

Instruction manual

Chamber machine C350

MC06



Serial number:

.....

Service address:

Manufacturer:

MULTIVAC
Sepp Haggenmüller GmbH & Co. KG
Bahnhofstraße 4
D-87787 Wolfertschwenden
Tel.: 0049 8334 601 0

www.multivac.com

Date: 01.08.2012

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Important information on the manual

Read the manual carefully before you begin working with the machine.

- This manual is an integral component of the unit. Keep the manual for future reference.
- Do not work with the machine until you have read through the manual and completely understood its contents.
- Please contact MULTIVAC as soon as possible if there is something you do not understand in the manual! Your comments will help us to further improve the manual.
- Do not start up the machine if there are any visible defects!
- Only trained persons are permitted to install, operate and service the machine. The operating company is responsible for the qualifications and training of operating personnel.
- If you sell, transfer ownership or lend the machine to others, you must provide the manual along with it!

For reasons of clarity, some illustrations show the machine without the prescribed safety guards. Operating the machine without the safety guards is prohibited.



Danger of injury!

Altered, damaged, defective or incorrectly applied or missing safety devices will render the danger zones unprotected.

Unprotected danger zones can cause serious or even fatal injuries.

- Do NOT alter the safety devices.
- Use only genuine MULTIVAC spare parts and accessories.
Before switching on the machine each time:
- Check that all safety guards close completely and prevent reaching into the danger zones.
- Check that only those safety devices are used which are suitable for the machine equipment.
- Check that all safety devices are functional and in a technically flawless condition.

Machine documentation

- Instruction manual.
- Electrical and pneumatic circuit diagrams.
- EU Declaration of Conformity
- Supplementary sheet "Super-PIN" (loose page enclosed with the machine).



Info

The complete scope of delivery is listed in the order confirmation.

Changes not covered in the manual

Continuous development is the foundation for ensuring that our machines are technically advanced and of high quality. For this reason, you may discover slight deviations between the specifications in the manual and your machine. We also cannot rule out errors. The specifications, figures and descriptions in this manual do not constitute a legal contract between the manufacturer and customer.

Symbols used

Warnings draw your attention to hazards. Warnings are displayed in the following form:



Danger from electrical shock!

Used to indicate that serious danger of electrical shock is imminent. Ignoring this danger can cause serious or even fatal injuries.

- Observe the notices for avoiding danger.



Immediate danger!

Used to indicate that serious danger is imminent. Ignoring this danger can cause serious or even fatal injuries.

- Observe the notices for avoiding danger.



Dangerous situations!

Used to indicate dangerous situations. Non-observance can cause serious or even fatal injuries.

- Observe the notices for avoiding danger.



Potentially dangerous situations!

Used to indicate potentially dangerous situations. Ignoring this danger can cause injuries.

- Observe the notices for avoiding danger.

NOTICE

Danger of equipment damage!

Used to indicate potentially dangerous situations. Ignoring these situations can cause equipment damage.

- Observe the notices for avoiding danger.

Information that contributes to a better understanding of how the machine functions is shown in the following form:



Info

Indicates information on special features deserving your attention.

Instructions to follow are displayed in the following form:

➤ Press key A.

➤ Release screw B.

➤ Press key C.

- Enumerated items are marked with bullet points.
 - Dashes are used to mark sub-items of enumerated lists or sequences of steps to be taken.

Manual layout

- Chapter 1 "Safety":
Generally valid safety instructions are to be observed.
- Chapter 2 "Description":
Description of the main assemblies, functions in the display and technical data.
- Chapter 3 "Start-up":
Notes on starting up and making connections.
- Chapter 4 "Operation":
Information on using the machine.
- Chapter 5 "Adjustment work and setup":
Notes regarding adjustment and setup.
- Chapter 6 "Cleaning":
Instructions for cleaning and information on care products.
- Chapter 7 "Maintenance":
Maintenance table and instructions for maintenance.
- Chapter 8 "Troubleshooting":
Contains information on how to recognise the causes of malfunctions and troubleshoot them.
- Chapter 9 "Shutdown, transport, storage":
Instructions for shutting down, transporting and storing the machine.
- Chapter 10 "Disposal":
Notes regarding disposal of the machine.
- Chapter 11 "Spare parts":
Machine parts subject to wear and spare parts.

1 Safety

1.1 General safety instructions

The machine incorporates the latest technological principles. Nevertheless, potential hazards for persons, the machine and other materials cannot be entirely excluded.

- Before you start up the machine, read through the instruction manual and follow the instructions contained therein.
- Keep the instruction manual near the machine for future reference.
- Observe the safety and accident prevention regulations valid in your country.

1.1.1 Target group

The tasks described in this manual may only be performed by trained personnel under observance of the operating manual. The manufacturer will not be liable for any damages resulting from improper operation.



WARNING

Danger of injury!

Operating the machine in a negligent and inattentive manner is dangerous.

Negligent handling, inattentiveness and a disorderly work area can cause serious injuries.

- Do NOT operate the machine if you are tired or under the influence of alcohol or medication.
 - Work attentively and with care.
 - Wear personal protective equipment.
 - Keep the work area clean and orderly.
 - Only carry out work for which training has been given.
-

NOTICE **Danger of equipment damage!**

Improper use of the machine can damage it.
Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Do NOT overload the machine.
- Clean and service the machine on a regular basis.
- Check if the machine is in full working order prior to starting work.
- Do NOT start the machine if you notice defects, damage or a change in the operating behaviour of the machine.
- Have malfunctions and damage repaired immediately by an authorised technician.
- Repairs and service work should only be carried out by an authorised technician.

1.1.2 Unauthorised modifications and manufacture of spare parts

Genuine MULTIVAC spare parts and accessories provide the highest level of safety for personnel. Parts and equipment from other manufacturers have not been tested by MULTIVAC and are therefore not approved. The use of such parts can alter the properties of the machine and thereby impair safe operation.



Danger of injury!

It is very dangerous to use third-party parts.
The use of third-party parts endangers safe operation and can cause serious injuries.

- Do NOT perform any unauthorised modifications or conversions.
- Do NOT modify or remove any protective or safety devices.
- Use only genuine MULTIVAC spare parts and accessories.

The manufacturer disclaims any liability for damage caused by the use of third-party parts or unauthorised modifications.



**Choose the Original
Choose Success!**

Fig. 1: Pro Original

1.2 EC Conformity

In the design and construction of packaging lines, packaging machines or auxiliary packaging machines, the following regulations have been observed:

- EC Machinery Directive 2006/42/EC.
- EC Electromagnetic Compatibility Directive 2004/108/EEC (exception: industrial trucks such as lift trucks and die changing trolleys).
- Regulation 1935/2004/EC on materials and articles intended to come into contact with food.

The safety objectives of the EC Low Voltage Directive 2006/95/EC are complied with in accordance with point 1.5.1 of Annex I to the EC Machinery Directive 2006/42/EC (exception: industrial trucks such as lift trucks and die changing trolleys).

Agent authorised to compile the relevant technical documentation according to Directive 2006/42/EC:

MULTIVAC Sepp Haggenmüller GmbH & Co. KG
Department of Technical Services
Bahnhofstraße 4
87787 Wolfertschwenden, Germany

Manufacturer:

MULTIVAC Sepp Haggenmüller GmbH & Co. KG
Bahnhofstraße 4
87787 Wolfertschwenden, Germany

Managing Director:

H.-J. Boekstegers

1.3 Intended use

This machine is a technical piece of equipment to be used exclusively for production purposes. Use the machine only to package products in prefabricated film pouches. The film pouches are closed with a seal seam.

For specifications see "Technical Specifications".

Any other use is considered improper and can endanger persons, the product and the machine.

1.3.1 Electromagnetic compatibility (EMC)

The machine has been designed for use in residential, business and industrial areas (without a separate power substation, it can be

connected directly to the public mains). Operation can be impaired when used in an industrial environment.

1.3.2 Non-ionising radiation

The machine produces unintended non-ionising radiation. This is only emitted by electrical operating equipment as a function of its inherent technical nature. e.g. from electric motors, high voltage wires, magnetic coils. There are moreover no strong permanent magnets built into the machine. Any effect on active implants can therefore be excluded with a high degree of probability as long as a safety distance of 30 cm is maintained between the implant and the field source. Active implants can be: heart pacemakers, defibrillators etc.

1.4 Reasonably foreseeable incorrect use

The following work methods are not in accordance with regulations and therefore are prohibited:

- Operating in an atmosphere capable of explosion.
- Packing of highly flammable, combustible or explosion-prone products.
- Packing of dust-forming or powder-forming material.
- Gas flushing of film pouches with explosive gas mixtures (e.g. oxygen proportion over 21 %).
- Use of the viewing window in the chamber lid as a storage, working or cutting surface.
- Cleaning of the viewing window in the chamber lid with cleaning agents which have an abrasive effect (e.g. abrasive household liquid cleaner, scouring pads, steel wool etc).
- Aseptic packing of products.



Info

Misuse will exclude any liability on the behalf of the manufacturer. In such a case, the operating company is solely responsible.

1.5 Warning of incorrect use

- Incorrect use
For example: sealing times that are too short or too long and therefore result in improperly sealed packs which in turn damage the product.
- Neglecting the following work tasks:
 - Inspections.
 - Cleaning work.
 - Maintenance work.
- Use of third-party parts, i.e. parts that are not genuine MULTIVAC spare parts.
- Operation under impermissible environmental conditions.

1.6 Residual risks

The safety instructions in this manual serve as guidelines for trained operating personnel in safe working practice with the machine. The manufacturer cannot however foresee all possible product-related hazards. This is why the safety instructions and warnings on the machine and in this manual cannot be considered exhaustive. The operating company and operating personnel remain ultimately responsible for safety.

1.7 Obligations of the operating company

The machine and operating materials are a potential source of hazards. The operating company is required to draw up a directive that explains how to handle dangerous machines or operating supplies. The required information can be found in the following documents:

- The EC directives for occupational safety.
- National legislation.
- Accident prevention regulations.
- This manual.

The operating company is also responsible for issuing directives for conduct in emergencies.

The operating company is required continuously to monitor the technical condition of the entire machine, for example:

- Visible defects or damage
- Changes in the operating behaviour



Info

Do NOT start up the machine if there are visible defects!

1.7.1 Selection of personnel and personnel qualifications



Danger of injury!

Ignorance of proper machine handling is very dangerous.

Improper handling can lead to serious injuries.

- Instruct operating personnel on how to handle the machine correctly.
- Assign only instructed and qualified operating personnel.
- Operating personnel who are being trained or instructed should only operate the unit under the constant supervision of an experienced trained person.
- Observe the legal minimum age for personnel.
- Delegate responsibilities.
- Inform operating personnel about measures for avoiding hygienic risks.
- Have clearly written instructions available for operating personnel. If necessary, order a manual from the manufacturer in the respective official language.
- Only qualified electricians are permitted to work on the electrical equipment.
- Service operations and repair work should be carried out by authorised specialists only.

1.7.2 Personal protective gear

The operating company must ensure that the operating personnel wear the required personal protective equipment (foot protection, head gear, gloves, etc.) in accordance with the national guidelines which apply. In Europe, the directive 89/656/EEC specifies the minimum mandatory requirements for the use of personal protective equipment.

1.7.3 Specific dangers

The operating company must check whether specific dangers are present during operation, for example, dangerous vapours. The operating company must take any measures required to avoid or, if not possible, to limit danger.

1.7.4 Gas supply stop valve

The operating company is required to provide the machine with a stop valve for the gas supply. When the stop valve is closed, the supply of gas to the machine is shut off.

