li>• Test the installation after maintenance work or failure finalisations have been carried out so there is certainty that the installation can again be used safely.</li> <li>• Only trained technicians are allowed to perform the described maintenance activities.</li> </ul>
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### 6.1. Maintenance diagram

The diagram below indicates the maintenance activities that have to be carried out.

Activity	lubricant	Daily	Weekly	Every 6 months	Yearly	Every 4 years	See section
<b>Cleaning</b>							
Clean the machine							6.2
<b>Lubrication</b>							
Lubricate the grease nipples of the parallel arms	Bearing grease						2 ( Figure 1:5)
Change the oil and the oil filter of the vacuum pump	VG100 See chapter 1						0
<b>Inspections</b>							
Check the oil level							2.3 / 0
Run the Oil cleaning program							6.3
Inspect the sealing bars							6.6
Inspect the silicon rubber of the silicon holders							0
Inspect the lid gasket							6.8
Inspect the lid springs. Pay special attention for the attachment, adjustment and damages							Service manual
<b>Replacements</b>							
Replace the sealing wires							6.6
Replace the silicon rubber of the silicon holders							0
Replace the lid gasket							6.8

Replace the oil exhaust filter							6.5
Replace oil filter							
Contact your dealer for a professional service							

## 6.2. Cleaning the machine


	<b>EXPLANATION</b>
	<ul style="list-style-type: none"> <li>• It is not allowed to clean the machine using a high pressure water cleaner</li> <li>• Don't use aggressive or toxic cleaning agents.</li> <li>• Don't use cleaning agents containing solvents.</li> </ul>

No.	What to do	Action	Result
1	Loosen the conveyor belts	<ul style="list-style-type: none"> <li>• Disassemble the conveyor belt as described in chapter 6.9 to make it possible to lift the conveyor belt and put it on the stand, delivered with the machine. (Figure 3). Now it is easy to clean underneath the conveyor belts</li> </ul>	
2	Clean the machine	<ul style="list-style-type: none"> <li>• You can clean the surfaces using a soft damp cloth or you apply your cleaning agent to the machine and rinse it of using clean water</li> </ul>	



Figure 14: Use the provided stand to hold the conveyor belt in upper position for cleaning purposes.


## 6.3. Oil cleaning program

	<b>EXPLANATION</b>
	<ul style="list-style-type: none"> <li>• The oil cleaning program runs the vacuum pump during 15 minutes. During the program the pump and the oil reaches operation temperature. Moisture in the pump is absorbed by the oil. The high temperature enables the moisture in the pump to evaporate and to minimise the risk for corrosion.</li> </ul>

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No.	What to do	Action	Result
1	Select the desired program	<ul style="list-style-type: none"> <li>Use the control buttons 'up' ▲ or 'down' ▼ (Figure 7:6).</li> </ul>	
2	Start the process.	<ul style="list-style-type: none"> <li>Close the lid.</li> </ul>	The oil cleaning program starts to run for 15 minutes.

#### 6.4. Add oil / Change the oil and oil filter of the vacuum pump

	<p><b>WARNING</b></p> <ul style="list-style-type: none"> <li>The oil in the vacuum pump can be hot. During changing the oil contact with hot oil is possible.</li> </ul>
---	--


- Add oil

No.	What to do	Action	Result
1	Add oil	<ul style="list-style-type: none"> <li>Remove the oil fill plug (Figure 3:6).</li> <li>Add oil until the oil level is between "max" and "min" level (Figure 3:4)</li> <li>Replace the oil fill plug</li> </ul>	

- Change oil and oil filter

No.	What to do	Action	Result
1	Remove the oil.	<ul style="list-style-type: none"> <li>Place a receiving bin under the oil drain plug (Figure 3:5).</li> <li>Remove the oil drain plug (Figure 3:5).</li> <li>Put the oil drain plug back in position.</li> </ul>	The oil runs out of the pump
2	Change the oil filter	<ul style="list-style-type: none"> <li>Remove the old oil filter (Figure 3:1).</li> <li>Mount a new oil filter.</li> </ul>	
3	Fill with new oil	<ul style="list-style-type: none"> <li>Remove the oil fill plug (Figure 3:6).</li> <li>Add oil until the oil level is between "max" and "min" level (Figure 3:4)</li> <li>Replace the oil fill plug</li> </ul>	

