



Vacuum Packaging Machine Jumbo

Service Agent 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 91.
- 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 8 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.



Intertek
4010991

Conforms to
ANSI/UL Std. 963
Conforms to
ANSI/NSF 169
Certified to
CAN/CSA Std. C22.2 No.68



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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.

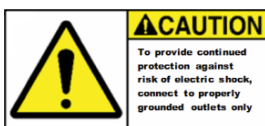
2.2 Pictograms on the Machine

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



Warning sign 'Hazardous voltage'

- Is located on the back of the machine



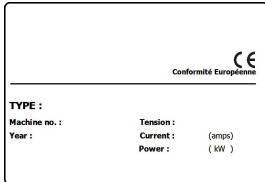
Caution sign 'Electric shock'

- Is located on the back of the machine



Caution sign 'Hot surface'

- Is located on the housing 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 8 and *Operation* on page 21.
- 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.



- 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



- 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



- 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 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 Jumbo series comprises professional tabletop models, use-friendly and low-maintenance.

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.

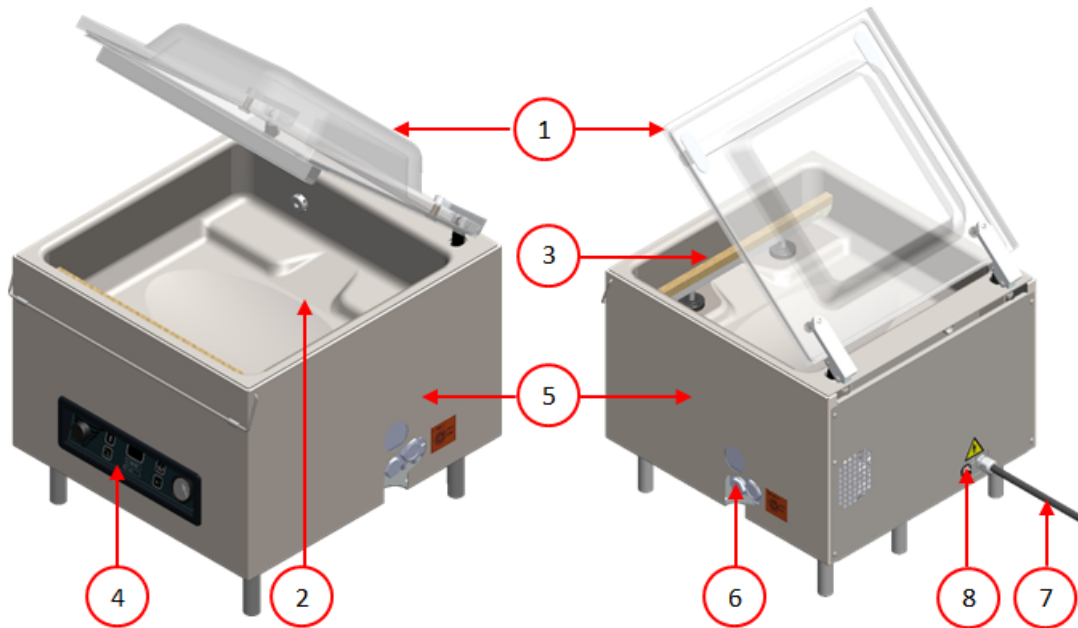


Figure 1: Overview of the Main Components

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.

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. Circuit breaker

The circuit breaker protects against overload or short circuit.

4.2 Removing Front Panel

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.

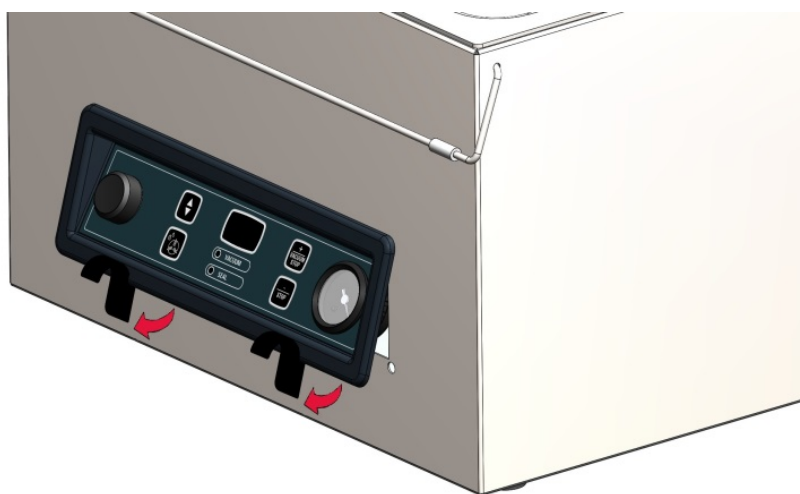


Figure 2: Opening Front Panel

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 Description of the Packaging Process/Machine Functions

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



See *Changing the Program Settings* on page 23 for information about setting the parameters to the correct values.

4.3.1 Packaging Process/Machine Functions

This section describes the packaging process and the machine functions. See *Operation* on page 21 for the realization of the specific steps of the procedure.

Step	Process phase	Operation
1.	Preparation	The operator puts the product in a vacuum bag and places it on the work surface with the opening on the sealing position.
2.	Applying vacuum	The vacuum process is initiated by closing the lid. During the cycle, the air will be removed from the chamber until the set time has been reached.
3.	Sealing	The sealing bars are pressed against the vacuum bag and melt the bag closed. 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. Optionally, the second sealing wire can be replaced by a cut-off wire. The purpose of the cut-off wire is to remove the excess foil from the remaining flap.
4.	Decompressing	The vacuum is removed from the vacuum chamber by letting air into the chamber.
5.	Opening the vacuum chamber	The lid opens.
6.	Removing the product	The operator can remove the packaged product from the work surface.

4.3.2 General Functions

Function	Pictogram	Operation
Cleaning of the oil pump		The pump cleaning program ensures that the pump is thoroughly rinsed. During the program, 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.
External Vacuum		This function allows special food containers to be vacuumed outside the machine. The options to set the vacuum value are the same as for standard vacuuming (see <i>External Vacuum (optional)</i> on page 23).

4.4 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.

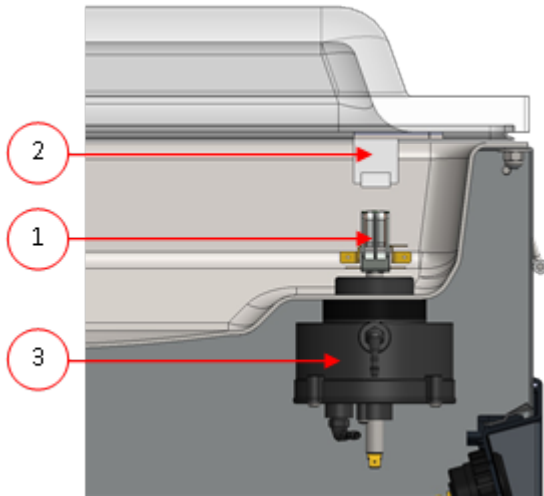


Figure 3: Overview of the Sealing System

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 33 for more detailed information about maintenance.

2. Silicone holder

Opposite the sealing bar is a silicone holder which provides counterpressure on the cylinders (*Replacing the Silicone Rubber of the Silicone Holders* on page 35).

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 Vacuum Pump

The vacuum pump creates the vacuum.

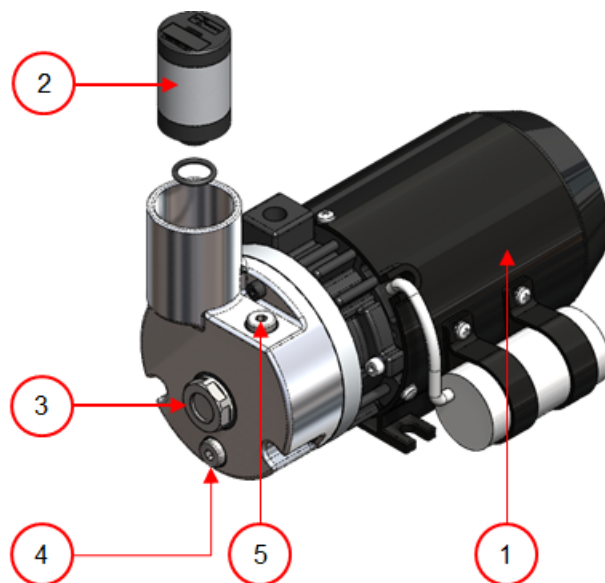


Figure 4: Overview of the Pump (5 m³ / 169 cf)

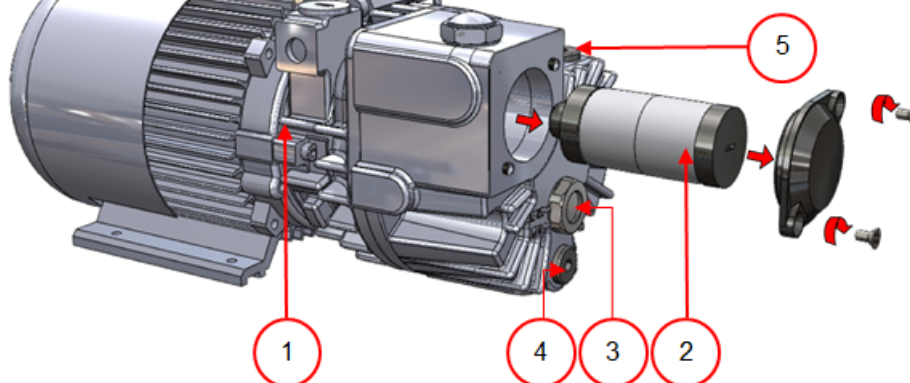


Figure 5: Overview of the Pump (9 m³ / 338 cf)

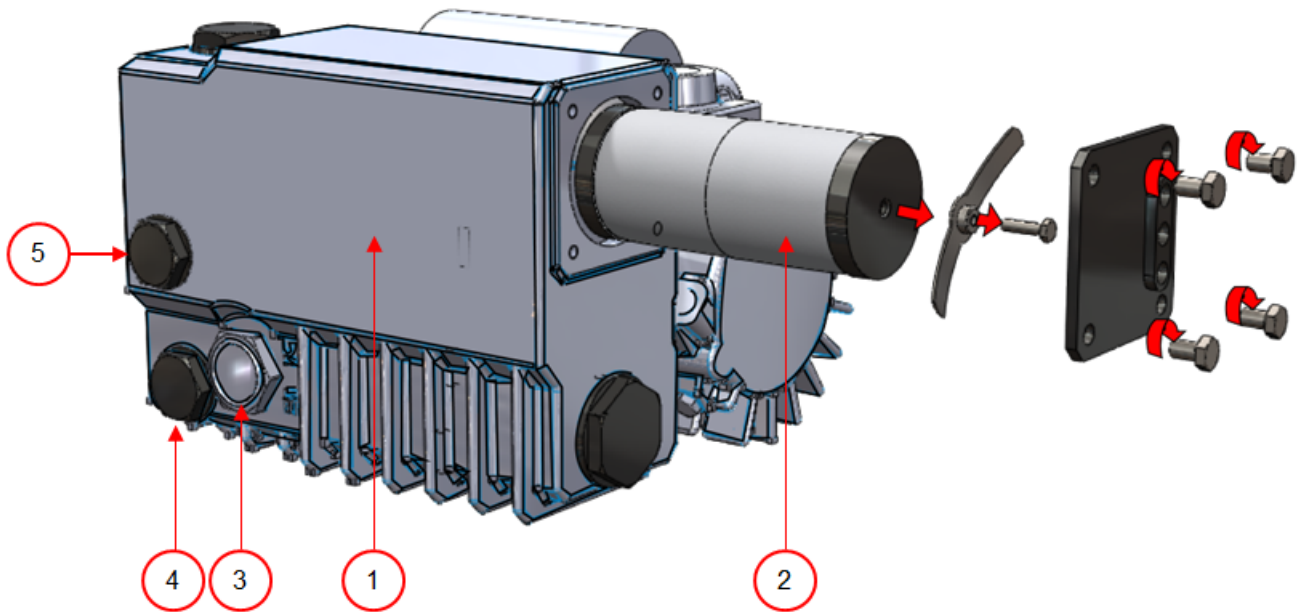


Figure 6: Overview of the Pump (19 m³ / 678 cf)

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.

4.6 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:

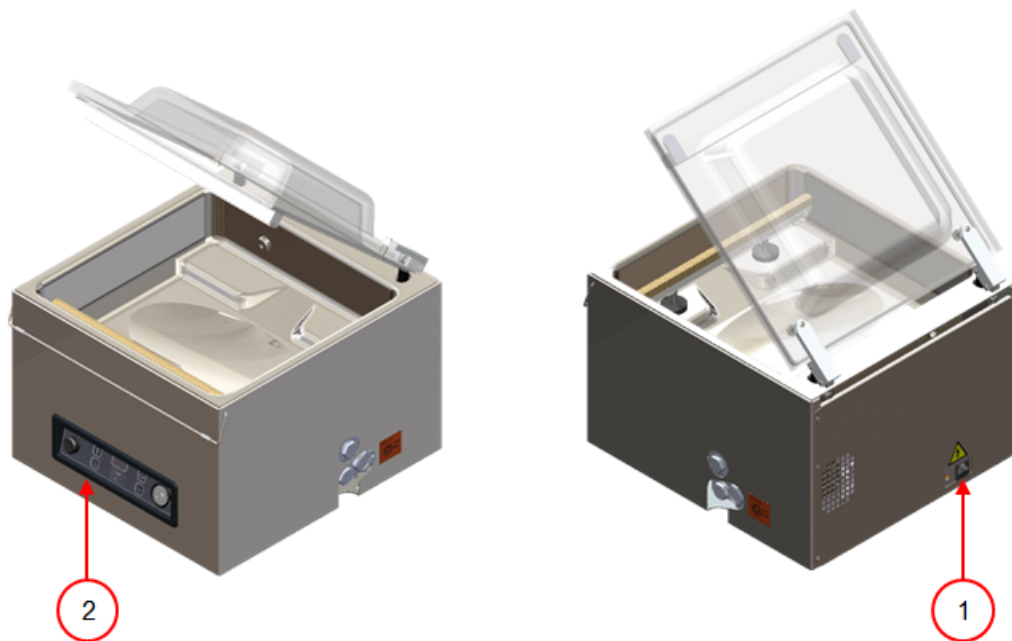


Figure 7: Overview of the Electrical Installation

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. Your machine has the following control option:

- *Operating Elements of the 1-Program Control* on page 21

3. Circuit breaker

Protection against overload or short circuit.

5 Installation

Consult *Technical Data* on page 42 for the specifications of the machine.



Before installing the machine, carefully read the safety instructions in *Safety* on page 8. 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 5.9 in (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.

5.3 Prior to the First Use

1. Look through the oil sight glass to check whether 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 30.
3. Proceed with *Starting the Machine* on page 22 to start up the machine.
4. Run the pump cleaning program before using the machine for the first time (see *Running the Pump Cleaning Program* on page 30).

5.4 Start-up Codes

Display code	Service hours counter	Additional service indicator	External vacuum
00			
02	X		
06	X	X	
08			X
10	X		X
14	X	X	X

6 Operation

It is possible to optimise a program for your products by modifying the parameters of a program, see *Changing the Program Settings* on page 23.



- All persons responsible for the operation of this machine must at least fully read and understand the chapters *Safety* on page 8 and *Operation* on page 21.
- Failure to follow or disregard of the safety instructions may result in serious injury.

6.1 Operating Elements of the 1-Program Control

The 1-program control allows the machine to be operated and programs to be changed.

See *Operation* on page 21 for instructions on the operation and programming.

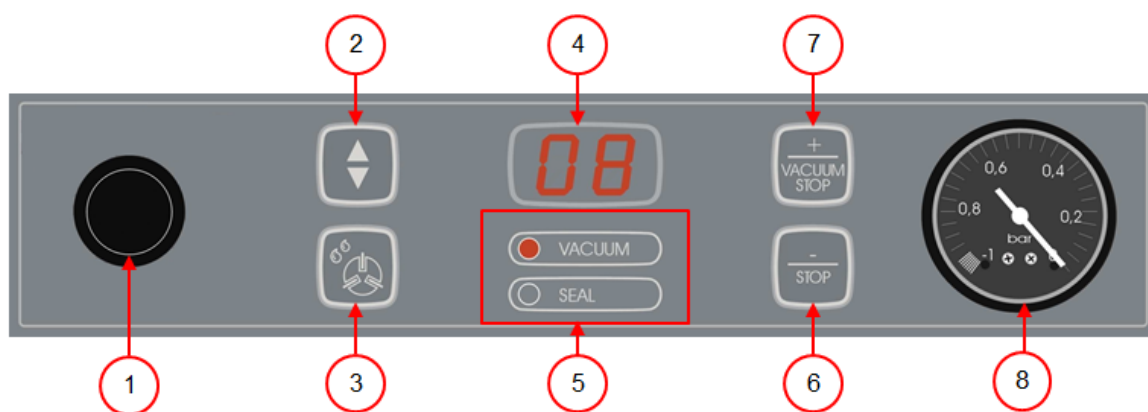


Figure 8: Control Panel of the 1-Program Control

1. On/Off button

Serves to turn the control panel on or off.