1.7.5 Measures for avoiding hygienic risks

A high standard of hygiene is achieved through design, choice of materials and workmanship. It is imperative that this high level of

hygiene be maintained by every operating company. Particularly where food or sterile medical products are being packed, the currently valid hygiene standards must be strictly observed. Before the machine is put into operation, the person charged with safety and/or hygiene must clarify which regulations (laws, directives, standards etc.) apply to the product that is to be packed and how they can be put into practice.

The manufacturer assumes no liability whatsoever for any warranty claims and damage claims of any kind resulting from insufficient hygiene and insufficient cleaning.



Health hazard!

Insufficient or sporadic cleaning can promote the growth of micro-organisms which can change unfavourably the product that is to be packed.

This can severely damage the health of people, especially of the consumers.

Among other measures the following are definitely required:

- Create a company cleaning directive.
 - Perform cleaning regularly.
 - Check the effectiveness of cleaning procedures on a regular basis.
 - Follow instructions in the chapter "Cleaning".
-

1.7.6 Checking the packs

**Health hazard!**

Faulty or damaged packs (reject packs) have far-reaching consequences, for example, spoiled products. Spoiled products can pose a health hazard.

- Check packs on a regular basis during running operation.
 - Do NOT put faulty or damaged packs (reject packs) into circulation.
-

**Info**

It is the operating company's responsibility to determine the overall testing procedure.

Testing procedure

Depending on the type of film used and the demands placed on the packs, various types of tests are available, e.g.:

- Check seal seam width.
- Visual inspection (visual assessment).
- Storage test (store a 'good pack' for a defined period and then re-inspect).

- Stacking test (stack 'good packs' on top of each other for a defined period and then re-inspect).
- Checking the seal seam strength with a tensile testing machine.
- Low-pressure test (for vacuum packs).
- Measuring the residual oxygen (for gas-flushed packs).

The following errors can result in a pack not being airtight:

- A leaky seal seam.
 - The packing material is dirty in the seal seam area.
 - The sealing time is too short.
- Damage on the pack.
 - Sharp-edged products piercing through the pack.

Time of inspection

The pack always requires inspection at the following times:

- Initial putting of the machine into operation.
- A defined time interval has been reached in running operation.
- A different pack size was used.
- Other types of film or other film thicknesses were used.
- Spare parts or parts subject to wear were installed.
- A machine malfunction was resolved.
- Settings were changed on the machine.

1.7.7 Power supply connection

The operating company is obliged to connect the machine to the mains electricity at an always easily accessible place. In the case of an emergency the machine must be capable of being disconnected immediately from the mains electricity.

1.8 Danger zones

Be particularly aware of the following danger zones:

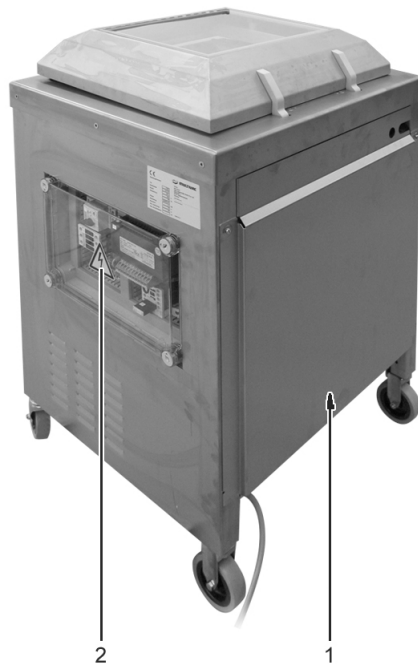


Fig. 2: Danger zones

- 1 Vacuum pump
- 2 Control cabinet



Danger of injury!

Altered, damaged, defective or incorrectly applied or missing safety devices will render the danger zones unprotected.

Unprotected danger zones can cause serious or even fatal injuries.

- Do NOT alter the safety devices.
- Use only genuine MULTIVAC spare parts and accessories.

Before switching on the machine each time:

- Check that all safety guards close completely and prevent reaching into the danger zones.
 - Check that only those safety devices are used which are suitable for the machine equipment.
 - Check that all safety devices are functional and in a technically flawless condition.
-

1.8.1 Control cabinet



Dangerous voltage!

The control cabinet contains live components. Various components are still under a dangerous voltage even after the machine has been switched off.

Touching electrically charged parts can cause serious or even fatal injuries.

- Only qualified electricians are permitted to work on voltage-carrying components.
- Do NOT touch damaged cables but have them replaced immediately by a trained electrician.

Before beginning any work on voltage-carrying components:

- Turn off the main switch and attach a lock to prevent unauthorised start-up.
- Disconnect the machine's power supply from the mains electricity.

1.8.2 Vacuum pump



Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.

1.9 Safety devices

Safety devices on the machine:



Fig. 3: Safety devices, front view

- 1 Protective device
- 2 Main switch (option)



Fig. 4: Safety devices, rear view

- 1 Protective device



Danger of injury!

Altered, damaged, defective or incorrectly applied or missing safety devices will render the danger zones unprotected. Unprotected danger zones can cause serious or even fatal injuries.

- Do NOT alter the safety devices.
- Use only genuine MULTIVAC spare parts and accessories.
Before switching on the machine each time:
- Check that all safety guards close completely and prevent reaching into the danger zones.
- Check that only those safety devices are used which are suitable for the machine equipment.
- Check that all safety devices are functional and in a technically flawless condition.

1.9.1 Safety devices

Safety devices cover the danger zones lying beneath them. Depending on the equipment of the machine, various safety devices are used, e.g. side panels, doors, protective plates, etc.



Danger of injury!

Missing safety devices result in unprotected danger zones. Reaching into unprotected danger zones can lead to serious or even fatal injuries.

- Do NOT put the machine into operation without safety devices.
- Check that all safety devices are attached and in a technically flawless condition.
- Check that all safety devices are completely closed without gaps.

1.9.2 Main switch



Fig. 5: Main switch I / ON

Switching off the main switch has the following effects:

- The packaging procedure stops.
- The vacuum in the chamber is maintained.

Position	Function
I / ON	Machine switched on.
O / OFF	Machine is switched off.



Dangerous voltage!

Turning off the machine with the main switch does not rid it of electrical current.

Touching electrically charged parts can cause serious or even fatal injuries.

- Only qualified electricians are permitted to work on voltage-carrying components.

Before beginning any work on voltage-carrying components:

- Turn off the main switch and attach a lock to prevent unauthorised start-up.
- Disconnect the machine's power supply from the mains electricity.

1.10 Machine labels

Safety and information labels have been attached to the machine.

- Do NOT remove these labels.
- Make sure all labels are intact and legible.
- If necessary, clean the labels with soap and water.
 - Do NOT clean the labels with solvents.
- Replace damaged, scratched or illegible labels with new ones.



Info

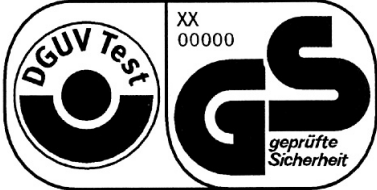
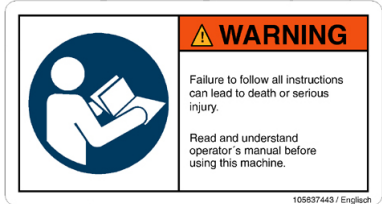
Labels can be obtained from the manufacturer.


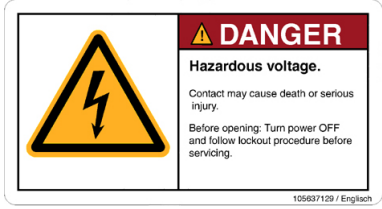
1.10.1 Safety labels and notices

Front view



Fig. 6: Front view of the position of the signs


Position	Sign
1	 <p>Fig. 7: Safety approved symbol</p>
2	<div style="display: flex; justify-content: space-between;"> <div data-bbox="614 1503 805 1691">  <p>Fig. 8: ISO Mandatory advisory sign: Read the operating manual</p> </div> <div data-bbox="1018 1503 1401 1706">  <p>Fig. 9: ANSI Mandatory advisory sign: Read the operating manual</p> </div> </div>



Position	Sign
3	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Fig. 10: ISO High voltage safety label</p> </div> <div style="text-align: center;">  <p>Fig. 11: ANSI High voltage safety label</p> </div> </div>

Rear view



Fig. 12: Rear view of the position of the signs

Position	Sign
1	 <p>Fig. 13: Type plate</p>

Position	Sign
2	 <p>0.7-2.5 bar</p> <p>Fig. 14: Inert gas input pressure sign (Optional)</p>
3	 <p>O₂</p> <p>> 21%</p> <p>81.981.5118.30</p> <p>Fig. 15: Safety label on gas connection (Optional)</p>

2 Description

2.1 Design of the machine

2.1.1 Front view



Fig. 16: Front view

- 1 Handle
- 2 Chamber lid
- 3 Chamber lid gasket
- 4 Gas nozzle (option)
- 5 Sealing bar
- 6 Control terminal
- 7 Swivel castor with parking brake
- 8 Locking device for chamber lid
- 9 Chamber
- 10 Counter-pressure bar or sealing bar (option)

2.1.2 Rear view



Fig. 17: Rear view

- 1 (Optional) Inert gas connection
- 2 Power supply connection

2.2 Control terminal

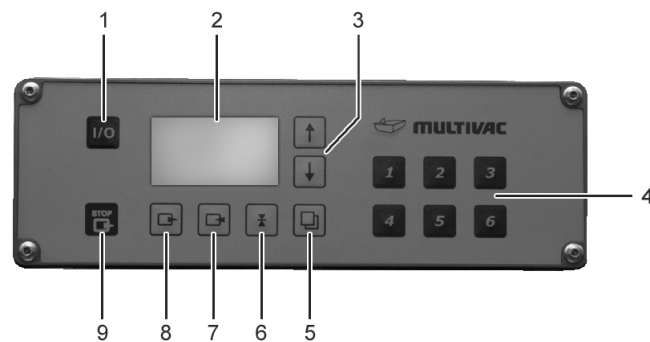










Fig. 18: Control terminal

- 1 <Control On/Off> key
- 2 Display
- 3 Keys <Arrow key>
- 4 Keys <1> to <6>
- 5 <Function selection> key
- 6 <Sealing> key
- 7 <Gas flushing> key
- 8 <Evacuation> key
- 9 <Stop> key.

	<Controls on/off>	<ul style="list-style-type: none"> Switch machine controls on and off
	Display	<ul style="list-style-type: none"> Display process data. Show menus. Show parameters and functions. Graphic support. Display diagnostic messages.
	<Arrow key>	<ul style="list-style-type: none"> Increase values. Navigation within menus.
	<Arrow key>	<ul style="list-style-type: none"> Decrease values. Navigation within menus.
	Keys <1> to <6>	<ul style="list-style-type: none"> Load and save recipes. Enter password. Enter the configuration code.
	<Function selection>	<ul style="list-style-type: none"> Call up additional menus. Scroll to previous screen.
	<Sealing> key	<ul style="list-style-type: none"> Press and hold down: Call up "Sealing" menu. Press briefly: Call up values for sealing. Confirm the configuration code. In the MPP process: select the value.
	<Gas flushing> key	<ul style="list-style-type: none"> In the MPP process: select the function. <p>In machines with the inert gas option:</p> <ul style="list-style-type: none"> Press and hold down: Call up "Gas flushing" menu. Press briefly: Call up values for gas flushing.
	<Evacuation> key	<ul style="list-style-type: none"> Press and hold down: Call up "Evacuation" menu. Press briefly: Call up values for evacuation. Delete configuration code. In the MPP process: select the step



<Stop> key.