## 6.5. Changing the oil exhaust filter (vacuum pump maintenance)

	<b>EXPLANATION</b>
	<ul style="list-style-type: none"> <li>• The oil exhaust filter prevents oil mist in being discharged with the exhaust air of the vacuum pump.</li> <li>• If the filter gets saturated it is no longer possible to achieve maximum vacuum.</li> <li>• Replace the filter in case of vacuum problems or according to chapter 6.1 maintenance diagram.</li> </ul>

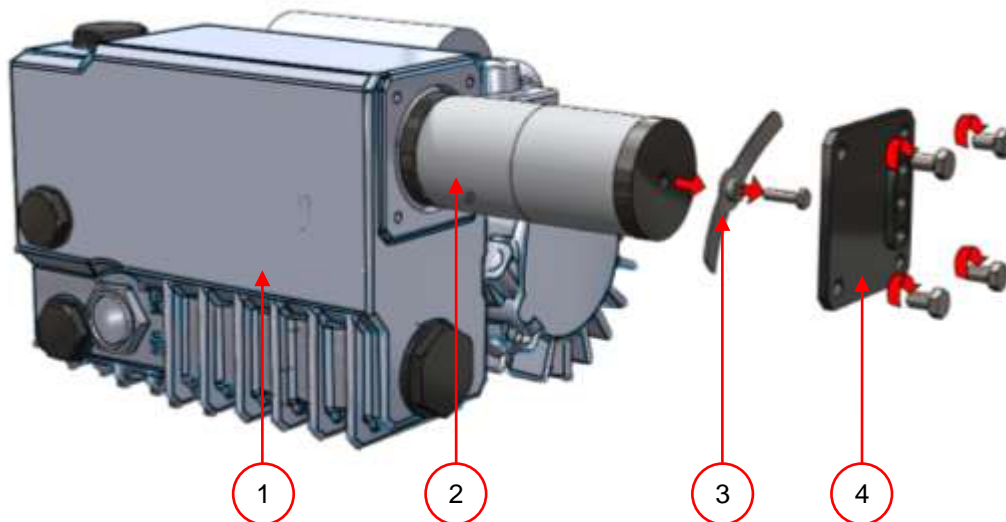



Figure 14: change the oil exhaust filter

No.	What to do	Action	Result
1	Remove the oil exhaust filter.	<ul style="list-style-type: none"> <li>• Remove the filter cover (Figure 14:4) from the vacuum pump (Figure 14:1)</li> <li>• Remove the spring plate (Figure 14:3)</li> <li>• Remove the old filter (Figure 14:2)</li> </ul>	
2	Mount the new filter	<ul style="list-style-type: none"> <li>• Put the new filter in the vacuum pump.</li> <li>• Make sure the O-ring is placed correctly at the filters inlet.</li> <li>• Mount the spring plate</li> <li>• Mount the filter cover</li> </ul>	

## 6.6. Replacing the seal wire

	EXPLANATION
	<ul style="list-style-type: none"> <li>• Depending on your machine specification you can have one of the following seal wire combinations:               <ul style="list-style-type: none"> <li>○ Wide seal: one wide seal wire</li> <li>○ Cut-off seal: A seal wire + cut-off wire.</li> <li>○ Double seal: two seal wires.</li> <li>○ Bi-active seal: a seal bar on both sides.</li> </ul> </li> <li>• The process of replacing the seal wires is the same for all combinations.</li> <li>• For bi-active sealing systems make sure that the upper and lower seal wires are lined up exactly during sealing.</li> <li>• Replace the seal wires if the wire or the Teflon tape are damaged or according to 6.1 maintenance diagram.</li> </ul>