Depending on the model, the on/off button is located on the left side of the control panel (as shown in *Figure 8: Control Panel of the 1-Program Control* on page 21).

2. Cursor key

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

3. Pump cleaning program button

This is used to activate the pump cleaning program. Moisture can condensate in the oil when the pump is running only short cycles or when you are packaging moisture-containing products. This program removes moisture from the oil of the vacuum pump. See *Running the Pump Cleaning Program* on page 30 for instructions.

4. Parameter display

This display shows the current value of the active function during the program cycle or the set value of the selected function when the machine is inactive.

5. Function display

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

6. – / 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.

7. + / VACUUM STOP button

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

8. Vacuum meter

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

6.2 Starting the Machine

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

2 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

6.3 Starting the Packaging Cycle

The machine must be started in accordance with *Starting the Machine* on page 22 before starting a packaging cycle.

1. 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).
2. Close the lid.

The packaging cycle will start.

6.4 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.

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

The next step will be started.

6.5 Terminating a Program

Programs such as the packaging program or the pump cleaning program can be terminated at any time.

1. Terminate the program.
Press the – / **STOP** button.
The program will be terminated and the vacuum chamber is decompressed.

6.6 Changing the Program Settings

6.6.1 1-Program Control System

This section describes the units and limits of the parameters and how parameters can be adjusted.

See *Operating Elements of the 1-Program Control* on page 21 for an overview of the operating elements of the 1-program control system.

1. Use the **Cursor key** to scroll to the desired parameter.
The LED in front of the selected function will light up.
2. Press the – / **STOP** button and the + / **VACUUM STOP** button to adjust the value.
The – / **STOP** button and the + / **VACUUM STOP** button must be pressed and held for several seconds to adjust the value. This prevents the accidental changing of settings.
3. Press the **Cursor key** to activate the new parameter.

6.6.1.1 Vacuum

During the cycle, the air is removed from the chamber until the set time has been reached.

1. Use the **Cursor key** to scroll to the parameter Vacuum.
The LED in front of the selected function will light up.
2. Press the + / **VACUUM STOP** button to adjust the value.
The – / **STOP** button and the + / **VACUUM STOP** button must be pressed and held for several seconds to adjust the value. This prevents the accidental changing of settings.
3. Press the **Cursor key** to activate the new parameter.

6.6.1.2 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.

1. Use the **Cursor key** to scroll to the parameter Seal.
The LED in front of the selected function will light up.
2. Press the – / **STOP** button and the + / **VACUUM STOP** button to adjust the value.
The – / **STOP** button and the + / **VACUUM STOP** button must be pressed and held for several seconds to adjust the value. This prevents the accidental changing of settings.
3. Press the **Cursor key** to activate the new parameter.

6.6.1.3 External Vacuum (optional)

The External Vacuum function allows special food containers to be vacuumed outside the machine.

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 and hold the **+ / VACUUM STOP** button, **- / STOP** button and **Cursor key** and turn on the machine.

After 2 seconds,  will appear on the display.

3. Release the buttons.
4. Press the **Cursor key** twice.

 will appear on the display to indicate the external vacuum option.

5. Press the **+ / VACUUM STOP** button to activate the external vacuum option.

 will appear in the display to indicate that the option has been activated.

6. If needed, press the **- / STOP** button to deactivate the external vacuum option.
7. Close the lid to store the setting.

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

8. Select the External Vacuum program.

- a. Press the **Pump Cleaning Program** button.
The display will show "C".
- b. Press the **Cursor key**.
The display will show "E".

9. Connect the external vacuum hose to the machine by placing the adapter over the suction inlet (1) in the vacuum chamber.

10. Connect the external vacuum hose to the packaging.

- a. Connect the adapter (3) of the external vacuum hose to the valve of the food container.
- b. Slide the sliding valve (2) towards the hose (closed position).

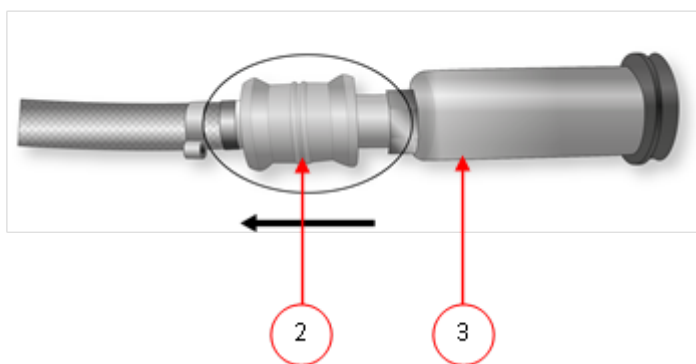
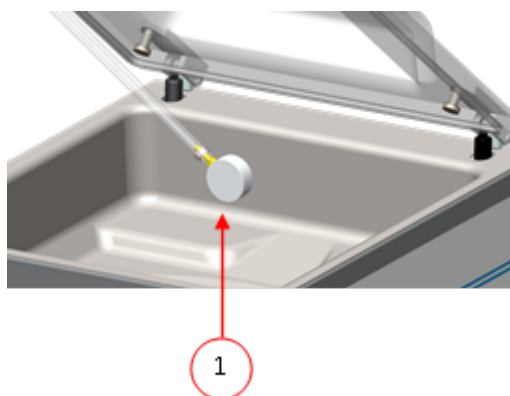


Figure 9: External Vacuum Adapter Set (1-Program Control)

11. Press the **+ / VACUUM STOP** button to start vacuuming.
The food container will be vacuumed.
12. Slide the sliding valve of the adapter towards the food container (open position) and remove the external vacuum hose from the food container.

6.7 Guideline for Function Values

Values can be set for each function. 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.

Function	Range	Conditions
Vacuum	2-99 seconds	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. The average vacuuming time is 30-45 seconds (depending on the volume of the product).
Seal time	0.5 – 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. The average seal time is 1.8-2.5 seconds.
Cleaning of the pump	15 minutes	Fixed value.



The vacuum in the chamber must be at least 30% at the moment of sealing (0.7 bar on the meter).

If the pressure is reduced, the boiling point of liquids will be decreased; see *Figure 10: Vapour Pressure Curve of Water* on page 26. 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 22.

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

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

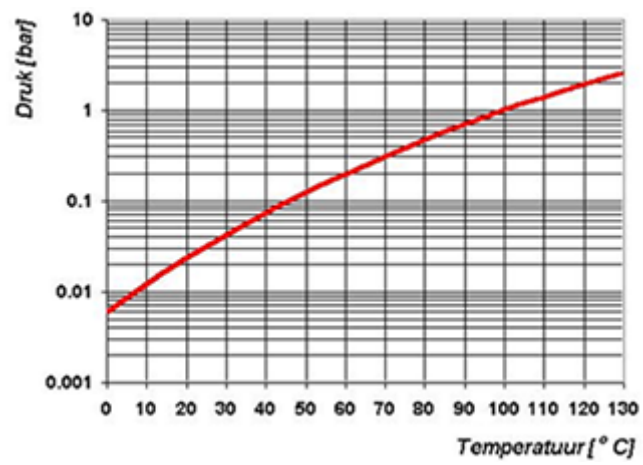


Figure 10: Vapour Pressure Curve of Water

7 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.

7.1 Machine Counter (1-Program 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 program 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 program** 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 program.

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.

7.2 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.

7.2.1 Setting Service Hour Counter (1-Program Control System)

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

1. Make sure the machine is turned OFF.
2. Press and hold the **+ / VACUUM STOP** button, **- / STOP** button and **Cursor key** and turn on the machine.



After 2 seconds, will appear on the display.

3. Release the buttons.
4. Press the **+ / VACUUM STOP** button to activate the Service Hour Counter.



will appear in the display to indicate that the option has been activated.

5. If needed, press the **- / STOP** button to deactivate the Service Hour Counter.
6. Close the lid to store the setting.

When set the Service Hour Counter has been activated, follow the following steps to set the service hours.

7. Make sure the machine is turned ON.
8. Press the **Cursor key** for 5 seconds.
The consumed hours (per 10 hours) appear for three seconds before displaying the set service hours. The standard setting is 12, which indicates 120 hours.
9. 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.
10. Press the **Cursor key** to store the settings.

7.3 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 27.

Activity *	1-D	1-W	6-M	1-Y	4-Y
Cleaning					
Cleaning the machine.	X				
Inspections					
Check the oil level.		X			
Run the pump cleaning program.		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			
Inspect the lid springs. Pay additional attention to damage and the fastenings of the lid springs.		X			
Lubrication					
Replace the oil of the vacuum pump. See <i>Technical Data</i> on page 42 for the type of oil.			X		
Replacement					
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

7.4 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.

7.5 Running the Pump Cleaning Program

The pump cleaning program runs the vacuum pump for 15 minutes. During the program, 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 program 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 program every week. If you package moisture-containing products, such as soups and sauces, the pump cleaning program should be run every day.

1. Select the pump cleaning program.
Press the **Pump Cleaning Program** button.
2. Close the lid to start the pump cleaning program.
The pump cleaning program will run for 15 minutes.

7.5.1 Pump Cleaning Reminder

The pump cleaning reminder is additional feature, to remind the user to run the pump cleaning program to maintain a good oil quality.

To set the pump cleaning reminder, follow the following steps.

1. Make sure the machine is turned OFF.
2. Press and hold the **+ / VACUUM STOP** button, **- / STOP** button and **Cursor key** and turn on the machine.

After 2 seconds,  will appear on the display.

3. Release the buttons.
4. Press the **Cursor key**.

 will appear on the display to indicate the pump cleaning reminder option.

5. Press the **+ / VACUUM STOP** button to activate the pump cleaning reminder.

 will appear in the display to indicate that the pump cleaning reminder has been activated.

6. If needed, press the **- / STOP** button to deactivate the pump cleaning reminder.
7. Close the lid to store the setting.

After the machine has run for 120 hours, the display will show a flashing "C". This "C" is meant as a reminder for the user of the machine to run the pump cleaning program.

7.6 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 16 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. Place a drip pan under the oil drain plug.

2. Remove the oil drain plug.
The oil will drain from the pump.

3. 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.

4. Remove the oil drain plug.

5. Add oil until the oil level is between the minimum and maximum levels.

6. Replace the oil drain plug.

7.7 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 28.

7.7.1 Pump 5 m³ / 169 cf

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 28.

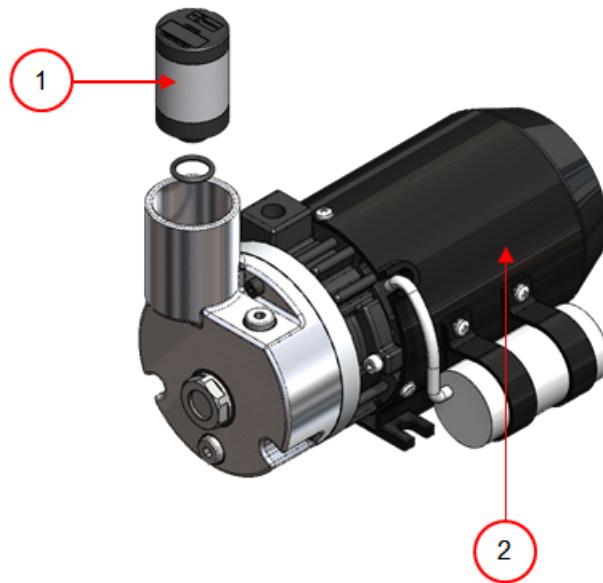


Figure 11: Replacing the Oil Exhaust Filter (Pump 5 m³ / 169 cf)

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

1. Remove the oil exhaust filter (1) from the vacuum pump (2).

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

2. Turn the new filter into the vacuum pump.

Make sure the O-ring is properly placed on the filter inlet.

7.7.2 Pump 10 m³ / 338 cf

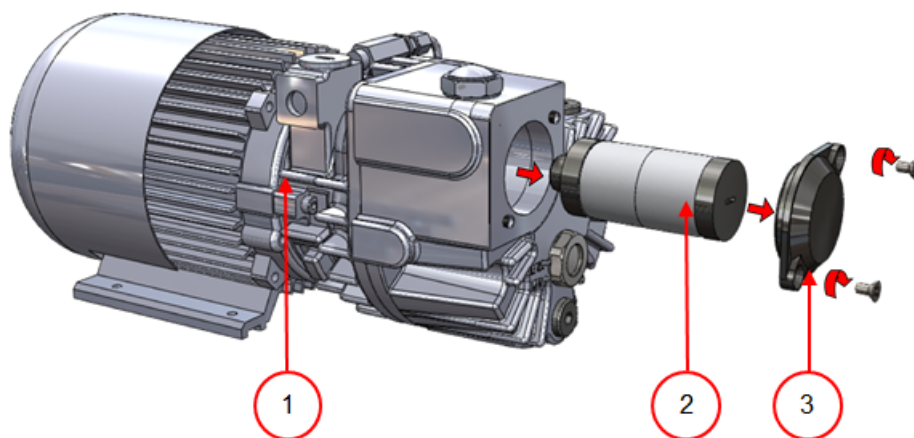


Figure 12: Replacing the Oil Exhaust Filter (Pump 10 m³ / 338 cf)

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.

7.7.3 Pump 19 m³ / 678 cf

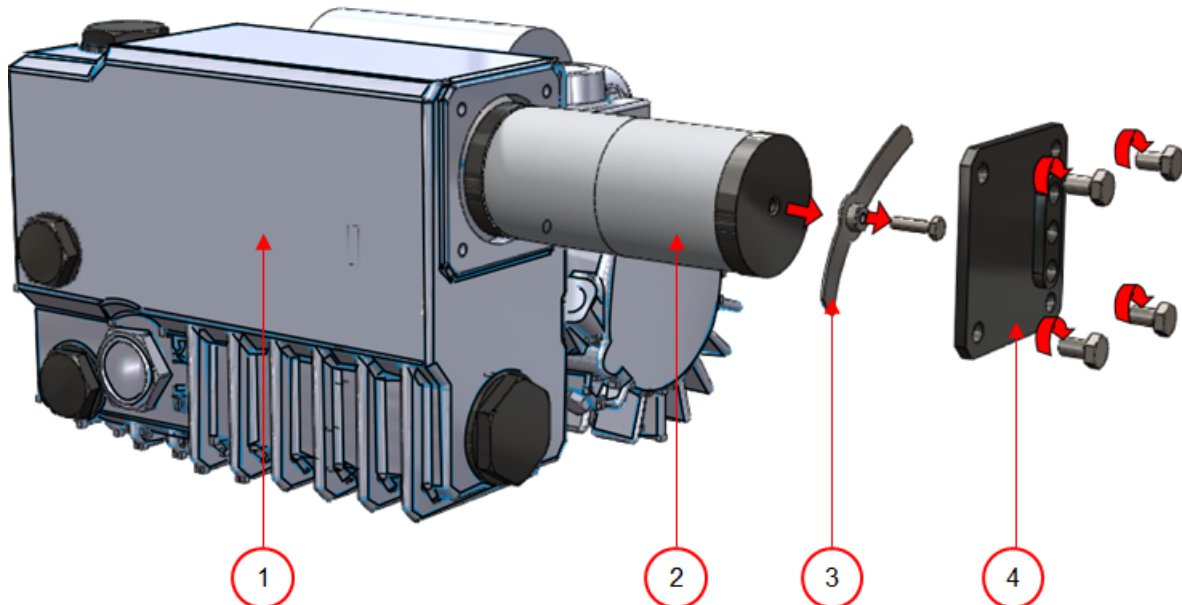


Figure 13: Replacing the Oil Exhaust Filter (Pump 19 m³ / 678 cf)

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.

7.8 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
- Double seal: two sealing wires
- Trenn seal: one sealing wire and one cutting wire

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

Replace the sealing wires if the wire and/or the Teflon tape are damaged, or as specified in *Maintenance Schedule* on page 28.



Figure 14: Removing the Sealing Bar

1. Remove the sealing bar by lifting it from the cylinders. See *Figure 14: Removing the Sealing Bar* on page 34.

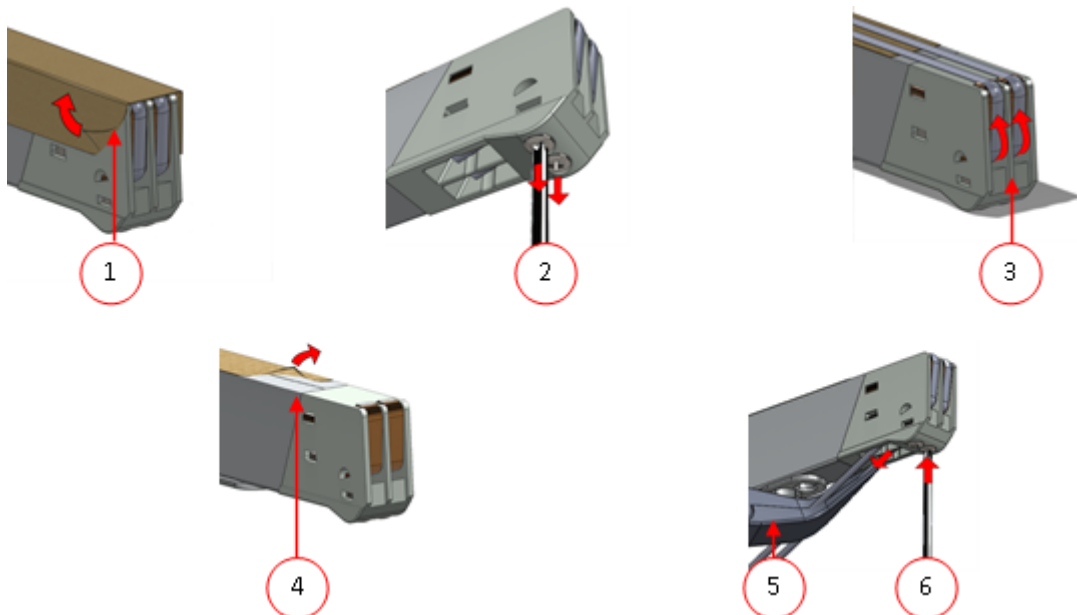


Figure 15: Replacing the Sealing Wire

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 5.9 in (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 2.0 in (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.

