



# Vacuum Packaging Machine

# Boxer, Lynx, Neo, Toucan

## Dealer Manual



- The machine is not suitable for the packaging of toxic, corrosive, irritant or potentially explosive materials.
- All persons responsible for the operation of this machine must at least fully read and understand the chapters about the operation and safety provided in these operating instructions.
- All persons responsible for the assembly, installation, maintenance and/or repairs must fully read and understand these operating instructions.
- The user is at all times responsible for the interpretation and use of this manual. Contact the owner or the manager in case of questions or doubts about the correct interpretation.
- This manual should be kept near the machine and should be within reach for its users.
- All major maintenance work, modifications to the machine and observations must be kept in a logbook; see *Logbook* on page 104.
- Modifications to the installation/machine are not allowed without the prior written consent of the supplier.
- For specific maintenance work not included in this manual, please contact the supplier.
- Comply with the safety requirements as set out in *Safety* on page 9 at all times.
- The correct operation and safety of the system can only be guaranteed if the recommended maintenance is performed on time and properly.
- Illustrations shown may differ from your machine.

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Henkelman BV reserves the right to change specifications and/or spare parts without prior notice.

The content of this dealer manual may also be changed without prior notice.

For information about settings, maintenance and repairs not provided for in this dealer manual, please contact the technical department of your supplier.

Henkelman BV accepts no liability for damage and/or problems arising from the use of spare parts not supplied by Henkelman BV.

This dealer manual has been compiled with all possible care. Henkelman BV assumes no responsibility for any errors in this manual and/or the consequences of an erroneous interpretation of the instructions.

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# Contents

<b>List of Figures.....</b>	<b>7</b>
<b>1 Preamble.....</b>	<b>8</b>
<b>2 Safety.....</b>	<b>9</b>
2.1 List of the Symbols Used in this Manual.....	9
2.2 Pictograms on the Machine.....	9
2.3 General Warnings.....	10
2.4 Warnings During Use.....	11
2.5 Warnings for Operating Personnel.....	11
<b>3 Introduction.....</b>	<b>13</b>
<b>4 Description of the Machine.....</b>	<b>14</b>
4.1 Overview of the Main Components.....	14
4.2 Removing Front Panel (non Neo).....	15
4.3 Removing Front Panel Neo.....	15
4.4 Description of the Packaging Process/Machine Functions.....	16
4.4.1 Packaging Process/Machine Functions.....	17
4.4.2 General Functions.....	20
4.5 Sealing System.....	21
4.5.1 Pre-seal and After-seal Settings (10-Programme Control System).....	22
4.5.2 Pre-seal and After-seal Settings (ACS).....	22
4.5.3 Pre-seal and After-seal Settings (Neo).....	23
4.6 Vacuum Pump.....	24
4.7 Gas.....	25
4.8 Electrical Installation.....	26
<b>5 Installation.....</b>	<b>27</b>
5.1 Transportation and Installation.....	27
5.2 Connecting the Machine.....	27
5.3 Prior to the First Use.....	27
5.4 DIP Switch Settings (10-Programme Control System).....	28
5.5 Start-up Codes / DIP Switch Control Panel.....	28
<b>6 Operation Boxer, Lynx and Toucan.....</b>	<b>30</b>
6.1 Operating Elements of the 10-Programme Control System.....	30
6.2 Operating Elements of the Advanced Control System (ACS).....	31
6.2.1 Changing the ACS Settings.....	32
6.2.2 Importing/Exporting Data.....	36
6.2.3 Data Log ID.....	36
6.2.3.1 Setting and Using the Data Log ID.....	36
6.2.3.2 Exporting Data Log.....	37
6.3 Starting the Machine.....	38

6.4 Starting the Packaging Cycle.....	38
6.5 Proceeding to the Next Step in the Cycle.....	39
6.6 Terminating a Programme.....	39
6.7 Changing the Programme Settings.....	39
6.7.1 10-Programme Control System.....	39
6.7.1.1 Vacuum.....	40
6.7.1.2 Vacuum+ (optional).....	40
6.7.1.3 Gas (optional).....	41
6.7.1.4 Gas+ (optional).....	41
6.7.1.5 Liquid Control (optional).....	41
6.7.1.6 Liquid Control+ (optional).....	42
6.7.1.7 Red Meat (optional).....	43
6.7.1.8 Multi-Cycle Vacuum (optional).....	43
6.7.1.9 Seal.....	44
6.7.1.10 Soft-Air.....	44
6.7.1.11 External Vacuum (optional).....	45
6.7.2 Advanced Control System (ACS).....	46
6.7.2.1 Programming the ACS Control Using the PC.....	47
6.7.2.2 Functions.....	47
6.7.2.3 Vacuum.....	48
6.7.2.4 Vacuum+ (optional).....	48
6.7.2.5 Gas (optional).....	48
6.7.2.6 Gas+ (optional).....	49
6.7.2.7 Liquid Control (optional).....	49
6.7.2.8 Liquid Control+ (optional).....	50
6.7.2.9 Red Meat (optional).....	50
6.7.2.10 Sequential Vacuum (optional).....	51
6.7.2.11 Marinating (optional).....	51
6.7.2.12 Tenderising (optional).....	52
6.7.2.13 Seal.....	52
6.7.2.14 Soft-Air.....	53
6.7.2.15 External Vacuum (optional).....	53
6.7.2.16 Dealer Information.....	54
6.8 Guideline for Function Values.....	54
6.9 Printer (ACS only).....	57
6.9.1 Connecting a Printer.....	57
6.9.2 Creating a Label.....	57
<b>7 Operating Neo.....</b>	<b>59</b>
7.1 Operating elements on the Neo control panel.....	60
7.2 Starting the machine.....	61
7.3 Selecting a programme.....	61
7.4 Changing the programme.....	61
7.4.1 Changing the vacuum settings (icon 16).....	61
7.4.2 Changing the gas settings (icon 17).....	61
7.4.3 Changing the seal time (icon 18).....	61
7.4.4 Changing the soft air time (icon 19).....	61

7.5 Running the packaging cycle.....	62
7.6 Proceeding to the next cycle step.....	62
7.7 Cleaning the pump.....	62
7.8 Selecting options on the machine in the option menu.....	62
7.8.1 Liquid control (icon 4).....	62
7.8.2 Red meat (icon 5).....	63
7.8.3 Step vacuum (icon 6).....	63
7.8.4 Marinating (icon 7).....	63
7.9 Terminating a Programme.....	63
7.10 Switching off the machine.....	63
7.11 Using the App.....	63
7.11.1 Downloading the App.....	64
7.11.2 Programmes in the App.....	64
7.12 Printer.....	66
7.12.1 Connecting a Printer.....	66
7.12.2 Creating a Label (App only).....	66
7.13 Data Log ID.....	68
7.14 Notifications.....	70
<b>8 Maintenance.....</b>	<b>71</b>
8.1 Machine Counter (10-Programme Control System).....	71
8.2 Machine Counter (ACS).....	71
8.3 Machine Counter (Neo).....	72
8.4 Service Hour Counter.....	72
8.4.1 Setting Service Hour Counter (10-Programme Control System).....	73
8.4.2 Setting Service Hour Counter (ACS).....	73
8.4.3 Setting Service Hour Counter (Neo).....	73
8.5 Maintenance Schedule.....	74
8.6 Cleaning the Machine.....	75
8.7 Running the Pump Cleaning Programme.....	75
8.7.1 Pump Cleaning Message (ACS).....	76
8.7.2 Pump Cleaning Message (Neo).....	76
8.8 Removing Oil, Refilling Oil.....	77
8.9 Replacing the Oil Exhaust Filter.....	78
8.9.1 Pump 8 m <sup>3</sup> .....	79
8.9.2 Pump 16/21 m <sup>3</sup> .....	79
8.10 Replacing the Sealing Wire.....	80
8.11 Replacing the Silicone Rubber of the Silicone Holders.....	81
8.12 Replacing the Lid Gasket.....	82
8.13 Inspecting the Lid Springs.....	83
<b>9 Troubleshooting and Error Codes.....</b>	<b>84</b>
9.1 Using Output Test (10-Programme Control System).....	86
9.2 Using Output Test (ACS).....	87
9.3 Using Output Test (Neo).....	87
9.4 Checking Functioning of Individual Components.....	89
9.5 Resetting Factory Settings (10-Programme Control System).....	91

9.6 Resetting Factory Settings (ACS).....	91
9.7 Resetting Factory Settings (Neo).....	91
9.8 Calibrating the Sensor (10-Programme Control System).....	92
9.9 Calibrating the Sensor (ACS).....	92
9.10 Calibrating the sensor (Neo).....	93
<b>10 Disposal.....</b>	<b>95</b>
<b>11 Appendices.....</b>	<b>96</b>
11.1 Technical Data.....	96
11.1.1 Technical Data Boxer.....	96
11.1.2 Technical Data Lynx.....	98
11.1.3 Technical Data Neo.....	99
11.1.4 Technical Data Toucan.....	100
11.2 Example Programmes.....	101
11.3 Logbook.....	104
11.4 EC Declaration of Conformity.....	106
11.5 Replacing a Printer Roll.....	107
11.6 Aligning the Printer.....	108
11.7 Neo Parameter Table.....	109
11.8 Smartphone Bluetooth check.....	111
11.9 Printer Bluetooth check.....	112

# List of Figures

Figure 1: Overview of the Main Components.....	14
Figure 2: Opening Front Panel.....	15
Figure 3: Removing the front panel.....	16
Figure 4: The keyhole principle as seen from the inside.....	16
Figure 5: Overview of the Sealing System.....	21
Figure 6: Overview of the Pump (Pump 8 m3).....	24
Figure 7: Overview of the Pump (Pump 16 m3).....	24
Figure 8: Overview of the Electrical Installation.....	26
Figure 9: DIP Switches.....	28
Figure 10: Control Panel of the 10-Programme Control System.....	30
Figure 11: Control Panel of the Advanced Control System (ACS).....	31
Figure 12: Possible Display Modes.....	32
Figure 13: Possible Display Modes.....	32
Figure 14: Overview of the Menus.....	34
Figure 15: Example of an Exported Data Log.....	38
Figure 16: External Vacuum Adapter Set (10-Programme Control System).....	46
Figure 17: Screenshot of the navigation mode and the operating buttons of the ACS.....	46
Figure 18: External Vacuum Adapter Set (ACS).....	54
Figure 19: Vapour Pressure Curve of Water.....	57
Figure 20: Neo control panel.....	60
Figure 21: Mounting Plate Boxer 52.....	78
Figure 22: Replacing the Oil Exhaust Filter (Pump 8 m3).....	79
Figure 23: Replacing the Oil Exhaust Filter (Pump 16/21 m3).....	79
Figure 24: Removing the Sealing Bar.....	80
Figure 25: Replacing the Sealing Wire.....	81
Figure 26: Replacing the Silicone Rubber of the Silicone Holders.....	82
Figure 27: Replacing the Lid Gasket.....	83
Figure 28: Replacing the Printer Roll.....	107
Figure 29: Aligning the Printer.....	108
Figure 30: Printing the First Label.....	108

# 1 Preamble

This is the manual for your Henkelman vacuum packaging machine. This manual is intended for anyone who works with or services the machine.

This manual contains information and instructions for installation, operation and maintenance of the machine. We recommend that you carefully read this manual before use and follow the procedures and instructions strictly. This will ensure that you get the best out of the machine and prevents possible accidents and serious injury.



## 2 Safety

Your vacuum packaging machine has been carefully designed and expertly built to be operated safely. This is corroborated by the EC Declaration of Conformity. However, there are always dangers and safety risks that cannot be eliminated. These dangers and risks are the result of the use functions of the machine and operation of the machine by the user. This section discusses safety instructions and precautions, how they will be pointed out to you and the requirements the user must meet. It is essential that you are well aware of these safety instructions and requirements and observe them at all times!

### 2.1 List of the Symbols Used in this Manual

For all operations in which the safety of the operator and/or technician is at stake and where caution should be exercised, the following symbols are used.



This symbol provides insight or offers tips to help facilitate certain actions.



This symbol warns for dangerous situations that may lead to damage to the machine or personal injury.



This symbol warns for high voltage.

### 2.2 Pictograms on the Machine

Pictograms and warnings have been fitted on the machine to warn users of the possible risks.



Warning sign "High Voltage"

- Is located on the back of the machine



Warning sign "Heat"

- Is located on the sealing bars and on the vacuum pump



Warning sign "Gas Connection" (optional)

Forbidden to connect oxygen

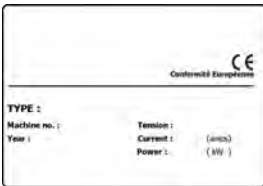
- Is located on the back of the machine



Warning sign "Gas Connection" (optional)

Maximum allowed gas pressure of the gas flush system

- Is located on the back of the machine



Machine plate

- Is located on the back of the machine



Regularly check whether the pictograms and markings are still clearly recognisable and legible. Replace them if this is not the case.

## 2.3 General Warnings



- All persons responsible for the operation of this machine must at least fully read and understand the chapters *Safety* on page 9 and *Operation Boxer, Lynx and Toucan* on page 30.
- Failure to follow or disregard of the safety instructions may result in serious injury.
- Never pack products that can be damaged by vacuum.
- Never vacuum live animals.
- Warranty and/or liability is void if any damage is caused by repairs and/or modifications that are not authorised by the supplier or any of its distributors.
- In case of malfunction, contact the supplier.
- High pressure cleaning is not allowed. This may cause damage to the electronics and other components.
- Prevent water from entering the ventilation inlet of the chamber or the exhaust of the pump. This causes irreversible damage to the pump.
- The work space around the machine must be safe. The owner of the machine must take the necessary precautions to operate the machine safely.
- It is forbidden to start the machine in an explosive environment.
- The machine has been designed in such a way that production is safe under normal ambient conditions.

- The owner of the machine must ensure that the instructions in this manual are actually complied with.
- The available safety devices may not be removed.
- The correct operation and safety of the system can only be guaranteed if the recommended maintenance is performed on time and properly.
- If work must be carried out on the machine, it must be disconnected and blocked from the power supply and, if applicable, from the gas supply.



- Only a technical expert may perform work on the electrical installation.
- Internal procedures and monitoring must be in place to ensure that all relevant power supplies are disconnected.
- The machine may not be used during cleaning, inspection, repair or maintenance and must be disconnected from the power supply by disconnecting the plug.
- Never perform welding work on the machine without first disconnecting the cable connection to the electrical components.
- Never use the power supply of the control unit to connect other machines.
- All electrical connections must be connected to the terminal strips according to the wiring diagram.

## 2.4 Warnings During Use

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- Before starting the machine, make sure no work is being performed on the installation and that the machine is ready for use.
- The machine may not be operated by unauthorised persons. This should be monitored by the machine operator(s).
- Immediately contact the service technician of your technical department or dealer if something does not seem right, such as unusual vibrations or unusual noise.
- Components of the sealing system can become very hot. Contact with these components may cause injuries.

## 2.5 Warnings for Operating Personnel

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- Operating personnel must be 18 years or older.
- Only authorised persons are allowed to perform work on or with the machine.
- Personnel may only perform work for which it was trained. This applies to both maintenance and normal use.
- The machine may only be operated by trained personnel.
- Operating personnel must be familiar with all circumstances, so quick and effective action can be taken in case of an emergency.
- If an operator notices errors or risks or disagrees with safety measures, he or she should report this to the owner or manager.
- Safety shoes are mandatory.

- Appropriate work clothing is mandatory.
- All personnel must obey the safety regulations to avoid danger to themselves and others. Always strictly follow the work instructions.

### 3 Introduction

Henkelman BV is a supplier of ultra-modern vacuum packaging machines. Our machines are developed and manufactured to meet the highest standards. They combine a sleekly built and functional design with optimal ease of use and a long service life. After mounting the plug, it is just a matter of "plug & pack". The clever design ensures compliance with the hygiene standards at all times.

The Boxer, Lynx, Neo and Toucan series are table top models with various options suitable for a variety of applications. These machines have several programmes and options for optimal packaging.

## 4 Description of the Machine

This section provides an overview of the main components and functions. If detailed information is available in this manual, you will be referred to the specific sections.

### 4.1 Overview of the Main Components

The figure below shows the main components of the system. The model shown may differ from your machine.

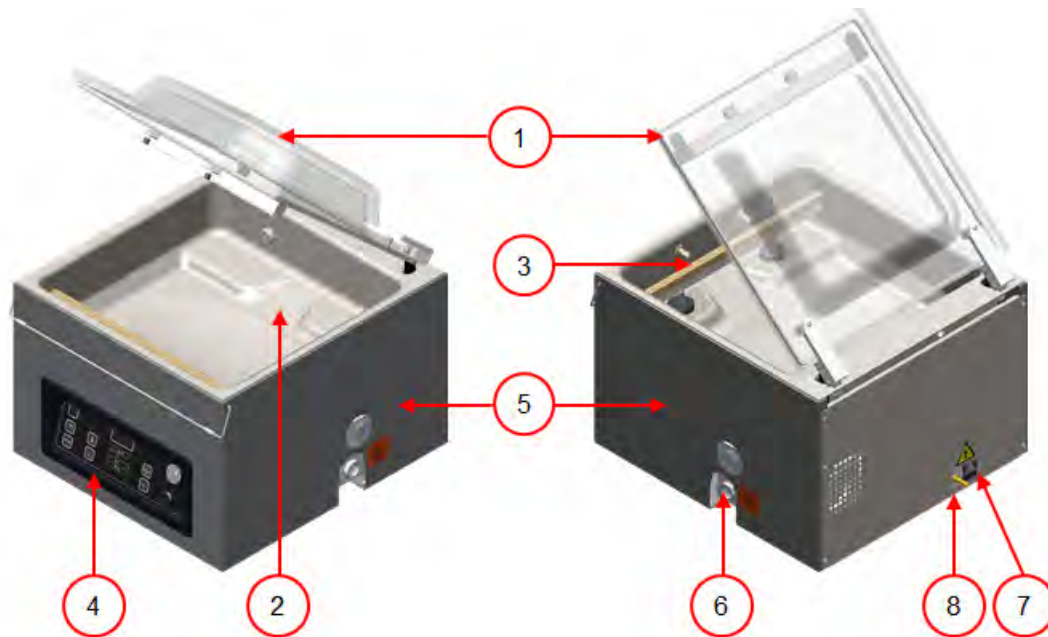


Figure 1: Overview of the Main Components

- 1. Lid**

The lid closes the vacuum chamber during the application of the vacuum. A rubber is mounted in the lid to ensure proper closing. Silicone holders are mounted in the lid as counter beams of the sealing bar(s).
- 2. Vacuum chamber**

The products to be packaged are placed on the work surface with the openings of the vacuum bags on the sealing position.
- 3. Seal system**

Depending on the model, one or two sealing bars are mounted in the vacuum chamber. These close the vacuum bag.
- 4. Control panel**

This serves to operate the available control functions. Depending on your model, your machine will have the 10-programme control system or the Advanced Control System (ACS) or the Neo control system.

## 5. Machine housing

The machine housing contains all the components necessary for the functioning of the machine.

## 6. Vacuum pump

The vacuum pump creates the vacuum.

## 7. Power connection and cable

This serves to connect the machine to the power supply.

## 8. Gas flush system connector (optional)

After applying vacuum, a gas is injected into the packaging to create a modified atmosphere to protect the shape of the product or increase the shelf life of the product.

## 4.2 Removing Front Panel (non Neo)

With every machine two special tools are delivered to remove the front panel.

To remove the front panel:

1. Put the tools into the slots at the bottom of the front panel.
2. Lift the tools a little and pull them towards you with the control panel.



*Figure 2: Opening Front Panel*

To place back the front panel:

3. Slide the panel in place at the top.
4. Use the tools to click the panel into place at the bottom.

## 4.3 Removing Front Panel Neo

Removal of the Neo front panel does not require any special tools.

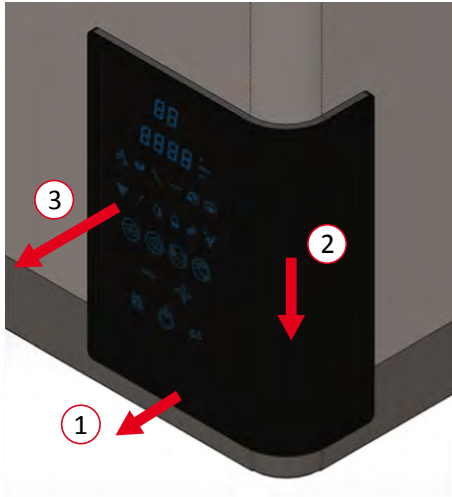


Figure 3: Removing the front panel

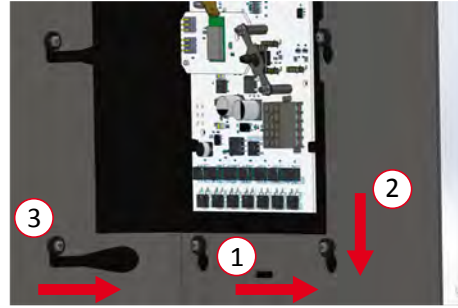


Figure 4: The keyhole principle as seen from the inside

To remove the front panel:

1. Pull the bottom edge of the front panel 3 mm forward with your finger (position 1 in the figures).
2. Shift the panel 8 mm down (2).
3. Shift the panel towards you until it releases from the frame (3).

To place back the front panel:

4. Use the opposite step order to replace the panel.

## 4.4 Description of the Packaging Process/Machine Functions

This section provides an overview of the packaging process and available machine functions.



For the functions Liquid Control (and Liquid Control+), Gas (and Gas+), Seal 1-2 Cut-off and Soft-air, specific components must be installed on your machine before they can be enabled.



See *Changing the Programme Settings* on page 39 for information about setting the parameters to the correct values.

### Additional information about the Toucan series:

The External Vacuum option does not apply to the Toucan series.

In case of the Toucan Regular, the vacuum bag is placed upright on the platform. The height of this platform should be adjusted in such a manner that the seal seam comes into the correct position in relation to the vacuum bag.

The Toucan Square is equipped with a mould for block bags. Only bags designed for this mould can be used in this mould.

In case of a Toucan Square it is best to first place a vacuum bag in the mould before filling it.
















Make sure the bag is properly filled.

### 4.4.1 Packaging Process/Machine Functions

This section describes the packaging process and the machine functions. See *Operation Boxer, Lynx and Toucan* on page 30 for the realization of the specific steps of the procedure.