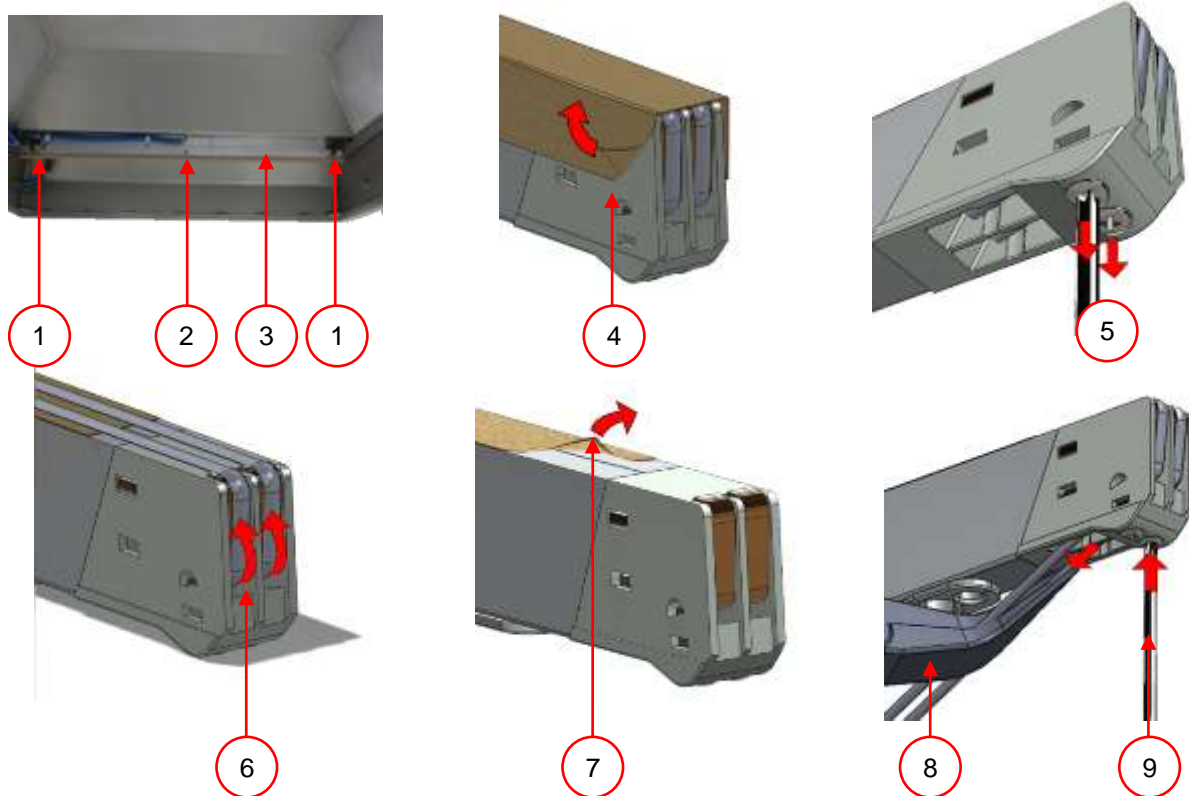



Figure 15: replacing the seal wire

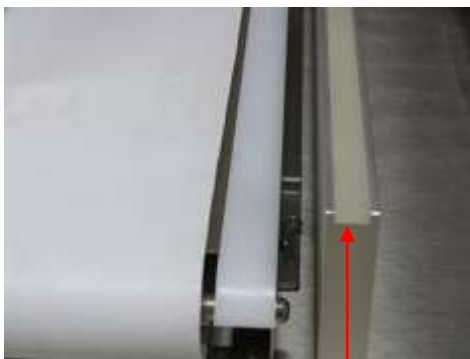
No.	What to do	Action	Result
1	Remove the seal bar	<ul style="list-style-type: none"> <li>• Remove the seal bar from the holders (Figure 15:3) by disconnecting the electrical connection plugs (Figure 15:1) (2x) and removing the M6 screw (Figure 15:2)</li> </ul>	