7.9 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 28.

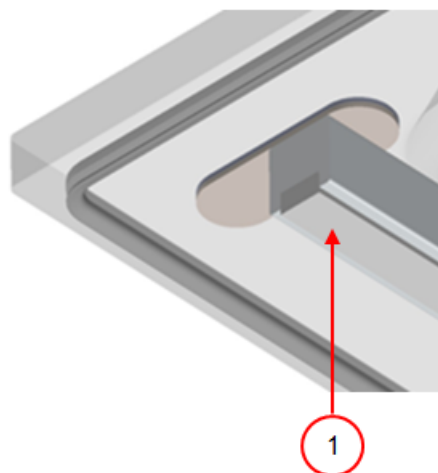


Figure 16: Replacing the Silicone Rubber of the Silicone Holders

1. Pull the old silicone rubber from the holder, see *Figure 16: Replacing the Silicone Rubber of the Silicone Holders* on page 35.
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.

7.10 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 28.

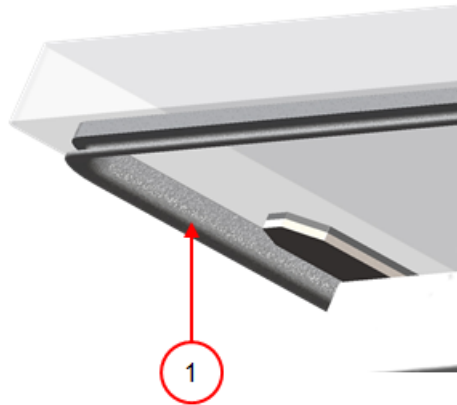


Figure 17: Replacing the Lid Gasket

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.

7.11 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.

8 Troubleshooting and Error Codes

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

For a more detailed way of troubleshooting, please refer to the *Call Scripts* on page 60.

Malfunction	Activity	More information
Control panel does not illuminate.	• Connect the machine to the power supply. • Check the circuit breaker on the back of the machine.	<i>Electrical Installation</i> on page 17.
The control panel is on, but there is no activity after closing the lid.	• Check or adjust the switch of the lid.	Contact your supplier.
Insufficient end vacuum.	• Check the vacuum settings of the program and adjust them. • Make sure that the extraction opening is not covered. • Check the oil level in the pump. • Check/replace the oil exhaust filter. • Check/replace the lid gasket.	<i>Changing the Program Settings</i> on page 23. <i>Vacuum Pump</i> on page 16. <i>Replacing the Oil Exhaust Filter</i> on page 31. <i>Replacing the Lid Gasket</i> on page 35.
Vacuum process is slow.	• Make sure that the extraction opening is not covered. • Check the oil level in the pump. • Check/replace the oil exhaust filter.	<i>Vacuum Pump</i> on page 16. <i>Replacing the Oil Exhaust Filter</i> on page 31.
Vacuum bag is not sealed correctly.	• Check the seal settings of the program and adjust them. • Check/replace the Teflon tape and the sealing wires. • Check/replace the silicone rubber of the silicone holders.	<i>Changing the Program Settings</i> on page 23. <i>Replacing the Sealing Wire</i> on page 33. <i>Replacing the Silicone Rubber of the Silicone Holders</i> on page 35.

Malfunction	Activity	More information
	Check the inside of the vacuum for contamination and clean it.	
The lid does not open automatically.	Check the gas spring/springs of the lid.	Contact your supplier.

Error messages for the 1-program control system

Malfunction	Activity	More information
"F1" in display.	- Check or adjust the switch of the lid. - Verify that the vacuum pump is running. - Adjust the micro switch. The micro switch must be activated when the front cover is approximately 1.6 in (4 cm) above the container.	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.
--- in display.	Check whether the lid is open.	
Flashing "C" in display.	This is a reminder to run the pump cleaning program.	Run the pump cleaning program.

8.1 Using Output Test (1-Program 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 whether certain selected parts will be activated during operation or not.

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 5 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 number 3, the maximum activation time is 3 seconds. Longer activation can burn the sealing bar or other parts.

6. Turn the machine off and on again to return to operation mode.

Part number overview:

1. **Pump relais**
2. **Seal valve**
3. **Seal relay (activation max. 3 sec.)**
4. **No function**
5. **Ventilation valve**

8.2 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.

- **Seal valve**



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

Activate "gate" 2. 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**



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" 3. 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.

- **Ventilation valve**

Activate "gate" 5. This will electrically activate the ventilation 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 ventilation 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.

8.3 Resetting Factory Settings (1-Program 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 5 seconds.



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

3. Release the **Cursor key**.

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

9 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.

10 Appendices

10.1 Technical Data

10.1.1 Technical Data Jumbo

Jumbo	Mini Jumbo	35
General		
Ambient temperature during operation	41 to 86°F	41 to 86°F
Sound emission	< 70 dB(A)	< 70 dB(A)
Maximum daily production*	5 hrs/day	5 hrs/day
Dimensions of the machine		
Width	13.2 in	17.7 in
Length	17.7 in	21.8 in
Height	12.0/13.4 in**	15.9 in
Weight	57 lbs	112 lbs
Maximum product height	3.3/5.0 in**	6 in
Electrical connection		
Supply voltage	****	****
Connected load	****	****
Vacuum pump		
Capacity	5 m ³ /h / 169 cf/h	19 m ³ /h / 678 cf/h
Oil	0.06 litre	0.3 litre
Type of mineral oil	VM22	VM32
Ambient temperature mineral oil	41 to 86°F	41 to 86°F
Type of synthetic oil	Foodmax Air 32	Foodmax Air 32
Ambient temperature synthetic oil	14 to 104°F	14 to 104°F

*This machine is not designed for continuous use. The maximum used setting for vacuum should be 60 seconds. Maintain a 15 second waiting period between each following cycle. Also, if the machine is used for 1 hour continuously, the machine should be switched off, until the temperature of the enclosure has reached the ambient temperature.

**Depending on whether the machine has a low or a high hood.

***Extension legs are available for this machine. These legs will add 4 inch to the total height.

****See machine plate.

Jumbo	42	42XL II
General		
Ambient temperature during operation	41 to 86°F	41 to 86°F
Sound emission	< 70 dB(A)	< 70 dB(A)
Maximum daily production*	5 hrs/day	5 hrs/day
Dimensions of the machine		
Width	19.4 in	19.4 in
Length	20.8 in	24.2 in
Height**	17.3 in	17.3 in
Weight	128 lbs	154 lbs
Maximum product height	7 in	7 in
Electrical connection		
Supply voltage	***	***
Connected load	***	***
Vacuum pump		
Capacity	19 m ³ /h / 678 cf/h	19 m ³ /h / 678 cf/h
Oil	0.3 litre	0.3 litre
Type of mineral oil	VM32	VM32
Ambient temperature mineral oil	41 to 86°F	41 to 86°F
Type of synthetic oil	Foodmax Air 32	Foodmax Air 32
Ambient temperature synthetic oil	14 to 104°F	14 to 104°F

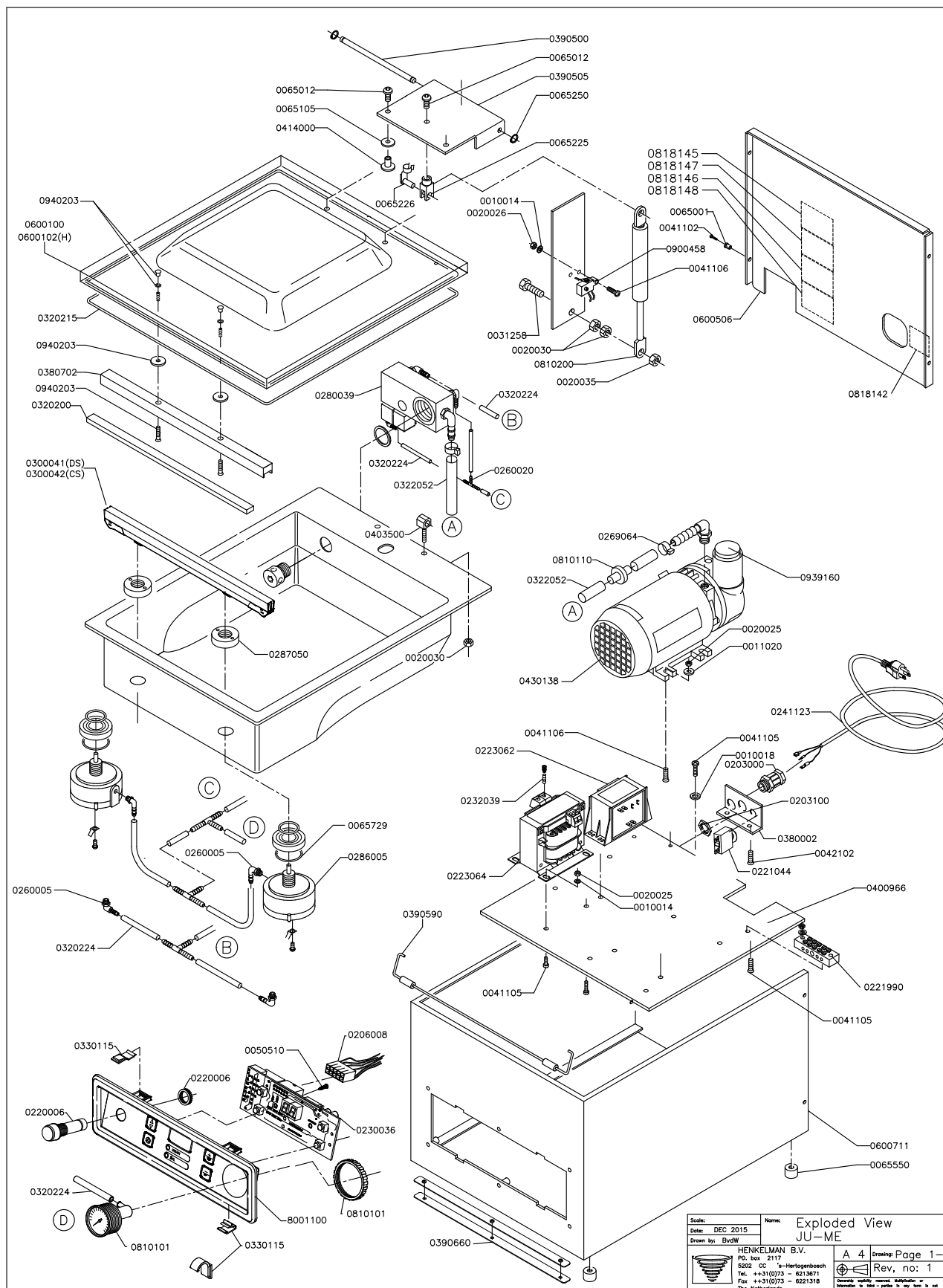
* This machine is not designed for continuous use. The maximum used setting for vacuum should be 60 seconds. Maintain a 15 second waiting period between each following cycle. Also, if the machine is used for 1 hour continuously, the machine should be switched off, until the temperature of the enclosure has reached the ambient temperature.

**Extension legs are available for these machines. These legs will add 4 inch to the total height

***See machine plate.

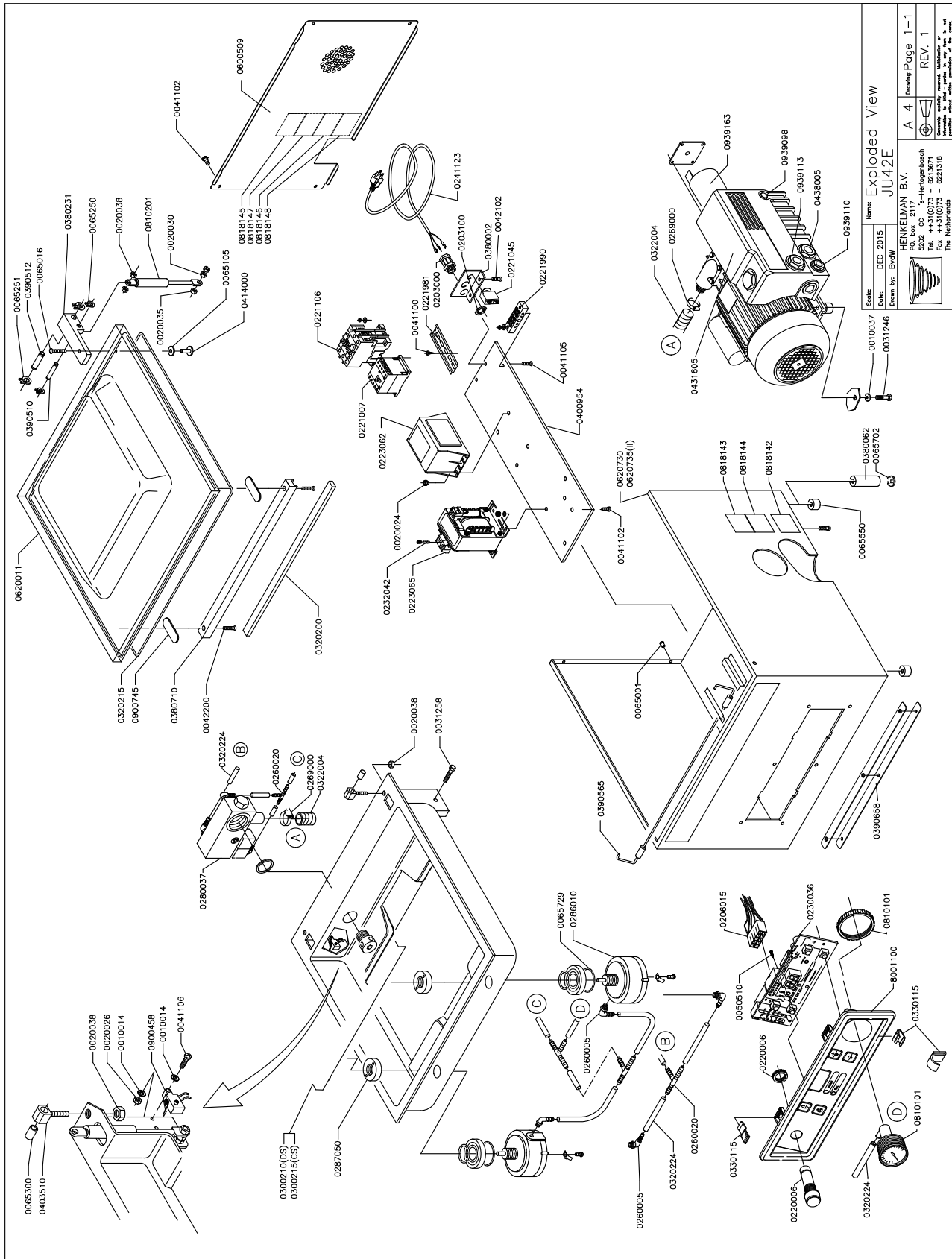
10.2 Exploded Views

10.2.1 Mini Jumbo Exploded View



[illegible]

10.2.3 Jumbo 42 Exploded View



[illegible]