Step	Process phase	Operation
1.	<b>Preparation</b>	The operator puts the product in a vacuum bag and places it on the work surface with the opening on the sealing position.
2.	<b>Applying vacuum</b>	<p>The vacuum process is initiated by closing the lid.</p> <p>Depending on the options you selected for your machine and the product you are packaging, the following functions are available:</p> <hr/> <p><b>Vacuum</b></p>  <p>During the cycle, the air is removed from the chamber until the set time or pressure has been reached, depending on the selected model.</p> <p>Applying vacuum until a set value is reached is only possible if your machine is sensor-controlled (optional for 10-programme control system). This value can be set in %. The percentage indicates the depth of the vacuum. This is in relation to an outside atmosphere of 0%. In case of the Advanced Control System (ACS), the value is indicated in percentages, mbar or hPa. On the Neo the value is indicated in % or mbar.</p> <hr/> <p><b>Vacuum+</b></p>  <p>Vacuum+ is only available if the vacuum percentage is set to the maximum.</p> <p>The Vacuum+ option continues the vacuum process for an additional time to allow any entrapped air to escape from the product.</p> <p>The Vacuum+ option is only available on sensor-controlled machines.</p> <hr/> <p><b>Gas (optional)</b></p>  <p>After applying vacuum, a gas is injected into the package to create a modified atmosphere to protect the shape of the product or to increase the shelf life of the product. The value of the gas function can be set in %, mbar or hPa or time, depending on the control type of the machine.</p>


Step	Process phase	Operation
Gas+ (optional)		<p>The Gas+ option continues injecting gas during the closing of the bars to increase the amount of gas in the package. See <i>Gas+ (optional)</i> on page 41.</p>
Liquid Control (optional)		<p>Liquid Control is only available if your machine is equipped with the optional Liquid Control sensor.</p> <p>With the Liquid Control option, the system is controlled by a highly sensitive sensor. The sensor is able to detect the moment that liquids from the product or the product itself begin to evaporate (boil). At that time the system will proceed to the next step in the process. This will prevent the product from dehydrating, losing weight and/or the vacuum bag from bursting, thus contaminating the seal, the chamber, and the oil in the pump. See <i>Liquid Control (optional)</i> on page 41.</p>
Liquid Control+ (optional)		<p>Liquid Control+ is only available if your machine is equipped with the Liquid Control option.</p> <p>The Liquid Control+ function allows you to continue the vacuum process for a certain time after the evaporation point has been reached.</p>
Red meat (optional)		<p>This option is especially designed for the packaging of fresh meat. It is added to the normal vacuum function to prevent degassing of the product during and after the sealing phase. This degassing could create air pockets inside the package. See <i>Red Meat (optional)</i> on page 43.</p>
Sequential Vacuum (optional)		<p>This function is only available on machines with the Advanced Control System (ACS) and on the Neo series.</p> <p>With sequential vacuum, you can alternate vacuum and pause steps to allow air trapped inside a product to escape from the core. A maximum of 5 steps can be programmed.</p>

Step	Process phase	Operation
	Multi-Cycle Vacuum (optional)	<p>This function is only available on machines with a 10-programme control system. See <i>10-Programme Control System</i> on page 39.</p> <p> The Multi-Cycle Vacuum option allows you to vacuum and insert gas in steps. This provides an additional reduction in the oxygen content.</p>
	Marinating (optional)	<p>This function is only available on machines with the Advanced Control System (ACS) and on the Neo series.</p> <p> This function is especially designed to accelerate the marinating of a product. This programme allows definition of up to 5 vacuuming steps with intermediate ventilation steps.</p> <p>The vacuuming steps have a fixed vacuum value of 80%, except for the last step. The last vacuuming step has an adjustable value of up to 99.8%. This also allows setting Vacuum+. The intermediate ventilation steps have a fixed value of 40%. After the last step, sealing takes place.</p> <p>Liquid Control: It is also possible to enable Liquid Control. This function will then only be active during the last vacuuming step. If, for instance, 3 vacuuming steps have been defined, Liquid Control will be active during the third step. Vacuum+ is also possible here; however, this would be a Liquid Control+ setting of 0.1 sec with a maximum of 5.0 sec.</p>
	Tenderising (optional)	<p>This function is only available on machines with the Advanced Control System (ACS) and on the Neo series.</p> <p> This feature has been designed to keep the chamber at a pre-determined vacuum level for a certain time. This is done to tenderise or degas the product.</p> <p>During the cycle, the air is removed from the chamber until the pre-set value has been reached. Once this value has been reached, the chamber will remain at this vacuum level for the pre-set time.</p>
3.	<b>Sealing</b>	The sealing bars are pressed against the vacuum bag and melt the bag closed.

Step	Process phase	Operation
	Seal	<p>During the sealing process, the material of the vacuum bag is heated and pressed together to create a hermetic seal. The programming of this function takes place in seconds.</p> <p>Optionally, a cut-off wire is available. The purpose of the cut-off wire is to remove the excess foil. Depending on the selected model, the cut-off wire is controlled simultaneously with or independent from the sealing wire (Seal 1-2 cut-off).</p>
	Soft-Air	<p>This function allows air from outside to slowly enter the chamber so the vacuum bag will shape itself slowly around the product. This prevents sharp edges of the product from puncturing the foil and causing leaks.</p>
4.	<b>Decompressing</b>	The vacuum is removed from the vacuum chamber by letting air into the chamber.
5.	<b>Opening the vacuum chamber</b>	The lid opens.
6.	<b>Removing the product</b>	The operator can remove the packaged product from the work surface.

#### 4.4.2 General Functions

Function	Pictogram	Operation
Cleaning of the oil pump		The pump cleaning programme ensures that the pump is thoroughly rinsed. During the programme, the pump and oil reach the operating temperature, so the oil and moisture are separated and any contamination is filtered. The high temperature causes any moisture in the pump to evaporate, thus minimising the risk of corrosion.
Menu		This menu is available on machines with ACS control. The menu is used to change the machine settings, such as language and print options.
Printing		<p>This function is available on machines with ACS control and the Neo series.</p> <p>This function allows the creation of one or more labels per cycle, to be put on the packaging.</p>

Function	Pictogram	Operation
		The following information can be printed on the label: name of the producer, name of the product, production date, shelf life, achieved vacuum, initials of the user, recommended storage temperature and an information field (for example to indicate the gas used).
External Vacuum		<p>This function is available as an option, depending on the type of machine.</p> <p>This function allows special food containers to be vacuumed outside the machine.</p> <p>The options to set the vacuum value are the same as for standard vacuuming (see <i>External Vacuum (optional)</i> on page 45 for 10-programme control system or <i>External Vacuum (optional)</i> on page 53 for ACS control).</p>

## 4.5 Sealing System

The sealing system closes the opening(s) of the bag to retain the vacuum and/or gas in the bag. The end of the bag can optionally be cut off by the sealing bar.

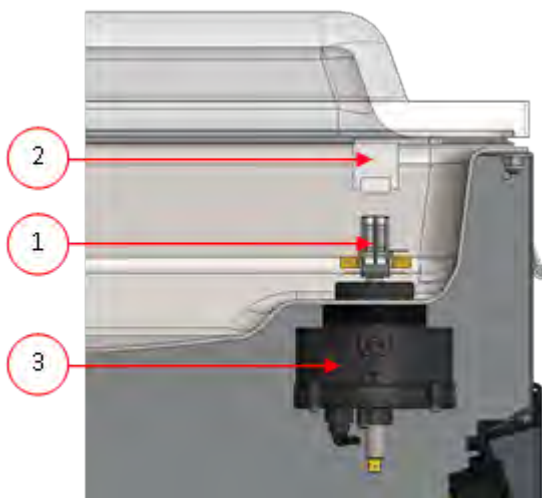


Figure 5: Overview of the Sealing System

### 1. Sealing bar

The sealing bar consists of the following components:

- Sealing wires: during the sealing process, the sealing wires are heated for a certain time causing the edges of the vacuum bag to melt together.
- Cut-off wires (optional): A cut-off wire is heated in such a way that the foil of the bag partially melts, allowing the excess foil of the vacuum bag to be removed easily.

- Teflon tape: sealing and cut-off wires are covered with Teflon tape to prevent the bag from sticking to the sealing bar.

Consult *Replacing the Sealing Wire* on page 80 for more detailed information about maintenance.

## 2. Silicone holder

Opposite the sealing bar is a silicone holder which provides counter pressure on the cylinders (*Replacing the Silicone Rubber of the Silicone Holders* on page 81).

## 3. Sealing mechanism

The sealing bars are pressed onto the vacuum bag by cylinders.

By connecting the inlet of the cylinders with the atmospheric pressure outside, they press the sealing bar onto the bag.

## 4.5.1 Pre-seal and After-seal Settings (10-Programme Control System)

The pre-seal and after-seal function is used to change the time settings for pre-seal and after-seal.

This might be necessary on rare occasions when the seal bar heats up excessively due to, for instance, short cycle times or when the seal wire breaks more often than usual (specifically on wide seal).



Always contact Henkelman prior to changing these settings!

To enter and set the pre-seal and after-seal:

1. Make sure the machine is turned OFF.
2. Press the **+ / VACUUM STOP**, **- / STOP** and **Cursor key** at the same time and turn on the machine with the ON/OFF switch. Keep the buttons pressed for at least 5 seconds.

The starting codes appear and after 5 seconds  appears on the large display.

3. Press the **PROG 0 – 9** button twice.

The mode changes to the PRE-SEAL function mode: .

The first value 1 indicates pre-seal mode. The second value 1.0 indicates the pre-seal time.

4. Press the **PROG 0 – 9** button again.

The mode changes to the AFTER-SEAL function mode: .

The first value 2 indicates after-seal mode. The second value 3.0 indicates the after-seal time.

5. Change the time settings with the **+ / VACUUM STOP** and **- / STOP** buttons.
6. When the settings have been changed, press the **REPROG** button to store them and return to operation mode.

## 4.5.2 Pre-seal and After-seal Settings (ACS)

The pre-seal and after-seal function is used to change the time settings for pre-seal and after-seal.



Only change these settings after confirmation from Henkelman!

To enter and set the pre-seal and after-seal:

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Service**.
4. Go to **3.8 Pre-seal time** or **3.9 Cooling time**.
5. Change the time settings with the ▲ and ▼ buttons.
6. When the settings have been changed, press **Enter** to store them.
7. Press the cursor key ◀ to return to the menu.

### 4.5.3 Pre-seal and After-seal Settings (Neo)

The pre-seal and after-seal function is used to change the time settings for pre-seal and after-seal.



See *Neo Parameter Table* on page 109 for the parameters that can be edited on specific service levels.

1. Open the menu by pressing the pump cleaning icon (22) for at least 3 s.
2. Enter the dealer code 4753.
3. In the list, go to 16 Pre-seal time, press Enter (23) and set the desired value with + (21) and – (20). Press Enter to confirm.
4. In the list, go to 17 After-seal time, press Enter (23) and set the desired value with + (21) and – (20). Press Enter to confirm.
5. In order to leave the menu, press the pump cleaning icon (22) for at least 3 s.



## 4.6 Vacuum Pump

The vacuum pump creates the vacuum.

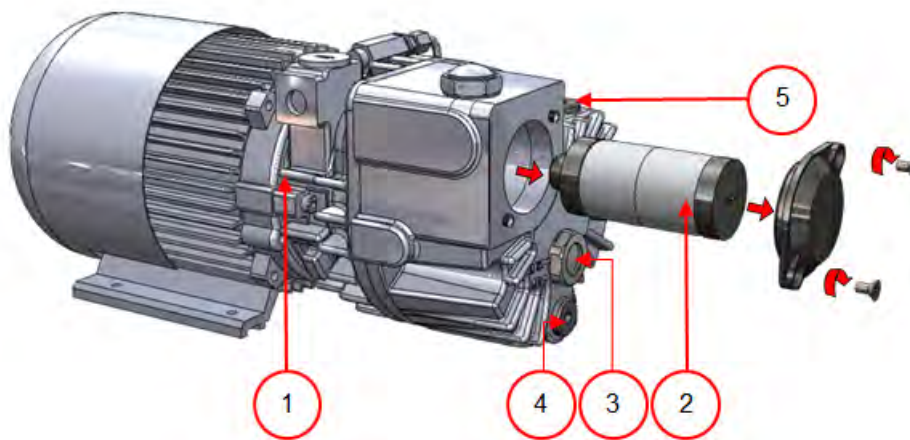


Figure 6: Overview of the Pump (Pump 8 m<sup>3</sup>)

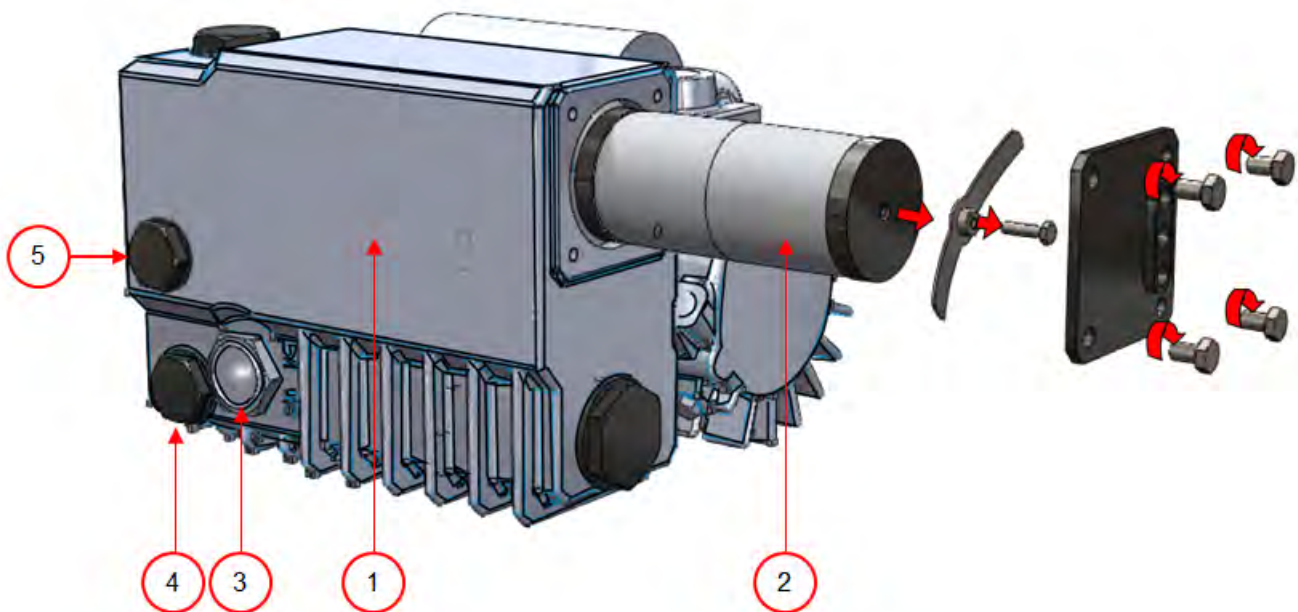


Figure 7: Overview of the Pump (Pump 16 m<sup>3</sup>)

1. **Vacuum pump** - Creates the vacuum for the process.
2. **Oil exhaust filter** - Filters the air by capturing oil vapours.
3. **Oil sight glass** - Indicates the maximum and minimum oil levels of the vacuum pump.
4. **Oil drain plug** - Removing the oil drain plug allows the oil to be drained.
5. **Oil filler plug** - Removing the oil filler plug allows the oil to be refilled.



## 4.7 Gas

For the protection of the product, it may be desirable to insert a gas into the packaging after vacuuming. Optionally, the machine can be equipped with a gas flush system. The Gas+ option only applies if the machine is equipped with the gas option. For some products it may be desirable to insert additional gas into the packaging to create a "balloon packaging". This allows for a better protection of a fragile product.

The supplier needs to enable the Gas+ option on the machine. See *Gas+ (optional)* on page 41 for the 10-programme control system and *Gas+ (optional)* on page 49 for the ACS.

### Gas types

Packing food	30% CO <sub>2</sub> and 70% N <sub>2</sub> (Foodmix)
Packing bread	50% CO <sub>2</sub> and 50% N <sub>2</sub>
Packing cheese	100% CO <sub>2</sub>
Packing fish	40% CO <sub>2</sub> and 60% N <sub>2</sub>



Never use a gas mixture containing more than 20% oxygen or other explosive gases. This may cause life-threatening explosions.



Contact your gas supplier for the exact gas to be used for each specific product.

### Gas pressure

The maximum gas pressure is 1.0 - 1.5 bar.



When the gas pressure is higher, the gas will blow the bags away from the sealing position.

### Bag sizes

To determine the optimum bag size for a product, you need to measure the width and height of the product. Add 2 cm to these dimensions.

The length of the bag should be at least 5 cm longer than the width of the product, but no more than 10 cm to prevent the opening of the bag from falling outside of the chamber.

### Recommended capacity reducer unit and hose connector

The reducer should be able to deliver a flow of minimal 60 litres per minute.

## 4.8 Electrical Installation

The electrical installation provides power for the vacuum pump, the seal system and the operation of the machine.

See the electrical diagram for the further structure and operation of the electrical installation. Please contact your supplier for the electrical diagram.



Only a technical expert may perform work on the electrical installation.

The machine consists of the following electrical components:

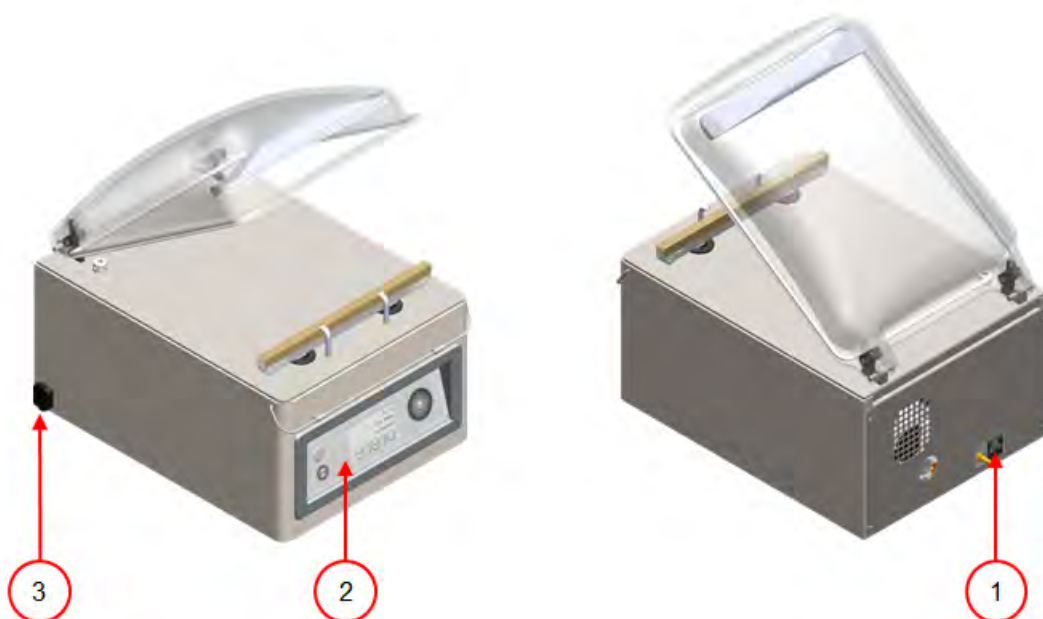


Figure 8: Overview of the Electrical Installation

### 1. Power connection and cable

This serves to connect the machine to the power supply.

### 2. Control panel

This serves to operate the control functions. Depending on your model, your machine will have one of the following control options:

- *Operating Elements of the 10-Programme Control System* on page 30
- *Operating Elements of the Advanced Control System (ACS)* on page 31

### 3. USB connector (only in case of ACS control)

The USB connector is located on the side or the rear of the machine. Reaching the USB connector requires removing the rear wall.

The USB connector enables the import and export of data.

## 5 Installation

Consult *Technical Data* on page 96 for the specifications of the machine.



Before installing the machine, carefully read the safety instructions in *Safety* on page 9. Failure to follow or disregard of the safety instructions may result in serious injury.

### 5.1 Transportation and Installation

The machine must be moved and transported in an upright position.

1. Place the machine on a flat, level surface. This is essential to ensure a trouble-free operation of the machine.



Do not position machines with plastic covers in the vicinity of a heat source.



Make sure there is sufficient space (at least 15 cm) around the machine to ensure a proper ventilation.

2. Verify that the machine housing is present and correctly fitted.

### 5.2 Connecting the Machine

1. Make sure the voltage stated on the machine plate matches the mains voltage.
2. Connect the machine to a grounded wall outlet to avoid fire or electric shock.



The power cable must be free at all times, and nothing may be placed on it. Immediately replace the power cable if damaged.

3. Optional: Connect the gas supply for the gas flush system.

### 5.3 Prior to the First Use

1. Check the oil sight glass to see if the amount of oil in the pump is sufficient.
2. Optional: If the amount of oil in the pump is insufficient, refill it. See *Removing Oil, Refilling Oil* on page 77.
3. Proceed with *Starting the Machine* on page 38 to start up the machine.

## 5.4 DIP Switch Settings (10-Programme Control System)

The DIP switches on the printed circuit board are used for activating and de-activating the options.

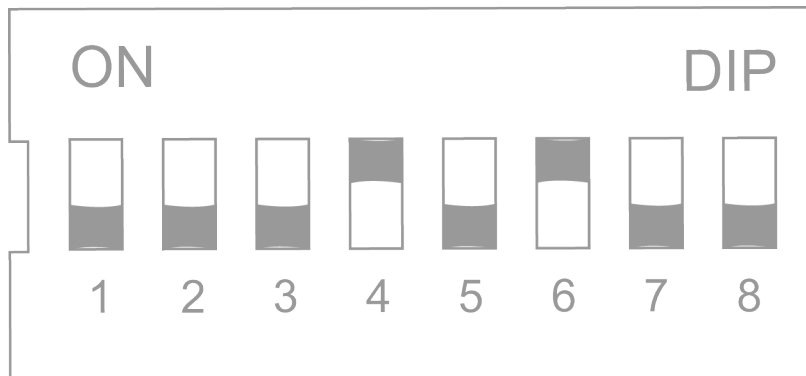


Figure 9: DIP Switches

1. **Multi-cycle control**
2. **Continuous pump running**  
Table top models: Pre-seal 1.0, After-seal 3.0
3. **Pump conditioning programme on separate conditioning programme button**
4. **Soft-air ventilation**
5. **1-2 Cut off seal**  
Separate time settings for seal and cut.
6. **Gas flush function**
7. **Standard Sensor Control**
8. **Liquid (H<sub>2</sub>O) Control**

## 5.5 Start-up Codes / DIP Switch Control Panel

Machine configuration							Boxer series	
Standard	Soft air	Gas flush	1-2 Seal-Cut	Sensor	Multi-cycle	Liquid (H <sub>2</sub> O) Control	DIP switch on	Display code
X							3	004
	X						3-4	012
		X					3-6	036
			X				3-5	020
				X			3-7	068
	X	X					3-4-6	044
	X		X				3-4-5	028
	X			X			3-4-7	076
	X	X	X				3-4-5-6	060

Machine configuration							Boxer series	
Standard	Soft air	Gas flush	1-2 Seal-Cut	Sensor	Multi-cycle	Liquid (H2O) Control	DIP switch on	Display code
	X	X		X			3-4-6-7	108
	X		X	X			3-4-5-7	092
	X	X	X	X			3-4-5-6-7	124
		X	X				3-5-6	052
		X		X			3-6-7	100
		X	X	X			3-5-6-7	116
			X	X			3-5-7	084
		X			X		1-3-6	037
	X	X			X		1-3-4-6	045
		X	X		X		1-3-5-6	053
		X		X	X		1-3-6-7	101
	X	X	X		X		1-3-4-5-6	061
	X	X		X	X		1-3-4-6-7	109
		X	X	X	X		1-3-5-6-7	117
	X	X	X	X	X		1-3-4-5-6-7	125
	X					X	3-4-8	140
	X	X				X	3-4-6-8	172
	X	X	X			X	3-4-5-6-8	188
	X	X	X		X	X	1-3-4-5-6-8	189

## 6 Operation Boxer, Lynx and Toucan

This chapter describes how to operate the Boxer, Lynx and Toucan vacuum packaging machines.

The machine is equipped with sample programmes with preset parameters (see *Example Programmes* on page 101).

It is possible to optimise a programme for your products by modifying the parameters of a programme, see *Changing the Programme Settings* on page 39.



- All persons responsible for the operation of this machine must at least fully read and understand the chapters *Safety* on page 9 and *Operation Boxer, Lynx and Toucan* on page 30.
- Failure to follow or disregard of the safety instructions may result in serious injury.

### 6.1 Operating Elements of the 10-Programme Control System

The 10-programme control system allows the machine to be operated and programmes to be changed.

See *Operation Boxer, Lynx and Toucan* on page 30 for instructions on the operation and programming.