2	Remove the Teflon tape.	<ul style="list-style-type: none"> <li>• Pull off the Teflon tape (Figure 15:4) which is protecting the seal wires.</li> </ul>	
3	Remove the old seal wire(s)	<ul style="list-style-type: none"> <li>• Remove the screws (Figure 15:5) at the bottom of the seal bar and remove the seal wires (Figure 15:6).</li> </ul>	
4	Replace the Seal Bar Teflon tape	<ul style="list-style-type: none"> <li>• Pull the Teflon tape of the top of the seal bar. (Figure 15:7)</li> <li>• Clean the seal bar with a dust free cloth</li> <li>• Put a new piece of Teflon tap with the same length on the top of the sealbar.</li> </ul>	
5	Replace the seal wire(s)	<ul style="list-style-type: none"> <li>• Cut a new piece of sealing wire or cut-off wire to the size of the seal bar plus about 15 cm (6 inches).</li> <li>• First attach the wire on one side of the seal bar by fastening the screw (Figure 15:5).</li> <li>• Bring the other side of the wire in position and, straighten and tension it with a plier and fasten it by tightening the screws</li> <li>• Cut the wire ends at both sides.</li> <li>• Cut the access of the tape</li> </ul>	
6	Replace the seal wire Teflon tape.	<ul style="list-style-type: none"> <li>• Cut a piece of Teflon tape as long as the seal bar plus about 5 cm (2 inches)</li> <li>• Stick the tape smoothly and without folds over the seal wires onto the seal bar.</li> </ul>	
7	Replace the seal bar	<ul style="list-style-type: none"> <li>• Put the seal bar back in its position (Figure 15:3), fasten the screw (Figure 15:2) and attach the electrical connections (2x) (Figure 15:1).</li> </ul>	



## 6.7. Replacing the silicon rubber of the silicon holder

	<b>EXPLANATION</b>
	<ul style="list-style-type: none"> <li>• To obtain a good seal quality the silicon rubber should not be damaged and the surface must be even.</li> <li>• Damages can be caused by burning by the sealing wire or by mechanical contact.</li> <li>• Replace the silicon rubber if it is damaged or according to chapter 6.1 maintenance diagram.</li> </ul>




1

**Figure 16: replacing the silicon rubber of the silicon holder**

No.	What to do	Action	Result
1	Remove the old silicon rubber	<ul style="list-style-type: none"> <li>• You can pull the old silicon rubber (Figure 16:1) from the holder</li> </ul>	
2	Cut the new silicon rubber.	<ul style="list-style-type: none"> <li>• Cut a new piece of rubber. Make sure it is as long as the holder.</li> <li>• The size is very important, too short or too long will cause problems with sealing</li> </ul>	
3	Replace the new silicon rubber	<ul style="list-style-type: none"> <li>• Replace the new piece in the silicon holder by pressing it into the slot</li> <li>• Ensure that the silicone rubber is completely and evenly placed in the slot. It is also important that the surface of the silicone rubber is smooth after it is in place and doesn't show any signs of tension</li> </ul>	

## 6.8. Replacing the lid gasket

	<b>EXPLANATION</b>
	<ul style="list-style-type: none"> <li>The lid gasket ensures that the vacuum chamber is completely closed during the machine cycle. This is essential for achieving a maximum vacuum. The lid gasket wears due to the extreme pressure differences and must be replaced regularly.</li> <li>Replace the lid gasket if it is damaged or according to chapter 6.1 maintenance diagram.</li> </ul>




1

**Figure 17: replacing the lid gasket**

No.	What to do	Action	Result
1	Remove the old gasket	<ul style="list-style-type: none"> <li>You can pull the old gasket rubber. (figure 17:1)</li> </ul>	
2	Cut the new gasket.	<ul style="list-style-type: none"> <li>Cut a new piece of rubber. Best is to make it oversized.</li> <li>The ends must be cut straight</li> <li>When the lid rubber is too short or too long it can cause problems closing the lid or leak</li> </ul>	
3	Replace the new gasket	<ul style="list-style-type: none"> <li>Replace the new piece of gasket by pressing it into the lid. The lip of the gasket should be pointing down and outwards.</li> <li>The rubber must be placed evenly and without tension in the holder. The ends must be laid tightly against each other to avoid leakage.</li> </ul>	

## 6.9. (Dis) assemble conveyor belt

	<b>EXPLANATION</b>
	<ul style="list-style-type: none"> <li>• For cleaning and maintenance purposes the conveyor belt can be disassembled.</li> <li>• For cleaning purposes it can be enough to disassemble one side of the conveyor belt after which you can lift up the conveyor belt on one side (See section 6,2) so you can clean underneath.</li> </ul>