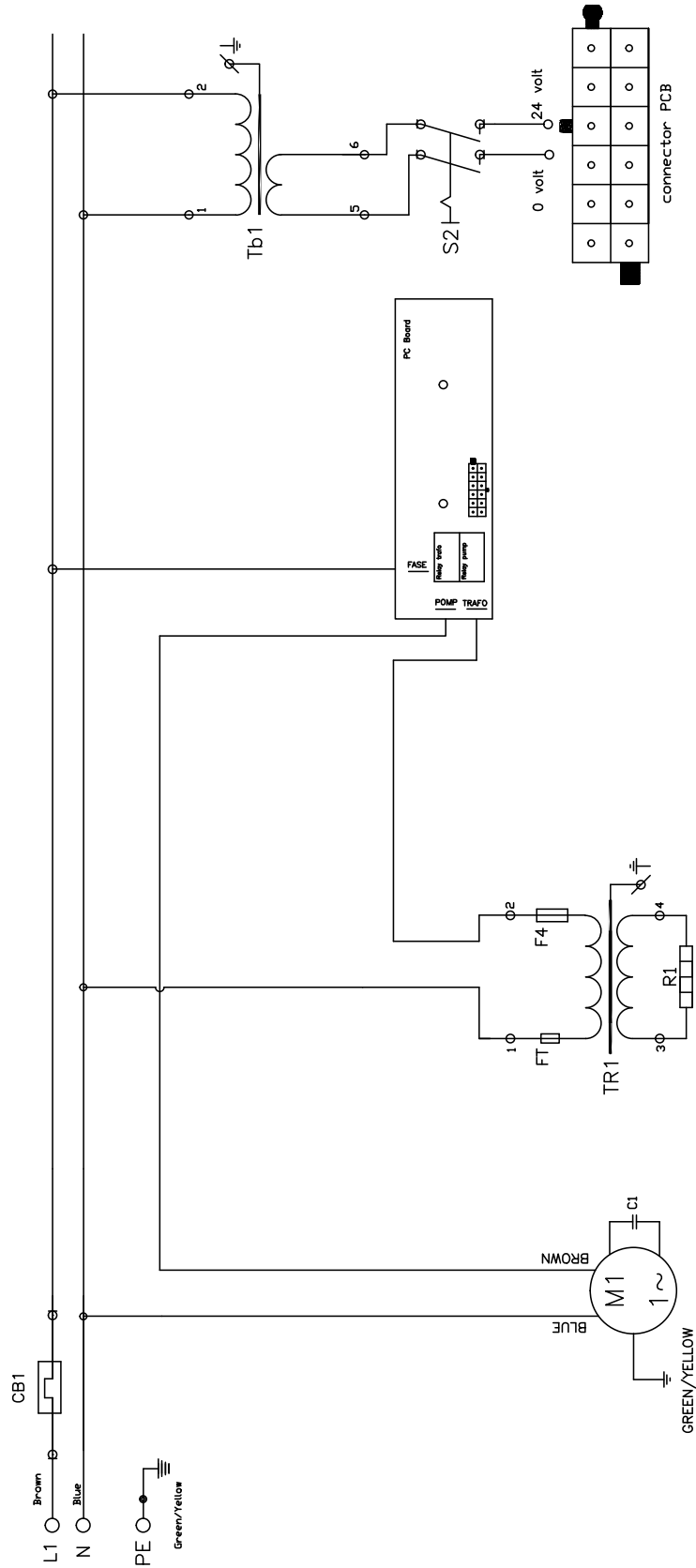
10.3 Electrical Diagrams

10.3.1 Mini Jumbo Electric Diagram

Index sheet supplemental to			
Control diagram	0	Date printed	12-01-2015
Main circuit diagram	006-J ETL		
Machine series	Mini Jumbo ds ETL	Revision	
Current (V-F-Hz)	110-1-60	Seal configuration	Front
Pump capacity	5 m ³ /h 169 cf/h	Seal type	DSTSW-Seal
Main electrical supply			
L1	Phase 1		
N	Neutral		
PE	Ground		
Overload devices			
Circuit breaker	CB	Part no.	0221044
		Specification	10 A
Fuse seal transformer	F4	Part no.	0232039
		Specification	8 A
		Size	6.3 x 32 mm
Pump			
Pump capacity	5 m ³ /h 169 cf/h		
Power	0.40 HP		
Transformers			
Seal transformer	Tr1	Part no.	0223064
		Input	110 V
		Capacity	500 VA
		Output	10 V
		ED	10%
		Connection	Stand alone
Control transformer	Tb1	Part no.	0223062
		Input	110 V

Transformers			
		Capacity	30 VA
		Output 1	24 V
		ED	100%
Seal bars			
Seal bar	R1	Connection	Stand alone
Switches			
Control switch ON/OFF	S2	Part no.	0220006
Micro switches			
Switch start cycle	MS1	Elec. connections	2
Valves			
Seal valve	Y3		
Decompression valve	Y5		

1	2	3	4	5
MAIN SUPPLY	CIRCUIT BREAKER	SEAL TRANSFORMER	PC BOARD	CONTROL TRANSFORMER
L1 N	CB1	TR1		Tb1
	MOTOR	SEAL BAR		CONTROL SWITCH
	M1	R1		S2
				MAIN PCB CONNECTOR



		Date:		Name:		Description: Connection Diagram Main Power Supply
produced	01.11.15	MD		MD		
Checked	01.11.15	MD		MD		
Voltage	110—120	V				
Phase	1					
Freq.		Hz				
Model	Mini Jumbo					Identification number: 006—J ETL
 O R I G I N A L HENKELMAN <i>vacuum systems</i>						



10.3.2 Jumbo 35 Electric Diagram

Index sheet supplemental to			
Control diagram	0	Date printed	12-01-2015
Main circuit diagram	007-J		
Machine series	J-35 ETL	Revision	
Current (V-F-Hz)	110-1-60	Seal configuration	Front
Pump capacity	19 m ³ /h 678 cf/h	Seal type	DSTSW-Seal

Main electrical supply	
L1	Phase 1
N	Neutral
PE	Ground

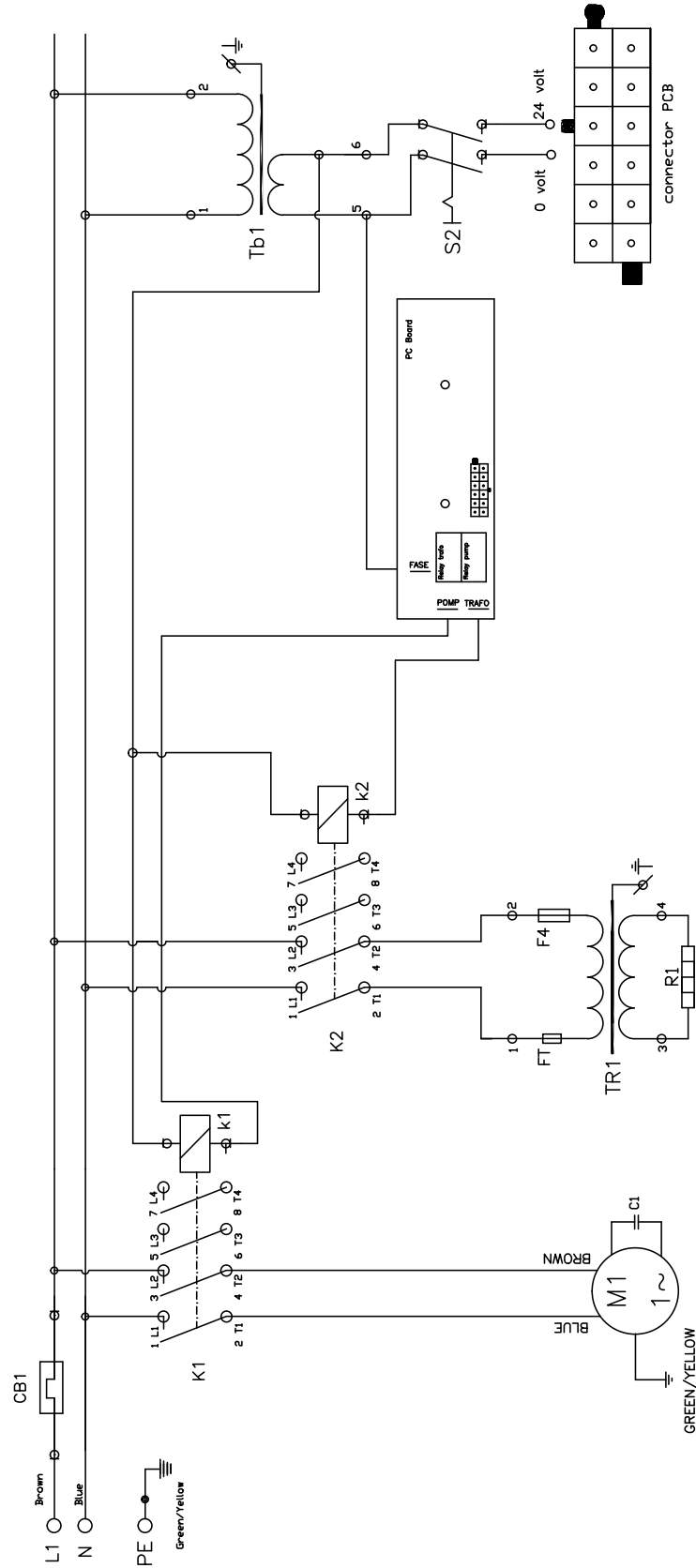
Overload devices			
Circuit breaker	CB	Part no.	0221045
		Specification	15 A
Fuse seal transformer	F4	Part no.	0232039
		Specification	8 A
		Size	6.3 x 32 mm

Pump	
Pump capacity	19 m ³ /h 678 cf/h
Power	0.74 HP

Transformers			
Seal transformer	Tr1	Part no.	0223064
		Input	110 V
		Capacity	500 VA
		Output	10 V
		ED	10%
		Connection	Stand alone
Control transformer	Tb1	Part no.	0223062
		Input	110 V
		Capacity	30 VA

Transformers			
		Output 1	24 V
		ED	100%
Seal bars			
Seal bar	R1	Connection	Stand alone
Contactors			
Pump	K1	Part no.	0221106
Seal	K2	Part no.	0221007
Switches			
Control switch ON/OFF	S2	Part no.	0220006
Micro switches			
Switch start cycle	MS1	Elec. connections	2
Valves			
Seal valve	Y3		
Decompression valve	Y5		

1	2	3	4	5
MAIN SUPPLY	CIRCUIT BREAKER	CONTACTOR	PC BOARD	CONTROL TRANSFORMER
L1 N	CB1	K1		Tb1
	CONTACTOR	SEALTRANSFORMER		CONTROL SWITCH
	K1	TR1		S2
	MOTOR	SEAL BAR		MAIN PCB CONNECTOR
	M1	R1		



Date:		Name:		Description:	
produced	01.11.15	MD	MD	Connection Diagram Main Power Supply	
Checked	01.11.15	MD	MD	Identification number:	
Voltage	110-120	V		007-J ETL	
Phase	1				
Freq.					
Model	Jumbo 30,35,42-I				



10.3.3 Jumbo 42 Electric Diagram

Index sheet supplemental to			
Control diagram	0	Date printed	12-01-2015
Main circuit diagram	007-J		
Machine series	J-42 ETL	Revision	
Current (V-F-Hz)	110-1-60	Seal configuration	Front
Pump capacity	19 m ³ /h 678 cf/h	Seal type	DSTSW-Seal

Main electrical supply	
L1	Phase 1
N	Neutral
PE	Ground

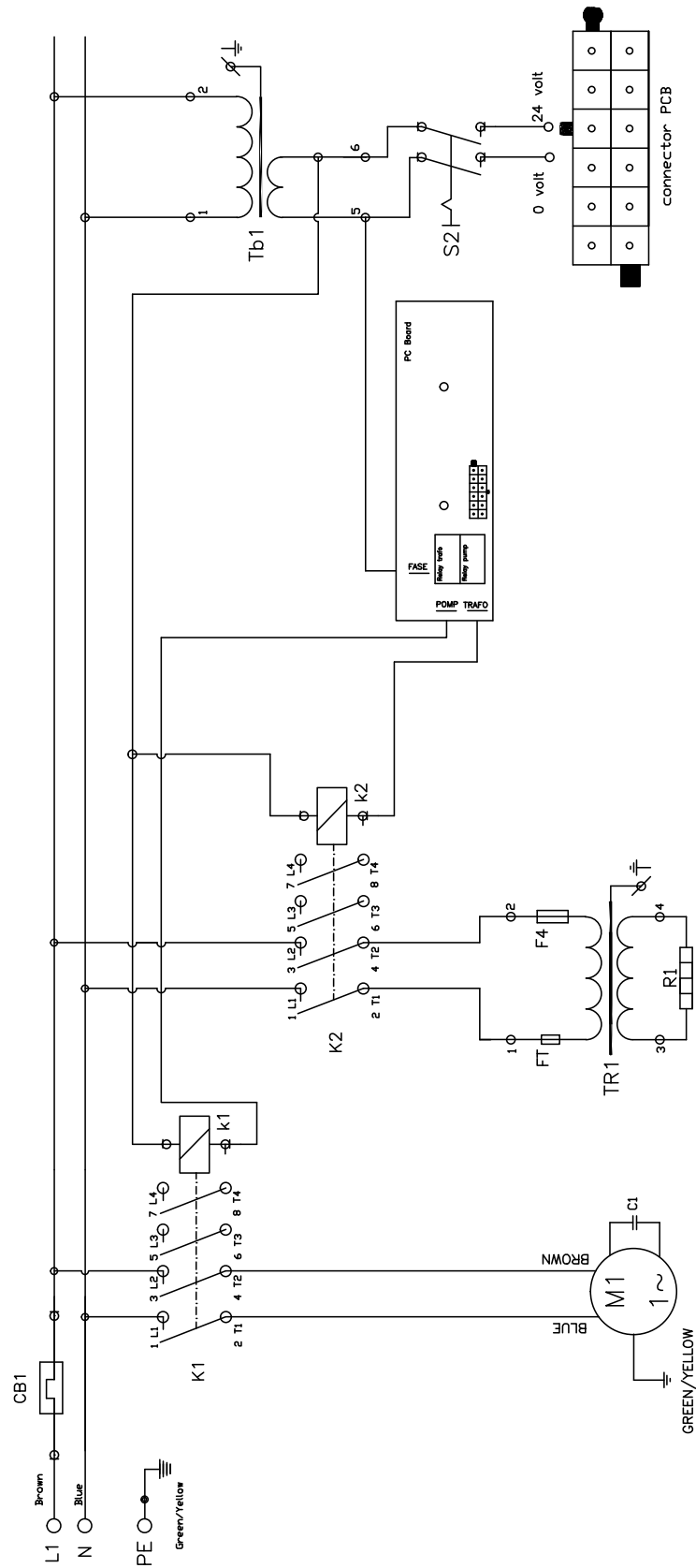
Overload devices			
Circuit breaker	CB	Part no.	0221045
		Specification	15 A
Fuse seal transformer	F4	Part no.	0232042
		Specification	10 A
		Size	6.3 x 32 mm

Pump	
Pump capacity	19 m ³ /h 678 cf/h
Power	0.74 HP

Transformers			
Seal transformer	Tr1	Part no.	0223065
		Input	110 V
		Capacity	700 VA
		Output	15 V
		ED	10%
		Connection	Stand alone
Control transformer	Tb1	Part no.	0223062
		Input	110 V
		Capacity	30 VA

Transformers			
		Output 1	24 V
		ED	100%
Seal bars			
Seal bar	R1	Connection	Stand alone
Contactors			
Pump	K1	Part no.	0221106
Seal	K2	Part no.	0221007
Switches			
Control switch ON/OFF	S2	Part no.	0220006
Micro switches			
Switch start cycle	MS1	Elec. connections	2
Valves			
Seal valve	Y3		
Decompression valve	Y5		

1	2	3	4	5
MAIN SUPPLY	CIRCUIT BREAKER			
L1 N	CB1	K1		Tb1
	CONTACTOR	SEALTRANSFORMER		CONTROL SWITCH
	K1	TR1		S2
	MOTOR	SEAL BAR		MAIN PCB CONNECTOR
	M1	R1		



	Date:	Name:	Description: Connection Diagram Main Power Supply
produced	01.11.15	MD	
Checked	01.11.15	MD	
Voltage	110-120	V	
Phase	1	~	
Freq.		Hz	
Model	Jumbo	30,35,42-1	Identification number: 007-J ETL

10.3.4 Jumbo 42XL Electric Diagram

Index sheet supplemental to			
Control diagram	0	Date printed	12-01-2015
Main circuit diagram	008-J		
Machine series	J-42 XL II ETL	Revision	
Current (V-F-Hz)	110-1-60	Seal configuration	Front and Rear
Pump capacity	19 m ³ /h 678 cf/h	Seal type	DSTSW-Seal