- Skip current machine process and proceed with the next process.
 - Press during evacuation procedure: Cancel evacuation procedure and continue with gas flushing procedure.
 - Press during gas flushing procedure: Cancel gas flushing procedure and continue with sealing procedure.
 - Press during sealing procedure: Cancel sealing procedure and ventilate the chamber.
- Acknowledge diagnostic message.
- Return from the menu to the status display.

2.3 Optional equipment

2.3.1 Pouch clamp



Fig. 19: Pouch clamp

The pouch clamp fixes the film pouch in place during gas flushing.

2.3.2 Suction throttle

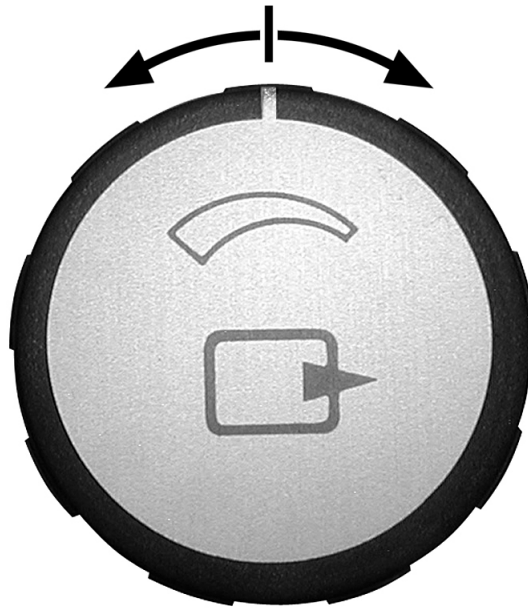


Fig. 20: Suction throttle

The suction throttle is used for the continuously adjustable setting of the suction speed when packing liquids.

2.3.3 Holder for gas cylinder



Fig. 21: Holder for gas cylinder

This holder attaches a gas cylinder to the machine.
The following gas cylinders can be attached to the machine:

- Max. diameter: 160 mm
- Max contents: 20 l

2.4 Display

The display shows various views with differing information according to the machine's phase of operation.

2.4.1 Startup display

The startup screen appears after switching on the machine.

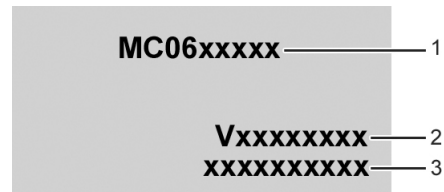


Fig. 22: Startup display

- 1 Type designation of machine control
- 2 Software version
- 3 Configuration code

2.4.2 Status display

Process data status display

The process data status display shows information on the last packaging procedure.

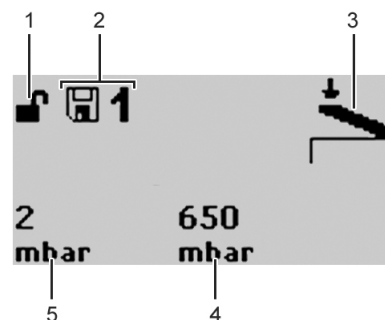


Fig. 23: Process data status display

- 1 Current access right (lock closed = user; lock open = creator)
- 2 Currently loaded recipe
- 3 Chamber lid symbol, machine is ready.
- 4 Gas flushing pressure
- 5 Evacuation pressure

Process sequence status display

The process sequence status display shows the progress of a currently running process. During a packaging procedure process the corresponding symbol flashes on the display. If time runs out during a process, then a clock with the remaining time will flash in place of the symbol.



Fig. 24: Evacuation status display (047)



Fig. 25: Gas flushing status display (049)



Fig. 26: Sealing status display (050)

2.4.3 Menu display

The menu display is a listing of the menus. The menu display can vary depending on the access right.

The arrow on the bottom right edge indicates a continued listing. Inactive menu options are shown with a dash (-).



Fig. 27: Example: Main menu (003)

2.4.4 Function display

Depending on the access rights, the function display will offer the following options:

- View values.
- Enter values.

- Switch functions on and off.

Example of a function display with values:

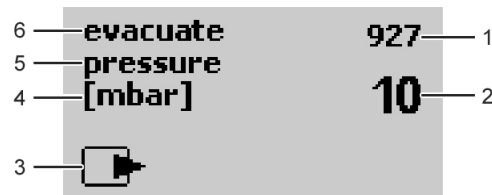


Fig. 28: Function display with value (052)

- 1 Actual value
- 2 Setting
- 3 Symbol of function (e.g. evacuation)
- 4 Measurement
- 5 Selected parameter
- 6 Selected function

Example of a function display for switching a function on and off:



Fig. 29: Function display on/off (013)

- 1 Selected function
- 2 Switch status
- 3 Symbol of function (e.g. sealing)

2.4.5 Diagnostic display



Fig. 30: Diagnostic display

- 1 Diagnostic number
- 2 Type of error acknowledgement
- 3 Error text (in ticker)

Eliminate the malfunction, see Section 8 "TROUBLESHOOTING".

2.4.6 Access rights

To avoid incorrect operation, the following access rights are assigned.

Touch the	Explanation
Operator	Not password protected. The operator may enter settings that are required to operate the machine (e.g. Language choice). The operator cannot modify values.
Creator	Password protected. The creator can modify values and switch statuses. Only a limited number of settings in the service menu are possible (e.g. vacuum test).
Service	Unrestricted authorisation.
Super-PIN	<ul style="list-style-type: none">• Reset password for access authorisation <i>Creator</i> to factory setting.• Reset machine control.

2.5 Menu tree

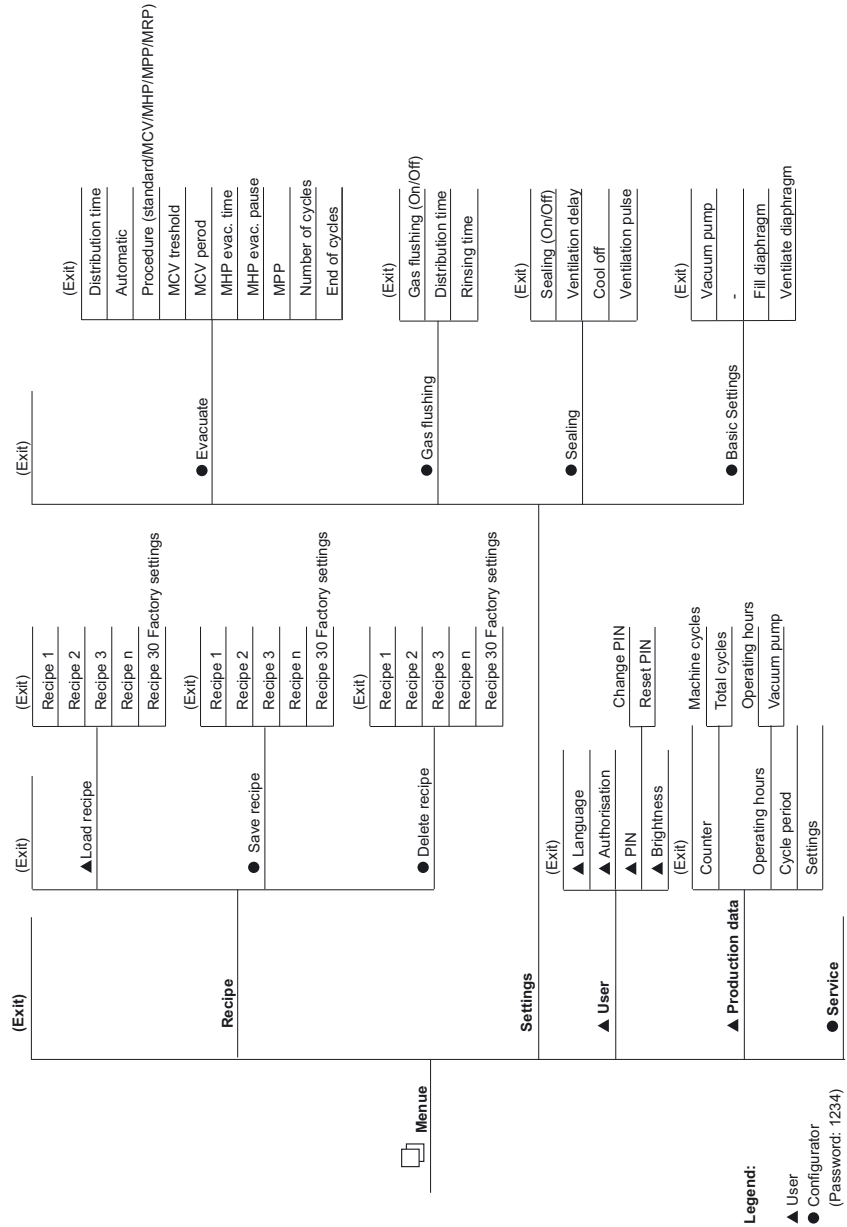


Fig. 31: Menu tree

2.6 Process sequence

The film pouch is filled and laid in the chamber. When the chamber is closed, the following procedures run automatically:



evacuate Evacuate chamber and film pouch.



Gas flushing option Feed in inert gas.



Sealing	Seal film pouch.
---------	------------------

Depending on the settings on the machine, the processes *evacuation* and *gas flushing* repeat.

2.7 Packaging process

The following processes are available for packing products.

Processes	Example of use
Standard	Technical products or products without special requirements.
MCV	Testing airtightness of packs or for drying products.
MHP	Gentle evacuation of sensitive products with numerous air pockets.
MPP	Laboratory use.
MRP (Optional)	Reduction of residual oxygen content.

2.8 Preset recipes

Recipes 1 to 6 are preset at the factory. The settings depend on the machine equipment.



Info

Recipes 1 to 6 contain presettings which have to be adjusted to the individual cases.

Recipe	Example of use	Evacuation pressure	Automatic sensitivity	Gas flushing pressure	Sealing time	MHP
No. 1	For dry products without gas flushing.	Automatic	4	Off	1.8 s	Off
No. 2	For moist products without gas flushing.	Automatic	10	Off	1.8 s	Off
No. 3	For dry products with little gas flushing.	Automatic	4	100 mbar to 150 mbar	1.8 s	Off

Recipe	Example of use	Evacuation pressure	Automatic sensitivity	Gas flushing pressure	Sealing time	MHP
No. 4	For dry products with medium gas flushing.	Automatic	4	250 mbar	1.8 s	Off
No. 5	For dry products with strong gas flushing.	Automatic	4	500 mbar	1.8 s	Off
No. 6	For products with a big air pocket.	12 mbar	10	Off	1.8 s	Evacuation time: 2 s Evacuation pause: 4 s
No. 30	Factory settings	10 mbar	6	Off	1.3 s	Evacuation time: 2 s Evacuation pause: 2 s

2.9 Technical data

Power supply connection

Mains voltage	See type plate.
Phases	See type plate.
Nominal power	See type plate.
Nominal current	See type plate.
Maximum pre-fuse	See type plate.
Max. short-circuit current	See type plate.
Protection type	IP54

Dimensions

Height (a) with open chamber lid	1340 mm
Height (a) with closed chamber lid	1020 mm
Operating height approx.	900 mm
Width (b)	690 mm

Dimensions

Depth (c)	590 mm
Effective chamber size (W/H/D)	450 mm/160 mm/430 mm
Sealing length	440 mm
Weight approx.	160 kg



Fig. 32: Dimensions

Installation conditions and ambient conditions

Ambient temperature	+2 °C to +40 °C
Storage temperature	-25 °C to +80 °C
Relative air humidity during operation or storage of the machine, max.	90 % non-condensing
Inclination of the machine during transport, max.	15 °
Minimum room size for machines with the gas flushing option*	40 m ²

*For safety reasons, a minimum room size is mandatory to prevent high concentrations of gas.