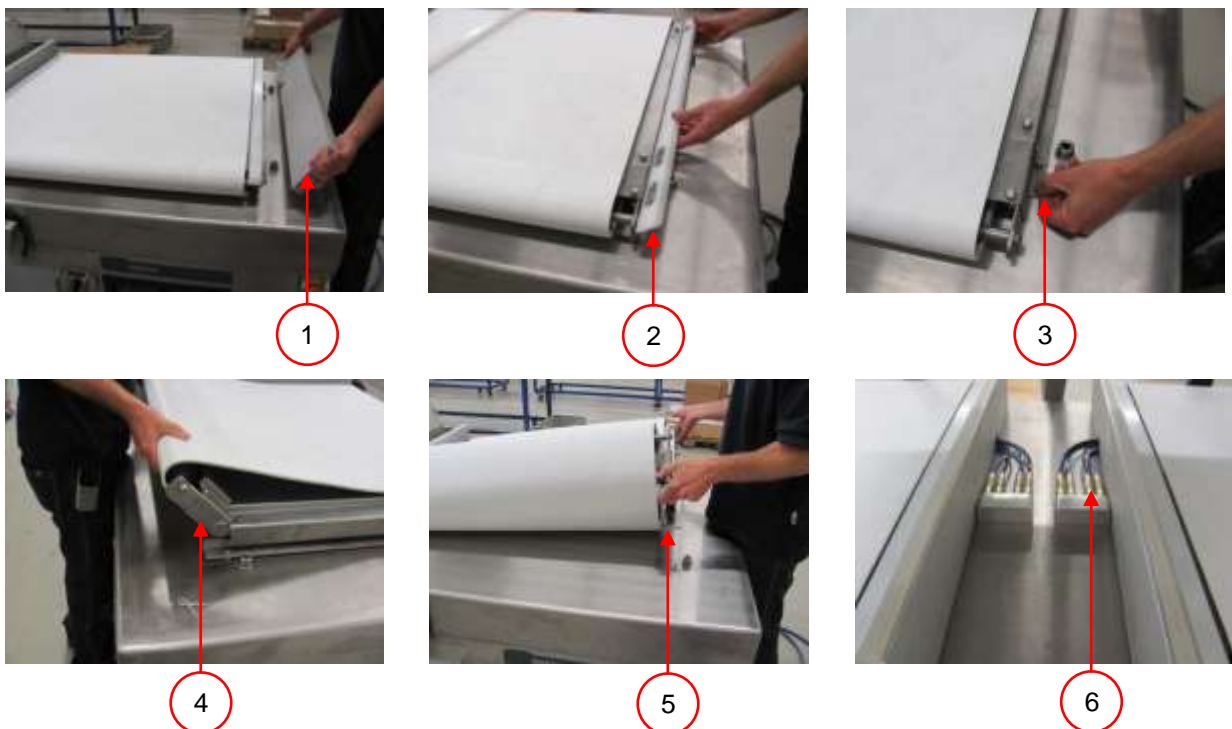



Figure 18: (dis)assemble conveyor belt

- **Disassemble**

No.	What to do	Action	Result
1	Remove the silicon holder(s) from one side	<ul style="list-style-type: none"> <li>• You can lift the silicon holder (Figure 18:1) from its notches and remove it.</li> </ul>	
2	Remove the cover(s) from one side	<ul style="list-style-type: none"> <li>• Slide the cover (Figure 18:2) towards the operation side of the machine.</li> <li>• After this you can lift the cover and remove it.</li> </ul>	

3	Remove the split pins from one side	<ul style="list-style-type: none"> <li>Pull the split pins (Figure 18:3) out of the connection point.</li> </ul>	You can lift the conveyor belt on one side. This makes cleaning underneath the conveyor belt possible
4	Untighten the belt.	<ul style="list-style-type: none"> <li>Pull the belt roller on the operation side of the machine out of its locked position (Figure 18:4).</li> </ul>	The belt can be removed if you lift the conveyor belt on one side
5	Remove the complete conveyor belt	<ul style="list-style-type: none"> <li>Disconnect the other side of the conveyor belt by repeating step 1 – 3.</li> <li>Disconnect the air connections (Figure 18:6).</li> <li>Lift the conveyor belt from the machine. Due to the weight lift it with 2 persons or use lifting aids.</li> </ul>	

• **Assemble**

	<p><b>EXPLANATION</b></p> <ul style="list-style-type: none"> <li>For assembly follow the disassembly procedure in the opposite sequence.</li> <li>Before tightening the belt on the rollers make sure that it is positioned correctly. The guidance edges of the belt must run beside the rollers.</li> </ul>
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## 7. Trouble shooting

The tables below indicate possible breakdowns with the corresponding cause and the steps to be taken.