Main electrical supply	
L1	Phase 1
N	Neutral
PE	Ground

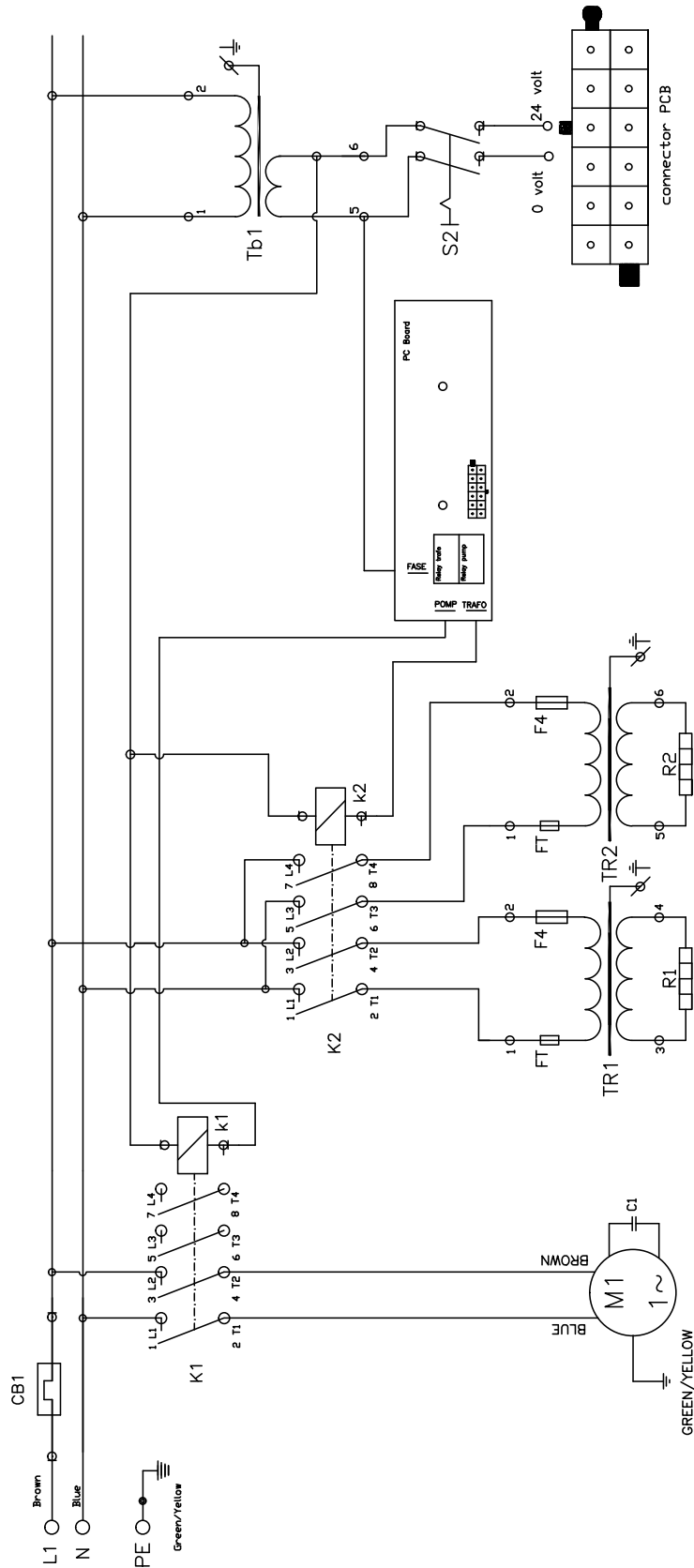
Overload devices			
Circuit breaker	CB	Part no.	0221046
		Specification	20 A
Fuse seal transformer	F4	Part no.	0232042
		Specification	10 A
		Size	6.3 x 32 mm

Pump	
Pump capacity	19 m ³ /h 678 cf/h
Power	0.74 HP

Transformers			
Seal transformer	Tr1	Part no.	0223065
		Input	110 V
		Capacity	700 VA
		Output	15 V
		ED	10%
		Connection	Stand alone
Control transformer	Tb1	Part no.	0223062
		Input	110 V
		Capacity	30 VA

Transformers			
		Output 1	24 V
		ED	100%
Seal bars			
Seal bar	R1.0	Connection	Stand alone
Seal bar	R1.1		
Contactors			
Pump	K1	Part no.	0221106
Seal	K2	Part no.	0221007
Switches			
Control switch ON/OFF	S2	Part no.	0220006
Micro switches			
Switch start cycle	MS1	Elec. connections	2
Valves			
Seal valve	Y3		
Decompression valve	Y5		

1	2	3	4	5	6
MAIN SUPPLY	CIRCUIT BREAKER	CONTACTOR		PC BOARD	CONTROL TRANSFORMER
L1 N	CB1	K1			Tb1
	CONTACTOR	SEALTRANSFORMER			CONTROL SWITCH
	K1	TR1	TR2		S2
	MOTOR	SEAL BAR	SEAL BAR		MAIN PCB CONNECTOR
	M1	R1	R2		



		Date:	Name:		Description: Connection Diagram Main Power Supply
produced	01.11.15	MD			
Checked	01.11.15	MD			
Voltage	110-120	V			Identification number: 008-J ETL
Phase	1	~			
Freq.		Hz			
Model	Jumbo 42-II				

008-J ETL

10.4 Call Scripts

The call scripts are organized by phase of operation. The errors and solutions are then presented as follows:

Error or effect to be seen

- Part subject to inspection (in case of hierarchy of parts subject to inspection one sub-level is added)
 - Activity to be taken
 - Sub-activity to be taken

Colours:

- **Green:** All users
- **Red:** only trained people / service agents

10.4.1 Mini Jumbo Call Script

Starting the Machine (Machine Is Switched On)

- *Display does not light up* on page 61
- *Display shows two stripes jumping up and down* on page 62

Vacuum

- *On closing lid, display does not change (setting is displayed)* on page 64
- *Display changes (set value decreases, lid opens if not held down) and no vacuum is created in the chamber* on page 64
- *Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the chamber is not reached* on page 65
- *Air is leaking from the vacuum chamber* on page 66
- *Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the bag is not reached* on page 68

Seal

- *Minimum vacuum pressure* on page 70
- *No, or insufficient, seal* on page 70

Decompression

- *Display shows two stripes jumping up and down and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber* on page 73
- *Display shows two frozen stripes and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber* on page 74
- *Display shows two stripes jumping up and down and lid opens* on page 74

General Problems

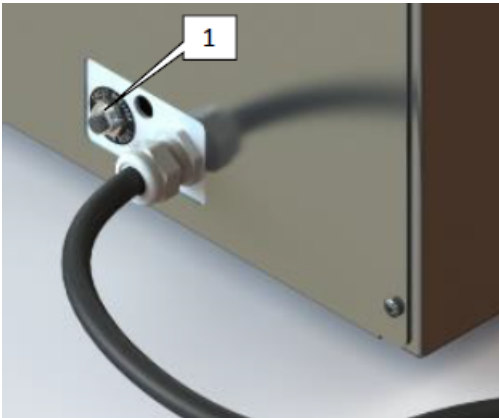
- *F1 message* on page 74

10.4.1.1 Starting the Machine (Machine Is Switched On)

10.4.1.1.1 Display does not light up

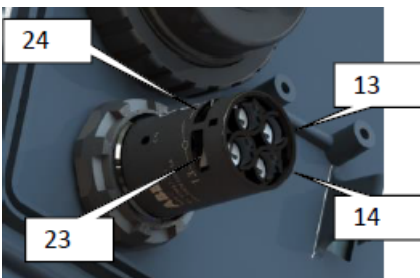
- Circuit breaker on power entrance
 - Reset circuit breaker

This circuit breaker is located at the backside of the machine, near the power cable entrance. If the amperage drawn by the machine exceeds the value of the circuit breaker for a certain period of time, it will trip. Before resetting, it probably needs to cool down. Resetting needs to be done manually by pushing the protrude knob. If the circuit breaker trips quickly after resetting, it is a clear indication something is causing the tripping and this should be further investigated.



- On/Off button has failed
 - Check electrical connection
 - If electrical connection is OK, replace On/Off button

Check if all electrical connections are thoroughly fixated: no loose cables and no loose screws. If the button is in the proper ON position, the electrical connections between position 14 and 24 should be connected. The same for position 13 and 23. If one or both connections are not connected, most likely the On/Off button is malfunctioning. A quick test can confirm this: Manually connect connections 24 with 14 and also connections 23 with 13. If you power up the machine, and the display lights up, this is the clear indication you have to replace the On/Off button. If it still does not work, one of the electrical connections / wires is broken. Check each wire / connection separately.



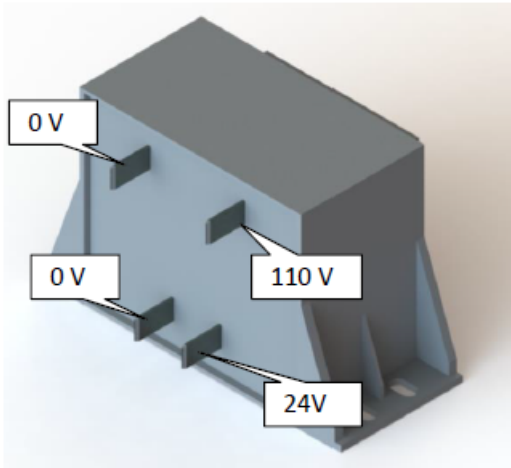
- Power transformer
 - Check output 24 VAC transformer
 - If faulty, replace power transformer

- If this does not solve the problem, replace PCB

Check the output of the control transformer. It should be approx. 24 VAC, (two terminals at the bottom of the transformer, between point 0-24 V). If the output is below 19 V, replace the power transformer. If there is no output at all, check the primary electrical (between point 0-110 V (two terminals at the top of transformer)).



When replacing a broken fuse, always use a fuse according the specifications mentioned on the transformer.



10.4.1.1.2 Display shows two stripes jumping up and down

- Lid hook
 - Check if lid hook holds lid down
 - Release hook and open lid completely

During the decompressing phase of the machine, two stripes will keep jumping up and down on the display. If the lid hook keeps the lid down while starting up the machine, these stripes will be shown. This because the control board is under the impression that the micro switch is not released and therefore it assumes that there is a remaining vacuum inside the chamber.

The lid hook (1) is a device to keep the lid closed if the machine is not used. This is to prevent pollution from entering the chamber, but still allows the chamber to be ventilated.

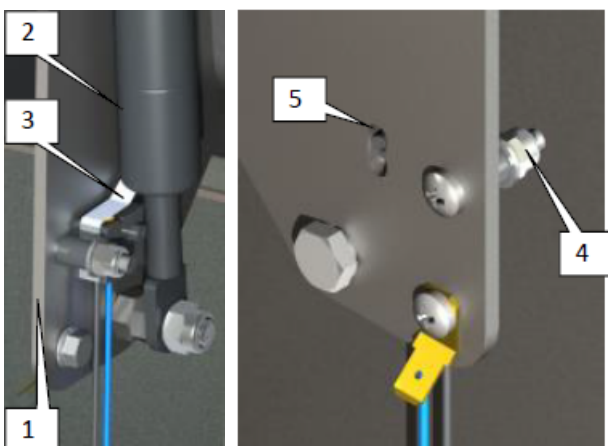
Release the hook. The jumping stripes (2) will disappear and the lid will open completely. The machine is now ready for use.



Normally, the decompression is complete within 20 seconds. The lid hook will prevent the lid from opening and therefore it will exceed this time. The time-out program will prevent the valve from overheating. The indication that this time-out program is active, is the two stripes shown stationary in the middle position.

- **Micro switch**
 - Check if micro switch is mechanically stuck
 - If micro switch is not stuck, check position of micro switch and adjust if necessary
 - Disconnect micro switch
 - If the two stripes stop jumping up and down, replace micro switch
 - If the two stripes keep jumping up and down, replace PCB

The micro switch connected by wire: 6.1 / 7.1 signals the start of the cycle. It is mounted in the interior of the machine, under the hinge against the gas cylinder support (1). When the lid is closed, it will push the cylinder housing (2) down until the housing will activate the lever (3) of the micro switch. It is possible that due to transportation of the machine the adjustment of the micro switch is changed and therefore improperly located. This can cause a permanent activation of the micro switch or no activation at all. Re-adjustment of the micro switch is done by releasing nut (4) and slide the micro switch in the slot recess to the proper position (5). Do not forget to fixate nut (4) after re-adjusting the micro switch. The micro switch should be activated when the lid is closed and there is a gap at the front side of the machine between lid and chamber of approx. 1½ inch.



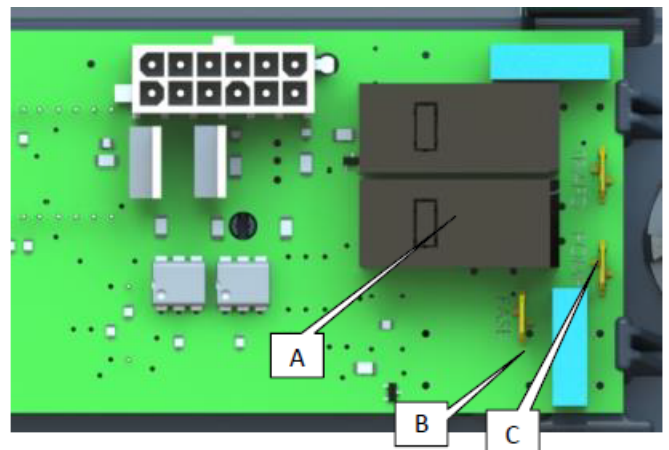
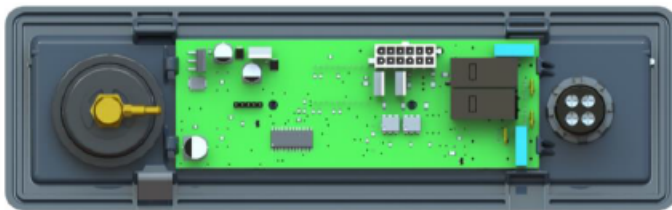
10.4.1.2 Vacuum

10.4.1.2.1 On closing lid, display does not change (setting is displayed)

- Micro switch
 - Check if the micro switch is mechanically stuck
 - If the micro switch is not stuck, check the position of the micro switch and adjust if necessary
 - Check the electrical connections
 - If bad connections are found, restore sound connections or replace cable
 - If this does not solve the problem, replace PCB

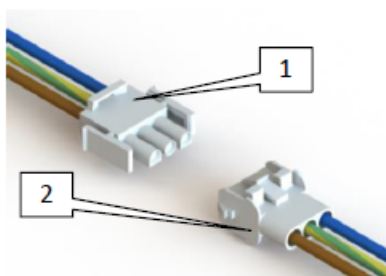
10.4.1.2.2 Display changes (set value decreases, lid opens if not held down) and no vacuum is created in the chamber

- Pump
 - Check if pump relay (A) on PCB is activated. Relay should "click" on activation
 - If not, replace PCB
 - Check voltage on PCB terminal, coded with "Pump"
 - If no or insufficient voltage, replace PCB



Enter the dealer menu and select the menu: gate-test. See *Using Output Test (1-Program Control System)* on page 38. Activate outlet 1: pump. At this moment the pump relay (A) mounted on the PCB will be activated and you should hear a "click". Directly after that, at that the 120 V connected to terminal, "Phase" (B) will be switched to terminal (C) coded with "Pump". If no voltage is switched to terminal "Pump", replace the PCB.

- ◦ Check if the pump connectors (1 and 2) in the pump power cable are properly connected.



- ◦ Disconnect the machine from the power supply and check if the pump is mechanically blocked. Try to rotate the fan at the back side of the pump. Push a small screw driver through the opening in the pump cover, to rotate the fan. If it is impossible to rotate the fan, or it moves with difficulty, the pump is probably mechanically blocked by pollution / corrosion. Replace the pump.



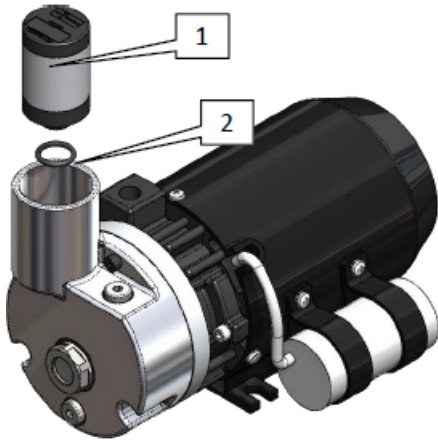
10.4.1.2.3 Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the chamber is not reached

- Vacuum time
 - Check if vacuum time is sufficient. Vacuum time depends on many factors, but in most cases 40 seconds should suffice. When in doubt; increase vacuum time
- Oil
 - Check if oil level is sufficient (see *Removing Oil, Refilling Oil* on page 30). If not, add oil
 - Check if oil is polluted (see *Removing Oil, Refilling Oil* on page 30). If not, replace oil
- Exhaust filter
 - Check if exhaust filter is polluted. If so, replace exhaust filter (see *Replacing the Oil Exhaust Filter* on page 31)

The exhaust filter (1) prevents oil vapours to be emitted in the ambient air. After awhile, the filter becomes saturated, and it is no longer possible to reach a maximum vacuum. As a side-effect, an oil mist will be emitted out of the exhaust opening of the pump when a cycle starts. If this happens, change the filter. If the exhaust filter is removed, make sure the O-ring (2) is removed with it.



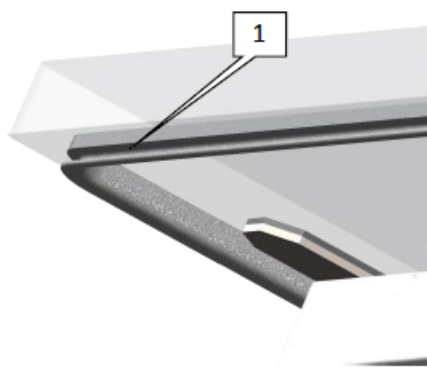
It is not possible to clean the polluted filter. The used dissolvent may resolve particles of the filter that may end up in the pump and block oil lubrication lines with permanent damage to the pump.