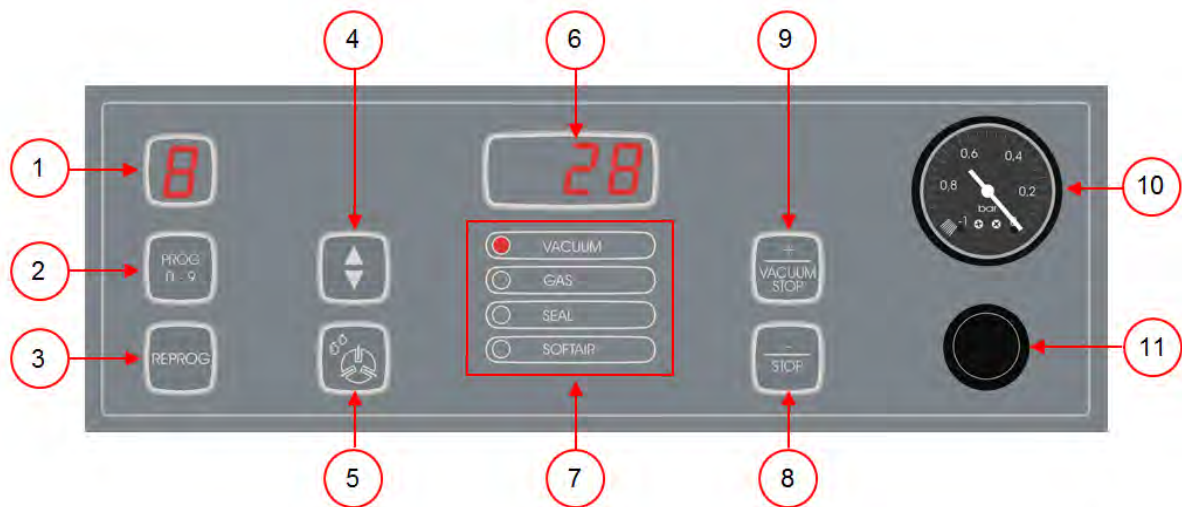


Figure 10: Control Panel of the 10-Programme Control System

#### 1. Programme display

Shows the selected programme.

#### 2. PROG 0 – 9 button

This is used to select the desired programme.

#### 3. REPROG button

This is used to enable the programming mode. The parameters can be changed using the **Cursor key**, the **- / STOP** button and the **+ / VACUUM STOP** button.

#### 4. **Cursor key**

This key is used to operate the functions of the parameter display and function display.

#### 5. **Pump cleaning programme button**

This is used to activate the pump cleaning programme. Moisture can be absorbed by the oil when the pump is running only short cycles or when you are packaging moisture-containing products. This programme removes moisture from the oil of the vacuum pump. See *Running the Pump Cleaning Programme* on page 75 for instructions.

#### 6. **Parameter display**

This display shows the current value of the active function during the programme cycle or the set value of the selected function when the machine is inactive. A red dot will light up in the bottom right if the Vacuum+ option is enabled.

#### 7. **Function display**

The LED light in front of the function lights up if the function is active during the programme cycle or if the function is selected in the programming mode.

#### 8. **- / STOP button**

This is used to interrupt the entire cycle during a packaging cycle. All functions are skipped and the cycle is terminated. In the programming mode, the value of the selected parameter can be lowered using this button.

#### 9. **+ / VACUUM STOP button**

This stops the active function and proceeds to the next programme step. In the programming mode, the value of the selected parameter can be increased using this button.

#### 10. **Vacuum meter**

Shows the pressure in the vacuum chamber. A value of -1 bar corresponds to 99% vacuum.

#### 11. **On/Off button**

Serves to turn the control panel on or off.

## 6.2 Operating Elements of the Advanced Control System (ACS)

The ACS control panel allows the machine to be operated and programmes to be changed.

See *Operation Boxer, Lynx and Toucan* on page 30 for instructions on the operation and programming.

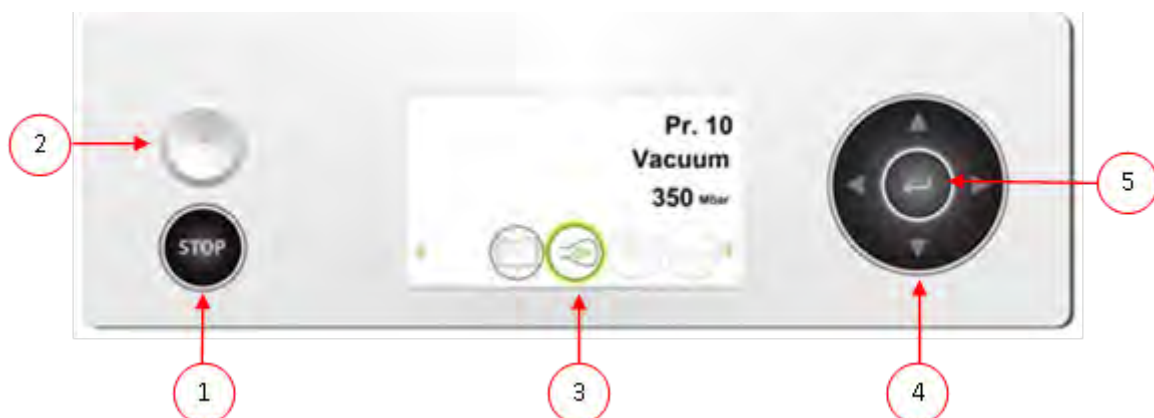


Figure 11: Control Panel of the Advanced Control System (ACS)

## 1. STOP button

This is used to interrupt the entire cycle during a packaging cycle. All functions are skipped and the cycle is terminated.

## 2. On/Off button

Serves to turn the control on or off.

## 3. Display

The display has four possible modes: See *Figure 12: Possible Display Modes* on page 32 and *Figure 13: Possible Display Modes* on page 32.

- **Start-up mode:** displays the current date and time when starting the machine. It also displays the installed software version. The user cannot take any action.
- **Navigation mode:** displays a programme and its functions. The user can navigate through the various programmes and view the current settings of each function.
- **Setting mode:** the user can view and adjust all settings, provided the user is logged in as the owner.
- **Cycle mode:** once the machine starts a packaging cycle, animations of the functions are displayed along with the current value of the function.

## 4. Cursor keys ▲, ▼, ◀ and ▶

These are used to navigate through the functions. The ▶ button stops the active function and proceeds to the next cycle step. See *Proceeding to the Next Step in the Cycle* on page 39.

## 5. Enter

This activates/confirms the selected value.



Figure 12: Possible Display Modes

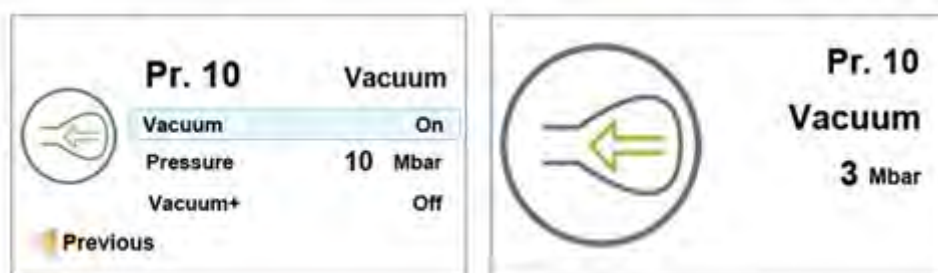


Figure 13: Possible Display Modes

## 6.2.1 Changing the ACS Settings

To prevent unauthorised changing of the settings and adjustments, there are different levels of authorisation: user and owner. Authorisation codes for users or owners allow access to the various levels. User access to change the settings of the machine is limited. The default user code is 0000. Users can only activate the printer via the printer icon in the navigation mode.



Owners of the machine are authorised to change the machine settings as well as all function settings. An owner code is requested when the menu icon is selected in navigation mode. This owner code is 1324. When the owner code has been entered, the machine settings menu will be opened. When logged in, the function settings can also be changed. To do so, return to the navigation mode by pressing ◀.



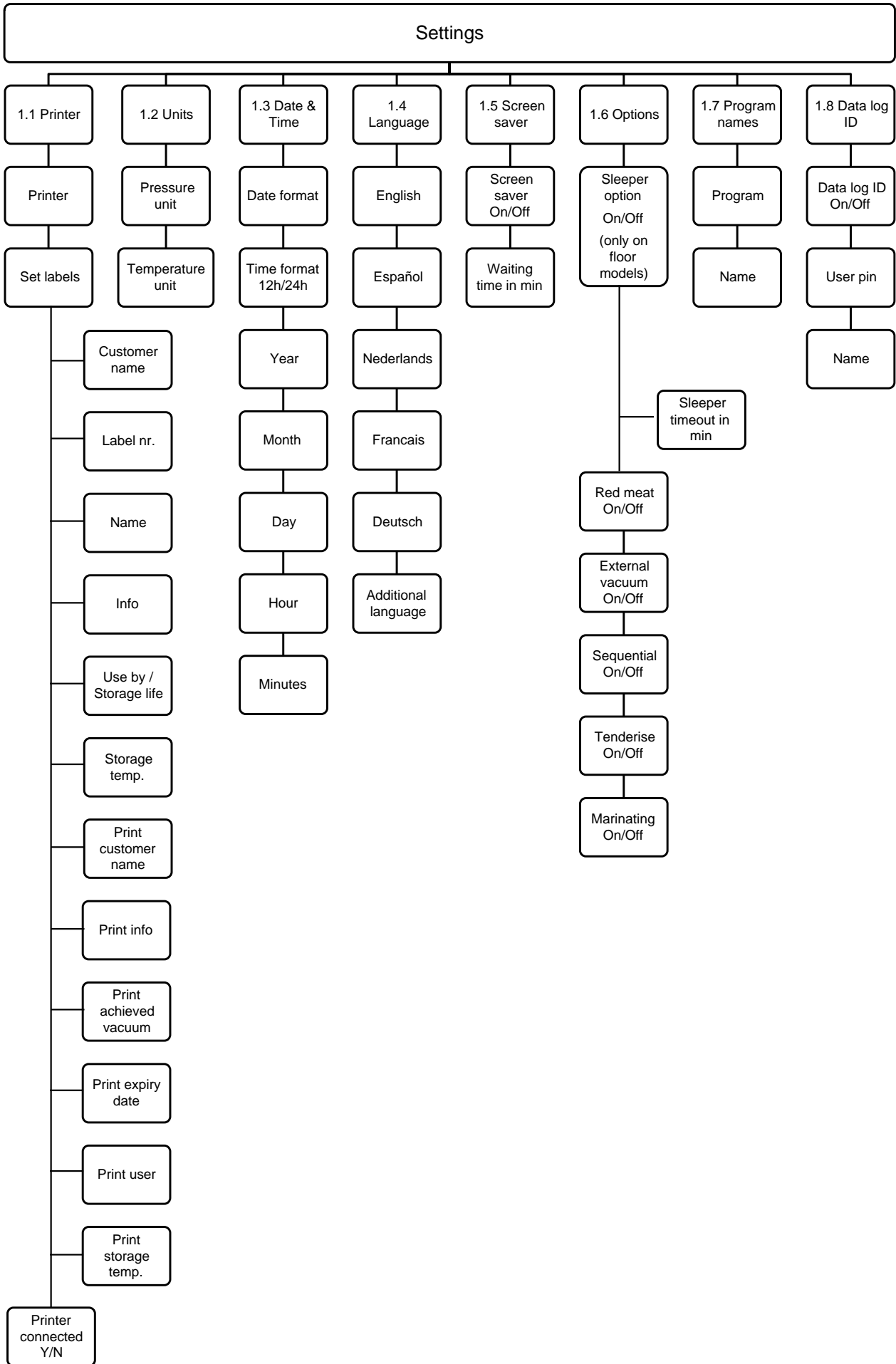
The machine remembers the last authorisation code used, even when the machine has been turned off. Therefore, it may be necessary to manually change the authorisation setting when you are done.

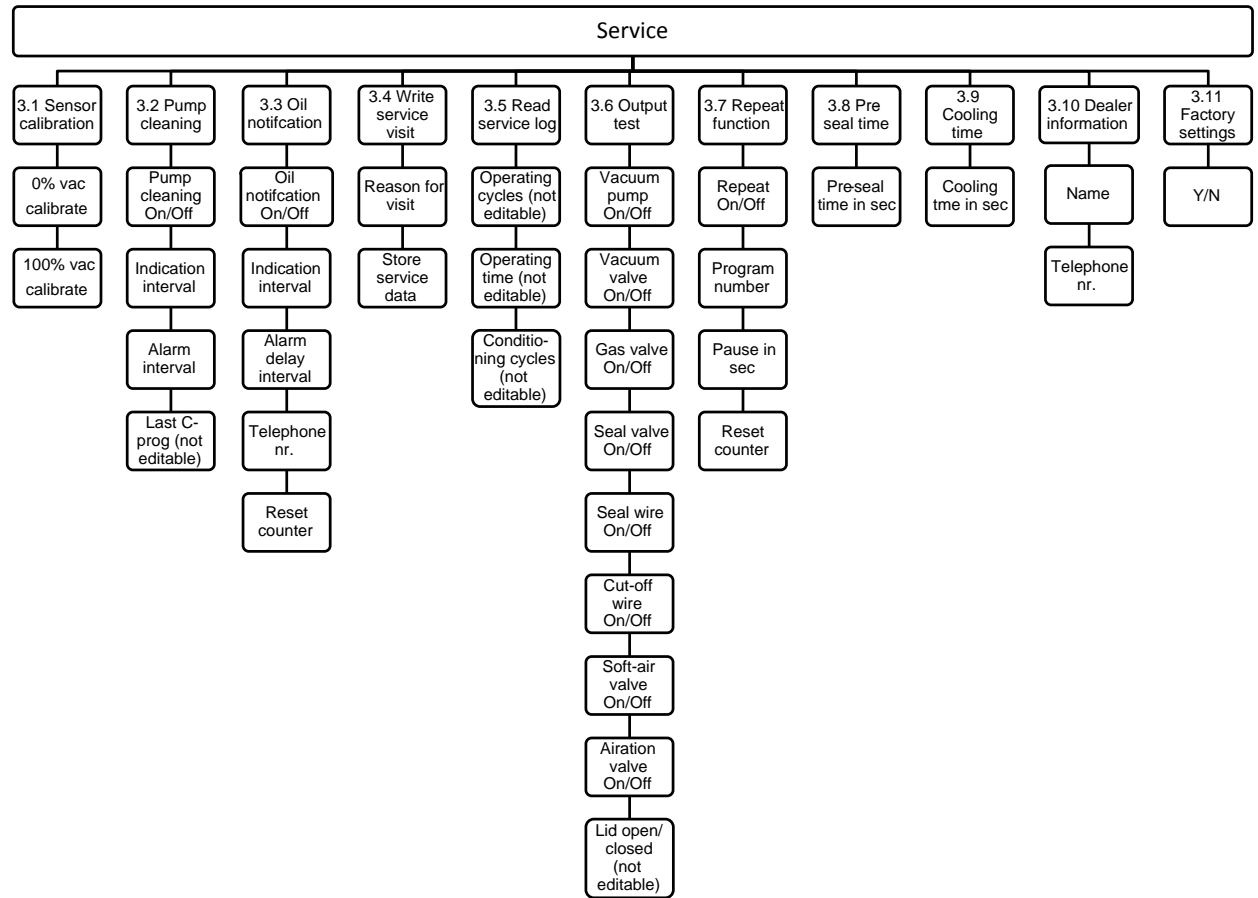
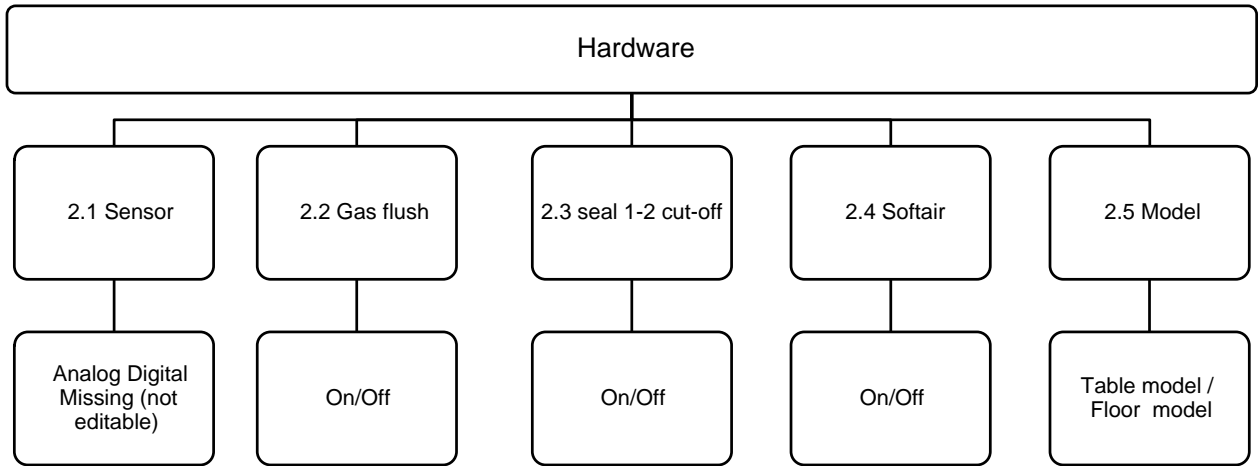
The basic functions below allow you to adjust the machine and/or function settings:

What to do?	Action
Selecting a different setting	Press ▲ or ▼.
Editing the selected setting	Press <b>Enter</b> .
Adjusting a variable	Press ▲ or ▼.
Conforming a variable	Press <b>Enter</b> once the desired variable has been found.
Return to the navigation mode	Press ◀ when all settings have been set to return to the navigation mode.



*Figure 14: Overview of the Menus* on page 34 shows all possible settings for all functions. The Hardware and Service menus are only visible if you have logged in with the Dealer code.





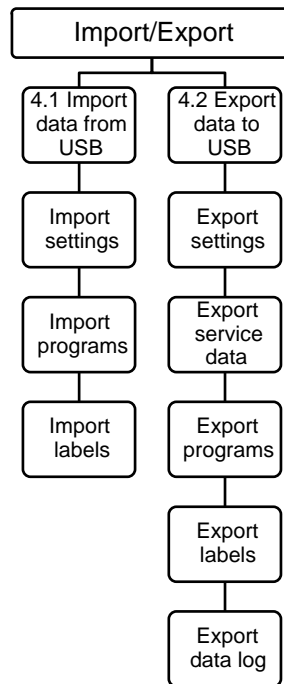


Figure 14: Overview of the Menus

## 6.2.2 Importing/Exporting Data

Data such as programmes and labels can be imported and exported via the USB connection.

## 6.2.3 Data Log ID

The control system is provided with the option to store the production information. The data log is stored in lined entries. Each entry consists of:

- Date
- Time
- User initials
- Selected programme and settings
- Selected label
- Number of cycles

A new entry is stored when:

- A different user logs in.
- The programme or programme settings are changed.

The data log is stored as a .txt file. You can then export the data log to a USB stick, see *Exporting Data Log* on page 37.

### 6.2.3.1 Setting and Using the Data Log ID

This setting is disabled by default. This option can be enabled after logging in using the owner code. 5 possible users can be set:

- Owner
- Four other users:

- User 2: 3821
  - User 3: 5718
  - User 4: 6982
  - User 5: 9217
1. Log in using the owner code (1324).  
You will be granted access to the relevant settings.
  2. Within the menu, go to **Settings > Data log ID** and select **ON**.  
From this moment on, the data will be logged.
  3. Assign initials to the user codes (maximum 2 characters).
    - a. At **User**, select the desired user code.
    - b. Enter the initials of the user at **Name**.The initials of the user will be displayed in the data log.



The initials of the user must be set. If this is not the case, it cannot be traced who operated the machine.

### 6.2.3.2 Exporting Data Log

The memory can store up to 100 entries. If the memory is full, you will receive a message. The data log will first need to be exported before you can continue your work. You can export the data at any time. Only the owner can export data. After exporting the data, the memory will be erased automatically.



Avoid undesired delay during production by downloading the data log at fixed times.

1. Log in using the owner code (1324).  
You will be granted access to the relevant settings.
2. Within the menu, go to **Import/Export** and select **Export**.
3. Insert a USB stick into the USB port.  
Various options will appear on the screen.
4. Select **Export Data log**.  
The log will be downloaded to the USB stick and the memory is erased.

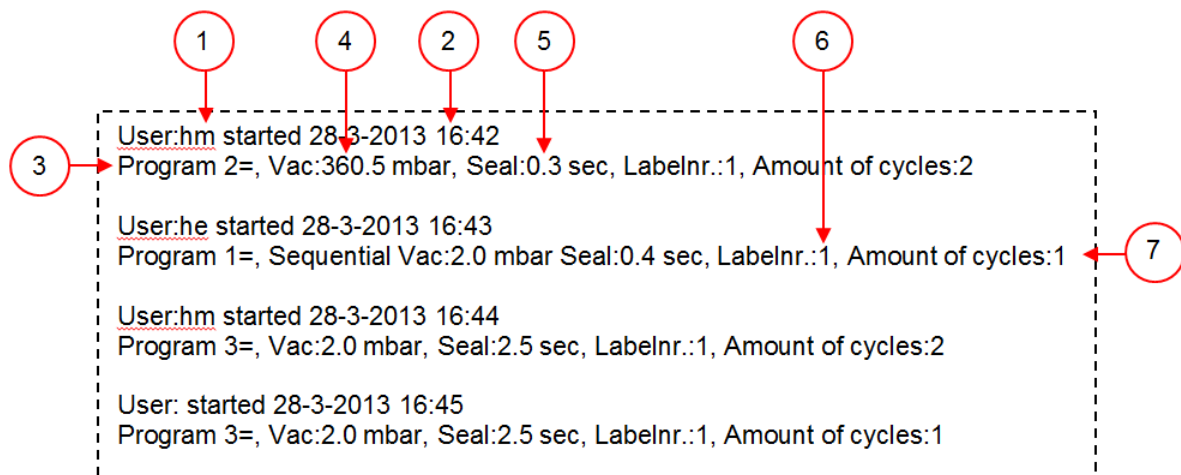


Figure 15: Example of an Exported Data Log

### 1. User Initials

The initials of the person who logged in. If no initials were entered in the settings, nothing will be shown here. See the example in the bottom line of *Figure 15: Example of an Exported Data Log* on page 38.

### 2. Start Time and Date

Start time and date of the production.

### 3. Programme

The programme number used.

### 4. Vacuum

The maximum achieved vacuum of the package.

### 5. Seal Time

The seal time used.

### 6. Label Number

The label that was printed for this package.

### 7. Number of Cycles

The number of cycles run from the start time.

## 6.3 Starting the Machine

1. Plug in the machine.
2. Press the on/off button on the control panel to enable the operation.

In the 10-programme control system, 3 dashes may be shown on the display during the first start-up or ventilation. This means that the machine needs to be decompressed. In this case, open the lid to decompress the machine.

## 6.4 Starting the Packaging Cycle

The machine must be started in accordance with *Starting the Machine* on page 38 before starting a packaging cycle.

1. Select the desired programme.

**10-programme control system**                      Press the **PROG 0 – 9** button.

**ACS**    Press the ► button or the ▼ button.

2. Put the product/products in place.
  - a. Put the product/products in the vacuum bag.
  - b. Place the vacuum bag in/on the vacuum chamber. Make sure the opening(s) is/are correctly placed with regard to the seal position(s).
3. In case of Toucan Square: Close the mould.
4. Close the lid.  
The packaging cycle will start.

## 6.5 Proceeding to the Next Step in the Cycle

For some products, it may be necessary to proceed to the next step in the packaging cycle before the vacuum time or the vacuum level has been reached.