Inert gas (option)

Max. input pressure	2.5 bar
Min. input pressure	0.7 bar

Inert gas (option)

Sealing operating pressure	1.0 bar
Inner diameter of supply line	8 mm

Vacuum pump.

Vacuum pump	<ul style="list-style-type: none"> • 40 m³/h • 63 m³/h
Achievable final pressure approx.	2 mbar

Noise exposure at the workplace

Based on	Machinery Directive (2006/42/EG)
Measuring instrument	Sound level meter, IEC 61672- 1, class 1, fault limit +/-1,1 dB
Condition of the machine	New condition with optimum settings at the time of delivery.
A-weighted emission sound-pressure level at the workplace L _{pA} (DIN 45635)	≤70 dB

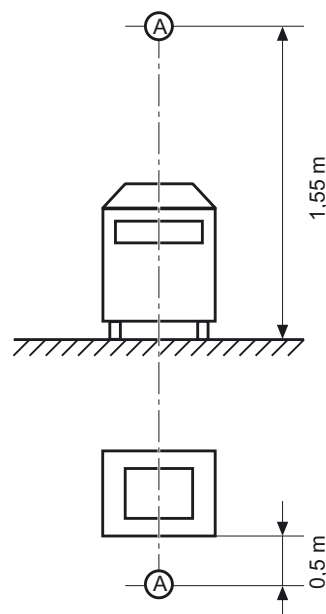


Fig. 33: Noise exposure measuring point



Info

The readings of the noise data have been adjusted to take extraneous and ambient noises into account.

Higher readings may be produced as a result of the following:

- Highly sound-reflecting rooms.
- Modified settings.
- Wear.

3 Start-up

3.1 Checking the delivery

- Check the delivery for completeness and inspect for transport damage.
 - Inspect the crates.
 - Inspect the machine parts.
 - If transport damage is noted, immediately notify the service department and report the damage.
 - Photograph the damage.
 - Have the photos sent to the service department.
-

3.2 Initial start-up

3.2.1 Setting up the machine



Info

We recommend requesting a service technician to perform the initial commissioning.

- Prepare a firm, level site for the machine.
 - Ensure there is adequate access to the control cabinet and the connections at the desired location.
 - Wear personal protective equipment.
 - Remove packaging material.
 - Store the packaging material and accessories for later possible machine movements.
 - Remove the wooden blocks and boards for fixing the machine on the wooden base.
 - Use suitable and adequately sized load lifting equipment. Note here the machine dimensions and weight, see the shipping documents.
 - Set the forklift to the widest setting.
 - Position the lifting unit along the longer side of the machine.
 - While doing so establish the machine's centre of gravity. It can lie outside the centre point of the machine.
-

-
- Secure the machine on the lifting unit against tilting and falling over by using technically risk free means for secure transport..



Danger of injury!

Incorrect transport can cause the machine to fall or tip over. Standing in the danger zone can lead to serious injuries or even death.

- Do NOT stand under suspended loads.
- Lift the machine only at the designated points.
- Bear in mind the machine weight.

NOTICE Danger of equipment damage!

At an inclination of more than 15°, the oil in the vacuum pump shifts.

The air de-oiling elements will get wet from the oil and become ineffective. This will damage the vacuum pump.

- Transport and set the machine down as horizontally as possible.
- Do NOT tilt the machine.

-
- Lift the machine until the wooden base is free.
 - Remove the wooden base below the machine.



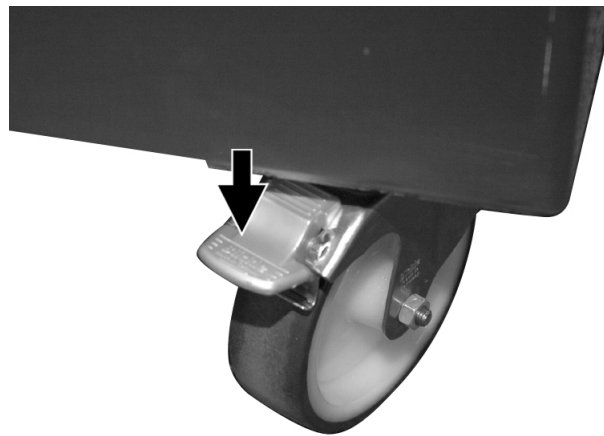
Danger of explosion!

Operating the machine in a potentially explosive atmosphere can result in explosion due to hot machine parts.

Explosions can cause serious injuries or even death.

- Do NOT use the machine in rooms that are exposed to explosion hazards.

-
- Take in to consideration the installation and environmental conditions at the location for the machine, see Technical Data.
 - Transport the machine to the desired location.
 - Set the machine down carefully.
-



-
- If the machine has castors: Fix the machine in place by locking the castors.
-

3.2.2 Adding oil to the vacuum pump

Checking the oil level

-
- Switch off the machine.
 - Disconnect the machine from the mains electricity.
-



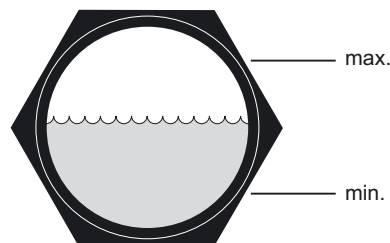
Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.
-
- With an internal vacuum pump remove the protective cover on the back of the machine.
-



-
- Check the oil level on the oil sight glass.
 - The oil level is between min. and max.: oil level is OK.
 - Oil level is under minimum: fill more oil.
-
- With an internal vacuum pump fasten the safety guard.
-

Adding oil

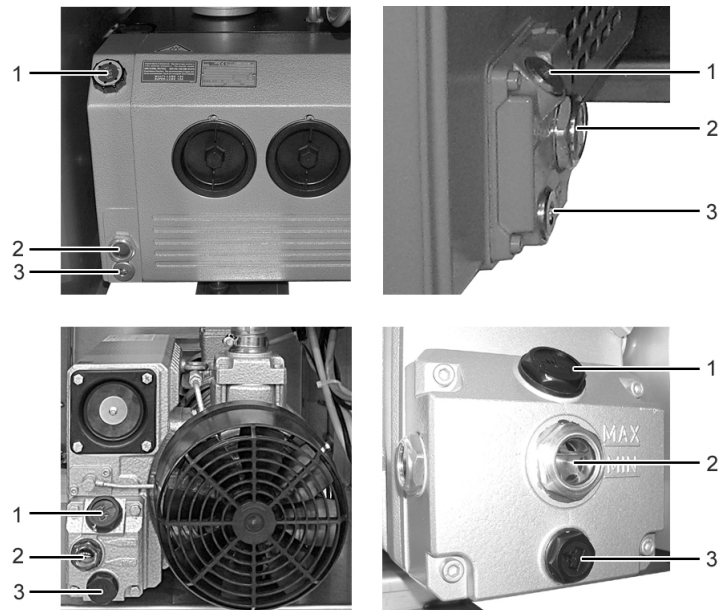


Fig. 34: Design of vacuum pump

- 1 Screw plug of fill opening
- 2 Oil sight glass
- 3 Screw plug of drain opening

-
- Switch off the machine.
-
- Disconnect the machine from the mains electricity.



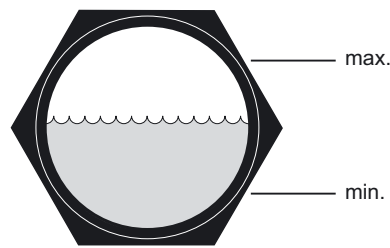
Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.
-
- With an internal vacuum pump remove the protective cover on the back of the machine.
-
- Unscrew the screw plug of the oil fill opening.
-
- Fill the vacuum pump with oil up to the middle of the oil sight glass. For lubricants, see the “Lubricant table”.



-
- Check the oil level on the oil sight glass:
 - The oil level is between min. and max.: oil level is OK.
 - Oil level is under minimum: fill more oil.
-
- Replace the sealing ring in the screw plug.
-
- Insert the screw plug with the sealing ring in the fill opening and screw it tight.
-
- With an internal vacuum pump fasten the safety guard.
-
- Connect the machine to the mains electricity.
-
- Switch on the machine.
-
- Check the oil level after a couple of machine cycles.
-

3.3 Connecting the power supply

-
- If necessary, have the mains plug and power cable attached to the machine by a qualified electrician, see the electrical circuit diagram.
-
- Check the mains voltage on the type plate and compare it with the voltage of the mains electricity.
-

NOTICE Danger of equipment damage!

If the voltage of the machine does not match that of the mains, the machine will be overloaded.
This can damage the vacuum pump.

- Connect the machine to the mains electricity only if the voltages are identical.
-
- If the values match, connect the machine to the mains electricity in an always easy accessible place.
-



Info

To operate an external vacuum pump or to connect external auxiliary units, observe the electrical circuit diagram.

NOTICE **Danger of equipment damage!**

Interchanged phases on the electrical connection will cause the vacuum pump to rotate in the wrong direction.

Incorrect direction of rotation destroys the vacuum pump.

- Check the rotating direction.
- If the direction is not correct, switch off the machine immediately.
- Have the phases interchanged by a qualified electrician.

-
- Check the rotating direction of the vacuum pump.
 - Switch on the machine.
 - Close and press down the chamber lid. Observe the pressure shown in the display.
 - Chamber lid is suctioned and the pressure falls: The vacuum pump is rotating in the correct direction.
 - Chamber lid is not suctioned within maximally 10 s and the pressure does not fall: The vacuum pump is rotating in the wrong direction.



Dangerous voltage!

The control cabinet contains live components. Various components are still under a dangerous voltage even after the machine has been switched off.

Touching electrically charged parts can cause serious or even fatal injuries.

- Only qualified electricians are permitted to work on voltage-carrying components.
- Do NOT touch damaged cables but have them replaced immediately by a trained electrician.

Before beginning any work on voltage-carrying components:

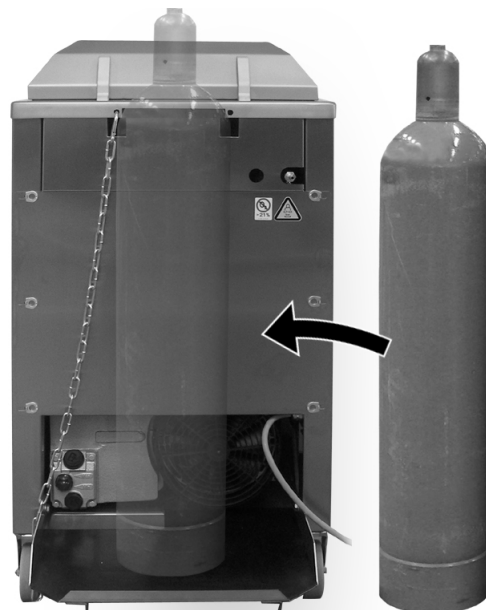
- Turn off the main switch and attach a lock to prevent unauthorised start-up.
- Disconnect the machine's power supply from the mains electricity.

-
- If the vacuum pump is rotating in the wrong direction, have the phases interchanged by a qualified electrician.
-

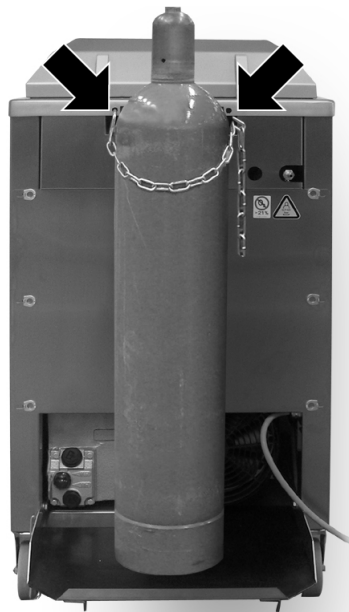
3.4 Attach the gas cylinder to the machine



-
- Undo the chain on one side on the rear of the machine.
-



-
- Place the gas cylinder on the holder.
 - Push the gas cylinder so that it touches the machine.
 - Fasten the chain around the gas cylinder.
 - Tension the chain so that the gas cylinder is well fastened.
-



- Insert the chain.