10.4.1.2.4 Air is leaking from the vacuum chamber

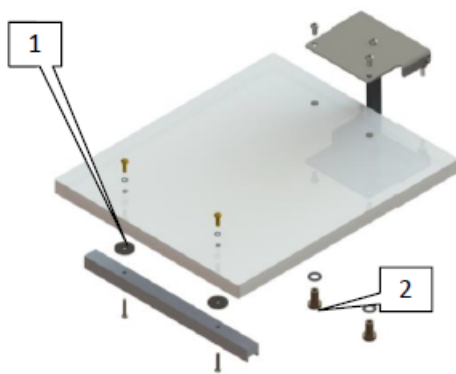
- Set vacuum value to 60 seconds. Switch off the machine after 55 seconds. If the vacuum gauge shows loss of vacuum in the chamber, there is leakage. A hissing sound can be heard
 - The hissing sound can be heard outside of the machine
 - Check if the lid gasket is damaged or broken
 - If so, replace lid gasket (see *Replacing the Lid Gasket* on page 35)

If a new lid gasket (1) is mounted, note the lip of the lid seal should point outwards. When placing a new lid seal, we recommend to cut the new lid seal 1.3 to 2.5 cm (0.5 to 1 in) longer than the present lid seal. Start at the back side of the cover, push the seal in the gasket slot. Make sure you not stretching the lid seal while pushing it in. Especially on the corners, it is important not to stretch it, otherwise it will pull itself out of the gasket slot. When the complete lid seal is in position, you have reached the starting point. Cut the length approximately 1 to 1.5 cm (0.4 to 0.6 in) longer than the remaining gasket slot length. Place the end of the lid seal against the start point and push the remaining in to the gasket slot. The start and the ending are now push firmly together and will guarantee a vacuum tight seal.

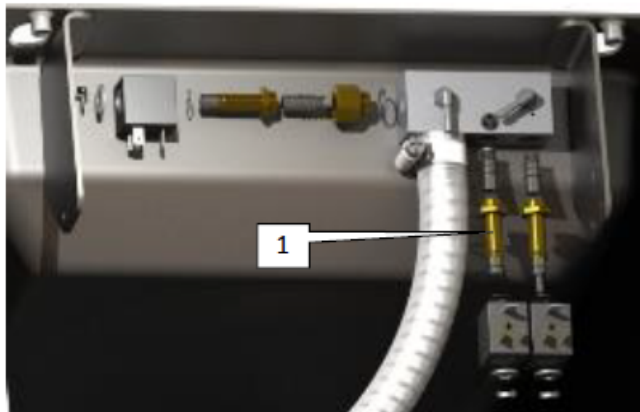


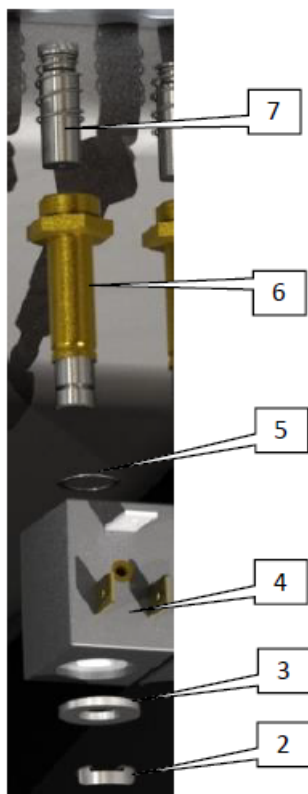
- ◦ Check seals on cover hinge and mounting screws silicone holder
 - If damaged, replace seals and/or tighten screws

Check the quality of the circular seals (1) as used under the silicone holder. Check the quality of the circular seals (2) as used under the fixation screw hinge system. If these seals are damaged or worn-out, replace them.



- ◦ The hissing sound can be heard inside the machine.
 - **Unplug the machine from the wall socket while vacuum stays intact and remove rear cover**
- ◦ Check if the hissing sound can be heard from the decompression valve (1)
 - **If so, remove decompression pilot, clean and replace decompression pilot**



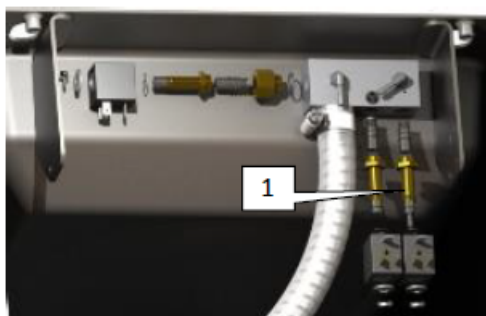


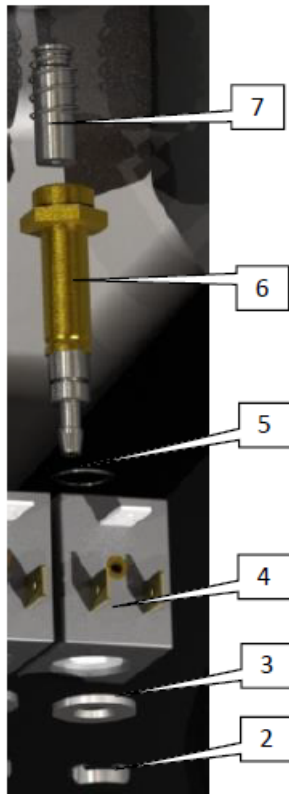
The hissing sound can be heard through the round filter plate directly above the decompression valve itself. Disassemble the decompression valve by removing the lower clip (2). Please note, when disassembling, a washer (3) and a very thin spring washer (5) will fall down. Once the clip, washers, spring washer and coil (4) are removed, the pilot (6) itself can be removed by turning it counter-clockwise. Now the plunger (7) will come free. Check the rubber valve seal on pollution or damage. Clean the inside of the plunger and the valve block with compressed air. After that, reassemble the decompression valve.

- ◦ Check all hoses on leakage / connections and repair/replace if necessary

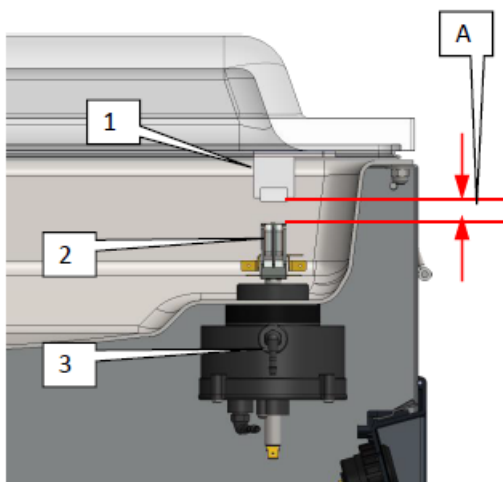
10.4.1.2.5 Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the bag is not reached

- Gap (A) between the seal bar and the silicone holder
 - Check visually if the seal cylinder moves upward during the vacuum process
 - If so, check seal valve (1). Remove seal pilot, clean and replace seal pilot





Disassemble the seal valve by removing the lower clip (2). Please note, when disassembling, a washer (3) and a very thin spring washer (5) will fall down. Once the clip, washers, spring washer and coil (4) are removed, the pilot (6) itself can be removed by turning it counter-clockwise. Now the plunger (7) will come free. Check the rubber valve seal for pollution or damage. Clean inside of the plunger and the valve block with compressed air. After that, reassemble the seal valve.



Position 1: Silicone holder. This is an aluminium holder where the silicone profile is pushed into.

Position 2: Seal bar. The element that is heats up the vacuum pouch.

Position 3: Seal cylinder. For each seal bar, two seal cylinders are used to push the seal bar up during the sealing phase.

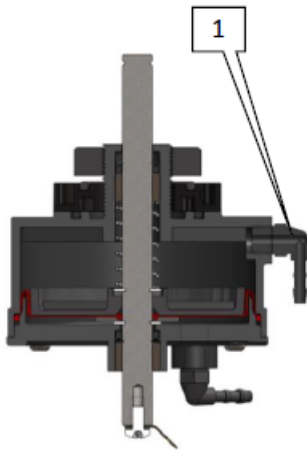
The gap (A) whereby the air inside the vacuum pouch is distracted is determined by the position of the silicone holder (1) and the position of the seal bar (2). To make distraction from the air possible it is necessary that the seal bar is in the lowest position. The gap should be in between 0.8 to 1.0 cm (0.3 to 0.4 in). If the gap is too small, check the position of the seal bar. The seal bar is positioned on top of two seal cylinder shafts. The seal bar can be removed by pulling up the seal bar. The seal bar is fixated by click fingers on the shaft. Some force may be necessary to remove the seal bar. Inspect the two holes at the bottom of the seal bars. These should be free from obstacles and pollution. If these are clean and free, push back the seal bar. You will feel and hear a click, when the seal bar has reached the lowest position.

- ◦ Check seal cylinder for leakage

- If leakage is found, replace membrane or complete cylinder

If the seal cylinder is activated prematurely, it closes the gap between seal bar and silicone holder too early and the vacuum inside the vacuum bag will not be reached. In the previous steps the seal valve is checked and excluded as the cause of the problem. If the seal valve is functioning correctly the problem is caused by malfunctioning of the seal cylinder. To determine which cylinder is faulty, follow the next steps:

1. Switch on the machine and close the lid.
2. Switch off the machine when the end pressure inside the chamber has reached approximately 80% vacuum.
3. Remove the hose presently connected to the top hose connection (1) of the left cylinder and block the free hose so it is air-tight.
4. Check now if the right hand side cylinder is still moving upwards. If so, the right hand side cylinder is faulty. If not, repeat this test with the right hand side cylinder and check if the left hand side cylinder is moving upwards.
5. Once determined which cylinder is malfunctioning, replace the membrane or the complete cylinder.



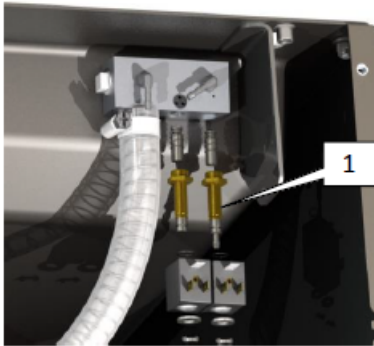
10.4.1.3 Seal

10.4.1.3.1 Minimum vacuum pressure

- Check if minimum of 30% of vacuum is reached to guarantee sufficient seal pressure.
 - If it is close or under the mentioned 30%, increase vacuum setting, or decrease gas value (the function gas can have a negative influence on the actual seal pressure).

10.4.1.3.2 No, or insufficient, seal

- Check visually if seal bar is pressed against silicone holder
 - If not, check if seal valve (1) is activated: 24 VAC power on the valve
 - If so, check seal valve, remove seal pilot, clean or replace seal pilot
 - If this does not solve the problem, replace PCB

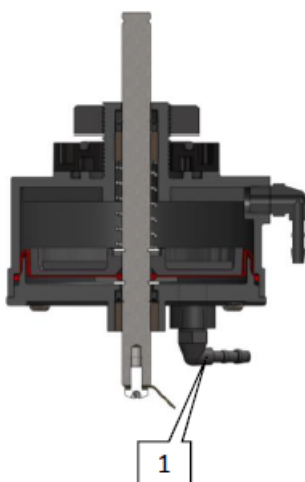


If the valve is activated, 24 VAC is connected to the two terminals on the coil. Wires coded with number: 11.1 / 5.4.

- Check cylinder
 - Replace membrane or complete seal cylinder

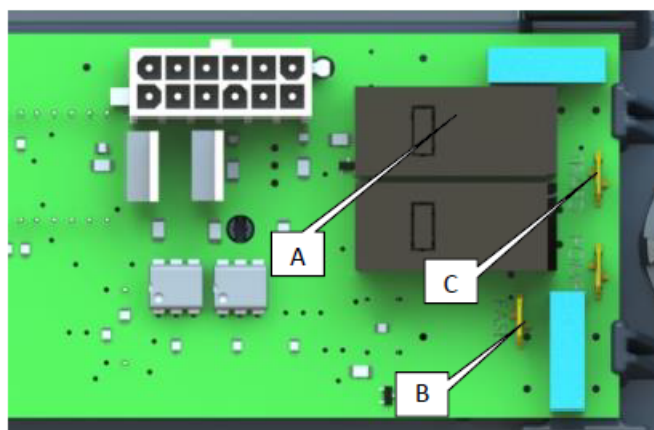
If there is insufficient seal pressure, it is possible that the membrane is leaking. To determine which cylinder is faulty, follow the next steps:

1. Enter the dealer menu and select the menu: gate-test.
2. Switch on the machine and close the lid.
3. Switch off the machine when the end pressure inside the chamber has reached approx. 80% vacuum.
4. Remove the hose presently connected to the bottom hose connection (1) of the left cylinder and block the free hose so it is air-tight.
5. Check now if the air is sucked into the bottom hose connection (1), and will push the cylinder to the top. Once the cylinder has reached its top position the lower compartment of the cylinder is filled with air.
6. Now the air flow should stop. If the membrane (marked in red in the drawing) has a leakage, air will continue to flow inside. If air intake stops, test the other cylinder in the same way.
7. Once determined which cylinder is malfunctioning, replace the membrane or the complete cylinder.



- If seal bar is pressed to the silicone holder

- Check seal time
 - Increase seal time
- Check seal bar (if machine is executed with two seal bars, try interchanging the front and rear seal bar to see if problem moves with the interchanged bar)
- Check if seal wires and Teflon tape are without any pollution, excessive wear or damage
 - Replace tape and or wires
- Check seal bar end blocks.
- Check if all contacts are clean and all screws are sufficient tightened
 - Replace seal bar end blocks
 - If this does not solve the problem, replace seal bar
- Check seal relay, relay should "click" on activation
 - If not, replace PCB



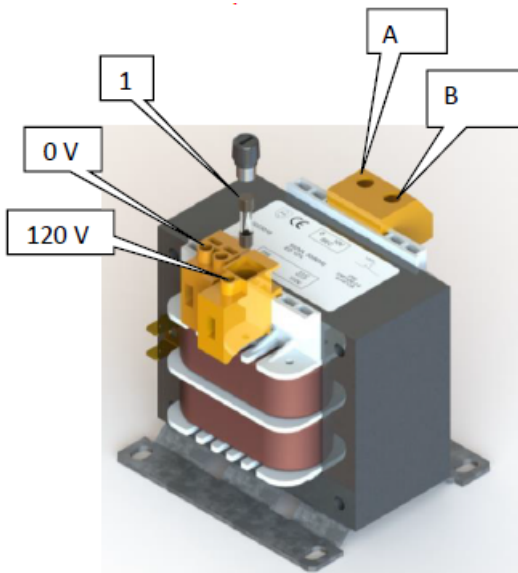
Enter the dealer menu and select the menu: gate-test. See *Using Output Test (1-Program Control System)* on page 38. Activate outlet 3: Seal relay. At this moment the seal relay (A) mounted on the PCB will be activated and you should hear a "click". Directly after that, at that the 120 V connected to terminal, "Phase" (B) will be switched to terminal (C) coded with "Trafo". If no voltage is switched to terminal "Trafo", replace the PCB.

- Seal transformer
 - Check if seal transformer is activated
 - Measure input/output
 - Check fuse (1)
 - If broken, replace fuse
 - If not broken, replace transformer

Check the output between [A-B] of the control transformer. For the correct specifications, check type shield on top of the transformer. If there is no output at all, check the primary electrical connections [0-120 V]. If the primary connection is correct, check the primary fuse.



When replacing a broken fuse, always use a fuse according the specifications as mentioned on the transformer.



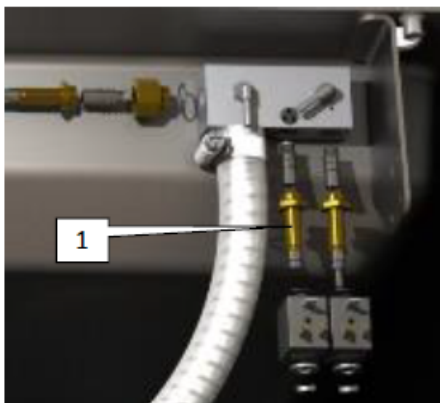
10.4.1.4 Decompression



During the decompressing phase of the machine, two stripes will keep jumping up and down on the display.

10.4.1.4.1 Display shows two stripes jumping up and down and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber

- Check electrical connections, wires and terminals between PCB and decompression valve
 - If bad connections are found, restore sound connections or replace cable
 - If no bad connections are found, check fuse on PCB
 - Replace fuse
 - Replace PCB
- Decompression valve
 - Check if decompression valve (1) opens. Pilot can be heard moving through a click
 - If this does not solve the problem, replace valve



If the valve is activated, 24 VAC is connected to the two terminals on the coil. Wires are coded with number: 15.1 / 5.8.

10.4.1.4.2 Display shows two frozen stripes and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber

- Press – / **STOP** button. Decompression will be activated again
- ◦ Check if decompression continues
 - If not, check if decompression valve opens

Normally, the decompression is complete within 20 seconds. If decompression exceeds this time, a time-out program will prevent the valve from overheating. The indication that this time-out program is active, is the two stripes shown stationary in the middle position.