1. Proceed to the next step in the cycle.

**10-programme control system**                      Press the **+ / VACUUM STOP** button.

**ACS**    Press the ► button.

The next step will be started.

## 6.6 Terminating a Programme

Programmes such as the packaging programme or the pump cleaning programme can be terminated at any time.

1. Terminate the programme.

**10-programme control system**                      Press the **– / STOP** button.

**ACS**    Press the **STOP** button.

The programme will be terminated and the vacuum chamber is decompressed.

## 6.7 Changing the Programme Settings

### 6.7.1 10-Programme Control System

10 programmes are available. Programmes 1 – 9 can be adjusted by the user. Programme 0 is intended for servicing purposes only. This section describes the units and limits of the parameters and how parameters can be adjusted.

See *Operating Elements of the 10-Programme Control System* on page 30 for an overview of the operating elements of the 10-programme control system.

1. Press the **PROG 0 – 9** button to select the programme you wish to change.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Use the **Cursor key** to scroll to the desired parameter.  
The LED in front of the selected function will light up.
4. Press the **- / STOP** button and the **+ / VACUUM STOP** button to adjust the value.
5. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

#### 6.7.1.1 Vacuum

During the cycle, the air is removed from the chamber until the set time or pressure has been reached, depending on the selected model (time-controlled or sensor-controlled).

1. Press the **PROG 0 – 9** button to select the programme for which you wish to set the Vacuum option.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Use the **Cursor key** to scroll to the parameter Vacuum.  
The LED in front of the selected function will light up.
4. Press the **+ / VACUUM STOP** button to adjust the value.
5. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

#### 6.7.1.2 Vacuum+ (optional)

If air is trapped in the product, it may be desirable to extend the vacuuming time after the maximum vacuum has been reached. This to allow entrapped air to escape from the product.

The Vacuum+ time is set in seconds. If a Vacuum+ time has been set, a dot will appear in the bottom right of the parameter display.

1. Press the **PROG 0 – 9** button to select the programme for which you wish to set the Vacuum+ option.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Use the **Cursor key** to scroll to the parameter Vacuum.  
The LED in front of the selected function will light up.
4. Press the **+ / VACUUM STOP** button to adjust the value to maximum.
5. Press the **Cursor key** once to select the Vacuum+ parameter.  
The parameter display indicates OFF. The LED of the function display will remain on Vacuum.
6. Press the **- / STOP** button and the **+ / VACUUM STOP** button to adjust the value of Vacuum+.  
When setting a value, a dot will appear in the bottom right of the parameter display.
7. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.



### 6.7.1.3 Gas (optional)

For the protection of the product, it may be desirable to insert a gas into the packaging after vacuuming. Optionally, the machine can be equipped with a gas flush system.

See *Technical Data* on page 96 for the connection details.



Never use a gas mixture containing more than 20% oxygen or other explosive gases. This may cause life-threatening explosions.



The insertion of gas lowers the seal pressure. The minimum final pressure (after the insertion of gas) must be 30% (300 mbar/0.3 on vacuum meter) to ensure proper sealing.

1. Press the **PROG 0 – 9** button to select the programme for which you wish to set Gas.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Use the **Cursor key** to scroll to the parameter Gas.  
The LED in front of the selected function will light up.
4. Press the **+ / VACUUM STOP** button to adjust the value.
5. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

### 6.7.1.4 Gas+ (optional)

The Gas+ option only applies if the machine is equipped with the gas option. For some products it may be desirable to insert additional gas into the packaging to create a "balloon packaging". This allows for a better protection of a fragile product. The recommended value for Gas+ is 0.7 seconds.

If the Gas+ option is enabled, a dot will appear in the bottom right of the programme display. If the Gas+ option is enabled, this will apply to all programmes for which gas has been set.

To enable the Gas+ option on the machine, follow the following steps.

1. Make sure the machine is turned OFF.
2. Press the **+ / VACUUM STOP** button and turn on the machine with the ON/OFF switch. Keep the button pressed for at least 5 seconds.

The starting codes appear and after 5 seconds  appears on the large display.

3. Set the extra gas flush time with the **+ / VACUUM STOP** and **- / STOP** buttons.  
The minimum value is 0.0 second. The maximum value is 1.0 second. The value can be increased by 0.1 second.
4. Press the **REPROG** button to store the settings and return to operation mode.

### 6.7.1.5 Liquid Control (optional)

The Liquid Control option can be enabled or disabled for each programme. If the Liquid Control option is enabled, the machine will vacuum until the maximum vacuum is reached (99%). If the product reaches the boiling point before the maximum vacuum is reached, the machine will proceed to the next step of the cycle.

1. Press the **PROG 0 – 9** button to select the programme for which you wish to set Liquid Control.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Press the **PROG 0 – 9** button until H2O is shown on the parameter display.  
The parameter display indicates H2O.
4. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

The Liquid Control function prevents excessive fluid from being drawn out of the product. This means that if the product reaches the boiling point, the machine will proceed to the next step of the cycle. Depending on the moisture content, the manner in which moisture is bound, the available surface for evaporation and the temperature, the end vacuum percentage might be limited and there might be too much residual oxygen content present in the package. If the product/process requires packaging with a low residual oxygen content, despite the high moisture content, there are two options:

1. Lower the product temperature. This allows for a deeper vacuum to be reached before the product reaches the boiling point.
2. Use the Liquid Control+ option.

#### 6.7.1.6 Liquid Control+ (optional)

The Liquid Control+ time is set in seconds. This is the time the vacuuming will continue after detection of the evaporation point.

The specific group of products which is packaged with the Liquid Control function, generally has a high water content. As described earlier, products will reach a boiling point with a limited vacuum level. When using the Liquid Control+ option, the machine will not directly proceed to the next step of the cycle when the boiling point is reached. Instead, the machine will continue vacuuming during the set Liquid Control+ value. During this extra vacuum time, a lot of water vapour will be released from the product during a short period. This "front" will push the remaining "air" left in the packaging, out of the bag. This will considerably lower the final remaining oxygen level. The Liquid Control+ value is set per 0.1 second to prevent the boiling, the sealing location and even the vacuum chamber from being contaminated.

Achieving a residual oxygen content as low as possible, without excessive fouling, therefore requires a highly specific setting of Liquid Control+. As mentioned before, the extent to which a product boils is dependent on a number of things, and the correct Liquid Control+ setting can only be experimentally determined.

You can only set Liquid Control+ if Liquid Control has been set to the maximum. To set the Liquid Control+ option, follow the steps below:

1. Press the **PROG 0 – 9** button to select the programme for which you wish to set Liquid Control+.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Press the **PROG 0 – 9** button until H2O is shown on the parameter display.  
The parameter display indicates H2O.

4. Press the **Cursor key** once to select the Liquid Control+ parameter.  
The parameter display indicates OFF. The LED of the function display will remain on Vacuum.
5. Press the **- / STOP** button and the **+ / VACUUM STOP** button to adjust the value of Liquid Control+.  
When setting a value, a dot will appear in the bottom right of the parameter display.
6. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

#### 6.7.1.7 Red Meat (optional)

The Red Meat option is especially designed for the packaging of fresh meat. Degassing the product during the vacuuming process may result in the formation of air pockets inside the package. The Red Meat option prevents degassing of the product during and after the sealing phase.

The Red Meat option can be set for each programme individually. If the Red Meat option is enabled in a programme, it will not be possible to enable the Soft-air option in that programme.

When selecting this option, a parameter to set the "expansion reduction time" will appear. This is indicated by a flashing LED in front of the Soft-air option in the function display.

To enable the Red Meat (expansion reduction) option on the machine, follow the following steps.

1. Make sure the machine is turned OFF.
2. Press the **PROG 0 – 9** and **REPROG** buttons and turn on the machine with the ON/OFF switch. Keep the buttons pressed for at least 5 seconds.

The starting codes appear and after 5 seconds  appears on the large display. This means that the expansion reduction function is not activated.

3. Select the programme in which you want to activate the function with the **PROG 0 – 9** button.
4. Press the **+ / VACUUM STOP** button.

 changes to .

The Red Meat option has now been activated.

5. Press the **REPROG** button to store the settings and return to operation mode.

#### 6.7.1.8 Multi-Cycle Vacuum (optional)

The Multi-Cycle Vacuum option allows you to vacuum and insert gas in up to 5 steps. This provides an additional reduction in the oxygen content. This function is useful only for very specific applications, which set very special demands on the residual oxygen content or the maximum allowed vacuum. This option will not result in any appreciable benefit in the food industry.

To enable the Multi-Cycle Vacuum option on the machine, switch off the machine. Change DIP switch 1 to the ON position. Turn the machine back on. The Multi-Cycle Vacuum option has now been enabled.

1. Press the **PROG 0 – 9** button to select the programme for which you wish to set Multi-Cycle.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.

3. Use the **Cursor key** to scroll to the parameter Vacuum.  
The LED in front of the selected function will light up.  
The right-side character of the parameter display indicates which vacuuming step you are programming.
4. Press the **- / STOP** button and the **+ / VACUUM STOP** button to adjust the value of Vacuum.
5. Use the **Cursor key** to scroll to the parameter Gas.  
The LED in front of the selected function will light up.
6. Press the **- / STOP** button and the **+ / VACUUM STOP** button to adjust the value of Gas.
7. Repeat steps 3 and 4 if an additional vacuuming step is desired.
8. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

#### 6.7.1.9 Seal

This is the time that the sealing wire and/or the cut-off wire are heated. The longer the time, the more heat is transferred to the bag.

As an option, the machine can be equipped with a Seal 1-2 option. This means the seal wire is activated separately from the cut-off wire. This way the cut-off wire can be activated a bit longer, to cut through thicker bags.

To set the Seal option, follow the steps below:

1. Press the **PROG 0 – 9** button to select the programme you wish to change.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Use the **Cursor key** to scroll to the parameter Seal.  
The LED in front of the selected function will light up.
4. Press the **- / STOP** button and the **+ / VACUUM STOP** button to adjust the value.
5. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

To change the Cut-off time:

6. Press the **Cursor key** again. The LED in front of Seal will still be lit. Repeat steps 4 and 5.

#### 6.7.1.10 Soft-Air

This is the time that air is softly released into the chamber after sealing has taken place. To enable the Soft-air function, a soft-air valve needs to be installed in the machine.

To enable the Soft-air function, DIP switch 4 needs to be enabled.

To set the Soft-air function, follow the steps below:

1. Press the **PROG 0 – 9** button to select the programme you wish to change.
2. Press the **REPROG** button to select the programming mode.  
The function display will start flashing.
3. Use the **Cursor key** to scroll to the parameter Soft-air.  
The LED in front of the selected function will light up.
4. Press the **- / STOP** button and the **+ / VACUUM STOP** button to adjust the value.

5. Press the **REPROG** button to activate the new parameter.  
The function display will stop flashing.

#### 6.7.1.11 External Vacuum (optional)


The External Vacuum function allows special food containers to be vacuumed outside the machine. Depending on whether the machine is time or sensor-controlled, the vacuum value is set in seconds or %.

External Vacuum is only available on the Boxer and Lynx series.

With the External Vacuum programme, you can programme as with any other programme. See *Changing the Programme Settings* on page 39. Check in advance whether the relevant food container can withstand and hold a vacuum.

To enable the External Vacuum option on the machine, follow the following steps.

1. Make sure the machine is turned OFF.
2. Press the **+ / VACUUM STOP** and **Cursor key** at the same time and turn on the machine with the ON/OFF switch. Keep the buttons pressed for at least 5 seconds.

The starting codes appear and after 5 seconds  appears on the large display.

3. Press the **PROG 0 – 9**.

The mode changes to External Vacuum.  changes to .

4. Press the **+ / VACUUM STOP** button.

"E 1" changes to "E 0".

The External Vacuum option has now been deactivated.

5. Press the **REPROG** button to store the settings and return to operation mode.

To select the External Vacuum option, follow the steps below.

6. Select the External Vacuum programme.
  - a. Press the **Pump Cleaning Programme** button.  
The display will show "C".
  - b. Press the **Cursor key**.  
The display will show "E".
7. Programme the External Vacuum programme according to the steps specified in *10- Programme Control System* on page 39.
8. Connect the external vacuum hose to the machine by placing the adapter over the suction inlet (1) in the vacuum chamber.
9. Connect the external vacuum hose to the packaging.
  - a. Connect the adapter (3) of the external vacuum hose to the valve of the packaging.
  - b. Slide the sliding valve (2) towards the hose (closed position).

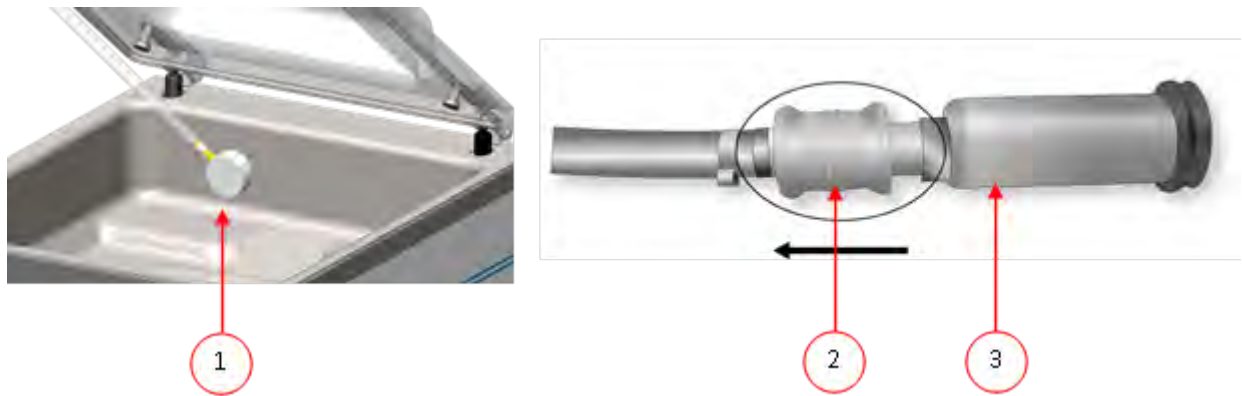


Figure 16: External Vacuum Adapter Set (10-Programme Control System)

10. Press the **+ / VACUUM STOP** button to start vacuuming.  
The packaging is vacuumed until the programmed value is reached.
11. Slide the sliding valve of the adapter towards the packaging (open position) and remove the external vacuum hose from the packaging.

### 6.7.2 Advanced Control System (ACS)

Users can view the machine programmes and activate the functions in the navigation mode. This is the mode that appears immediately after start-up.



Figure 17: Screenshot of the navigation mode and the operating buttons of the ACS

No.	Element	Explanation
1.	Programme number/name	The programme shows the currently selected, pre-set programme. By switching to a different programme, other functions will be activated. The programme selection depends on the product being packaged.
2.	Functions	These functions are active or inactive. If a function is active, it is displayed in a blue shade. If a function is inactive, it is displayed in a grey shade.
3.	Function active/inactive	The selected function is marked with a green circle. The name and current value of this function will appear on the screen. If the + functions are activated, the + is indicated in colour. If these functions are not active, they are displayed in a grey shade.



No.	Element	Explanation
4.	Menu	The machine settings can be adjusted via the Menu pictogram at the left of the function overview.

1. Press the ▲ or ▼ buttons to select the desired programme.
2. Press the ◀ or ▶ buttons to view the functions.
3. After selecting the desired function, press **Enter** to view and adjust the function settings. Users can view the pre-set configuration and the owner is also authorised to change it.
4. Select the Machine Settings menu and press **Enter** to adjust the machine settings. This menu can only be accessed by the owner. See *Guideline for Function Values* on page 54 for the possible limit values of the function values.

### 6.7.2.1 Programming the ACS Control Using the PC

You can import labels and programmes from a USB stick by inserting the stick into the USB port of your machine. You can create the data to be imported using the online software that is available on the Support section of our website: <http://www.henkelman.com/en/vacuum-packaging/advanced-control-system>.

Follow the steps below to create a programme or label:

1. Click on the link of the LX Software.
2. Click on **Select a programme or label you want to change** to start a new programme. You can also click on **Select a file to import** to import existing programmes and/or labels from the machine.
3. Select the programme or label you want to change and click the button **Go**.
4. Enter all the information you need.
5. Click on **Save** to save the programme or label. Each programme and label should be stored separately using the **Save** button. Once you finish all programmes and labels, you can export them:
6. Click on **Export** to export programmes or labels.
  - Click on **Programmes** to save all programmes.
  - Click on **Labels** to save all labels.

Use an empty USB stick to export the files to your machine.

To import the programmes and labels into the machine, follow the steps below:

7. Insert a USB stick into the USB port of the machine.
8. In the menu, go to **Import/Export** and import the data.

### 6.7.2.2 Functions

The built-in functions of the machine can be enabled or disabled by the owner under Settings. See *Changing the ACS Settings* on page 32. The options of the various programmes can then be programmed.

### 6.7.2.3 Vacuum

During the cycle, the air is removed from the chamber until the set pressure has been reached (sensor-controlled).

To set the Vacuum option, follow the steps below:

1. Press the cursor keys ◀ and ▶ and select the programme Vacuum.
2. Press **Enter** to open the menu.
3. If Vacuum is not enabled, enable it. Press **Enter** and use the cursor keys ▲ and ▼ to turn ON Vacuum. Press **Enter**.
4. Use the cursor keys ▲ and ▼ to go to the value for the Vacuum and press **Enter**.
5. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
6. Press the cursor key ◀ to return to the menu.
7. Close the lid to start vacuuming.

### 6.7.2.4 Vacuum+ (optional)

If a lot of air is trapped in the product, it may be desirable to extend the vacuuming time after the maximum vacuum has been reached. This to allow entrapped air to escape from the product.

You can only set Vacuum+ if Vacuum has been set to the maximum (99.8%). To set the Vacuum+ option, follow the steps below:

1. Set the value of the Vacuum to the maximum (99.8%) as described in *Vacuum* on page 48.
2. Enable Vacuum+. Use the cursor keys ▲ and ▼ to go to the value for the Vacuum+ and press **Enter**.
3. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
4. Press the cursor key ◀ to return to the menu.
5. Close the lid to start vacuuming.

### 6.7.2.5 Gas (optional)

For the protection of the product, it may be desirable to insert a gas into the packaging after vacuuming. Optionally, the machine can be equipped with a gas flush system. To enable the gas flush function, a gas valve needs to be installed in the machine.

See *Technical Data* on page 96 for the connection details.



Never use a gas mixture containing more than 20% oxygen or other explosive gases. This may cause life-threatening explosions.



The insertion of gas lowers the seal pressure. The minimum final pressure (after the insertion of gas) must be 30% (300 mbar) to ensure proper sealing.

To enable the Gas flush function, follow the following steps:

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Hardware**.



4. Go to **2.2 Gas flush** and set the value to "On".
5. Press the cursor key ◀ to return to the menu.  
To set the Gas function, follow the steps below:
6. Press the cursor keys ▲ and ▼ and select the programme Gas.
7. Press **Enter** to open the menu.
8. If Gas is not enabled, enable it. Press **Enter** and use the cursor keys ▲ and ▼ to turn ON Gas. Press **Enter**.
9. Use the cursor keys ▲ and ▼ to go to the value for Gas and press **Enter**.
10. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
11. Press the cursor key ◀ to return to the menu.
12. Close the lid to start vacuuming.

#### 6.7.2.6 Gas+ (optional)

The Gas+ option only applies if the machine is equipped with the gas option. For some products it may be desirable to insert additional gas into the packaging to create a "balloon packaging". This allows for a better protection of a fragile product. The recommended value for Gas+ is 0.7 seconds.

To set the Gas+ option, follow the steps below:

1. Set the value of Gas in accordance with *Gas (optional)* on page 48.
2. Enable Gas+. Use the cursor keys ▲ and ▼ to go to the value for Gas+ and press **Enter**.
3. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
4. Press the cursor key ◀ to return to the menu.
5. Close the lid to start vacuuming.

#### 6.7.2.7 Liquid Control (optional)

The Liquid Control option can be enabled or disabled for each programme. If the product reaches the boiling point before the set vacuum is reached, the machine will proceed to the next step of the cycle.

To set the Liquid Control option, follow the steps below:

1. Press the cursor keys ◀ and ▶ and select the programme Liquid Control.
2. Press **Enter** to open the menu.
3. If Liquid Control is not enabled, enable it. Press **Enter** and use the cursor keys ▲ and ▼ to turn ON Liquid Control. Press **Enter**.
4. Use the cursor keys ▲ and ▼ to go to the value for Liquid Control and press **Enter**.
5. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
6. Press the cursor key ◀ to return to the menu.
7. Close the lid to start vacuuming.

The Liquid Control function prevents excessive fluid from being drawn out of the product. This means that if the product reaches the boiling point, the machine will proceed to the next step of the cycle. Depending on the moisture content, the manner in which moisture is bound, the available surface for evaporation and the temperature, the end vacuum percentage might be limited and there might be too much residual oxygen content present in the package. If the product/process

requires packaging with a low residual oxygen content, despite the high moisture content, there are two options:

1. Lower the product temperature. This allows for a deeper vacuum to be reached before the product reaches the boiling point.
2. Use the Liquid Control+ option.

#### 6.7.2.8 Liquid Control+ (optional)

The Liquid Control+ time is set in seconds. This is the time the vacuuming will continue after detection of the evaporation point.

The specific group of products which is packaged with the Liquid Control function, generally has a high water content. As described earlier, products will reach a boiling point with a limited vacuum level. When using the Liquid Control+ option, the machine will not directly proceed to the next step of the cycle when the boiling point is reached. Instead, the machine will continue vacuuming during the set Liquid Control+ value. During this extra vacuum time, a lot of water vapour will be released from the product during a short period. This "front" will push the remaining "air" left in the packaging, out of the bag. This will considerably lower the final remaining oxygen level. The Liquid Control+ value is set per 0.1 second to prevent the boiling, the sealing location and even the vacuum chamber from being contaminated.

Achieving a residual oxygen content as low as possible, without excessive fouling, therefore requires a highly specific setting of Liquid Control+. As mentioned before, the extent to which a product boils is dependent on a number of things, and the correct Liquid Control+ setting can only be experimentally determined.

You can only set Liquid Control+ if Liquid Control has been set to the maximum (99.8%). To set the Liquid Control+ option, follow the steps below:

1. Set the value of Liquid Control to the maximum (99.8%) as described in *Liquid Control (optional)* on page 49.
2. Enable Liquid Control+. Use the cursor keys ▲ and ▼ to go to the value for Liquid Control+ and press **Enter**.
3. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
4. Press the cursor key ◀ to return to the menu.
5. Close the lid to start vacuuming.

#### 6.7.2.9 Red Meat (optional)

When packaging large pieces of fresh meat, the product continues to degas during the sealing phase. Since the opening of the vacuum bag is already closed, air pockets may form inside the package after decompressing. This function prevents these air pockets.

To set the Red Meat option, follow the steps below:

1. Press the cursor keys ◀ and ▶ and select the programme Red Meat.
2. Press **Enter** to open the menu.
3. If Red Meat is not enabled, enable it. Press **Enter** and use cursor key ▲ and ▼ to turn ON Red Meat. Press **Enter**.
4. Use the cursor keys ▲ and ▼ to go to the value for the Ventilation Time and press **Enter**.
5. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.

6. Use the cursor keys ▲ and ▼ to go to the value for the Pause Time and press **Enter**.
7. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
8. Press the cursor key ◀ to return to the menu.
9. Close the lid to start vacuuming.

A Red Meat+ function is also available. It works the same as the Vacuum+ function (see *Vacuum+ (optional)* on page 48).