3.5 Connecting inert gas



Danger of explosion!

Gas mixtures with oxygen proportions over 21% are explosive. A gas mixture with an oxygen proportion over 21 % can cause an explosion and fire if it comes in contact with heat, oil or grease.

- Do NOT use a gas mixture with an oxygen proportion of over 21%.



Risk of death!

During the packing process, inert gases are released. Inhaling inert gas can impair your breathing. Over a longer period of time, this can be fatal.

- A surface area of at least 40 square meters per machine must be made available.
- Air the rooms sufficiently and avoid any accumulation of gas.
- Observe the maximum input pressure, see "Technical specifications".
- Cut off the gas supply at the end of work.
- Adhere to the safety regulations in effect in the country where the machine is used.



Info

Observe the minimum and maximum permitted input pressure, see "Technical specifications".

-
- Attach a stop valve to the gas supply on the operating side.

 - Attach the gas hose to the inert gas connection of the machine.

 - Fasten the hose with hose clamps.

 - Open the stop valve for the gas supply.

 - Set the input pressure; see the section "Technical specifications".
-

3.6 Cleaning the machine (basic cleaning)

- After putting the machine into service carry out an intensive cleaning of the machine, see Section 6 "CLEANING".
-



Info

The machine is only to be used for production after a basic cleaning.

4 Operation

4.1 Switching on the machine

- Open all stop valves in the supply lines.
 - If available, switch on the main switch.
 - Switch on the display with the <control on/off> key.
 - The machine control performs a self-test.
 - The software version of the machine control briefly appears in the display.
 - The status display appears.
 - The machine is ready for operation.
-

4.2 Switching off the machine

- Switch off the display with the <control on/off> key.
 - Turn off the main switch, if one is present.
 - Close all stop valves in the supply lines.
 - Close chamber lid and lock it in place.
 - If required disconnect the machine from the mains electricity.
-

4.3 Packing products

- Switch on the machine.
 - Load the desired recipe.
 - For the first test packs, use a preset recipe, see Section 2.8 "PRESET RECIPES " and see Section 4.8.2 "LOAD FACTORY SETTINGS ".
-



Health hazard!

Insufficient or sporadic cleaning can promote the growth of micro-organisms which can contaminate the product.

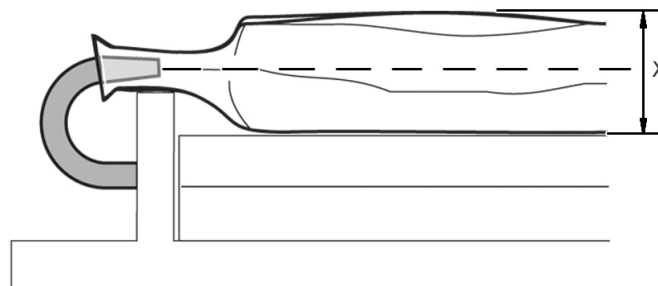
This can pose serious health hazards for consumers.

- Disinfect your hands should they come into contact with any machine part other than the operating elements.
 - Do NOT lay the product on the machine.
 - Observe the company cleaning guidelines.
 - Follow instructions in the chapter "Cleaning".
-

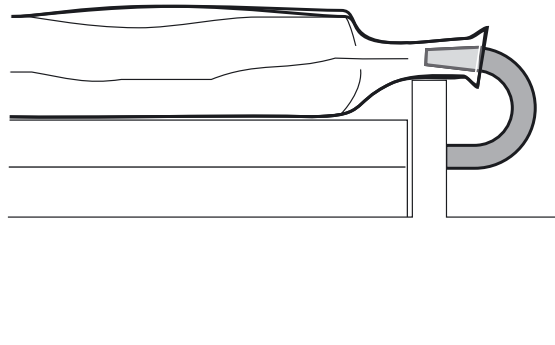
-
- Fill the film pouch.
-



-
- Insert film pouch.
 - The opening of the film pouch extends 2 to 3 cm beyond the sealing.
-



- If necessary, use spacer plates.
 - The pouch neck is centred on the pouch height x.
- Use the diagonal insertion for packaging liquids, see Section 5.2 "INSERT AND REMOVE THE DIAGONAL INSERT".
 - Liquid cannot escape from the film pouch.



- Gas flushing option: Pull the pouch opening over the gas nozzles so that the inert gas flows into the film pouch.
- Pull the pouch neck flat on the sealing bar.
 - The pouch neck lies on the sealing bar without creases.

**NOTICE Danger of equipment damage!**

Penetration by foreign matter (e.g. liquids, product residue, foreign bodies) will damage the vacuum pump.

Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Cancel the evacuation procedure immediately if foreign matter is sucked in.
- Change the oil in the vacuum pump.

- Close and press down the chamber lid.
 - The processes in the machine run automatically.
 - The chamber lid opens automatically if it is not locked.



-
- Remove the finished pack.
 - Check the pack.
-



Info

Visually inspect the packs on a regular basis while the machine is running. Depending on product and pack it may be necessary to carry out additional and considerably more complex test procedures. This is the responsibility of the operating company, see Section 1.7.6 "CHECKING THE PACKS".

-
- If necessary, adapt the settings to the product.
 - To adapt process, see Section 4.9 "SELECT AND SET PROCESS".
 - Enter all required times and values.
 - Save recipe, see Section 4.8.3 "SAVE RECIPE".
-

4.4 Opening and closing menus

4.4.1 Calling up menus

-
- Press the <function selection> key.
 - The "main menu" appears.
 - Select the desired menu with the <arrow> keys.
 - Press the <function selection> key.
 - The desired menu appears.
 - Select the desired submenu with the <arrow> keys.
-

-
- Press the <function selection> key.
 - The desired submenu appears.
-

4.4.2 Quitting menus

- Using the <arrow> keys, select the respective menu heading.
 - The text of the menu heading changes and becomes the (menu) function *quit*.
 - Press the <function selection> key.
 - The menu is exited and the system changes to the next highest display level.
-

4.5 Modifying values

- Call up the desired menu.
 - Using the <arrow> keys, select the desired parameter.
 - Press the <function selection> key.
 - The display for the selected parameter appears.
 - Set the value with the <arrow> keys.
 - The set value is adopted.
 - To exit display, press the <function selection> key.
-

4.6 Selecting and resetting access rights

4.6.1 Selecting access authorisations

- Call up "User" menu.
 - Select *Authorisation*.
 - Enter the password with the keys <1> to <6>.
 - The corresponding access authorisation appears in the status display.
 - If the selected access authorisation is no longer needed, reset the access to *operator*, see Section 4.6.2 "RESETTING THE ACCESS AUTHORISATION TO OPERATOR (BLOCKING ACCESS)".
-

4.6.2 Resetting the access authorisation to operator (blocking access)

- Call up "User" menu.
- Select *Authorisation*.

-
- Enter the password of the current access authorisation with the keys <1> to <6>.
 - The *Operator* access authorisation appears in the status display.
-

4.6.3 Change password for authorisation access creator

- Call up "PIN" menu.
 - Select *Change PIN*.
 - Enter old password with keys <1> to <6>.
 - Enter new password with keys <1> to <6>.
 - Confirm the new password again.
 - The password has been changed.
 - The status display appears.
-

4.6.4 To reset authorisation access creator

- Call up "PIN" menu.
 - Select *Reset PIN*.
 - Enter Super-PIN, see supplementary sheet "Super-PIN".
 - The reset password for the authorisation access *Creator* appears.
 - The status display appears.
-

4.7 Language selection

4.7.1 Selecting the language via menu

- Call up "User" menu.
 - Select *Language*.
 - Using the <arrow> keys, select the desired language.
 - Press the <Function selection> key.
 - The language is activated.
-

4.7.2 Selecting the language via the shortcut key

- Switch off the display with the <control on/off> key.
 - Switch on the display with the <control on/off> key.
-

-
- While the startup display is shown, press the <function selection> key.
 - The "language selection" display appears.
-
- Using the <arrow> keys, select the desired language.
-
- Press the <Function selection> key.
 - The language is activated.
-

4.8 Working with recipes

4.8.1 Load recipe



Info

If no recipe is saved, the message "recipe missing" appears. The last settings remain active.

Load using keys <1> to <6>

-
- Press the desired key briefly <1> to <6>.
 - The selected recipe is loaded.
-

Loading through the "load recipe" menu

-
- Call up "Load recipe" menu.
-
- Select the desired recipe with the <arrow> keys.
-
- Press the <Function selection> key.
 - The selected recipe is loaded.
-

4.8.2 Load factory settings



Info

Factory settings cannot be overwritten or deleted.

-
- Call up "Recipe loading" menu.
-
- Select recipe no. 30 with the <arrow> keys.
-
- Press the <Function selection> key.
 - The factory settings are loaded.
-

4.8.3 Save recipe



Info

When selecting an already assigned recipe number, the recipe stored under this number is directly overwritten.

Saving via keys <1> to <6>

-
- Press and hold down desired key <1> to <6>.
 - The message "Recipe saved" appears.
 - The current values are stored in the selected recipe.
-

Saving via the "save recipe" menu

-
- Call up "Recipe, saving" menu.
 - Using the <arrow> keys, select the desired memory location.
 - Press the <Function selection> key.
 - The current values are stored in the selected recipe.
-

4.8.4 Delete recipe



Info

If the currently loaded recipe is deleted, a new recipe must be loaded.

-
- Call up "Recipe, deleting" menu.
 - Select the recipe to be deleted with the <arrow> keys.
 - Press the <Function selection> key.
 - The message "completed" appears.
 - The recipe has been deleted.
-

4.9 Select and set process

4.9.1 Set standard process

-
- Press <Evacuation> key briefly and enter value for *Evacuation pressure*.
 - For automatic evacuation, decrease the value until *Automatic* appears.
 - The machine controls the evacuation process automatically.
 - Press <Evacuation> key briefly again and set value for *Post-evacuation time*.
-

-
- Call up the "evacuation" menu.
 - Set *Distribution time*.
 - Set *Automatic*.
 - Select *Standard* process.
-
- Call up the "gas flushing" menu (Optional).
 - Switch on *On/off gas flushing*.
 - Set *Distribution time*.
 - Set *Rinse time*.
-
- Press <Gas flushing> key briefly and set value for *Gas flushing pressure*.
-

4.9.2 To set MCV process

-
- Press <Evacuation> key briefly and enter value for *Evacuation pressure*.
-



Info

Do not set an *Evacuation pressure* value in *Automatic*.

-
- Press <Evacuation> key briefly again and set the value for *Post-evacuation time* to 0 s.
-
- Call up the "evacuation" menu.
 - Set the value for *Distribution time* to 0 s.
 - Select *MCV* process.
 - Set *MCV threshold*.
 - Set *MCV duration*.
-
- Call up the "gas flushing" menu (Optional).
-
- Switch off *Gas flushing On/Off*.
-
- Call up the "sealing" menu.
-
- Switch off *Sealing On/Off*.
-

4.9.3 Setting the MHP process

-
- Press <Evacuation> key briefly and enter value for *Evacuation pressure*.
 - For automatic evacuation, decrease the value until *Automatic* appears.
 - The machine controls the evacuation process automatically.
-

➤ Press <Evacuation> key briefly again and set value for *Post-evacuation time*.

➤ Call up the "evacuation" menu.

➤ Set *Distribution time*.