10.4.1.4.3 Display shows two stripes jumping up and down and lid opens

- Micro switch
- ◦ Check if micro switch is mechanically stuck
 - If the micro switch is not stuck, check position of micro switch and adjust if necessary
 - Disconnect micro switch
 - If the stripes stop jumping up and down, replace micro switch
 - If the stripes keep jumping up and down, replace PCB

10.4.1.5 General Problems

10.4.1.5.1 F1 message

- Vacuum
 - Check if a proper vacuum is achieved (see *Vacuum* on page 64)
- Micro switch
 - Check position of micro switch and adjust if necessary
 - Check the electrical connections. If bad connections are found, restore sound connections or replace cable
 - Replace micro switch

10.4.2 Jumbo Call Script (Other Than Mini Jumbo)

Starting the Machine (Machine Is Switched On)

- *Display does not light up* on page 61
- *Display shows two stripes jumping up and down* on page 62

Vacuum

- *On closing lid, display does not change (setting is displayed)* on page 64
- *Display changes (set value decreases, lid opens if not held down) and no vacuum is created in the chamber* on page 78
- *Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the chamber is not reached* on page 80
- *Air is leaking from the vacuum chamber* on page 81
- *Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the bag is not reached* on page 68

Seal

- *Minimum vacuum pressure* on page 70
- *No, or insufficient, seal* on page 85

Decompression

- *Display shows two stripes jumping up and down and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber* on page 73
- *Display shows two frozen stripes and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber* on page 74
- *Display shows two stripes jumping up and down and lid opens* on page 74

General Problems

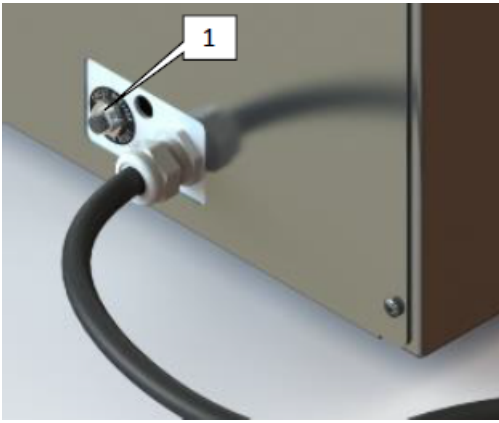
- *F1 message* on page 74

10.4.2.1 Starting the Machine (Machine Is Switched On)

10.4.2.1.1 Display does not light up

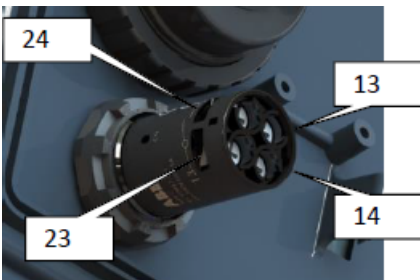
- **Circuit breaker on power entrance**
 - **Reset circuit breaker**

This circuit breaker is located at the backside of the machine, near the power cable entrance. If the amperage drawn by the machine exceeds the value of the circuit breaker for a certain period of time, it will trip. Before resetting, it probably needs to cool down. Resetting needs to be done manually by pushing the protrude knob. If the circuit breaker trips quickly after resetting, it is a clear indication something is causing the tripping and this should be further investigated.



- On/Off button has failed
 - Check electrical connection
 - If electrical connection is OK, replace On/Off button

Check if all electrical connections are thoroughly fixated: no loose cables and no loose screws. If the button is in the proper ON position, the electrical connections between position 14 and 24 should be connected. The same for position 13 and 23. If one or both connections are not connected, most likely the On/Off button is malfunctioning. A quick test can confirm this: Manually connect connections 24 with 14 and also connections 23 with 13. If you power up the machine, and the display lights up, this is the clear indication you have to replace the On/Off button. If it still does not work, one of the electrical connections / wires is broken. Check each wire / connection separately.

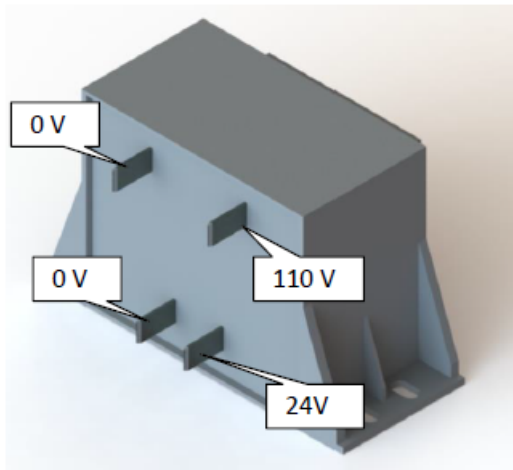


- Power transformer
 - Check output 24 VAC transformer
 - If faulty, replace power transformer
 - If this does not solve the problem, replace PCB

Check the output of the control transformer. It should be approx. 24 VAC, (two terminals at the bottom of the transformer, between point 0-24 V). If the output is below 19 V, replace the power transformer. If there is no output at all, check the primary electrical (between point 0-110 V (two terminals at the top of transformer)).



When replacing a broken fuse, always use a fuse according the specifications mentioned on the transformer.



10.4.2.1.2 Display shows two stripes jumping up and down

- Lid hook
 - Check if lid hook holds lid down
 - Release hook and open lid completely

During the decompressing phase of the machine, two stripes will keep jumping up and down on the display. If the lid hook keeps the lid down while starting up the machine, these stripes will be shown. This is because the control board is under the impression that the micro switch is not released and therefore it assumes that there is a remaining vacuum inside the chamber.

The lid hook (1) is a device to keep the lid closed if the machine is not used. This is to prevent pollution from entering the chamber, but still allows the chamber to be ventilated.

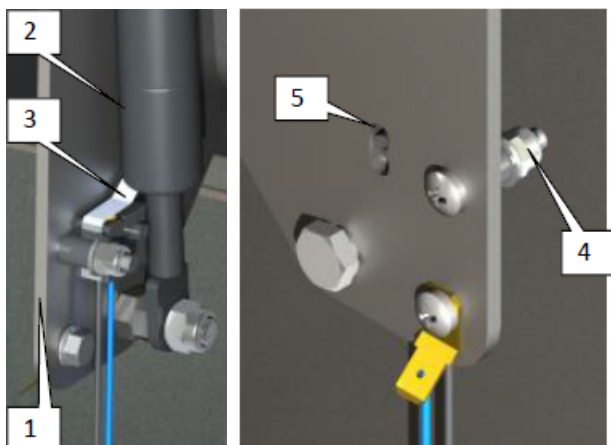
Release the hook. The jumping stripes (2) will disappear and the lid will open completely. The machine is now ready for use.



Normally, the decompression is complete within 20 seconds. The lid hook will prevent the lid from opening and therefore it will exceed this time. The time-out program will prevent the valve from overheating. The indication that this time-out program is active, is the two stripes shown stationary in the middle position.

- Micro switch
 - Check if micro switch is mechanically stuck
 - If micro switch is not stuck, check position of micro switch and adjust if necessary
 - Disconnect micro switch
 - If the two stripes stop jumping up and down, replace micro switch
 - If the two stripes keep jumping up and down, replace PCB

The micro switch connected by wire: 6.1 / 7.1 signals the start of the cycle. It is mounted in the interior of the machine, under the hinge against the gas cylinder support (1). When the lid is closed, it will push the cylinder housing (2) down until the housing will activate the lever (3) of the micro switch. It is possible that due to transportation of the machine the adjustment of the micro switch is changed and therefore improperly located. This can cause a permanent activation of the micro switch or no activation at all. Re-adjustment of the micro switch is done by releasing nut (4) and slide the micro switch in the slot recess to the proper position (5). Do not forget to fixate nut (4) after re-adjusting the micro switch. The micro switch should be activated when the lid is closed and there is a gap at the front side of the machine between lid and chamber of approx. 1½ inch.



10.4.2.2 Vacuum

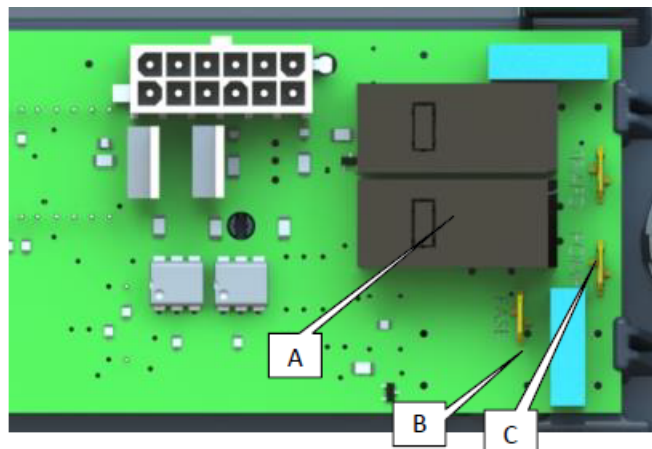
10.4.2.2.1 On closing lid, display does not change (setting is displayed)

- Micro switch
 - Check if the micro switch is mechanically stuck
 - If the micro switch is not stuck, check the position of the micro switch and adjust if necessary
 - Check the electrical connections
 - If bad connections are found, restore sound connections or replace cable
 - If this does not solve the problem, replace PCB

10.4.2.2.2 Display changes (set value decreases, lid opens if not held down) and no vacuum is created in the chamber

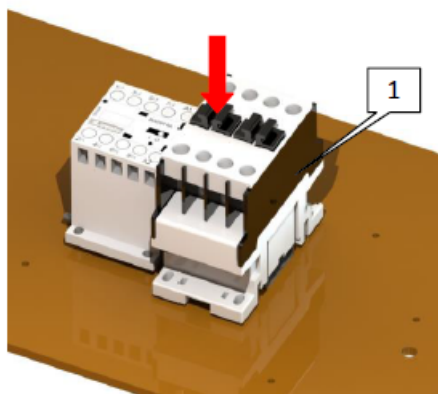
- Pump
 - Check if pump relay (A) on PCB is activated. Relay should "click" on activation
 - If not, replace PCB

- Check voltage on PCB terminal, coded with "Pump"
- If no or insufficient voltage, replace PCB
- Check pump contactor. Contactor should "click" on activation
- If not, replace contactor

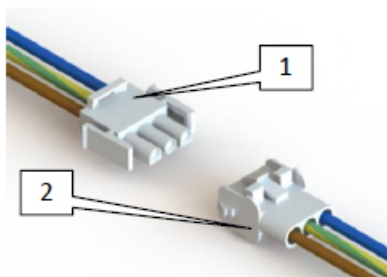


Enter the dealer menu and select the menu: gate-test. See *Using Output Test (1-Program Control System)* on page 38. Activate outlet 1: pump. At this moment the pump relay (A) mounted on the PCB will be activated and you should hear a "click". Directly after that, at that the 120 V connected to terminal, "Phase" (B) will be switched to terminal (C) coded with "Pump". If no voltage is switched to terminal "Pump", replace the PCB.

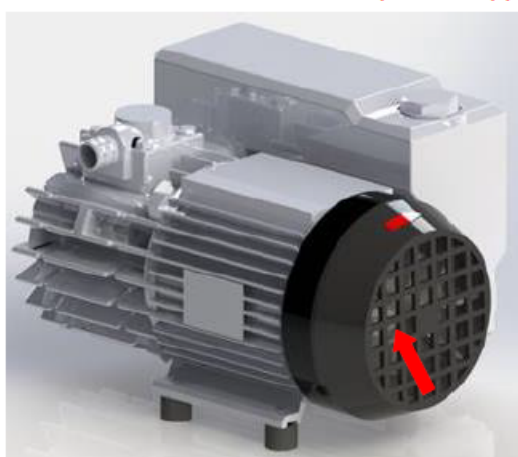
Due to the power consumption of these machines, an additional contactor (1) is added for the pump. If the contactor is not activated once the relay located on the PCB is activated, you can try to activate the contactor by hand to see if the pump starts running. To do this, push the black bridge, see red arrow. If the pump starts running, check electrical connections on positions A1 and A2 of the contactor. If not, replace contactor.



- Check if the pump connectors (1 and 2) in the pump power cable are properly connected.



- ◦ Disconnect the machine from the power supply and check if the pump is mechanically blocked. Try to rotate the fan at the back side of the pump. Push a small screw driver through the opening in the pump cover, to rotate the fan. If it is impossible to rotate the fan, or it moves with difficulty, the pump is probably mechanically block by pollution / corrosion. Replace the pump.



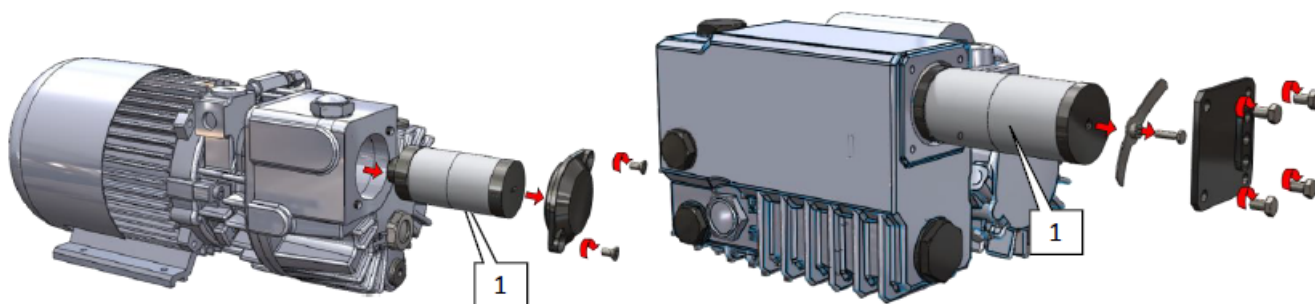
10.4.2.2.3 Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the chamber is not reached

- Vacuum time
 - Check if vacuum time is sufficient. Vacuum time depends on many factors, but in most cases 40 seconds should suffice. When in doubt; increase vacuum time
- Oil
 - Check if oil level is sufficient (see *Removing Oil, Refilling Oil* on page 30). If not, add oil
 - Check if oil is polluted (see *Removing Oil, Refilling Oil* on page 30). If not, replace oil
- Exhaust filter
 - Check if exhaust filter is polluted. If so, replace exhaust filter (see *Replacing the Oil Exhaust Filter* on page 31)

The exhaust filter (1) prevents oil vapours to be emitted in the ambient air. After awhile, the filter becomes saturated, and it is no longer possible to reach a maximum vacuum. As a side-effect, an oil mist will be emitted out of the exhaust opening of the pump when a cycle starts. If this happens, change the filter. If the exhaust filter is removed, make sure the O-ring is removed with it.



It is not possible to clean the polluted filter. The used dissolvent may resolve particles of the filter that may end up in the pump and block oil lubrication lines with permanent damage to the pump.

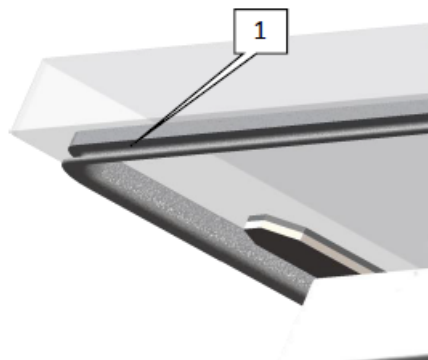


Left: 9 m³/h (338 cf/h)
Right: 19 m³/h (678 cf/h)

10.4.2.2.4 Air is leaking from the vacuum chamber

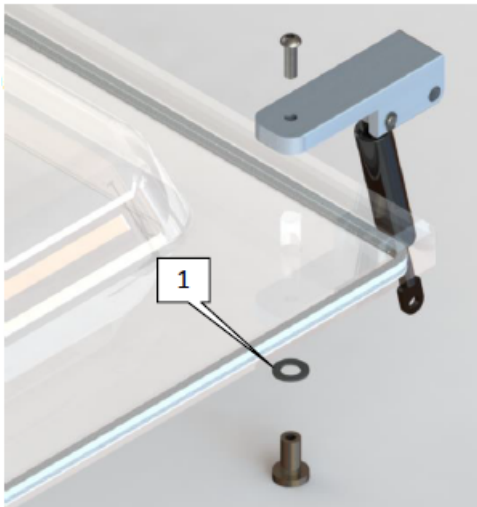
- Set vacuum value to 60 seconds. Switch off the machine after 55 seconds. If the vacuum gauge shows loss of vacuum in the chamber, there is leakage. A hissing sound can be heard
 - The hissing sound can be heard outside of the machine
 - Check if the lid gasket is damaged or broken
 - If so, replace lid gasket (see *Replacing the Lid Gasket* on page 35)

If a new lid gasket (1) is mounted, note the lip of the lid seal should point outwards. When placing a new lid seal, we recommend to cut the new lid seal 1.3 to 2.5 cm (0.5 to 1 in) longer than the present lid seal. Start at the back side of the cover, push the seal in the gasket slot. Make sure you not stretching the lid seal while pushing it in. Especially on the corners, it is important not to stretch it, otherwise it will pull itself out of the gasket slot. When the complete lid seal is in position, you have reached the starting point. Cut the length approximately 1 to 1.5 cm (0.4 to 0.6 in) longer than the remaining gasket slot length. Place the end of the lid seal against the start point and push the remaining in to the gasket slot. The start and the ending are now push firmly together and will guarantee a vacuum tight seal.