#### 6.7.2.10 Sequential Vacuum (optional)

The Sequential Vacuum option allows you to vacuum in up to 5 steps, alternating vacuuming steps with maintaining periods. Each step increases the vacuum reached in the previous step.

To set the Sequential Vacuum option, follow the steps below:

1. Press the cursor keys ◀ and ▶ and select the programme Sequential Vacuum.
2. Press **Enter** to open the menu.
3. If Sequential Vacuum is not enabled, enable it. Press **Enter** and use the cursor keys ▲ and ▼ to turn ON Sequential Vacuum. Press **Enter**.
4. Use the cursor keys ▲ and ▼ to go to the value for the Vacuum 1 and press **Enter**.
5. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
6. Use the cursor keys ▲ and ▼ to go to the value for the Time 1 and press **Enter**.
7. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
8. Repeat steps 4 to 7 for the other Vacuum steps (2 to 5) and Times (2 to 5). At each Vacuum step, the value must be higher than that of the previous step.
9. Press the cursor key ◀ to return to the menu.
10. Close the lid to start vacuuming.

#### 6.7.2.11 Marinating (optional)

This function is especially designed to accelerate the marinating of a product. This programme allows definition of up to 5 vacuuming steps with intermediate ventilation steps.

The vacuuming steps have a fixed vacuum value of 80%, except for the last step. The last vacuuming step has an adjustable value of up to 99.8%. This also allows setting Vacuum+. The intermediate ventilation steps have a fixed value of 40%. After the last step, sealing takes place. To set the Marinating option, follow the steps below:

1. Press the cursor keys ◀ and ▶ and select the Marinating programme.
2. Press **Enter** to open the menu.
3. If Marinating is not enabled, enable it. Press **Enter** and use the cursor key ▲ and ▼ to turn ON Marinating. Press **Enter**.
4. Use the cursor keys ▲ and ▼ to go to the value for the Vacuum of the last step and press **Enter**.
5. Use the cursor keys ▲ and ▼ to go to the number of steps and press **Enter**.
6. Use the cursor keys ▲ and ▼ to set the number of steps and press **Enter**.
7. Press the cursor key ◀ to return to the menu.
8. Close the lid to start vacuuming.

Vacuumping will take place in the set number of steps of 80% vacuum and 40% ventilation. Then vacuumping will continue until the set vacuum of the last step. If, for instance, 3 steps have been set with an end vacuum of 90%, vacuumping will take place as follows: 80% -> 40% -> 80% -> 40% -> 80% -> 40% -> 90%.

It is also possible to enable Liquid Control. This function will then only be active during the last vacuumping step. If, for instance, 3 vacuumping steps have been defined, Liquid Control will be active during the third step. Liquid Control+ is also possible here, see *Liquid Control+ (optional)* on page 50.

#### 6.7.2.12 Tenderising (optional)

This feature has been designed to keep the chamber at a pre-determined vacuum level for a certain time. This is done to tenderise or degas the product.

To set the Tenderising option, follow the steps below:

1. Press the cursor keys ◀ and ▶ and select the programme Tenderising.
2. Press **Enter** to open the menu.
3. If Tenderising is not enabled, enable it. Press **Enter** and use the cursor keys ▲ and ▼ to turn ON Tenderising. Press **Enter**.
4. Use the cursor keys ▲ and ▼ to go to the value for the Tenderising and press **Enter**.
5. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
6. Use the cursor keys ▲ and ▼ to go to the value for the Tenderising Time and press **Enter**.
7. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
8. Use the cursor keys ▲ and ▼ to go to the value for Accuracy and press **Enter**.
9. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
10. Press the cursor key ◀ to return to the menu.
11. Close the lid to start vacuumping.

#### 6.7.2.13 Seal

This is the time that the sealing wire and/or the cut-off wire are heated. The longer the time, the more heat is transferred to the bag.

As an option, the machine can be equipped with a Seal 1-2 option. This means the seal wire is activated separately from the cut-off wire. This way the cut-off wire can be activated a bit longer, to cut through thicker bags.

To set the Seal option, follow the steps below:

1. Press the cursor keys ◀ and ▶ and select the programme Seal.
2. Press **Enter** to open the menu.
3. Use the cursor keys ▲ and ▼ to go to the value for the Sealing Time and press **Enter**.
4. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.



When Seal 1-2 is activated, the cut-off time cannot be set lower than the seal time.

5. Press the cursor key ◀ to return to the menu.

6. Close the lid to start sealing.

#### 6.7.2.14 Soft-Air

This is the time that air is softly released into the chamber after sealing has taken place. To enable the Soft-air function, a soft-air valve needs to be installed in the machine.

To enable the Soft-air function, follow the following steps:

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Hardware**.
4. Go to **2.4 Softair** and set the value to "On".

The Soft-air function is now enabled.

5. Press the cursor key ◀ to return to the menu.

To set the Soft-air function, follow the steps below:

6. Press the cursor keys ▲ and ▼ and select the programme Soft-air.
7. Press **Enter** to open the menu.
8. If Soft-air is not enabled, enable it. Press **Enter** and use the cursor keys ▲ and ▼ to turn Soft-air ON. Press **Enter**.
9. Use the cursor keys ▲ and ▼ to go to the value for the Soft-air time and press **Enter**.
10. Set the desired value using the cursor keys ▲ and ▼ and press **Enter**.
11. Press the cursor key ◀ to return to the menu.
12. Close the lid to start sealing.

#### 6.7.2.15 External Vacuum (optional)

The External Vacuum function allows special food containers to be vacuumed outside the machine. The packaging is vacuumed until a vacuum of 99.8% is reached.

External Vacuum is only available on the Boxer and Lynx series.

Check in advance whether the relevant food container can withstand and hold a vacuum.

To enable the External Vacuum option on the machine, follow the following steps.

1. Open the menu.
2. Enter the owner code 1324 or the dealer code 4753.
3. Go to **Settings**.
4. Go to **1.6 Options**.
5. Go to **External vacuum** and set the value to "On".

The External vacuum function is now enabled.

6. Press the cursor key ◀ to return to the menu.

To select the External Vacuum option, follow the steps below:

7. Connect the external vacuum hose to the machine by placing the adapter over the suction inlet (1) in the vacuum chamber.
8. Connect the external vacuum hose to the packaging.
  - a. Connect the adapter (3) of the external vacuum hose to the valve of the packaging.
  - b. Slide the sliding valve (2) towards the hose (closed position).

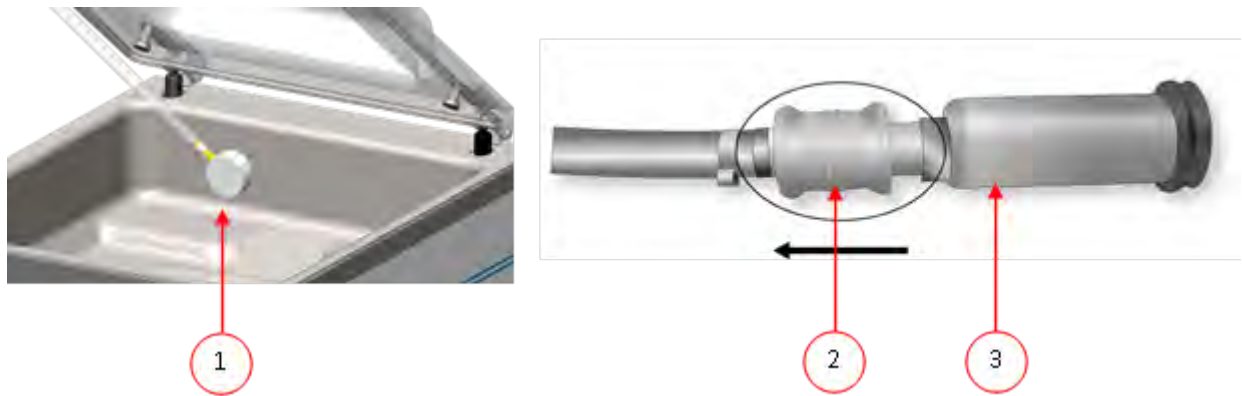


Figure 18: External Vacuum Adapter Set (ACS)

9. Press the cursor keys and select the programme External Vacuum to start vacuuming. The packaging is vacuumed until the maximum vacuum is reached.
10. Slide the sliding valve of the adapter towards the packaging (open position) and remove the external vacuum hose from the packaging.

#### 6.7.2.16 Dealer Information

If dealer information is entered into the machine, this will be displayed on the start-up screen.

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Service**.
4. Go to **3.10 Dealer information**.
5. Go to **Name** to enter the dealer name.  
The name will only be displayed in the start-up screen if 2 or more characters are entered here.
6. Go to **Telephone nr.** to enter the dealer telephone number.  
The telephone number will only be displayed in the start-up screen if 2 or more characters are entered here.
7. Press the cursor key ◀ to return to the menu.

## 6.8 Guideline for Function Values

For each function, values can be set if you are authorised 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.

For the values in the table below, the following rule of thumb applies to setting a value in mbar. These values may vary slightly, depending on the humidity.

- 99.8% = 2 mbar
- 0% = 1013 mbar

Function	Range	Conditions
Vacuum	0 – 99% (for 10-prog control) 30 – 99.8% (for ACS)	Rule of thumb: the higher the vacuum, the less oxygen remains in the package and the longer the shelf life of the product. There are exceptions to this rule.
Vacuum+	0 – 99 seconds (for 10-prog control) 0 – 20 seconds (for ACS)	This is the time the vacuuming will continue after the maximum vacuum has been reached. This to allow entrapped air to escape from the product. Please note that the vacuum must be set to the maximum.
Gas	30 – 98% (for 10-prog control) 1 – 69% (for ACS)	For some products it may be desirable to insert gas into the packaging to increase the shelf life of the product.
Gas+	0.1 – 1 second	For some products it may be desirable to insert additional gas into the packaging to create a "balloon packaging". This allows for a better protection of a fragile product. The recommended value for Gas+ is 0.7 seconds.
Red meat	0.1 – 1 second	When packaging large pieces of fresh meat, the product continues to degas during the sealing phase. Since the opening of the vacuum bag is already closed, air pockets may form inside the package after decompressing. This function prevents these air pockets.
Liquid Control	0 – 99% (for 10-prog control) 30 – 99.8% (for ACS)	If the pressure is reduced, the boiling point of liquids will be decreased. As a result of this law of nature, a product may start boiling. In addition to contamination of the machine, this will reduce the weight and quality of the product to be packaged. By enabling the Liquid Control function, this special sensor will detect the evaporation point, and the programme will stop vacuuming and proceed to the next step in the packaging process. The value that can be set is the maximum achievable vacuum value. Please keep in mind that this maximum vacuum value can only be achieved as long as the product does not start boiling.
Liquid Control+	1 – 99 seconds (for 10-prog control) 0.1 – 5.0 seconds (for ACS)	This is the time the vacuuming will continue after detection of the evaporation point. Because of the evaporation, a minor shockwave may occur, pushing all remaining air from the bag. The best way to determine the right time is trial and error.



Function	Range	Conditions
Sequential Vacuum (ACS)/Multi-Cycle Vacuum (10-prog control)	0 – 99% (for 10-prog control) 30 – 99.8% (for ACS)	If the value for the Vacuum+ time is insufficiently effective for the entrapped air to escape, the Sequential Vacuum/Multi-Cycle Vacuum Step must be enabled. In maximum five steps, vacuuming is alternated with maintaining time. Each step increases the vacuum reached in the previous step.
Marinating	40 – 99.8%  Steps: 1 – 5	Only in case of ACS control. This is the adjustable value of the last step. If it is set to 40%, no more vacuuming will take place during this step, but it will immediately proceed to sealing. 1 – 5 steps can be set. The set end vacuum can only be achieved during the last step.
Tenderising	30 – 99.8%  Time: 0 – 30 minutes	Only in case of ACS control. This is the value at which the Tenderising takes place. The duration of the Tenderising process can also be set.
Seal time 1-2 cutting time	0.1 – 4.0 seconds	This is the time that the sealing wire and/or the cut-off wire are heated. The longer the time, the more heat is transferred to the bag.
Cleaning of the pump	15 minutes	Fixed value.



The vacuum in the chamber must be at least 30% at the moment of sealing.

If the pressure is reduced, the boiling point of liquids will be decreased; see *Figure 19: Vapour Pressure Curve of Water* on page 57. As a result of this law of nature, a product may start boiling. In addition to contamination of the machine, this will reduce the weight and quality of the product to be packaged.

When packaging moisture-containing products, such as soups and sauces, it is important to closely monitor the vacuuming process. The moment bubbles are formed or the product starts to bubble, you should immediately proceed to the next step in the cycle. See *Proceeding to the Next Step in the Cycle* on page 39.

By letting products cool down sufficiently prior to starting the vacuuming process, a higher vacuum can be achieved.

If the machine is equipped with the Liquid Control option, the control will automatically proceed to the next step if the product starts boiling.

When packaging moisture-containing products, it is important to run the pump cleaning programme at least once a week. When moisture-containing products are vacuumed on a daily basis, it is recommended to run the pump cleaning programme at the end of the day.



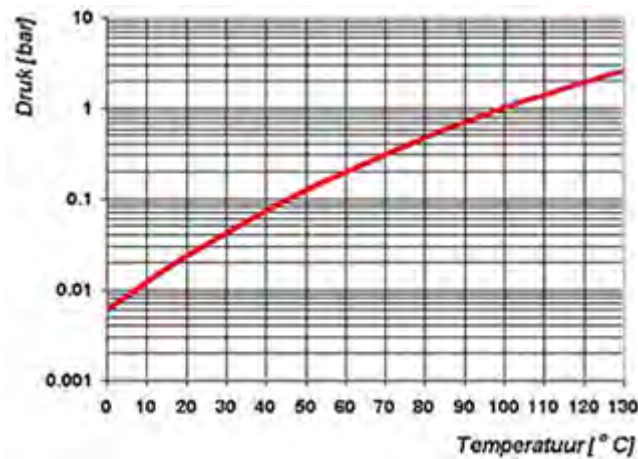


Figure 19: Vapour Pressure Curve of Water

## 6.9 Printer (ACS only)

A printer can be connected to the machine to print package labels.

### 6.9.1 Connecting a Printer

To connect a printer to the machine, follow the steps below:

1. Connect the printer to the mains supply.
2. Connect the printer to the USB connector on the machine.
3. Turn on the printer.
4. Select the correct printer in the machine menu.
  - a. Open the menu.
  - b. Enter the owner code 1324.
  - c. Go to **Settings**.
  - d. Go to **1.1 Printer**.
  - e. Select **ZD410**.
  - f. Press the cursor key ◀ to return to the menu.

### 6.9.2 Creating a Label

To create a label, perform the steps below:

1. Open the menu.
2. Enter the owner code 1324.
3. Go to **Settings**.
4. Go to **1.1 Printer**.
5. Go to **Labels**.
6. Enter the desired information.
  1. Customer name
  2. Label number
  3. Name
  4. Info

5. Use by / Storage life
6. Storage temperature
7. Print customer name Y/N
8. Print info Y/N
9. Print achieved vacuum Y/N
10. Print expiry date Y/N
11. Print user Y/N
12. Print storage temperature Y/N

Once the printer is selected and the required information for the label is entered, the printer can be activated on each separate programme. To do this, go to the main menu, all the way to the right. Here you can enable or disable the printer and select the label number you require. You can also select the number of labels you require per cycle.

If you require an additional label after the complete cycle has ended and all labels have already been printed, select the **Print extra label** option. This will print the last printed label again.

To replace the label roll, follow the instructions in *Replacing a Printer Roll* on page 107.

To align the printer prior to printing the first label, follow the instructions in *Aligning the Printer* on page 108.

## 7 Operating Neo

This chapter describes how to operate the Neo vacuum packaging machine.

The machine is equipped with sample programmes with preset parameters (see *Example Programmes* on page 101).

It is possible to optimise a programme for your products by modifying the parameters of a programme, see *Changing the programme* on page 61.

For more information about the functions and values please see *Packaging Process/Machine Functions* on page 17 and *Guideline for Function Values* on page 54.

To prevent unauthorised changing of the settings and adjustments, there are different levels of authorisation: user and owner. Authorisation codes for users or owners allow access to the various levels. User access to change the settings of the machine is limited. The default user code is 0000. Owners of the machine are authorised to change the machine settings as well as all function settings. An owner code is requested when the menu is selected (see *Notifications* on page 70). This owner code is 1324. When the owner code has been entered, the machine settings menu will be opened. When logged in, the function settings can also be changed. The machine remembers the last authorisation code used, even when the machine has been turned off. Therefore, it is necessary to manually change the authorisation setting when you are done.



- All persons responsible for the operation of this machine must at least fully read and understand the chapters *Safety* on page 9 and *Operating Neo* on page 59.
- Failure to follow or disregard of the safety instructions may result in serious injury.

## 7.1 Operating elements on the Neo control panel

The Touch control panel of the Neo allows the machine to be operated and programmes to be changed.



- 1, 2: Display;
- 3a, 3b, 3c: Units;
- 4-9: Option icons;
- 10-15: Programme icons;
- 16-19: Function icons;
- 20 (-), 21 (+): Change icons;
- 22: Pump cleaning icon;
- 23: Power icon;
- 24: Enter/confirm icon.

Figure 20: Neo control panel

### 1. Starting the control panel

Touch the On/Off button (23) to turn on the control panel and the machine.

### 2. Programme display (1)

Shows the selected programme.

### 3. Select a programme

Touch + (21) or – (20) to select the desired programme.

### 4. Changing programme settings

Touching the function icons 16-19 enables the programming mode, which is used for changing the programme settings.

### Starting a programme

By closing the lid the selected programme is started. The control panel displays the steps that are performed during the execution of the programme.

### Pump cleaning (icon 22)

The pump cleaning icon (22) can be used to activate the pump cleaning programme. Moisture can be absorbed by the oil when the pump is running only short cycles or when you are packaging moisture-containing products. This programme removes moisture from the oil of the vacuum pump. See *Running the Pump Cleaning Programme* on page 75 for instructions.

## 7.2 Starting the machine

1. Plug in the machine.
2. Touch the power button on the control panel (23) to enable the operation.

## 7.3 Selecting a programme

Touch + (21) or – (20) to select the appropriate programme: 1-20 shown in the display (1).

## 7.4 Changing the programme

The selected programme can be changed by touching the respective function icon (i.e. one of the four function icons 16 – 19, selected in the previous section).

### 7.4.1 Changing the vacuum settings (icon 16)

Touching the vacuum icon (16) shows the vacuum percentage in the display (2). Touch + (21) or – (20) to change the vacuum value and touch enter to confirm. After programming the maximum vacuum (99.8 %) you can add extra seconds to extend the vacuum time (p). Touch + (21) or – (20) to change the time value (vacuum + time) and touch enter (24) to confirm. The values are now stored in the machine.

### 7.4.2 Changing the gas settings (icon 17)



Only for machines equipped with the gas function

After touching the gas icon (17), this option can be switched on or off by touching + (21) or – (20), respectively. Touch enter (24) to confirm. In the event this option is activated, the current value for the gas percentage is shown in the display (2). Touch + (21) or – (20) to change this value and touch enter (24) to confirm. Upon confirmation, the (short) time interval (p) of the gas delivery can be selected (gas + time). Touch + (21) or – (20) to change the time value as shown in the display (2) and touch enter (24) to confirm. The values are now stored in the machine.

### 7.4.3 Changing the seal time (icon 18)

By touching the seal icon (18), the current value for the seal time is shown in the display (2). Touch + (21) or – (20) to change the seal time value and touch enter (24) to confirm. The new value for the seal time is now stored in the machine.

### 7.4.4 Changing the soft air time (icon 19)

After touching the soft air icon (19), this function can be switched on or off by touching + (21) or – (20), respectively. Touch enter (24) to confirm. In the event this function is activated, the current value for the soft air time is shown in the display (2). Touch + (21) or – (20) to change this value and touch enter (24) to confirm. The new value for the soft air time is now stored in the machine.

## 7.5 Running the packaging cycle

The machine must be started in accordance with *Starting the machine* on page 61 before starting a packaging cycle.

1. Select the desired programme (1-20).
2. Put the product/products in the vacuum bag.
3. Place the vacuum bag into the vacuum chamber.  
Make sure the opening(s) is/are correctly placed with respect to the seal position(s).
4. Close the lid.

The packaging cycle will start.

## 7.6 Proceeding to the next cycle step

For some products, it may be necessary to proceed to the next step in the packaging cycle before the vacuum time or the vacuum level has been reached.

Touch the + (21) icon to proceed to the next cycle.

## 7.7 Cleaning the pump

Touch the pump cleaning icon (22) and close the lid. The conditioning cycle will start. For more information please see *Running the Pump Cleaning Programme* on page 75.

## 7.8 Selecting options on the machine in the option menu

First select the programme for which the desired option must be activated (1-20). Now the options can be selected by touching and holding the enter icon (24) for 3 seconds. The first option will illuminate (icons 4-8). Touch + (21) or – (20) to change the illuminated icon to the desired option and confirm by touching enter (24). Touch + (21) or – (20) to switch the selected option on or off. Touch and hold enter (24) for 3 seconds to exit the option menu. The selected option will remain illuminated as part of the programme that was selected before entering the option menu. If it is possible to adjust a value (e.g. vacuum + time) for the selected option, this can be done by pressing the vacuum icon (16), changing the value that is shown on the display (2) by touching + (21) or – (20) and confirming the new value by touching the enter icon (24).

### 7.8.1 Liquid control (icon 4)



Only for machines equipped with the liquid control function

This option can be combined with the three other options, i.e. red meat, step vacuum and marinating, see the paragraphs below. When liquid control is activated in the option menu, the vacuum + time can be adjusted by touching the vacuum icon (16) and changing the value that is

shown on the display (2) by touching + (21) or – (20). Confirm the new value by touching the enter icon (24).

### 7.8.2 Red meat (icon 5)

When red meat is selected in the option menu as the only active option, only the vacuum value needs to be set. There are no additional settings under the vacuum icon (16). The red meat option has a pre-set value that cannot be changed.

### 7.8.3 Step vacuum (icon 6)

When step vacuum is activated in the option menu, the vacuum icon (16) can be used to adjust the respective values. Upon touching the vacuum icon (16) the vacuum value for the first step is shown on the display (2). Touch + (21) or – (20) to change the value and confirm by touching enter (24). Now the maintaining time of step 2 is shown in the display (2). Touch + (21) or – (20) to change the maintaining time and confirm by touching enter (24). This can be repeated up to 5 steps. The last step can be defined by selecting “End” for the maintaining time (touch + (21) or – (20) while adjusting the time for your last step until “End” is shown in the display (2)). Confirm your last step by touching enter (24).

### 7.8.4 Marinating (icon 7)

When marinating is activated in the option menu, the vacuum icon (16) can be used to adjust the respective values. Upon touching the vacuum icon (16) the vacuum value is shown on the display (2). Touch + (21) or – (20) to change the value and confirm by touching enter (24). If the maximum vacuum (99.8%) has been set, the duration (vacuum + time) is shown in the display (2). Touch + (21) or – (20) to change the duration and confirm by touching enter (24). Finally, the number of marinating steps is shown on the display (2). Touch + (21) or – (20) to change the number of steps and confirm by touching enter (24).

## 7.9 Terminating a Programme

Programmes such as the packaging programme or the pump cleaning programme can be terminated at any time.

Touch the - (20) icon to terminate the programme and decompress the vacuum chamber.

## 7.10 Switching off the machine

You can switch off the machine by touching and holding the power icon (23) for 3 seconds.