➤ Set *Automatic*.

➤ Select *MHP* process.

➤ Set *MHP evacuation time*.

➤ Set *MHP Evacuation pause*.

➤ Call up the "gas flushing" menu (Optional).

➤ Switch on *On/off gas flushing*.

➤ Set *Distribution time*.

➤ Set *Rinse time*.

➤ Press <Gas flushing> key briefly and set value for *Gas flushing pressure*.

4.9.4 Setting the MPP process

➤ Call up the "gas flushing" menu.

➤ Switch on *On/off gas flushing*.

➤ Call up the "evacuation" menu.

➤ Select *MPP* process.

➤ Call up the *MPP* submenu.

➤ Select the desired function with the <Gas flushing> key and the <Arrow> keys.

➤ Set the value with the <Sealing> key and the <Arrow> keys.

➤ Scroll through the list using the <Evacuation> key and the <Arrow> keys.

4.9.5 Set MRP process

➤ Press <Evacuation> key briefly and enter value for *Evacuation pressure*.

➤ For automatic evacuation, decrease the value until *Automatic* appears.

– The machine controls the evacuation process automatically.

➤ Press <Evacuation> key briefly again and set value for *Post-evacuation time*.

➤ Call up the "evacuation" menu.

➤ Set *Distribution time*.

➤ Set *Automatic*.

- Select *MRP* process.
 - Set *Number of cycles*.
 - Set *Cycle end*.
-
- Call up the "gas flushing" menu (Optional).
 - Switch on *On/off gas flushing*.
 - Set *Distribution time*.
 - Set *Rinse time*.
-
- Press <Gas flushing> key briefly and set value for *Gas flushing pressure*.
-

4.10 Setting the sealing

- Call up the "sealing" menu.
 - Switch on *On/off sealing*.
 - Set *Delayed ventilation*.
 - Set *Cooling down*.
 - Set *Ventilation pulse*.
-
- Press <Sealing> key briefly and set value for *Sealing time*.
-

4.11 Entering basic settings

- Call up the "basic settings" menu.
 - Set the *vacuum pump running-on time*.
 - Set *Fill diaphragm*.
 - Set *Ventilate diaphragm*.
-

4.12 Modifying and resetting machine cycles

- Call up the "production data" menu.
-
- Call up "Counter" menu.
-
- Call up *machine cycles*.
-
- Set the value with the <arrow> keys.
 - The set value is adopted.
-

4.13 Display production data

4.13.1 Display total cycles of the machine

- Call up "Counter" menu.

-
- Select *Total cycles*.
-

4.13.2 Display hours of operation

Display machine's hours of operation

-
- Call up "Hours of operation" menu.
-
- Select *Hours of operation*.
-

Display vacuum pump's hours of operation

-
- Call up "Hours of operation" menu.
-
- Select *Vacuum pump*.
-

4.13.3 Display cycle time

-
- Call up the "production data" menu.
-
- Select *Cycle time*.
-

4.13.4 Show settings

-
- To view the settings of recipes 7 through 30, load the desired recipe via the menu, see Section 4.8.1 "LOAD RECIPE".
-
- Call up the "production data" menu.
-
- Select *Settings* .
 - The settings of the loaded recipe appear in a list.
-



Info

The settings of recipes 1 through 6 can be speed dialed from the list. To do so, load the respective recipe with the keys <1> through <6>.

4.14 Setting the brightness of the display

-
- Call up "User" menu.
-
- Select *brightness*.
-
- Using the <arrow> keys set the desired brightness.
-

4.15 Reset machine control



Info

Reset machine control in the following situations:

- Creating the condition as supplied to the customer of the machine.
- If the configuration code was incorrectly entered.
- Delete the entire memory.
- The machine control unit no longer responds.

➤ Displaying the configuration code.

- Switch off the display with the <Control on/off> key.
- Switch on the display with the <Control on/off> key.
- Read off the set configuration code during the startup display and make a note of it.

➤ While the startup display is shown, press the keys <2> and <5> simultaneously.

➤ Enter Super-PIN, see supplementary sheet "Super-PIN".

- The "Reset" display appears.
- A counter counts to zero.
- The display automatically switches off and back on again.
- The password for the access authorisation *Creator* remains activated.
- The "Configuration code" display appears.

➤ Compare the suggested configuration code in the display with the noted configuration code.

➤ If the configuration codes match, press the <Sealing> key

- The configuration code is saved.

➤ If the configuration codes differ, enter the noted configuration code.

- Press the <Evacuation> key.
 - The suggested configuration code is deleted.
- Enter the noted configuration code with the keys <1> to <6>.
- Press the <Sealing> key.
 - The configuration code is saved.

➤ Switch off the display with the <Control on/off> key.

➤ Switch on the display with the <Control on/off> key.

- Factory settings are loaded.
- The status display appears.

4.16 Setting the suction speed

- Setting the suction speed on the suction throttle.
 - Turn the suction throttle anticlockwise.
 - The suction speed increases.
 - Turn the suction throttle clockwise.
 - The suction speed decreases.
-



Info

Determine the correct suction speed through trial and error.

5 Adjustment work and setup

5.1 Setting the pressure regulators

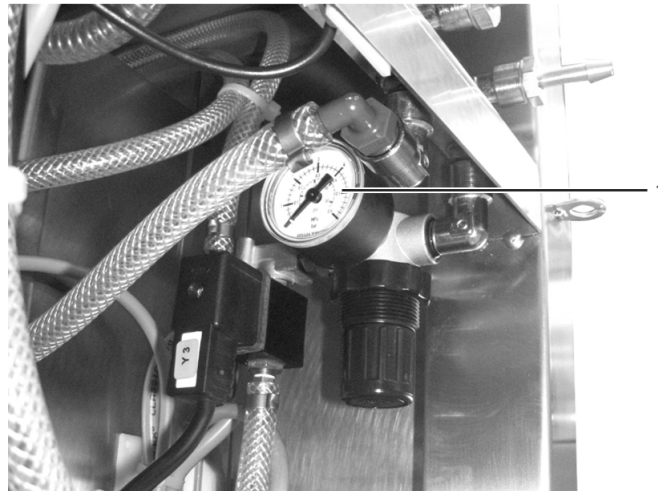


Fig. 35: Pressure regulator

1 Sealing pressure regulator

-
- Switch off the machine.

 - Disconnect the machine from the mains electricity.

 - Remove the safety guard on the back of the machine.

 - Set the operating pressure for sealing, see Section 5.1.1 "SETTING THE OPERATING PRESSURE FOR SEALING".

 - Fasten the safety guard.
-

5.1.1 Setting the operating pressure for sealing

-
- For setting the operating pressure on the "Sealing" pressure regulator, see "Technical specifications".

 - Turn the regulator clockwise.
 - The operating pressure is increased.

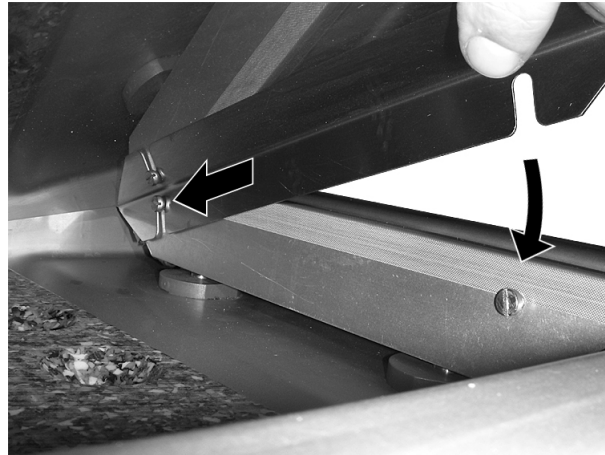
 - Turn the regulator anticlockwise.
 - The operating pressure is decreased.

 - Check the set operating pressure on the manometer.

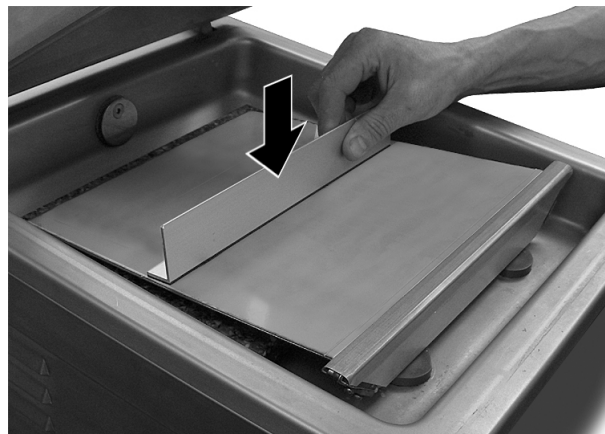
 - If necessary, readjust the operating pressure.
-

5.2 Insert and remove the diagonal insert

- If necessary, use diagonal inserts for the desired inclination.
-



-
- Hook the diagonal insert on the screws of the sealing bar.
-



-
- Install the support bracket on the required position on the diagonal insert.
 - If the diagonal insert is no longer needed, remove it, along with the support bracket, from the chamber.
-

6 Cleaning



Info

Observe the safety instructions, see Section 1 "SAFETY".
Clean the machine after maintenance work and repairs and disinfect if necessary.

6.1 Notes on cleaning

6.1.1 Rules of conduct

The objective of the cleaning work is to avoid risks to hygiene. If the cleaning is insufficient or not performed properly, this may result in the contamination of the products and to health hazards for end consumers. In addition, the machine may be damaged. Assign only properly instructed and qualified personnel. Information on qualification and training can be obtained from MULTIVAC Service. The ability to handle materials effectively and efficiently depends on:

- Using the proper dosage of care products.
- Observing the contact time of the care products.
- Proper temperature of the mixing water.

Data sheets for the care products can be obtained from their manufacturers. The manufacturers also provide information on the maximum permissible dosages which apply in the food area.

6.1.2 Creating a company cleaning directive

Specify the following points:

- Required cleaning intervals.
- Care products to be used. Care products, refer to "Care products table".
- Using the proper dosage of care products.
- Persons in charge of cleaning.
- First aid measures.

6.1.3 Measures for ensuring a long service life

NOTICE **Danger of equipment damage!**

Highly acidic or alkaline cleansers that contain chlorine create strong vapours.

These vapours cause corrosion.

- Do NOT use any care products that contain chlorine or are highly acidic or alkaline. Also, do NOT use such care products to clean the machine surroundings.
 - Observe the specifications of the care product manufacturers.
-

NOTICE Danger of equipment damage!

Acidic cleansers are caustic.

These can cause plastics to become brittle and age prematurely.

- Do NOT shorten the cleaning intervals for acidic cleaning and disinfection.

NOTICE Danger of equipment damage!

Inappropriate work on anodized aluminium parts causes a damaging of the anodized coating.

This will lead to aluminium corrosion.

- Do not use metal scraping tools.
- Do not use harsh cleansers.
- Do not use cleaning equipment with abrasive surface.
- Residues of cleansers and other aggressive deposits must be removed immediately.

Regular and correct maintenance prolongs the life of the unit. The best protection against harmful influences is to clean and disinfect the machine on a regular basis. The longer product residue and other aggressive deposits remain on the unit, the more harmful their corrosive effects will be.

If used incorrectly, care products can damage components made of rubber or plastic. Before applying care products, please take time to read the notes and warnings provided by the manufacturer.

6.1.4 Parameters for pre-rinsing and after-rinsing water

- Low pressure of max. 4 bar to 6 bar (58 psi to 88 psi).
- Do not rinse with steam jets or high-pressure cleaners.
- Fan nozzle: 5 ° to 15 ° inclination, approx. 3/16 " nozzle opening.
- Temperature: max. 60 °C (140 °F).
- Quality of after-rinsing water: drinking water quality.