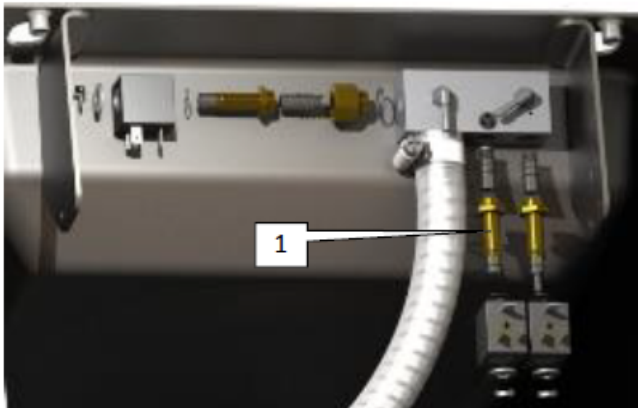


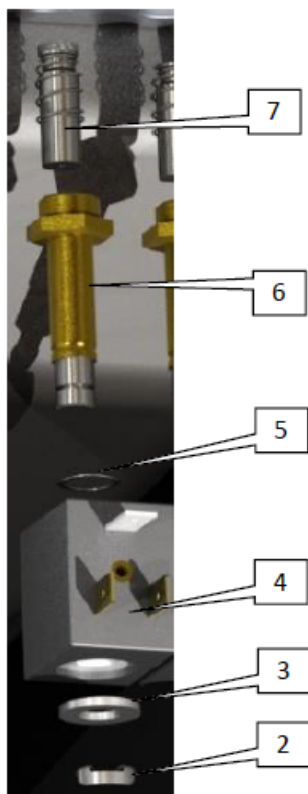
- ◦ Check seals on cover hinge and mounting screws silicone holder
 - If damaged, replace seals and/or tighten screws

Check the quality of the circular seals (1) as used for fixation of the hinge system. If these seals are damaged or worn-out, replace them.



- ◦ The hissing sound can be heard inside the machine.
 - **Unplug the machine from the wall socket while vacuum stays intact and remove rear cover**
- ◦ Check if the hissing sound can be heard from the decompression valve (1)
 - **If so, remove decompression pilot, clean and replace decompression pilot**



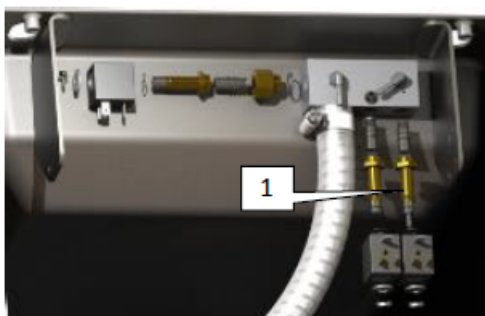


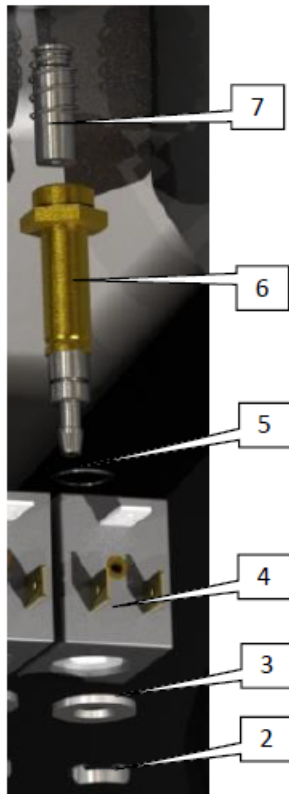
The hissing sound can be heard through the round filter plate directly above the decompression valve itself. Disassemble the decompression valve by removing the lower clip (2). Please note, when disassembling, a washer (3) and a very thin spring washer (5) will fall down. Once the clip, washers, spring washer and coil (4) are removed, the pilot (6) itself can be removed by turning it counter-clockwise. Now the plunger (7) will come free. Check the rubber valve seal on pollution or damage. Clean the inside of the plunger and the valve block with compressed air. After that, reassemble the decompression valve.

- ◦ Check all hoses on leakage / connections and repair/replace if necessary

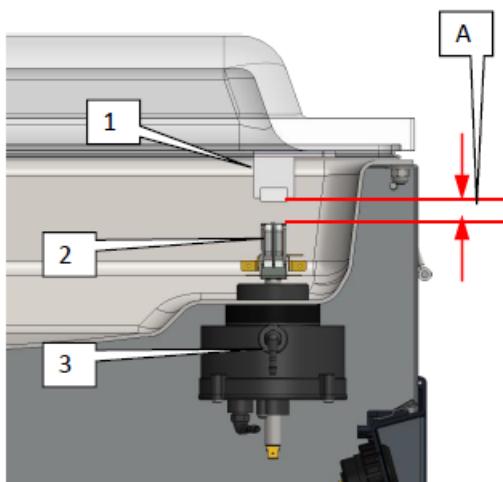
10.4.2.2.5 Display changes (set value decreases, lid does not open when not held down). However, the desired vacuum in the bag is not reached

- Gap (A) between the seal bar and the silicone holder
 - Check visually if the seal cylinder moves upward during the vacuum process
 - If so, check seal valve (1). Remove seal pilot, clean and replace seal pilot





Disassemble the seal valve by removing the lower clip (2). Please note, when disassembling, a washer (3) and a very thin spring washer (5) will fall down. Once the clip, washers, spring washer and coil (4) are removed, the pilot (6) itself can be removed by turning it counter-clockwise. Now the plunger (7) will come free. Check the rubber valve seal for pollution or damage. Clean inside of the plunger and the valve block with compressed air. After that, reassemble the seal valve.



Position 1: Silicone holder. This is an aluminium holder where the silicone profile is pushed into.

Position 2: Seal bar. The element that is heats up the vacuum pouch.

Position 3: Seal cylinder. For each seal bar, two seal cylinders are used to push the seal bar up during the sealing phase.

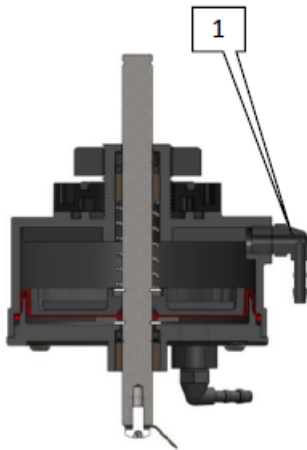
The gap (A) whereby the air inside the vacuum pouch is distracted is determined by the position of the silicone holder (1) and the position of the seal bar (2). To make distraction from the air possible it is necessary that the seal bar is in the lowest position. The gap should be in between 0.8 to 1.0 cm (0.3 to 0.4 in). If the gap is too small, check the position of the seal bar. The seal bar is positioned on top of two seal cylinder shafts. The seal bar can be removed by pulling up the seal bar. The seal bar is fixated by click fingers on the shaft. Some force may be necessary to remove the seal bar. Inspect the two holes at the bottom of the seal bars. These should be free from obstacles and pollution. If these are clean and free, push back the seal bar. You will feel and hear a click, when the seal bar has reached the lowest position.

- • Check seal cylinder for leakage

- If leakage is found, replace membrane or complete cylinder

If the seal cylinder is activated prematurely, it closes the gap between seal bar and silicone holder too early and the vacuum inside the vacuum bag will not be reached. In the previous steps the seal valve is checked and excluded as the cause of the problem. If the seal valve is functioning correctly the problem is caused by malfunctioning of the seal cylinder. To determine which cylinder is faulty, follow the next steps:

1. Switch on the machine and close the lid.
2. Switch off the machine when the end pressure inside the chamber has reached approximately 80% vacuum.
3. Remove the hose presently connected to the top hose connection (1) of the left cylinder and block the free hose so it is air-tight.
4. Check now if the right hand side cylinder is still moving upwards. If so, the right hand side cylinder is faulty. If not, repeat this test with the right hand side cylinder and check if the left hand side cylinder is moving upwards.
5. Once determined which cylinder is malfunctioning, replace the membrane or the complete cylinder.



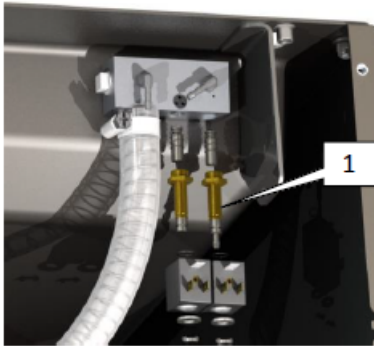
10.4.2.3 Seal

10.4.2.3.1 Minimum vacuum pressure

- Check if minimum of 30% of vacuum is reached to guarantee sufficient seal pressure.
 - If it is close or under the mentioned 30%, increase vacuum setting, or decrease gas value (the function gas can have a negative influence on the actual seal pressure).

10.4.2.3.2 No, or insufficient, seal

- Check visually if seal bar is pressed against silicone holder
 - If not, check if seal valve (1) is activated: 24 VAC power on the valve
 - If so, check seal valve, remove seal pilot, clean or replace seal pilot
 - If this does not solve the problem, replace PCB

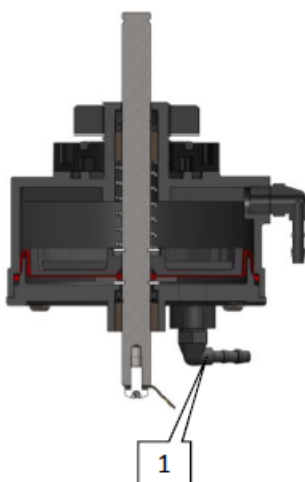


If the valve is activated, 24 VAC is connected to the two terminals on the coil. Wires coded with number: 11.1 / 5.4.

- Check cylinder
 - Replace membrane or complete seal cylinder

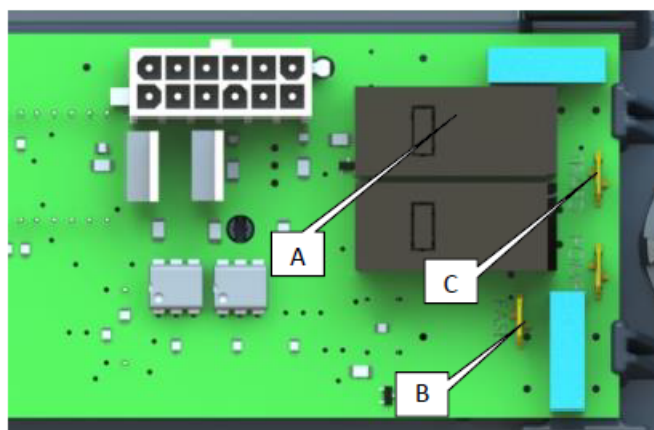
If there is insufficient seal pressure, it is possible that the membrane is leaking. To determine which cylinder is faulty, follow the next steps:

1. Enter the dealer menu and select the menu: gate-test.
2. Switch on the machine and close the lid.
3. Switch off the machine when the end pressure inside the chamber has reached approx. 80% vacuum.
4. Remove the hose presently connected to the bottom hose connection (1) of the left cylinder and block the free hose so it is air-tight.
5. Check now if the air is sucked into the bottom hose connection (1), and will push the cylinder to the top. Once the cylinder has reached its top position the lower compartment of the cylinder is filled with air.
6. Now the air flow should stop. If the membrane (marked in red in the drawing) has a leakage, air will continue to flow inside. If air intake stops, test the other cylinder in the same way.
7. Once determined which cylinder is malfunctioning, replace the membrane or the complete cylinder.



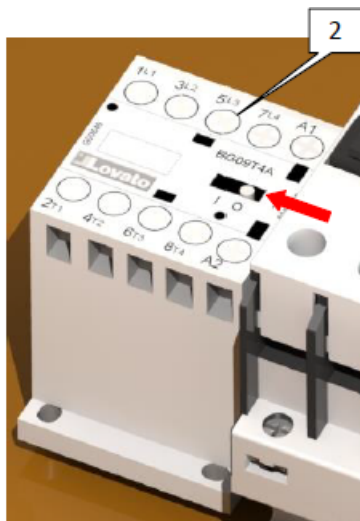
- If seal bar is pressed to the silicone holder

- Check seal time
 - Increase seal time
- Check seal bar (if machine is executed with two seal bars, try interchanging the front and rear seal bar to see if problem moves with the interchanged bar)
- Check if seal wires and Teflon tape are without any pollution, excessive wear or damage
 - Replace tape and or wires
- Check seal bar end blocks.
- Check if all contacts are clean and all screws are sufficient tightened
 - Replace seal bar end blocks
 - If this does not solve the problem, replace seal bar
- Check seal relay, relay should "click" on activation
 - If not, replace PCB



Enter the dealer menu and select the menu: gate-test. See *Using Output Test (1-Program Control System)* on page 38. Activate outlet 3: Seal relay. At this moment the seal relay (A) mounted on the PCB will be activated and you should hear a "click". Directly after that, at that the 120 V connected to terminal, "Phase" (B) will be switched to terminal (C) coded with "Trafo". If no voltage is switched to terminal "Trafo", replace the PCB.

Due to the power consumption of these machines, an additional contactor (2) is added for the activation of the seal transformer. If the contactor is not activated once the relay located on the PCB is activated, you can try to activate the contactor by hand to check if the seal transformer is activated and the seal wires heat up. To do this, slide the ridge in the position marked with [1], see red arrow. If the seal transformer is activated and the seal bar heats up, check electrical connections on positions A1 and A2 of the contactor. If not, replace contactor.

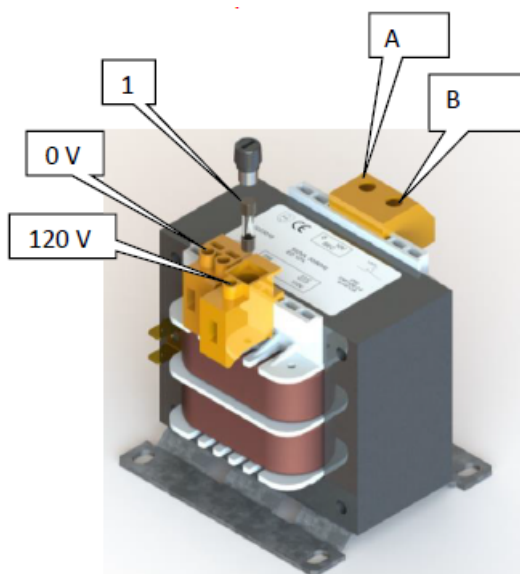


- Seal transformer
 - Check if seal transformer is activated
 - Measure input/output
 - Check fuse (1)
 - If broken, replace fuse
 - If applicable: try interchanging the seal transformers to see if problem moves with the interchanged transformers
 - If this does not solve the problem, replace transformer

Check the output between [A-B] of the control transformer. For the correct specifications, check type shield on top of the transformer. If there is no output at all, check the primary electrical connections [0-120 V]. If the primary connection is correct, check the primary fuse.



When replacing a broken fuse, always use a fuse according the specifications as mentioned on the transformer.



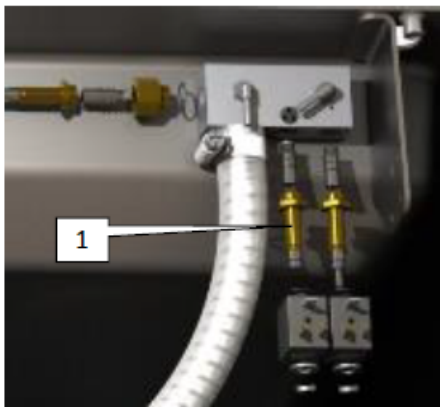
10.4.2.4 Decompression



During the decompressing phase of the machine, two stripes will keep jumping up and down on the display.

10.4.2.4.1 Display shows two stripes jumping up and down and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber

- Check electrical connections, wires and terminals between PCB and decompression valve
 - If bad connections are found, restore sound connections or replace cable
 - If no bad connections are found, check fuse on PCB
 - Replace fuse
 - Replace PCB
- Decompression valve
 - Check if decompression valve (1) opens. Pilot can be heard moving through a click
 - If this does not solve the problem, replace valve



If the valve is activated, 24 VAC is connected to the two terminals on the coil. Wires are coded with number: 15.1 / 5.8.

10.4.2.4.2 Display shows two frozen stripes and lid stays closed. Vacuum meter does not move / no sound of air coming back into the chamber

- Press – / **STOP** button. Decompression will be activated again
- ◦ Check if decompression continues
 - If not, check if decompression valve opens

Normally, the decompression is complete within 20 seconds. If decompression exceeds this time, a time-out program will prevent the valve from overheating. The indication that this time-out program is active, is the two stripes shown stationary in the middle position.

10.4.2.4.3 Display shows two stripes jumping up and down and lid opens

- Micro switch
 - Check if micro switch is mechanically stuck
 - If the micro switch is not stuck, check position of micro switch and adjust if necessary

- Disconnect micro switch
- If the stripes stop jumping up and down, replace micro switch
- If the stripes keep jumping up and down, replace PCB

10.4.2.5 General Problems

10.4.2.5.1 F1 message

- Vacuum
 - Check if a proper vacuum is achieved (see *Vacuum* on page 64)
- Micro switch
 - Check position of micro switch and adjust if necessary
 - Check the electrical connections. If bad connections are found, restore sound connections or replace cable
 - Replace micro switch

10.5 Logbook

This logbook must include:

- Annual maintenance work
- Major replacements and emergencies
- Modifications
- Tests of the emergency stop buttons and safety devices

[illegible]

Date:	Performed by: (authority, technician)	Description: (nature of the activities, which parts have been replaced)

10.6 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: Jumbo 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', with a large, sweeping horizontal stroke underneath it.



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