## 7.11 Using the App

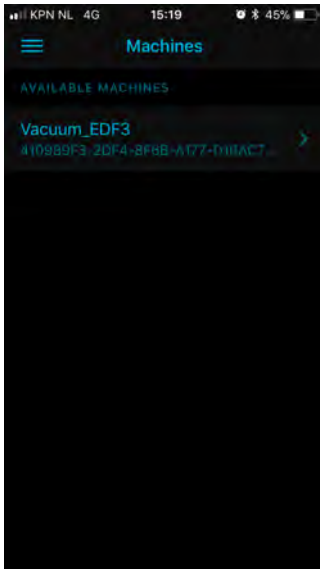
The Neo can be controlled with the App on your smart phone. The App provides more functionality than the control panel on the machine. Follow the instructions in the paragraphs below to enjoy the additional possibilities when using the App.

## 7.11.1 Downloading the App

Download the App 'VacAssist' in the App Store/Play Store. Install the App and run it.

Your Neo is shown on the start screen of the App (e.g. Vacuum\_....). If no machine is found, follow the instructions on the screen.

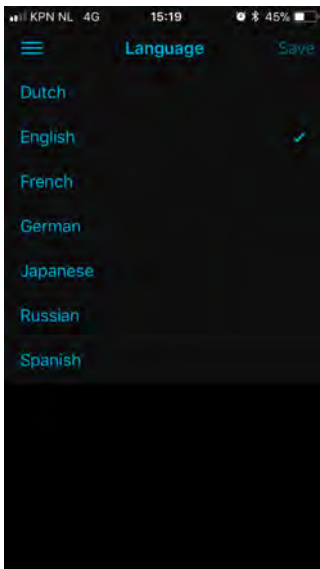
Tap on your machine name to connect.



Optional: Changing the language

To change your language, tap on the menu item in the upper left corner of your screen and select 'Language'.

Tap on your language and return to the main screen.



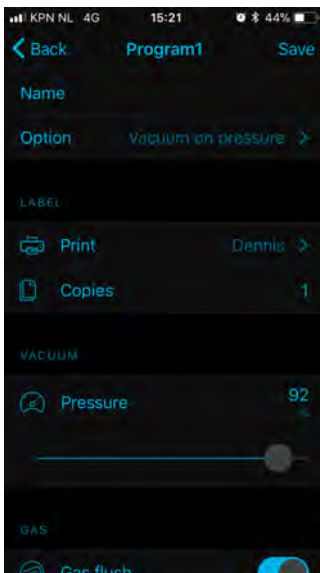
## 7.11.2 Programmes in the App

Once your smart phone is connected, the App shows 20 individual programmes.





Tap on a programme to select it. This will bring you to the adjustable programme parameters for the programme you selected.



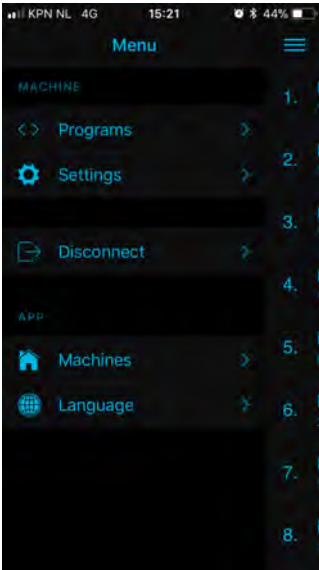
Tap on a parameter to adjust its value.

Tap on Save when you are finished adjusting. The new parameter values are saved and the App returns to the programme list.



When you are satisfied with the parameter settings of the individual programmes and you want to use the Neo, you have to disconnect with the machine. This can be done by tapping on the menu icon in the upper left corner of your screen.

Tap on 'Disconnect' in the next screen.



## 7.12 Printer

A printer can be connected to the machine to print package labels.

### 7.12.1 Connecting a Printer

To connect a printer to the machine, follow the steps below:

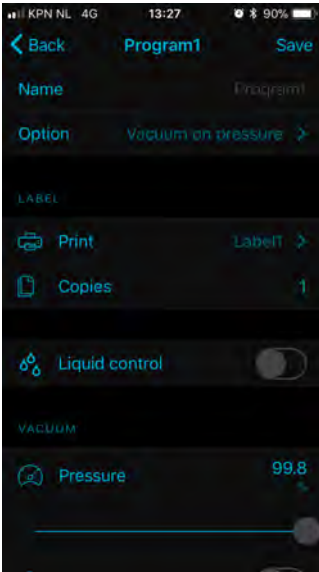
1. Connect the printer to the mains supply.
2. Turn on the printer.
3. Turn on the machine.
4. The printer connects automatically to the machine by Bluetooth.

### 7.12.2 Creating a Label (App only)

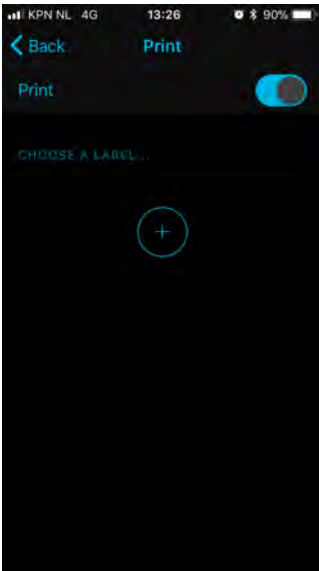
To create a label, perform the steps below:

1. Make sure that the printer is switched off and that you are logged in as an owner (on the machine).
2. Open your Vacassist App and connect to the machine.
3. The App opens in Programmes, select a programme.

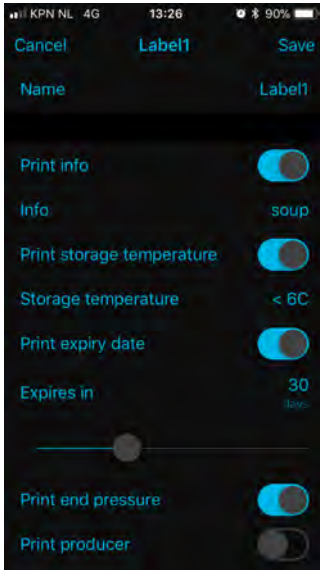
4. Go to Label Print and activate the function.



5. Press + to add a label.



6. Enter the desired information and save the label.



7. Choose the label in your programme.

8. Disconnect your phone in order to use the machine.

The printer can be activated on each separate programme. You can also select the number of labels you require per cycle.

To replace the label roll, follow the instructions in *Replacing a Printer Roll* on page 107. To align the printer prior to printing the first label, follow the instructions in *Aligning the Printer* on page 108.

## 7.13 Data Log ID

The control system is provided with the option to store the production information. The data log is stored in lined entries. Each entry consists of:

- Date
- Time
- User
- Selected programme and settings
- Selected label
- Number of cycles

A new entry is stored when:

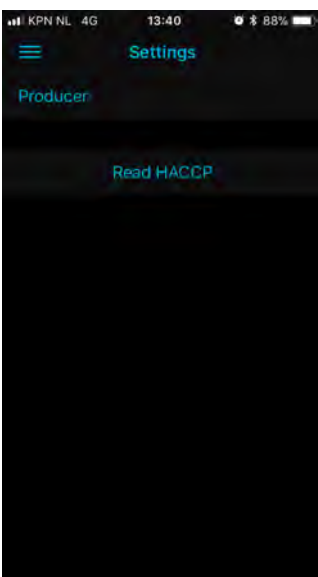
- A different user logs in.
- The programme or programme settings are changed.

The HACCP setting is disabled by default. This option can be enabled after logging in using the owner code.

Five possible users can log in on the machine with their respective code, the owner and four other users:

- Owner: 1324
- User 1: 3821
- User 2: 5718
- User 3: 6982
- User 4: 9217

1. Activate the HACCP function in the menu of your machine ( no. 15, see *Table 1: Machine function menu and default settings* on page 70) and log in using the owner code (1324).You will be granted access to the relevant settings.
2. Switch the machine off and on again. One of the five codes must be entered in order to be able to use the machine.
3. Go to your Vacassist App and connect to the machine.
4. Open the menu, go to settings and Read HACCP.



4. Tap on Read HACCP, you can now read the information and make a print screen if needed.



## 7.14 Notifications

- A programme created with the App, having a feature that is not available using the control panel, cannot be altered through the control panel. Instead, you can reset this programme to the factory setting. In order to do this, touch and hold the Seal icon (18) for 3 seconds. The screen (2) will show 'DFLT'. Touch Enter (24) to confirm.
- If your printer is active, it will automatically connect to your Neo when you switch it on. As the Neo can only connect to a single device, you have to switch off your printer, before attempting to connect to the App on your smart phone.
- Icons 10-15 can only be activated through the App. The icons on the control panel are merely for personalizing a programme.
- Programmes, settings and options can only be altered as an owner. To log on as owner, touch and hold the pump cleaning icon (22) on the machine for 3 seconds and put 1324 in the display (2) using - (20) and + (21) and touch Enter (24) to enter the menu. Touch and hold the pump cleaning icon (22) for 3 seconds again. You can now adjust the programmes, options and date and time settings based on your wishes.

Number	Function	Abbrev.	Options	Default
6	printer	prnt	on/off	off
7	units	unit	%/mbar	%
8	red meat	red	on/off	on
9	sequential	seq	on/off	off
10	marinating	mari	on/off	on
11	external vac	ext	on/off	off
12	tenderising	tend	on/off	off
13	date MDY	date	dmy/mdy/ynd	dmy
14	time	time	12 h/24 h	24 h
15	HACCP	hacp	on/off	off
A1	set clock time	date		
A3	reset printer	prnt		
A8	reset HACCP log	hacp		

Table 1: Machine function menu and default settings



See *Neo Parameter Table* on page 109 for lists of the parameters that can be edited on specific service levels.

## 8 Maintenance

When carrying out maintenance work, always observe the following safety rules.

- Only trained technicians are authorised to perform the described maintenance activities.
- Always disconnect the power supply by disconnecting the plug.
- Test the machine after carrying out maintenance work or repairs to make sure the machine can be used safely.


### 8.1 Machine Counter (10-Programme Control System)

The machine counter function registers the operation time of the machine and several functions. This can be used to get information about the state and the use of the machine. The functions that are registered and that the display will show are:

- The total amount of hours that the pump has run.
- The total number of cycles that the machine has run.
- The total number of cycles that the pump conditioning programme has run.

To view the machine counter, follow the following steps.

1. Make sure the machine is turned OFF.
2. Press the **Cursor key** and the **Pump cleaning programme** button and turn on the machine with the ON/OFF switch. Keep the button pressed for at least 5 seconds.

The starting codes appear and after 5 seconds  appears on the large display.

3. Release the buttons.

After 5 seconds, the display will show subsequently:

- the machine hours (per 10 hours)
- the number of cycles (per 100 cycles)
- the number of cycles of the conditioning programme.

Each value will appear for 2 seconds.



The values cannot be reset or deleted. When the values reach 99, they automatically turn to 0 and start over.

After showing the values, the control panel returns automatically to the standard operation mode.

### 8.2 Machine Counter (ACS)

The machine counter function registers the operation time of the machine and several functions. This can be used to get information about the state and the use of the machine. The functions that are registered and that the display will show are:

- The total number of cycles that the machine has run.

- The total amount of hours that the pump has run.
- The total number of cycles that the pump conditioning programme has run.

To view the machine counter, follow the following steps.

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Service**.
4. Go to **3.5 Read service log**.  
The values will be shown.
5. Press the cursor key ◀ to return to the menu.

## 8.3 Machine Counter (Neo)

The machine counter function registers the operation time of the machine and several functions. This can be used to get information about the state and the use of the machine.



see *Neo Parameter Table* on page 109 for the Neo parameter table, which lists the parameters that can be edited on specific service levels.

1. Open the menu by pressing the pump cleaning icon (22) for at least 3 s.
2. Enter the dealer code 4753.
3. In the list (with + (21) and – (20)), go to A4 conditioning cycles for the total number of cycles performed by the pump conditioning programme, go to A5 operating cycles for the total number of cycles (\*10) the machine has run and to A6 operating hours for the total number of hours the pump has run. Press Enter (23) to show the requested value.
4. In order to leave the menu, press the pump cleaning icon (22) for at least 3 s.

## 8.4 Service Hour Counter

The service hour counter function is used to set time intervals (per 10 hours) for regular maintenance purposes on the machine and / or pump.



This function is optional. It is not activated in the standard factory settings.

After expiration of the set time interval, the control panel will show a signal:



This means that the interval has expired and maintenance needs to be carried out. The machine will still operate normally but the signal will keep coming back. Moreover, the function also displays the operation hours during the time interval. Please note that the function only counts the hours that the pump is running.



## 8.4.1 Setting Service Hour Counter (10-Programme Control System)

To enable and set the Service Hour Counter, follow the following steps.

1. Make sure the machine is turned ON.
2. Press the **Cursor key** for at least 3 seconds.

After 3 seconds, the operation time (per hour) will appear on the display for 2 seconds (a value between 0 and 999).

The display will switch to the pre-set service hours interval (per hour). When the function has never been activated, OFF will appear on the display after 3 seconds.

3. Set the service hour interval with the **+ / VACUUM STOP** and **- / STOP** buttons.

The minimum value is 10 hours. The maximum value is 990 hours. The value can be increased by 10 hours.

4. Press the **REPROG** button to store the settings and return to operation mode.

## 8.4.2 Setting Service Hour Counter (ACS)

To enable and set the Service Hour Counter, follow the following steps.



When service is done on the machine, the counter needs to be reset, so the service hours are set back to 0.

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Service**.
4. Go to **3.3 Oil notification**.
5. Enable or disable the **Oil notification**.



If the notification is enabled, a message will appear after the set time, showing service on the machine is needed.

6. Optional: Set the **Indication interval** (min. 9 hours, max. 30 hours).

When the machine has run for the set hours plus the "alarm hours", a message will appear when the lid is closed.



This means the machine cannot be operated until the service hour counter has been reset!

7. Optional: Add a **Telephone nr.**, so the customer can call the dealer directly.  
This telephone number will be shown on the "service message".
8. When the settings have been changed, press **Enter** to store them.
9. Press the cursor key **◀** to return to the menu.

## 8.4.3 Setting Service Hour Counter (Neo)

To enable and set the service hour counter, follow the steps below.



see *Neo Parameter Table* on page 109 for the Neo parameter table, which lists the parameters that can be edited on specific service levels.



When service is performed on the machine, the counter must be reset in order to have the service hours reset to 0.

1. Open the menu by pressing the pump cleaning icon (22) for at least 3 s.
2. Enter the dealer code 4753.
3. In the list, go to 22 oil guard, press Enter (23) and switch it on or off using + (21) and – (20). Press Enter to confirm.

If this notification is enabled, a message will appear after the set time has elapsed, showing that service is required.

4. (Optional) Set the indication interval (min. 10 h, max. 100 h, in the list go to 23 oil popup, select the desired value using + (21) and – (20) and press Enter to confirm). When the machine has run for the set number of hours plus the “alarm hours”, see 24 oil alarm, a message will appear when the lid is closed.

This means the machine cannot be operated until the service hour counter has been reset (A2 reset oil time)!

5. In order to leave the menu, press the pump cleaning icon (22) for at least 3 s.

## 8.5 Maintenance Schedule

The diagram below shows the maintenance activities that must be performed and the interval with which these activities must be performed.

For specific descriptions for performing maintenance activities, consult the appropriate section within *Maintenance* on page 71.

Activity *	1-D	1-W	6-M	1-Y	4-Y
<b>Cleaning</b>					
Cleaning the machine.	X				
<b>Inspections</b>					
Check the oil level.		X			
Run the pump cleaning programme.		X			
Inspect the sealing bars.		X			
Inspect the silicone rubber of the silicone holders.		X			
Inspect the lid gasket.		X			
Check the plastic lid for cracks.		X			

Activity *	1-D	1-W	6-M	1-Y	4-Y
Inspect the lid springs. Pay additional attention to damage and the fastenings of the lid springs (not for the Neo series).		X			
<b>Lubrication</b>					
Replace the oil of the vacuum pump. See <i>Technical Data</i> on page 96 for the type of oil.			X		
<b>Replacement</b>					
Replace the sealing wires.			X		
Replace the silicone rubber of the silicone holders.			X		
Replace the lid gasket.			X		
Replace the oil exhaust filter.				X	
Contact your dealer for professional servicing.				X	
Replace the plastic lid.					X

\* 1-D = Daily, 1-W = Weekly, 6-M = Every 6 months, 1-Y = Annually, 4-Y = Every 4 years

## 8.6 Cleaning the Machine



Never clean the machine using a high pressure cleaner.

Do not use any aggressive or toxic cleaning agents.

Do not use any cleaning agents containing solvents.

1. Clean the surfaces with a soft, damp cloth. You can also apply a cleaning agent to the machine and wash it with clean water.

## 8.7 Running the Pump Cleaning Programme

The pump cleaning programme runs the vacuum pump for 15 minutes. During the programme, the pump and the oil reach the operating temperature. Moisture in the pump is absorbed by the oil. The high temperature causes any moisture in the pump to evaporate, and minimises the risk of corrosion.

It is advisable to run the programme before using the machine for the first time, after the machine has been stationary for a lengthy period of time, and especially prior to changing oil.

Run the pump cleaning programme every week. If you package moisture-containing products, such as soups and sauces, the pump cleaning programme should be run every day.

1. Select the pump cleaning programme.

### 10-programme control system

Press the **Pump Cleaning Programme** button.

### ACS

Press the ▲ button or the ▼ button to browse to the pump cleaning programme.

### Neo

Touch the **Pump Cleaning Programme** icon

2. Close the lid to start the pump cleaning programme.  
The pump cleaning programme will run for 15 minutes.

## 8.7.1 Pump Cleaning Message (ACS)

On the ACS control, a pump cleaning message can be set. After the set time, the machine will show a message that pump cleaning needs to be performed. You can also set an alarm interval.



If an alarm interval has been set, and the set time plus the alarm interval has expired, the pump cleaning message will only disappear when the pump cleaning programme has run completely.

To enable or disable the pump cleaning message, follow the following steps:

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Service**.
4. Go to **3.2 Pump cleaning**.
5. Enable or disable the **Pump cleaning**.
6. Optional: When Pump cleaning is enabled, set the **Indication interval**.
7. Optional: Set the **Alarm interval** (min. 1 hour, max 10 hours).

The pump cleaning counter is reset when a full pump cleaning programme has run.

8. Press the cursor key ◀ to return to the menu.

## 8.7.2 Pump Cleaning Message (Neo)

On the Neo control a pump cleaning message can be set. After the set time, the machine will display a message showing that pump cleaning must be performed. You can also configure an alarm interval.



See *Neo Parameter Table* on page 109 for the parameters that can be edited on specific service levels.



If an alarm interval has been set, and the set time plus the alarm interval has expired, the pump cleaning message will only disappear when the pump cleaning programme has run completely.

To enable or disable the pump cleaning message, follow the following steps:

1. Open the menu by pressing the pump cleaning icon (22) for at least 3 s.

2. Enter the dealer code 4753.
3. In the list, go to 19 conditioning, press Enter (23) and switch it on or off using + (21) and – (20). Press Enter to confirm.

If this notification is enabled, a message will appear after the set time has elapsed, showing that service is required.

4. (Optional) When pump cleaning is enabled, set the indication interval (min. 5 h, max. 100 h, in the list go to 20 condition popup, select the desired value using + (21) and – (20) and press Enter to confirm).
5. (Optional) In the list go to 20 condition alarm (min. 1 h, max. 10 h), press Enter (23), select the desired value using + (21) and – (20) and press Enter to confirm.

The pump cleaning counter is reset when a full pump cleaning programme has run.

6. In order to leave the menu, press the pump cleaning icon (22) for at least 3 s.

## 8.8 Removing Oil, Refilling Oil

This section describes how to remove oil from the pump and how to refill the oil.

See *Vacuum Pump* on page 24 for an overview of the pump parts.

If the machine remains unused for a prolonged period of time, the oil must be removed from the pump. This is necessary because moisture and dirt in the oil may affect the pump, causing the pump to jam at the next use.



The oil in the vacuum pump may be hot. Avoid contact with hot oil when removing the oil.

Follow the steps below to remove the oil from the pump:

1. Only applies to Boxer 52: Remove the vacuum pump from the housing.
  - a. Unscrew the mounting screws (1) of the rotating mounting plate (3) and place them in a secure location.
  - b. Turn the rotating mounting plate outward until a drip pan can be placed under the oil drain plug (2).

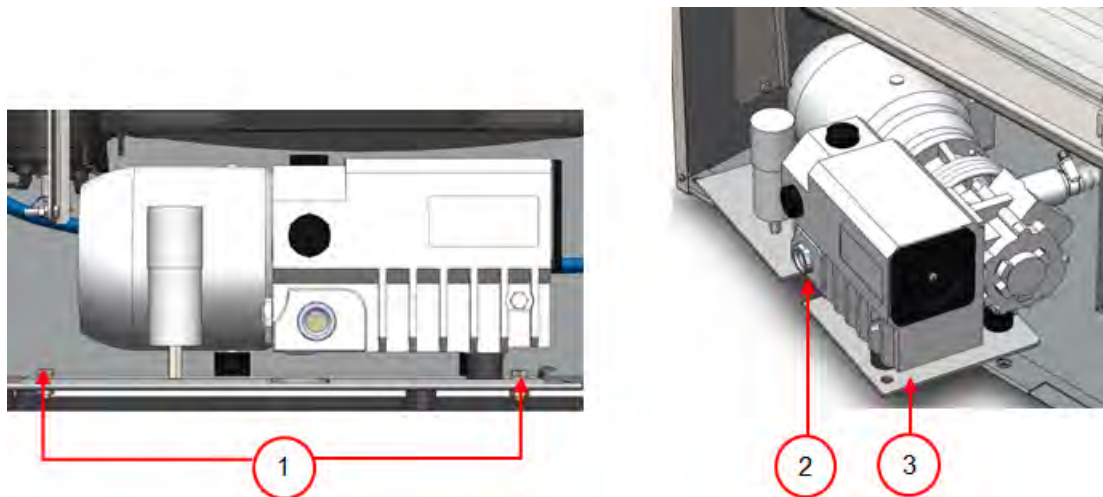


Figure 21: Mounting Plate Boxer 52

2. Place a drip pan under the oil drain plug.
3. Remove the oil drain plug.  
The oil will drain from the pump.
4. Replace the oil drain plug.  
Follow the steps below to add oil to the pump. You can follow these steps after all oil has been removed, but also to refill oil.
5. Remove the oil drain plug.
6. Add oil until the oil level is between the minimum and maximum levels.
7. Replace the oil drain plug.
8. Only applies to Boxer 52: Replace the vacuum pump into the housing.
  - a. Turn the rotating mounting plate and vacuum pump back into the housing.
  - b. Screw in the mounting screws (1) of the rotating mounting plate (3) and tighten them.

## 8.9 Replacing the Oil Exhaust Filter

The oil exhaust filter prevents oil vapours from being emitted from the vacuum pump with the exhaust air. If the filter becomes saturated, the maximum vacuum level can no longer be reached. Replace the filter in case of vacuuming problems or as specified in *Maintenance Schedule* on page 74.