6.1.5 Handling cleansers



Chemical burn hazard!

Acidic cleansers are caustic. Caustic effects are NOT noticed immediately.

Contact with the skin can cause burns.

- Wear the prescribed personal protective gear when handling cleansers.
 - Observe the manufacturer's instructions.
-

- For type of cleander refer to the "Care products table".
- The quantity of cleanser is not the decisive factor for successful cleaning.
 - Applying amounts in excess of the proper dosage does not improve or accelerate cleaning efficiency, but only hinders the required rinsing off of the cleanser.
- Dried cleanser residues make cleaning more difficult and prolonged.
 - Even smallest residues can inhibit the effect of the disinfection.
 - Check by measuring the pH factor of the re-rinse water.
- Regular checks of cleaning (i.e. by contact tests) reduce the risk of product contamination.
- Insufficient cleaning cannot be compensated for by doubling the concentration of the disinfection agents.

6.1.6 Use with disinfectant



Fire hazard!

Alcohol-based disinfectants are highly flammable. Fire, naked light or smoking ignites the disinfectant and can thus cause fires.

- When disinfecting the machine, flames or naked lights are prohibited.
- Smoking is prohibited.
- Observe the instructions of the disinfectant manufacturer.



Health hazard!

Incorrect use of disinfectant can contaminate the product with chemicals or decrease the effectiveness of disinfection. This can pose serious health hazards for consumers.

- Follow the instructions of the disinfectant manufacturer.
- Only rinse after disinfection if required by disinfectant manufacturer.
- Observe regional hygiene regulations.
- Create a company cleaning directive.

- For type of disinfectant refer to the "Care products table".
 - For water-sensitive components only use alcohol-based disinfectant.
 - For all other components use disinfectants which are for example based on quaternary ammonium compounds.

6.1.7 Corrosion protection and lubrication



Health hazard!

Excess lubricants can accumulate at lubricating points. Excess grease has no lubricating function; however, it can breed micro-organisms and contaminate the product.

- Check the lubricating points regularly for the accumulation of excess lubricants.
- Remove any excess lubricants.

NOTICE **Danger of equipment damage!**

Residues of cleansers and disinfectants produce corrosion. Corrosion can destroy the machine.

- After every cleaning, including cleaning of the surroundings (floor, adjacent machines, etc.), thoroughly rinse with water of drinking water quality or clean by hand.

- Kind of anti-corrosion agent, refer to "Care products table".
- Only use H1 or FDA-approved lubricants and anti-corrosion agents.
- Checking the microbiological stability of the anti-corrosion agent and lubricants regularly helps reduce the risk of product contamination.

6.1.8 Cleaning devices

Wet cleaning



Health hazard!

The cleaning devices will spread germs if they are not cleaned often enough.

This can cause cross contamination, which will damage the product.

- Use only brushes and brooms that have plastic bristles.
- Clean the cleaning equipment daily and apply disinfectant afterwards.

Dry cleaning

The exhaust air emitted by the vacuum cleaner and whirled up must comply with the prescribed limit values for the packaging environment. Accordingly, the appropriate filter elements must be used in the vacuum cleaner.

6.2 Cleaning the machine



Info

- The recommended daily cleaning tasks recommended here must be supplemented by the intensive cleaning procedure according to the degree of dirt.
- Cleaning personnel must be instructed for the cleaning work by the operating company.
- The sequence of the described tasks is to be followed exactly.

6.2.1 Cleaning procedure

The manufacturer recommends the following cleaning procedures:

- Low pressure cleaning
- Manual cleaning
- Low pressure disinfection
- Quick disinfection
- Dry cleaning.



Info

The procedure which is to be performed is noted in the respective step in the cleaning instructions.

Low pressure cleaning



Info

The company cleaning guidelines specify which cleanser (alkaline or acidic) is to be used.

-
- Perform the low-pressure foaming procedure to apply the cleanser.
-
- Wait until the contact time has elapsed (see instructions of cleanser manufacturer).
-
- If necessary, remove stubborn dirt and stains with a soft brush.
-
- Rinse off with water of drinking quality.
-
- Inspect for dirt and cleanser residues.
-
- If necessary, clean and rinse again.
-

Manual cleaning



Info

The company cleaning guidelines specify which cleanser (alkaline or acidic) is to be used.

-
- Perform manual cleaning with the cleaning solution and a soft cloth.
-
- Wait until the contact time has elapsed (see instructions of cleanser manufacturer).
-
- If necessary, remove stubborn dirt and stains with a soft brush.
-
- Wipe with new cloth and water of drinking quality.
-
- Inspect for dirt and cleanser residues.
-
- If necessary, perform another manual cleaning and wipe it off.
-

Low pressure disinfection

-
- Apply disinfectant with a hand-held spray lance.
-
- Wait until the contact time has elapsed (see instructions of disinfectant manufacturer).
-
- If necessary, rinse off with water of drinking quality; see instructions of the disinfectant manufacturer.
-

Quick disinfection

-
- Disinfect with alcohol-based disinfectant.
-
- Wait until the contact time has elapsed (see instructions of disinfectant manufacturer).
-

Dry cleaning

-
- Remove the dirt with a suitable vacuum cleaner.
-
- Remove the dirt from difficult to reach areas with a soft brush. Do not whirl up the dirt.
-
- Once again, remove the dirt with a suitable vacuum cleaner.
-
- Check for dirt residues.
-
- If necessary, clean it again.
-

6.2.2 Perform intermediate disinfection



Info

- Intermediate disinfection is a disinfection procedure during operation (e.g. after or immediately before short breaks) to reduce the growth of microorganisms. Quick disinfection is used for this.
- The sequence of the described tasks is to be followed exactly.
- In the following, optional equipment versions are also described. Only perform steps that correspond to the version of the machine.
- For all cleaning work, follow the safety instructions, see Section 6.1 "NOTES ON CLEANING".
- Performance of the respective cleaning procedure, see Section 6.2.1 "CLEANING PROCEDURE".

-
- Remove all products from the machine.
-
- Switch off the machine.
-
- Let the sealing bar cool down.
-
- Perform a quick disinfection of the following components: If there is visible dirt carry out a prior manual cleaning
 - Handle on the chamber lid.
 - Locking device for chamber lid.
 - Infeed area.
 - Control terminal.
-

6.2.3 Performing daily cleaning

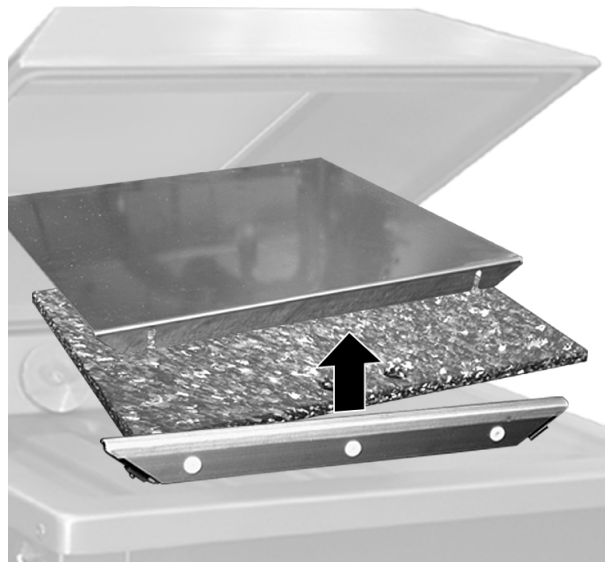


Info

- The intensive cleaning may only be performed by specially trained personnel. see Section 1.7 "OBLIGATIONS OF THE OPERATING COMPANY"
- The sequence of the described tasks is to be followed exactly.
- In the following, optional equipment versions are also described. Only perform steps that correspond to the version of the machine.
- Always clean the machine from top to bottom.
- For all cleaning work, follow the safety instructions, see Section 6.1 "NOTES ON CLEANING".
- The illustrations are examples.
- Performance of the respective cleaning procedure, see Section 6.2.1 "CLEANING PROCEDURE".

Preparing for cleaning

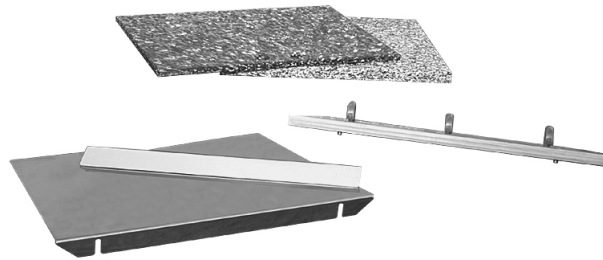
-
- Remove all products from the machine.
-
- Switch off the machine.
-
- Disconnect the machine from the mains electricity.
-
- Cover the mains plug with waterproof plastic bags.
-
- Close all stop valves in the supply lines.
-
- Allow the machine and sealing bar to cool down.
-
- Wrap up the empty new film pouches and store them outside of the room in a clean and dry place during the cleaning procedure.
-
- Remove all waste (e.g. product scraps, film trim) on or around the machine.
-



-
- Remove the following components:
 - Diagonal insert with support bracket.
 - Spacer plates.
 - Sealing bar.
-

Cleaning and disinfecting dismantled components

-
- Take the removed components to a separate room suitable for wet cleaning
-



NOTICE **Danger of equipment damage!**

The teflon tape of the sealing bar is very sensitive. Improper cleaning can damage the teflon tape.

- Clean the teflon tape only with a soft cloth.
- Do NOT scratch the teflon tape.

- Manually clean the removed components.
 - Thoroughly clean the inert gas nozzles.
- Perform a quick disinfection of the removed components.
 - Thoroughly disinfect the inert gas nozzles.

**Disinfect and cover
sensitive components**

- If the external vacuum pump is connected directly to the mains, have the external vacuum pump disconnected from the mains by a qualified electrician.
- Cover the mains plug with waterproof plastic bags.



Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.
- Perform a quick disinfection of the following components: If there is visible dirt carry out a prior manual cleaning
 - External vacuum pump.
- Cover disinfected components with watertight film pouches.

Clean the machine and the floor.

NOTICE Danger of equipment damage!

Penetration by foreign matter (e.g. liquids, product residue, foreign bodies) will damage the vacuum pump.
Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Do NOT spray directly on the covers of the suction openings in the chamber.

-
- Perform manual cleaning of the machine.
 - Clean the viewing window in the chamber lid with a soft cloth or a soft brush.
 - Close chamber lid and lock it in place.
 - Clean the floor with a rubber wiper.
 - Dispose of the dirty water and waste properly.
 - Perform low pressure cleaning of the floor.
 - Inspect the entire machine and the floor for dirt and cleanser residues.
 - If necessary, clean and wipe off again.

Disinfect the machine and the floor.

-
- Perform low pressure disinfection of the floor.
 - Open chamber lid.

NOTICE Danger of equipment damage!

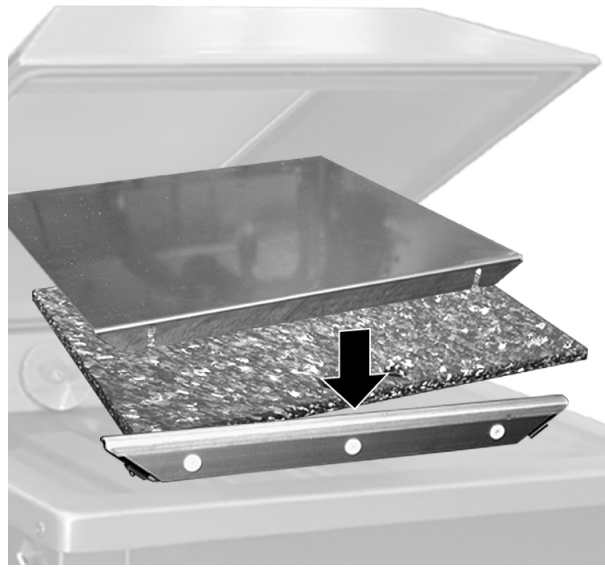
Penetration by foreign matter (e.g. liquids, product residue, foreign bodies) will damage the vacuum pump.
Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Do NOT spray directly on the covers of the suction openings in the chamber.