<b>Failure</b>	<b>Activity</b>	<b>See section</b>
Control panel is not illuminated	<ul style="list-style-type: none"> <li>• Connect the machine to the power socket.</li> <li>• Check / replace the circuit breaker</li> </ul>	2.6
Control panel is on but no activity after closing the lid	<ul style="list-style-type: none"> <li>• Check / adjust the lid switch</li> </ul>	Contact your supplier
Insufficient end-vacuum	<ul style="list-style-type: none"> <li>• Check / adjust vacuum settings of the program.</li> <li>• Check if extraction opening is not covered.</li> <li>• Check level of the oil pump.</li> <li>• Check / replace the oil exhaust filter.</li> <li>• Check/ replace the lid gasket.</li> </ul>	5.6 2.0 2.3 6.5 6.8
Vacuum process is slow	<ul style="list-style-type: none"> <li>• Check if the extraction opening is not covered.</li> <li>• Check level of the oil pump</li> <li>• Check / replace the oil exhaust filter.</li> </ul>	2.0 2.3 6.5
Vacuum bag is not properly sealed	<ul style="list-style-type: none"> <li>• Check / adjust sealing settings of the program.</li> <li>• Check / replace the Teflon tape and sealwires.</li> <li>• Check / replace the silicon in the silicon holder.</li> <li>• Check / clean the inside of the vacuum bag for contamination.</li> </ul>	5.6 6.6 0
The lid is not moving correctly	<ul style="list-style-type: none"> <li>• Check the air pressure</li> </ul>	1, 2.4

## 8. Terms of guarantee

- This manual has been established with care. Henkelman B.V. does not accept liability for errors in this manual and/or consequences of misinterpretation of the instructions.
- Henkelman B.V. is not liable for damages and/or problems that arise from using spare parts that are not supplied by Henkelman B.V.
- Henkelman B.V. reserves the right to change specifications and/or spare parts without prior notification.

### 8.1. Liability

1. We exclude all liability as far as it is not provided by law.
2. Our liability shall never exceed the total amount of the machine value in question.
3. Barring the generally applicable legal rules of public order and good faith we are not liable to pay for any damage of any sort whatsoever, directly or indirectly, including business losses, to movable or immovable property, or to persons, either at the opposing party as at third parties.
4. We are in any case not liable for damages arising from or cause by the use of the product supplied or by the unsuitability of it for the goal for which the other party purchased it.

### 8.2. Warranty

Subject to the following limitations, the warranty period for products supplied by Henkelman is at least 12 months, as of the date indicated on the purchase document. This warranty is limited to manufacturing and machining defects and does therefore not cover breakdowns involving any part of the product that is exposed to any form of wear and tear. Normal wear and tear that can be expected with the use of this product is therefore hereby excluded

1. Henkelman's responsibility is limited to replacing parts found to be defective; we shall not acknowledge claims for any other kind of damage or costs.
2. The guarantee automatically expires due to overdue or sloppy maintenance.
3. If there are doubts about the maintenance activities or if the machine fails to work correctly always contact the supplier.
4. The warranty does not apply if the defect is the result of incorrect or negligent use, or maintenance that is contrary to the instructions given in this manual.
5. The warranty lapses if repairs or modifications on the product have been carried out by third parties.
6. Defects due to damage or accidents deriving from outside factors are excluded from the warranty.
7. If we replace parts in compliance with the obligations of this warranty then the replaced parts become our property

The stipulations of the warranty and liability are part of the general terms and conditions of sales, which can be send to you if requested.

## 9. Removal

Do not dispose oil and parts with domestic waste. When replacing parts or oil at the end of the lifespan, make sure that all materials are collected and destroyed or reused in a lawful and eco-friendly manner.









## 10.2. Annexes

Henkelman BV  
Titaniumlaan 10  
5221 CK, 's Hertogenbosch  
The Netherlands

☎: +31-(0)73 621 3671

📠: +31-(0)73-622 1318

Email: [info@henkelman.com](mailto:info@henkelman.com)

Site: [www.henkelman.com](http://www.henkelman.com)