## 8.9.1 Pump 8 m<sup>3</sup>

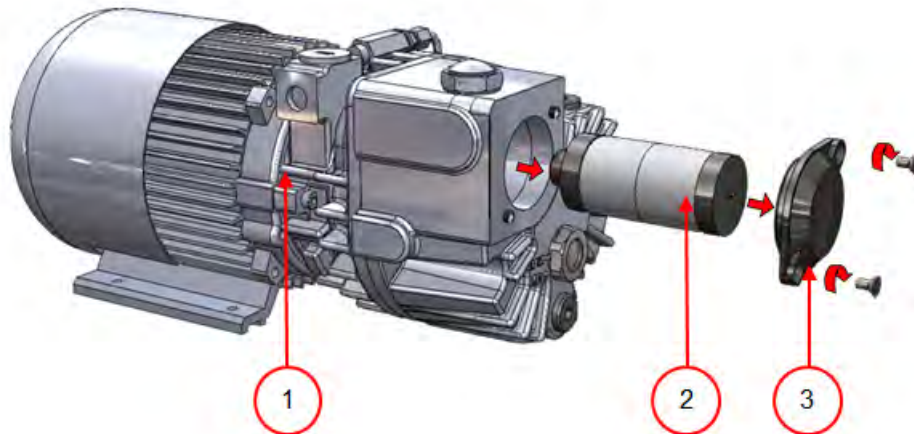


Figure 22: Replacing the Oil Exhaust Filter (Pump 8 m<sup>3</sup>)

Follow the steps below to remove the old oil exhaust filter:

1. Remove the filter cover (3) of the vacuum pump (1) and put it aside.
2. Remove the oil exhaust filter (2) from the vacuum pump.

Follow the steps below to install a new oil exhaust filter:

3. Turn the new filter into the vacuum pump.  
Make sure the O-ring is properly placed on the filter inlet.
4. Mount the filter cover placed aside.

## 8.9.2 Pump 16/21 m<sup>3</sup>

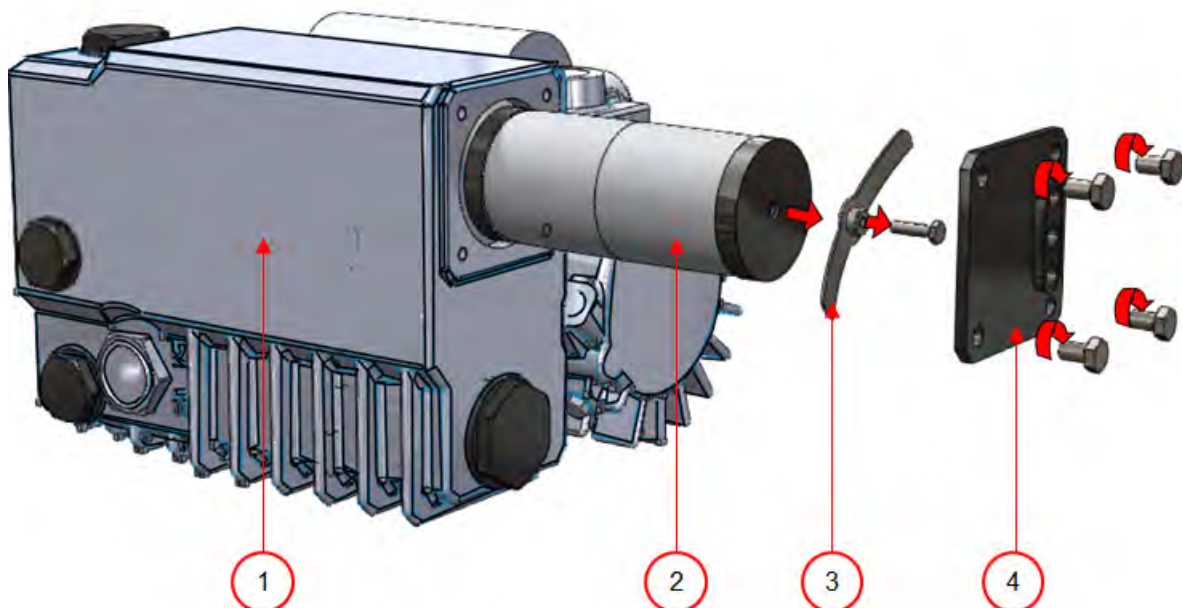


Figure 23: Replacing the Oil Exhaust Filter (Pump 16/21 m<sup>3</sup>)



Follow the steps below to remove the old oil exhaust filter:

1. Remove the filter cover (4) of the vacuum pump (1) and put it aside.
2. Remove the leaf spring (3) and put it aside.
3. Remove the old filter (2).

Follow the steps below to install a new oil exhaust filter:

4. Insert the new filter into the vacuum pump.  
Make sure the O-ring is properly placed on the filter inlet.
5. Mount the leaf spring placed aside.
6. Mount the filter cover placed aside.

## 8.10 Replacing the Sealing Wire

Depending on the specifications of your machine, you can have one of the following (combinations of) sealing wires:

- Wide seal: one wide sealing wire
- Cut-off seal: one sealing wire and one cutting wire
- Double seal: two sealing wires
- Bi-active seal: one seal bar with a wide sealing wire on both sides

The process of replacing the sealing wires is the same for all types.



Make sure, for bi-active seal systems, that the upper and lower sealing wires are aligned precisely during the sealing.

Replace the sealing wires if the wire and/or the Teflon tape are damaged, or as specified in *Maintenance Schedule* on page 74.



*Figure 24: Removing the Sealing Bar*

1. Remove the sealing bar by lifting it from the cylinders. See *Figure 24: Removing the Sealing Bar* on page 80.



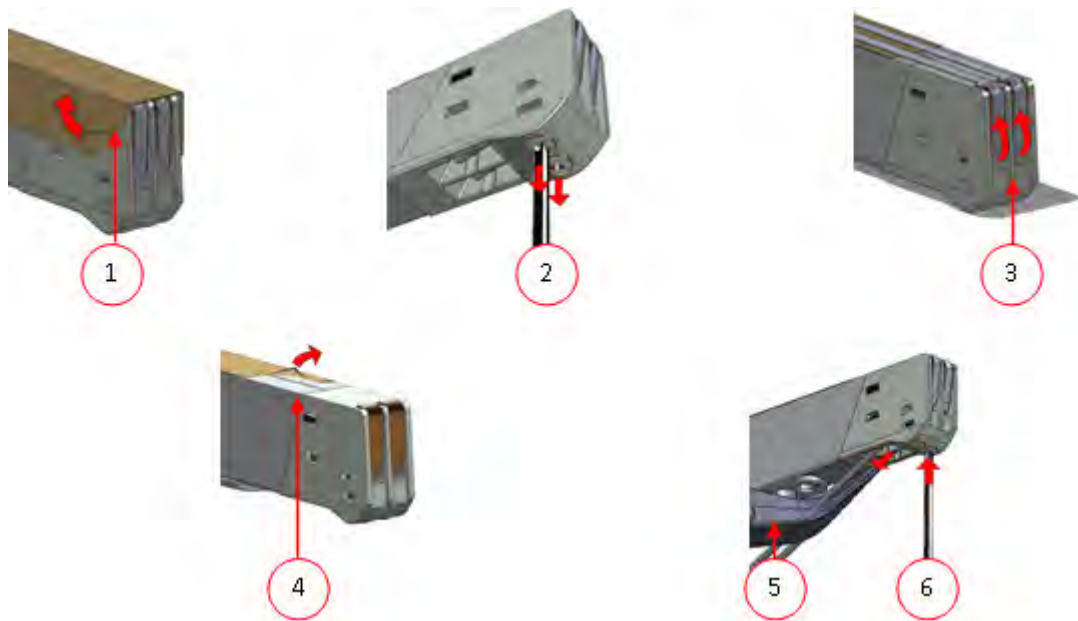


Figure 25: Replacing the Sealing Wire

2. Remove the Teflon tape (1) that protects the sealing wire.
3. Remove the screws (2) at the bottom of the sealing bar and remove the sealing wires (3).
4. Replace the Teflon tape on the sealing bar.
  - a. Pull the Teflon tape from the top of the sealing bar (4).
  - b. Clean the sealing bar with a dust-free cloth.
  - c. Apply a new piece of Teflon tape of the same length on the sealing bar.
5. Replace the sealing wires.
  - a. Cut a new piece of sealing wire or cutting wire at the length of the sealing bar plus approximately 15 cm.
  - b. First place the wire on one side of the sealing bar by tightening the screws (2).
  - c. Place the other end of the wire in its location and tension it with pliers. Now fasten it by tightening the screws.
  - d. Cut both ends of the wire.
6. Replace the Teflon tape on the sealing wire.
  - a. Cut a piece of Teflon tape at the length of the sealing bar plus approximately 5 cm.
  - b. Attach the tape over the sealing wires on the sealing bar evenly and without folds.
  - c. Cut the tape.
7. Place the sealing bar back in its position.

## 8.11 Replacing the Silicone Rubber of the Silicone Holders

To ensure a seal of good quality, the silicone rubber may not be damaged and the surface must be smooth. Mechanical contact or burning by the sealing wire may damage the rubber.

Replace the silicone rubber if damaged or as specified in *Maintenance Schedule* on page 74.

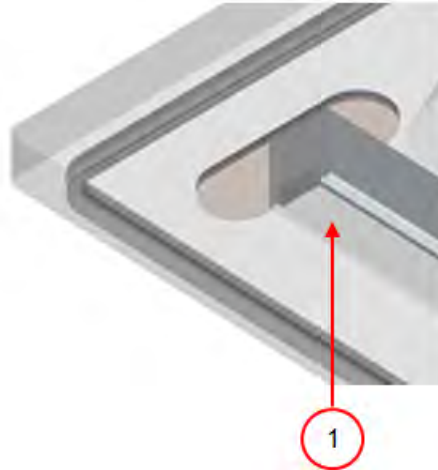


Figure 26: Replacing the Silicone Rubber of the Silicone Holders

1. Pull the old silicone rubber from the holder, see *Figure 26: Replacing the Silicone Rubber of the Silicone Holders* on page 82.
2. Cut a new piece of silicone rubber. Make sure it is the same length as the holder.



If the rubber is too short or too long, this may cause problems with the seal of the bag.

3. Install the new piece of silicone rubber by pressing it into the recess of the silicone holder. Ensure that the silicone rubber is fully and uniformly placed in the recess. It is also important that the surface of the silicone rubber is smooth after it is in place, and that it shows no signs of stress.

## 8.12 Replacing the Lid Gasket

The lid gasket ensures the vacuum chamber is fully closed during the machine cycle. This is essential to reach the maximum vacuum level. Due to extreme pressure differences, the gasket wears and should therefore be replaced regularly.

Replace the lid gasket if damaged or as specified in *Maintenance Schedule* on page 74.



Figure 27: Replacing the Lid Gasket

1. Pull the old gasket loose to remove it.
2. Cut a new piece of rubber.



Preferably cut the new piece of rubber slightly longer than the old piece.

The edges must be cut straight.



If the lid gasket is too short or too long, this may cause problems when closing the lid or it may cause leakage.

3. Install the new gasket by pressing it into the gasket slot. The lip of the gasket must face downwards and outwards.

The gasket should be placed in the slot evenly and without any tension. The edges must be placed closely together to prevent leakage.

## 8.13 Inspecting the Lid Springs

1. Check the fastenings of the lid springs for wear, corrosion and damage.
2. Check the lid springs for wear and damage.



In the case of irregularities, please contact your service dealer.

## 9 Troubleshooting and Error Codes

The tables below show the possible malfunctions and the corresponding causes as well as the steps to be taken.

Malfunction	Activity	More information
Control panel does not illuminate.	<ul style="list-style-type: none"> <li>• Connect the machine to the power supply.</li> <li>• Check or replace the fuse of the control transformer.</li> </ul>	<i>Electrical Installation</i> on page 26.
The control panel is on, but there is no activity after closing the lid.	<ul style="list-style-type: none"> <li>• Check or adjust the switch of the lid.</li> <li>• Check or replace the fuse of the control transformer.</li> <li>• Check/replace the circuit board fuse.</li> </ul>	
Insufficient end vacuum.	<ul style="list-style-type: none"> <li>• Check the vacuum settings of the programme and adjust them.</li> <li>• Make sure that the extraction opening is not covered.</li> <li>• Check the oil level in the pump.</li> <li>• Check/replace the oil exhaust filter.</li> <li>• Check/replace the lid gasket.</li> </ul>	<i>Changing the Programme Settings</i> on page 39. <i>Vacuum Pump</i> on page 24. <i>Replacing the Oil Exhaust Filter</i> on page 78. <i>Replacing the Lid Gasket</i> on page 82.
Vacuum process is slow.	<ul style="list-style-type: none"> <li>• Make sure that the extraction opening is not covered.</li> <li>• Check the oil level in the pump.</li> <li>• Check/replace the oil exhaust filter.</li> </ul>	<i>Vacuum Pump</i> on page 24. <i>Replacing the Oil Exhaust Filter</i> on page 78.
Vacuum bag is not sealed correctly.	<ul style="list-style-type: none"> <li>• Check the seal settings of the programme and adjust them.</li> <li>• Check/replace the Teflon tape and the sealing wires.</li> </ul>	<i>Changing the Programme Settings</i> on page 39. <i>Replacing the Sealing Wire</i> on page 80.

Malfunction	Activity	More information
	<ul style="list-style-type: none"> <li>• Check/replace the silicone rubber of the silicone holders.</li> <li>• Check the inside of the vacuum for contamination and clean it.</li> <li>• Decrease the setting for gas flush (if activated).</li> </ul>	<i>Replacing the Silicone Rubber of the Silicone Holders</i> on page 81.
The lid does not open automatically.	<ul style="list-style-type: none"> <li>• Check the gas spring/ springs of the lid.</li> </ul>	Contact your supplier.
The phone does not connect to the machine (Neo) via Bluetooth.	Do the Smartphone Bluetooth check.	<i>Smartphone Bluetooth check</i> on page 111
The printer does not connect to the machine (Neo) via Bluetooth.	Do the Printer Bluetooth check.	<i>Printer Bluetooth check</i> on page 112

### Error messages for the 10-programme control system

Malfunction	Activity	More information
F1 in display.	<ul style="list-style-type: none"> <li>• Check or adjust the switch of the lid.</li> <li>• Verify that the vacuum pump is running.</li> <li>• Adjust the micro switch. The micro switch must be activated when the front cover is approximately 4 cm above the container.</li> </ul>	Error code F1 means that the cycle has been aborted prematurely before all 3 steps (vacuum, seal and decompressing) have been completed. The micro switch is activated by closing the lid and provides the start sign for the cycle. During transport, the micro switch may have become overly critical, leading to error code F1.
F2 in display of the 10-programme control system with sensor control.	<ul style="list-style-type: none"> <li>• Check whether the lid is open and restart the machine.</li> <li>• Check the electrical connections</li> <li>• Check the connection hoses for contamination, obstruction or pinching.</li> </ul>	Error code F2 means that the sensor value is outside the desired range during start-up. The cause can be an internal error in the sensor or short-circuit in the sensor or sensor connection. It is also possible that the connection hose to the sensor has underpressure,

Malfunction	Activity	More information
		usually caused by a blocked or pinched hose.
--- in display.	<ul style="list-style-type: none"> <li>Check whether the lid is open.</li> </ul>	

### Error messages for the Advanced Control System


Malfunction	Activity	More information
Message "Sensor missing" in display.	<ul style="list-style-type: none"> <li>Check whether the sensor is connected.</li> </ul>	
Message "Cycle aborted" in display.	<ul style="list-style-type: none"> <li>Check whether the lid is open.</li> </ul>	

## 9.1 Using Output Test (10-Programme Control System)

The output test function is used to verify the operation of the machine functions. In case of a machine malfunction, it is possible to test the different functions of the packaging cycle separately to analyse the problem.

To activate and use the output test, follow the following steps. This makes it possible to check the electrical circuits, from the membrane panel, through the electrical connections and wiring up to the actual component. To check the actual functioning of each individual component, see *Checking Functioning of Individual Components* on page 89.

1. Make sure the machine is turned OFF.
2. Press the **+ / VACUUM STOP** and **- / STOP** buttons and turn on the machine with the ON/OFF switch. Keep the buttons pressed for at least 5 seconds.

The starting codes appear and after 3 seconds  appears on the large display.

This means that part 1 is in OFF position.

See below for an overview of all part numbers.

3. Press the **+ / VACUUM STOP** button to activate the selected function.
4. Press the **- / STOP** button to deactivate the selected function.
5. Press the **Cursor key** to select the function that needs to be tested.



For part numbers 5 or 6, the maximum activation time is 3 seconds. Longer activation can burn the sealing bar or other parts.

6. Press the **REPROG** button to return to operation mode.

Part number overview:

1. **Pump**
2. **Vacuum valve (only in floor models)**
3. **Gas valve**
4. **Seal valve**
5. **Seal relay 1 (activation max. 3 sec.)**
6. **Seal relay 2 (activation max. 3 sec.)**
7. **Soft air valve**
8. **Decompression valve**

## 9.2 Using Output Test (ACS)

A step-by-step cycle test can be done using the output test mode. Each switch, valve or relay can be individually be tested to make troubleshooting easier.

The first function that can be tested is the vacuum pump. If activated, the pump will start running and after closing the lid a vacuum will be created. If the vacuum pump is deactivated, the lid will be held closed by the remaining vacuum under the lid. This remaining vacuum is necessary to test other vacuum related functions such as sealing, soft-air and aeration.

During activation of the seal valve, air will enter through the sealing valve to lift the sealing bar up. If the sealing system is in good condition, air will only enter for a short period of time. If air continues to flow, there must be a leak somewhere in the sealing system.

In the same analogue the other functions can be tested.

The output test function is used to verify the operation of the machine functions. In case of a machine malfunction, it is possible to test the different functions of the packaging cycle separately to analyse the problem.

To activate and use the output test, follow the following steps. This makes it possible to check the electrical circuits, from the membrane panel, through the electrical connections and wiring up to the actual component. To check the actual functioning of each individual component, see *Checking Functioning of Individual Components* on page 89.

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Service**.
4. Go to **3.6 Output test**.
5. Select the necessary outputs and enable them.
6. Press the cursor key ◀ to return to the menu.

## 9.3 Using Output Test (Neo)

The outputs of the Neo controller can be tested in output test mode. In this mode a stepwise testing of the cycle can be performed, allowing for easy trouble shooting by testing each individual switch, relay and valve.

The first function to be tested is the vacuum pump. Upon activation, the pump starts running and a vacuum is created upon closure of the lid. When the pump is stopped, the lid is kept closed by the remaining vacuum. This remaining vacuum is needed for further testing of the other vacuum dependent like sealing, soft air and purging.

Upon activating the seal valve air is introduced through this seal valve in order to lift the seal bar. When the sealing system is in good condition, air entrance is allowed for a very short period only. When air keeps entering the system, the seal system is leaking.

The other system functions can be tested in a similar manner.

The output test function is used to verify the operation of the machine functions. In case of a machine malfunction, it is possible to test the different functions of the packaging cycle separately to analyse the problem.

Output testing is activated by following the steps below. These steps allow for testing of the electrical circuits all the way from the membrane panel to the actual electrical component.



The output test parameters can also be found in *Neo Parameter Table* on page 109.

1. Open the menu by pressing the pump cleaning icon (22) for at least 3 s.
2. Enter the dealer code 4753.
3. In the list, go to T0 – T9, press Enter (23) and switch them on or off using + (21) and – (20). Press Enter to confirm.

Number	Parameter	Display	Value
T0	Pump	pump	on/off
T1	Vacuum valve	vac	on/off
T2	Gas valve	gas	on/off
T3	Seal valve	seal	on/off
T4	Seal wire	hot	on/off
T5	Cut off wire	cut	on/off
T6	Soft air	soft	on/off
T7	Airation valve	air	on/off
T8	Lid closed	lid	open/clos
T9	Reed contact closes	reed	open/clos

*Table 2: Neo Parameter Table*

4. In order to leave the menu, press the pump cleaning icon (22) for at least 3 s.



## 9.4 Checking Functioning of Individual Components

To check the actual functioning of each individual component, follow these steps.

- **Pump**

Activate "gate" 1. This will activate the pump and the pump will start running. When the lid is closed, while the pump is running, a vacuum will be achieved inside the chamber.



This is only the case with table top models.

- **Vacuum valve**

This function is only available for floor models, and is therefore not applicable here.

- **Gas valve**



If a gas bottle is connected, the valve on the bottle should be opened.

Activate "gate" 3. This will electrically activate the gas valve and gas will flow out of the gas nozzles. If the lid is closed and a vacuum was created, the vacuum level will drop due to the gas that flows in.

- **Seal valve**



For testing the seal valve and the seal cylinders operation, it is necessary to create a vacuum inside the chamber.

Activate "gate" 4. This will allow air to flow into the lower compartment of the cylinders and will move the cylinder up. The cylinders will lift up the seal bar until it touches the final position against the silicone holders. Deactivating "gate" 4 will result in the seal bar to move back to its original position.



If the sealing system is in good condition, air will only enter for a short period of time. If air continues to flow, there must be a leak somewhere in the sealing system.

- **Seal relay 1**



During this test the seal bar will be heated up, activating it too long can result in burning the Teflon tape. It is recommended to activate this function for max. 1 to 2 seconds.

Activate "gate" 5. This will activate the seal relay and the seal bar will heat up. This test can be done while the lid is open. By touching the seal bar it is possible to check if the seal bar is heated.



The seal bar can be very warm.



To prevent the seal bar from burning completely, a time-out function is integrated. After three seconds the seal relays are automatically deactivated.

- **Seal relay 2**



During this test the seal bar will be heated up, activating it too long can result in burning the Teflon tape. It is recommended to activate this function for max. 1 to 2 seconds.

Activate "gate" 6. This will activate a second seal relay in case the machine is equipped with a seal 1-2 option. When the machine is equipped with this option, "Gate" 5 will activate seal relay 1 which results in heating only the seal wire. "Gate" 6 will activate seal relay 2 and results in heating only the cut-off wire. This test can be done while the lid is open. By touching the seal bar it is possible to check if the seal wire and / or cutting wire is heated.



The seal bar can be very warm.



To prevent the seal bar from burning completely, a time-out function is integrated. After three seconds the seal relays are automatically deactivated.

- **Soft air valve**

Activate "gate" 7; This will electrically activate the soft-air valve, which allows a small amount of outside air to flow inside the chamber. For this, it is necessary that there is a pressure difference. First, create a vacuum inside the chamber as described in the part "Pump". If the soft-air valve is activated and there is a vacuum inside the chamber, the vacuum level will drop slowly due to the outside air that flows in.

- **Decompression valve**


Activate "gate" 8. This will electrically activate the decompression valve, which allows outside air to flow inside the chamber. For this, it is necessary that there is a pressure difference. First, create a vacuum inside the chamber as described in the part "Pump". If the decompression valve is activated and there is a vacuum inside the chamber, the vacuum level will drop rapidly due to the outside air that flows in.

## 9.5 Resetting Factory Settings (10-Programme Control System)

The factory settings function is used to return all values and settings (operation mode and service mode) of the machine to the original factory settings.

To reset the factory settings, follow the following steps.

1. Make sure the machine is turned OFF.
2. Press the **Cursor key** and turn on the machine with the ON/OFF switch. Keep the **Cursor key** pressed for at least 3 seconds.

The starting codes appear and after 3 seconds  appears on the large display.

3. Release the **Cursor key**.

All values and settings will be reset to the factory settings.



The machine counter values (see *Machine Counter (10-Programme Control System)* on page 71) will not be reset.

## 9.6 Resetting Factory Settings (ACS)

The factory settings function is used to return all values and settings (operation mode and service mode) of the machine to the original factory settings.

To reset the factory settings, follow the following steps.

1. Open the menu.
2. Enter the dealer code 4753.
3. Go to **Service**.
4. Go to **3.11 Factory settings**.
5. Select **Yes** to reset the factory settings.

All values and settings will be reset to the factory settings.



The machine counter values (see *Machine Counter (10-Programme Control System)* on page 71) will not be reset.

6. Press the cursor key ◀ to return to the menu.

## 9.7 Resetting Factory Settings (Neo)

The factory settings function is used to reset all values and parameters (operation mode and service mode) of the machine to the original factory settings.

To reset the factory settings, perform the following steps.



see *Neo Parameter Table* on page 109 for the Neo parameter table, which lists the parameters that can be edited on specific service levels.

1. Open the menu by pressing the pump cleaning icon (22) for at least 3 s.
2. Enter the dealer code 4753.
3. In the list, go to A7 factory default and press Enter (23) to confirm.
4. In order to leave the menu, press the pump cleaning icon (22) for at least 3 s.

## 9.8 Calibrating the Sensor (10-Programme Control System)


The sensor calibration function is used to set the right pressure values to the corresponding vacuum percentage values. To calibrate the sensor, a digital vacuum meter is required.



This calibration procedure applies to the regular sensor control system, not to the Liquid (H<sub>2</sub>O) Control system. The Liquid (H<sub>2</sub>O) Control sensor is already calibrated in the factory and cannot be re-calibrated.

To activate the sensor calibration, follow the following steps.

1. Make sure the machine is turned OFF.
2. Press the **+ / VACUUM STOP**, **- / STOP** and **Cursor key** at the same time and turn on the machine with the ON/OFF switch. Keep the buttons pressed for at least 5 seconds.

The starting codes appear and after 5 seconds  appears on the large display.

This is only for Henkelman internal purposes.

3. Press the **PROG 0 – 9** button four times.

The mode changes to the CALIBRATION function mode: .

4. Press the **+ / VACUUM STOP** button to set the vacuum value to 0% (1 bar).
5. Close the lid and keep it closed while pushing the **- / STOP** button.  
The pump starts to run.
6. Keep pushing the **- / STOP** button until the digital vacuum meter shows approximately 9-10 mbar.
7. Press the **REPROG** button to store the new values and return to operation mode.

## 9.9 Calibrating the Sensor (ACS)

The sensor calibration function is used to set the right pressure values to the corresponding vacuum percentage values.



This calibration procedure applies to the regular sensor control system, not to the Liquid (H<sub>2</sub>O) Control system. The Liquid (H<sub>2</sub>O) Control sensor is already calibrated in the factory and cannot be re-calibrated.

Before calibrating, ensure that the tubing to the sensor is clean and dry. Ensure that the required vacuum measurement tool is accurate to 99.8% (2 mbar). If your measurement tool does not meet this standard, it is not recommended to proceed. It could make the situation worse.

Two values should be calibrated

- No vacuum (normal atmospheric pressure)
- The deepest possible vacuum

To calibrate the sensor, follow the following steps.

1. Make sure the lid is open
2. Select the 0% field and press enter to activate it.
3. Use the ▲ and ▼ buttons to set the atmospheric value.
4. Select the 100% field and press enter to activate it.
5. Position the vacuum measuring device inside the chamber and close the lid.
6. Once the vacuum level has reached the deepest value (99.8% = 2 mbar), push the ▲ and ▼ buttons to set the lowest vacuum value.

## 9.10 Calibrating the sensor (Neo)

The sensor calibration function is used to set the right pressure values to the corresponding vacuum percentage values. To calibrate the sensor, a digital vacuum meter is required.



This calibration procedure applies to the regular sensor control system, not to the Liquid (H<sub>2</sub>O) Control system. The Liquid (H<sub>2</sub>O) Control sensor is already calibrated in the factory and cannot be re-calibrated.

Check if the tubing to the sensor is clean and dry before performing the calibration. Check if your vacuum meter has the correct specifications (accuracy 99.8%, 2 mbar). If this is not the case, it is advised not to continue. Contact your Neo dealer instead.

Two values need to be calibrated:

- No vacuum (ambient pressure)
- The deepest vacuum possible

To calibrate the sensor, perform the following steps.



see *Neo Parameter Table* on page 109 for the Neo parameter table, which lists the parameters that can be edited on specific service levels.

1. Open the menu by pressing the pump cleaning icon (22) for at least 3 s.

2. Enter the dealer code 4753.
3. In the list, go to A0 sensor calibrating and press Enter (23) to confirm.
4. Make sure the lid is opened.
5. Select 'c hi' and press + (21) to activate.
6. Insert the vacuum meter inside the vacuum chamber and close the lid.
7. Once the vacuum has reached its deepest value (99.8% = 2 mbar), select 'c lo' and press Enter (23) to confirm.
8. In order to leave the menu, press the pump cleaning icon (22) for at least 3 s.

## 10 Disposal



Do not dispose of oil and components as household waste. When replacing oil or components at the end of the service life, ensure that all materials are collected and disposed or reused in a legal and environmentally sound manner.

# 11 Appendices

## 11.1 Technical Data

### 11.1.1 Technical Data Boxer

Boxer	35	42	42XL	42XL BA	52
<b>General</b>					
Ambient temperature during operation	5 to 30°C	5 to 30°C	5 to 30°C	5 to 30°C	5 to 30°C
Machine working conditions: relative humidity (non-condensing)	10-90%	10-90%	10-90%	10-90%	10-90%
Sound emission	< 70 dB(A)	< 70 dB(A)	< 70 dB(A)	< 70 dB(A)	< 70 dB(A)
Maximum daily production	5 hrs/day	5 hrs/day	5 hrs/day	5 hrs/day	5 hrs/day
<b>Dimensions of the machine</b>					
Width	450 mm	493 mm	493 mm	403 mm	698 mm
Length	554 mm	528 mm	616 mm	616 mm	528 mm
Height	405 mm	440 mm	470 mm	420 mm	440 mm
Weight	49 kg	62 kg	67 kg	67 kg	66 kg
<b>Maximum product height</b>	150 mm	180 mm	180 mm	120 mm	185 mm
<b>Gas flush system (optional)</b>					
Dimensions connector	6 mm	6 mm	6 mm	6 mm	6 mm
Gas supply	60-100 l/min	60-100 l/min	60-100 l/min	60-100 l/min	60-100 l/min
Maximum supply pressure	1 bar	1 bar	1 bar	1 bar	1 bar
<b>Electrical connection</b>					
Supply voltage	*	*	*	*	*
Connected load	*	*	*	*	*
<b>Vacuum pump</b>					
Capacity	16 m <sup>3</sup> /h	21 m <sup>3</sup> /h	21 m <sup>3</sup> /h	21 m <sup>3</sup> /h	21 m <sup>3</sup> /h
Oil	0.3 litre	0.5 litre	0.5 litre	0.5 litre	0.5 litre
Type of mineral oil	VM32	VM32	VM32	VM32	VM32
Ambient temperature mineral oil	5 to 30°C**	5 to 30°C**	5 to 30°C**	5 to 30°C**	5 to 30°C**



<b>Boxer</b>	<b>35</b>	<b>42</b>	<b>42XL</b>	<b>42XL BA</b>	<b>52</b>
Type of synthetic oil	Foodmax Air 32	Foodmax Air 32	Foodmax Air 32	Foodmax Air 32	Foodmax Air 32
Ambient temperature synthetic oil	-10 to 40°C**	-10 to 40°C**	-10 to 40°C**	-10 to 40°C**	-10 to 40°C**

\*See machine plate.

\*\*For different temperatures, please contact your dealer.

## 11.1.2 Technical Data Lynx

Lynx	32	42
<b>General</b>		
Ambient temperature during operation	5 to 30°C	5 to 30°C
Machine working conditions: relative humidity (non-condensing)	10-90%	10-90%
Sound emission	< 70 dB(A)	< 70 dB(A)
Maximum daily production	5 hrs/day	5 hrs/day
<b>Dimensions of the machine</b>		
Width	534 mm	534 mm
Length	400 mm	491 mm
Height	385 mm	396 mm
Weight	35 kg	46 kg
<b>Maximum product height</b>	103 mm	114 mm
<b>Gas flush system (optional)</b>		
Dimensions connector	6 mm	6 mm
Gas supply	60-100 l/min	60-100 l/min
Maximum supply pressure	1 bar	1 bar
<b>Electrical connection</b>		
Supply voltage	*	*
Connected load	*	*
<b>Vacuum pump</b>		
Capacity	8 m <sup>3</sup> /h	16 m <sup>3</sup> /h
Oil	0.25 litre	0.3 litre
Type of mineral oil	VM32	VM32
Ambient temperature mineral oil	5 to 30°C**	5 to 30°C**
Type of synthetic oil	Foodmax Air 32	Foodmax Air 32
Ambient temperature synthetic oil	-10 to 40°C**	-10 to 40°C**

\*See machine plate.

\*\*For different temperatures, please contact your dealer.

### 11.1.3 Technical Data Neo

Neo	42	42xl
<b>General</b>		
Ambient temperature during operation	5 to 30°C	5 to 30°C
Machine working conditions: relative humidity (non-condensing)	10-90%	10-90%
Sound emission	< 70 dB(A)	< 70 dB(A)
Maximum daily production	5 hrs/day	5 hrs/day
<b>Dimensions of the machine</b>		
Width	420 mm	499 mm
Length	544 mm	637 mm
Height	461 mm	466 mm
Weight	64 kg	72 kg
<b>Maximum product height</b>	180 mm	180 mm
<b>Gas flush system (optional)</b>		
Dimensions connector	6 mm	6 mm
Gas supply	60-100 l/min	60-100 l/min
Maximum supply pressure	1 bar	1 bar
<b>Electrical connection</b>		
Supply voltage	*	*
Connected load	*	*
<b>Vacuum pump</b>		
Capacity	21 m <sup>3</sup> /h	21 m <sup>3</sup> /h
Oil	0.5 litre	0.5 litre
Type of mineral oil	VM32	VM32
Ambient temperature mineral oil	5 to 30°C**	5 to 30°C**
Type of synthetic oil	Foodmax Air 32	Foodmax Air 32
Ambient temperature synthetic oil	-10 to 40°C**	-10 to 40°C**

\*See machine plate.

\*\*For different temperatures, please contact your dealer.

## 11.1.4 Technical Data Toucan

<b>Toucan</b>	<b>Regular</b>	<b>Square</b>
<b>General</b>		
Ambient temperature during operation	5 to 30°C	5 to 30°C
Sound emission	< 70 dB(A)	< 70 dB(A)
Machine working conditions: relative humidity (non-condensing)	10-90%	10-90%
Maximum daily production	5 hrs/day	5 hrs/day
<b>Dimensions of the machine</b>		
Width	480 mm	480 mm
Length	581 mm	581 mm
Height	795 mm	795 mm
Weight	108 kg	108 kg
<b>Maximum product height</b>	275 mm	330 mm
<b>Gas flush system (optional)</b>		
Dimensions connector	6 mm	6 mm
Gas supply	60-100 l/min	60-100 l/min
Maximum supply pressure	1 bar	1 bar
<b>Electrical connection</b>		
Supply voltage	*	*
Connected load	*	*
<b>Vacuum pump</b>		
Capacity	21 m <sup>3</sup> /h	21 m <sup>3</sup> /h
Oil	0.5 litre	0.5 litre
Type of mineral oil	VM32	VM32
Ambient temperature mineral oil	5 to 30°C**	5 to 30°C**
Type of synthetic oil	Foodmax Air 32	Foodmax Air 32
Ambient temperature synthetic oil	-10 to 40°C**	-10 to 40°C**

\*See machine plate.

\*\*For different temperatures, please contact your dealer.

## 11.2 Example Programmes

Example programmes of the 10-programme control system

Prog	Vacuum	Vacuum+	Seal	Soft-air	Type of product
1.	99%	OFF	2.2 s	3 s	Solid products
2.	97%	N/A	2.2 s	OFF	Liquids/liquid-containing products
3.	99%	OFF	2.2 s	8 s	Fragile/sharp products
4.	99%	4 s	2.2 s	3 s	Product that may contain entrapped air

Set as sensor-controlled										
Prog no.	1	2	3	4	5	6	7	8	9	10
Vacuum	99%	97%	99%	99%	80%	90%	50%	90%	60%	99%
Vacuum+	OFF		OFF	4 s						15
Gas	OFF	OFF	OFF	60%	50%	80%	OFF	80%	30%	OFF
Seal	2.2 s	2.2 s	2.2 s	2.2 s	2.5 s	2.5 s	2.5 s	2.5 s	2.5 s	2.5 s
Seal 2	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s
Soft-air	3 s	OFF	8 s	3 s	OFF	OFF	2 s	OFF	OFF	3 s

Set as controlled by Liquid Control sensor										
Prog no.	1	2	3	4	5	6	7	8	9	10
Vacuum	99%	97%	99%	99%	H2O	90%	50%	90%	60%	99%
Vacuum+	OFF		OFF	4 s						15
Gas	OFF	OFF	OFF	60%	50%	80%	OFF	80%	30%	OFF
Seal	2.2 s	2.2 s	2.2 s	2.2 s	2.5 s	2.5 s	2.5 s	2.5 s	2.5 s	2.5 s
Seal 2	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s
Soft-air	3 s	OFF	8 s	3 s	OFF	OFF	2 s	OFF	OFF	3 s

Set as time-controlled										
Prog no.	1	2	3	4	5	6	7	8	9	10
Vacuum	25 s	20 s	15 s	10 s	30 s	25 s	20 s	20 s	15 s	30 s
Gas	OFF	OFF	OFF	OFF	5 s	5 s	10 s	15 s	15 s	OFF
Seal	2.2 s	2.2 s	2.2 s	2.2 s	2.5 s	2.5 s	2.5 s	2.5 s	2.5 s	2.5 s
Seal 2	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s	3.5 s
Soft-air	3 s	OFF	8 s	3 s	OFF	OFF	2 s	OFF	OFF	3 s

### Example programmes of the ACS control system

Prog	Vacuum	Vacuum+	Seal	Soft-air	Type of product
1.	99.8%	OFF	2.2 s	3 s	Solid products
2.	97%	N/A	2.2 s	OFF	Liquids/liquid-containing products
3.	99.8%	OFF	2.2 s	8 s	Fragile/sharp products
4.	99.8%	4 s	2.2 s	3 s	Product that may contain entrapped air

Set as sensor-controlled or controlled by Liquid Control sensor										
Prog no.	1	2	3	4	5	6	7	8	9	10
Vacuum	99.8%	97%	99.8%	99.8%	99.5%	99.5%	99.5%	90%	95%	90%
Vacuum+	OFF		OFF	4 s						15
Gas	OFF	OFF	OFF	OFF	OFF	60%	OFF	OFF	OFF	OFF
Seal	2.2 s	2.2 s	2.2 s	2.2 s	2.5 s	2.5 s	3.5 s	3.5 s	2.5 s	2.5 s
Seal 2	2.2 s	2.2 s	2.2 s	2.2 s	2.5 s	2.5 s	4.0 s	3.5 s	2.5 s	2.5 s
Soft-air	3 s	OFF	8 s	3 s	5 s	OFF	OFF	5 s	5 s	5 s

Set as sensor-controlled or controlled by Liquid Control sensor										
Prog no.	11	12	13	14	15	16	17	18	19	20
Vacuum	99.8%	99.8%	99.8%	99.8%	99.5%	99.8%	90%	95%	95%	99.8%
Vacuum+	OFF	OFF	5 s	5 s		5 s				OFF
Gas	50%	40%	OFF	70%	70%	OFF	68%	OFF	OFF	OFF
Seal	2.5 s	2.5 s	2.0 s	2.0 s	2.0 s	2.0 s	2.0 s	2.0 s	2.0 s	2.0 s
Seal 2	2.5 s	2.5 s	2.0 s	2.0 s	2.0 s	4.0 s	2.0 s	2.0 s	2.0 s	4.0 s
Soft-air	OFF	OFF	OFF	5 s	OFF	OFF	OFF	OFF	OFF	OFF

## Example programmes of the Neo control system

Set as sensor-controlled or controlled by Liquid Control sensor										
Prog no.	1	2	3	4	5	6	7	8	9	10
Vacuum	99.8%	99.8%	93%	90%	99.8%	99%	99.8%	99.8%	99.8%	99.8%
Vacuum+	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Seal	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s
Soft-air	OFF	5 s	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Option on					Fresh meat	Mari-nade				

Set as sensor-controlled or controlled by Liquid Control sensor										
Prog no.	11	12	13	14	15	16	17	18	19	20
Vacuum	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Vacuum+	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Seal	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s	2.2 s
Soft-air	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF







## 11.4 EC Declaration of Conformity

We,

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

declare under our sole responsibility that the product;

- Machine type: Boxer/Lynx/Toucan series

complies with all relevant provisions of the Directives;

- 2006/42/EC: Machinery Directive
- 2014/30/EG: EMC Directive
- 2014/35/EC: Low Voltage Directive

The undersigned is authorised to compile the technical file.

's-Hertogenbosch, the Netherlands  
25 February 2014

Stephan Harleman  
Director

A handwritten signature in black ink, appearing to read 'Harleman', is written over a horizontal line. The signature is stylized and includes a large, sweeping flourish that extends to the left and then back to the right, crossing the line multiple times.

## 11.5 Replacing a Printer Roll

Follow the steps below to place the label roll in the printer.



Despite the inner diameter of the label roll being bigger than the holder, the roll can be used without any issues.



Figure 28: Replacing the Printer Roll

## 11.6 Aligning the Printer

1. Switch on the printer and make sure the indication light is green.
2. Press the **Pause** and **Cancel** button simultaneously for 2 seconds.

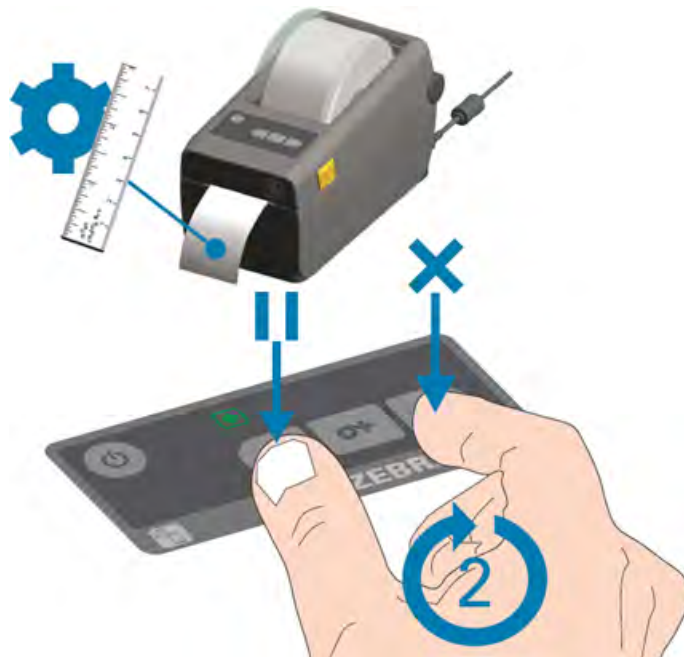


Figure 29: Aligning the Printer

The printer will print several labels and determine the correct position.

3. Press the **Feed** and **Cancel** button simultaneously for 2 seconds.



Figure 30: Printing the First Label

The printer will print the first label.

4. Remove the first printed label to print the next labels.

## 11.7 Neo Parameter Table

Shown below is the list that appears on the Neo following login at "dealer level". Not all parameters can be altered on dealer level.

- Numbers 0-6: hardware settings;
- Numbers 7-27: software settings;
- A0-A8: service settings;
- T0-T9: testing outputs.

Number	Parameter	Display	Value	Default	Dealer	Owner
0	Gas flush	GAS	on/off	off	x	
1	1-2 cut off	1-2	on/off	off	x	
2	Soft air	soft	on/off	on	x	
3	Sensor type	sens	h2o/anlg/ time	anlg	x	
4	Bluetooth	blth	yes/no	automatic	x	
5	Hitemp	Htmp	on/off	off	x	
6	Printer	prnt	on/off	off	x	x
7	Units	unit	%/mbar	%	x	x
8	Red meat	red	on/off	on	x	x
9	Sequential	seq	on/off	off	x	x
10	Marinating	mari	on/off	on	x	x
11	External vac.	ext	on/off	off	x	x
12	Tenderising	tend	on/off	off	x	x
13	Date MDY	date	dmy/mdy/ ymd	dmy	x	x
14	Time	time	12h/24h	24h	x	x
15	HACCP	hacp	on/off	off	x	x
16	Preseal time	pres	0.1-4.0	1	x	
17	Afterseal time	afte	0.1-9.9	3	x	
18	Max sealtime	seal	4-6	4		
19	Conditioning	cond	on/off	off	x	

Number	Parameter	Display	Value	Default	Dealer	Owner
20	Condition popup	sho	5-100	5	x	
21	Condition alarm	alar	off/1-10	off	x	
22	Oil guard	oil	on/off	off	x	
23	Oil popup	sho	10-100	10	x	
24	Oil alarm	alar	off/9-30	off	x	
A0	Sensor calibrating	cali			x	
A1	Set clock time	date			x	x
A2	Reset oil time	oil			x	
A3	Reset printer	PRNT			x	x
A4	Conditioning cycles x1	cond				
A5	Operating cycles x10	ocyc				
A6	Operating hours x1	ohrs				
A7	Factory default	dfit				
A8	Reset HACCP log	hacp			x	x
T0	Pump	pump	on/off		x	
T1	Vacuum valve	vac	on/off		x	
T2	Gas valve	gas	on/off		x	
T3	Seal valve	seal	on/off		x	
T4	Seal wire	hot	on/off		x	
T5	Cut off wire	cut	on/off		x	
T6	Soft air	soft	on/off		x	

Number	Parameter	Display	Value	Default	Dealer	Owner
T7	Airation valve	air	on/off		x	
T8	Lid closed	lid	open/clos		x	
T9	Reed contact closes	reed	open/clos		x	

Table 3: Neo Parameter Table

## 11.8 Smartphone Bluetooth check

The following steps can be taken when your smartphone does not connect with your machine via Bluetooth.

1. Turn off the printer completely and try connecting with Bluetooth again.
2. Restart the machine and try connecting with Bluetooth again.
3. Turn off and on Bluetooth on smartphone and try connecting with Bluetooth again.



For iOS: turn off via Settings > Bluetooth on your iDevice, not via the operating panel of your App.

4. Remove App from the background, restart the App and try connecting with Bluetooth again.
5. Restart your smartphone and try connecting with Bluetooth again.
6. Re-install the App and try connecting with Bluetooth again.
7. Does the Bluetooth connection work with another smartphone.
  - Yes      Check the Bluetooth connection of your phone.
  - No        Contact the manufacturer.
8. Is the machine placed on a stainless steel surface:
  - Yes      Place the machine on another surface; the stainless steel possibly interferes with the Bluetooth signal.
  - No        Contact the manufacturer.
9. Is your smartphone placed on a stainless steel surface:
  - Yes      Place your smartphone on another surface; the stainless steel possibly interferes with the Bluetooth signal.
  - No        Contact the manufacturer.



When none of the options work, please contact the manufacturer.

## 11.9 Printer Bluetooth check

The following steps can be taken when the printer does not connect with your machine via Bluetooth.

1. Do you use the printer that was delivered with the machine?
  - Yes See step 2
  - No Reset the printer via the menu > 1324 > A3.
2. Did the printer work before?
  - Yes See step 3.
  - No Reset the printer via the menu > 1324 > A3.
3. Is the printer turned on?
  - Yes Make sure that the option 'print' is turned on in the selected programme.
  - No Turn on the printer.
4. Make sure that the option 'print' is turned on in the selected programme.
5. Make sure that a label has been created.
6. Did you try to connect with the machine via the App while the printer was turned on?
  - Yes Restart the machine and try to print again.
  - No Restart the machine and try to print again.
7. Restart the machine and try to print again.
8. Restart the printer and try to print again.
9. Remove App from the background, restart the App and try printing again.
10. Is your printer placed on a stainless steel surface:
  - Yes Place the printer on another surface; the stainless steel possibly interferes with the Bluetooth signal.
  - No Reset the printer via the menu > 1324 > A3.
11. Reset the printer via the menu > 1324 > A3.



When none of the options work, please contact the manufacturer.











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