-
- Perform quick disinfection of the machine.
 - Leave the chamber lid open to dry.

Complete cleaning

-
- Remove the plastic bag for protecting sensitive components.
-
- Remove the plastic bag from the mains plug.
-
- Dispose of plastic bags properly. For reasons of hygiene, never reuse bags
-



-
- Attach or install the following components:
 - Sealing bar.
 - Spacer plates.
 - Diagonal insert with support bracket.
-
- Open all stop valves in the supply lines.
-
- Connect the machine to the mains electricity.
-
- If the external vacuum pump has its own power supply, have the external vacuum pump connected to the mains by a qualified electrician.
-
- Perform a quick disinfection in the entire infeed area.
-
- Clean the cleaning implements (e.g. rubber wipers, brushes).
-
- Place cleaning implements in disinfectant solution-
-
- Unpack the film pouches and lay them ready.
-

6.2.4 Performing intensive cleaning

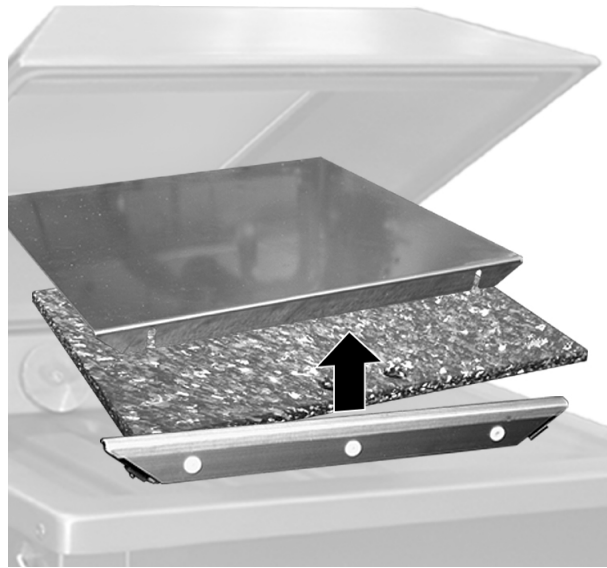


Info

- Intensive cleaning complements daily cleaning. As part of this process additional cleaning measures are required depending on the degree of contamination of the components described in this chapter.
- The intensive cleaning may only be performed by specially trained personnel. Information on qualifications and training can be obtained from our service personnel.
- The sequence of the described tasks is to be followed exactly.
- Always clean the machine from top to bottom.
- In the following, optional equipment versions are also described. Only perform steps that correspond to the version of the machine.
- For all cleaning work, follow the safety instructions, see Section 6.1 "NOTES ON CLEANING".
- The illustrations are examples.
- Performance of the respective cleaning procedure, see Section 6.2.1 "CLEANING PROCEDURE".

Preparing for cleaning

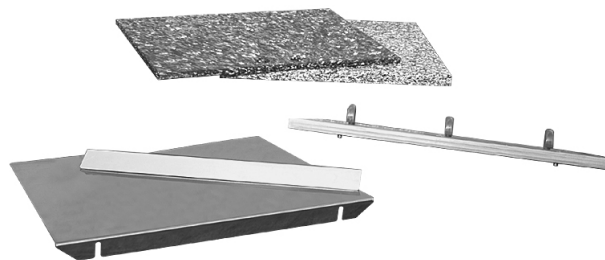
-
- Remove all products from the machine.
-
- Switch off the machine.
-
- Disconnect the machine from the mains electricity.
-
- Cover the mains plug with waterproof plastic bags.
-
- Close all stop valves in the supply lines.
-
- Allow the machine and sealing bar to cool down.
-
- Wrap up the empty new film pouches and store them outside of the room in a clean and dry place during the cleaning procedure.
-
- Remove all waste (e.g. product scraps, film trim) on or around the machine.
-



-
- Remove the following components:
 - Diagonal insert with support bracket.
 - Spacer plates.
 - Sealing bar.
 - Chamber lid gasket
-

Cleaning and disinfecting dismantled components

-
- Take the removed components to a separate room suitable for wet cleaning
-



-
- NOTICE** **Danger of equipment damage!**
The teflon tape of the sealing bar is very sensitive. Improper cleaning can damage the teflon tape.
- Clean the teflon tape only with a soft cloth.
 - Do NOT scratch the teflon tape.
-

- Manually clean the removed components.
 - Thoroughly clean the inert gas nozzles.
-

-
- Perform a quick disinfection of the removed components.
 - Thoroughly disinfect the inert gas nozzles.
-

Disinfect and cover sensitive components

-
- If the external vacuum pump is connected directly to the mains, have the external vacuum pump disconnected from the mains by a qualified electrician.
-
- Cover the mains plug with waterproof plastic bags.
-



Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.
-

- Perform a quick disinfection of the following components: If there is visible dirt carry out a prior manual cleaning
 - External vacuum pump.
-

- Cover disinfected components with watertight film pouches.
-

Clean the machine and the floor.

NOTICE Danger of equipment damage!

Penetration by foreign matter (e.g. liquids, product residue, foreign bodies) will damage the vacuum pump.

Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Do NOT spray directly on the covers of the suction openings in the chamber.
-

- Perform manual cleaning of the machine.
 - Clean the viewing window in the chamber lid with a soft cloth or a soft brush.
 - Close chamber lid and lock it in place.
 - Clean the floor with a rubber wiper.
 - Dispose of the dirty water and waste properly.
 - Perform low pressure cleaning of the floor.
-

-
- Inspect the entire machine and the floor for dirt and cleanser residues.
-
- If necessary, clean and wipe off again.
-



Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.

-
- Remove safety guard.
-
- Manually clean the inside of the protective cover.
-
- Manually clean the inside of the housing.
-
- Perform quick disinfection of the inside of the protective covers.
-
- Perform quick disinfection of the inside of the housing.
 - Do not spray directly onto cables, contacts and electrical components.
-
- Fasten the safety guard.
-

**Disinfect the machine
and the floor.**

-
- Perform low pressure disinfection of the floor.

-
- Open chamber lid.

NOTICE Danger of equipment damage!

Penetration by foreign matter (e.g. liquids, product residue, foreign bodies) will damage the vacuum pump.

Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Do NOT spray directly on the covers of the suction openings in the chamber.

-
- Perform quick disinfection of the machine.

- Leave the chamber lid open to dry.
-

Complete cleaning

-
- Remove the plastic bag for protecting sensitive components.

- Remove the plastic bag from the mains plug.

- Dispose of plastic bags properly. For reasons of hygiene, never reuse bags
-



-
- Insert the dry chamber lid gasket in the groove of the lid.
 - If the chamber lid gasket or groove is wet, dry with a new cloth or sterile compressed air.
 - During insertion, do not stretch the gasket.
-



-
- Smooth out gasket.
-



-
- Attach or install the following components:
 - Sealing bar.
 - Spacer plates.
 - Diagonal insert with support bracket.
 - Open all stop valves in the supply lines.
 - Connect the machine to the mains electricity.
 - If the external vacuum pump has its own power supply, have the external vacuum pump connected to the mains by a qualified electrician.
 - Perform a quick disinfection in the entire infeed area.
 - Clean the cleaning implements (e.g. rubber wipers, brushes).
-

-
- Place cleaning implements in disinfectant solution-
-
- Unpack the film pouches and lay them ready.
-
- Switch on the machine.
-
- Close and press down the chamber lid. Observe the pressure shown in the display.
 - The pressure drops: the chamber is airtight.
 - The pressure does not drop: the chamber is not airtight.
-
- If the chamber is not airtight, check the chamber lid gasket:
 - Smooth out gasket.
 - Perform quick disinfection of the chamber lid gasket.
-

6.3 Care products table

Recommended care products:

Type	Manufacturer	Designation
Cleansers and disinfectants	Ecolab Europa	P3-steril
	Diversey Europe	JD Delladet VS2
	Diversey USA	
	Finktec	FINK-FC 2062
Cleansers, neutral	Ecolab Europa	P3-topax 12
	Ecolab USA	Quorum Pink II
	Diversey Europe	Shureclean VK10
		JD Shureclean Plus VK9
	Diversey USA	Shureclean VK10
		JD Shureclean Plus VK9
Finktec	FINK-Industrial rinsing agent 2	
Cleansers, alkaline	Ecolab Europa	P3-topactive LA
	Ecolab USA	TFC Pink
	Diversey Europe	JD Ultraclean VK3
		Diverfoam SMS HD VF22
	Diversey USA	JD Ultraclean VK3
		Diverfoam SMS HD VF22
Finktec	FINK Super Grease Remover	
Cleansers (CIP cleaning),	Diversey Europe	Supergel VG3

Type	Manufacturer	Designation
alkaline	Diversey USA	
Cleansers, acidic	Ecolab Europa	P3-topax 52
		P3-topax 56
	Ecolab USA	Quorum Purple
		Quorum Red
	Diversey Europe	JD Acifoam VF10
	Diversey USA	
	Finktec	FINK aluminium cleanser
FT-43 SR		
Cleansers (CIP cleaning), acidic	Diversey Europe	Acigel
	Diversey USA	Acifoam
Disinfectants	Ecolab Europa	P3-topax 91
		P3-topax 990
	Ecolab USA	Quorum Whisper
		Quorum Clear
	Diversey Europe	JD Divosan extra VT55
		JD Suredis VT1
	Diversey USA	JD Divosan extra VT55
		JD Suredis VT1
	Finktec	FINK- Antisept G
	Disinfectants (CIP cleaning)	Diversey Europe
Diversey USA		Formula C
Disinfectants (alcohol-based)	Ecolab Europa	P3-alcodes
	Diversey Europe	JD Divodes FG VT29
	Diversey USA	
	Finktec	FINK- Antisept E
Anti-corrosion agents	Esso	Primol 352
	Castrol	Optimol F+D Fluid Spray
	Klüber Lubrication	Klüberfood NH1 K 32
Stainless steel care products	Ecolab Europa	P3-proguard CP
	Finktec	FINK-FC 332
Decalcifying agents	Ecolab Europa	P3-horolith PA

Type	Manufacturer	Designation
	Ecolab USA	P3-aquascale
	Diversey Europe	JD Descale VA1
		JD aluminium wash VA3
	Diversey USA	JD Descale VA1
		JD aluminium wash VA3
	Finktec	FINK decalcifying agent
		FINK aluminium cleanser

All recommended anti corrosion agents and stainless steel care products are food compatible.

Buying source:

- Ecolab: www.ecolab.com
- Diversey: www.diversey.com
- Finktec: www.fink-service.com
- Esso: www.exxonmobil.com
- Castrol: www.castrol.com
- Klüber Lubrication: www.klueber.com

7 Maintenance



Dangerous voltage!

Switching off the machine does not rid it of electrical current. Touching electrically charged parts can cause serious or even fatal injuries.

Before performing any cleaning or maintenance work:

- Disconnect the machine's power supply from the mains electricity.
- Have work in the control cabinet performed by authorised specialists only.



Info

Observe the safety instructions, see Section 1 "SAFETY". Clean the machine after maintenance work and repairs and disinfect if necessary.

7.1 Maintenance schedule

As needed

		Page	Completed
Entire machine	Perform intermediate disinfection	86	
Entire machine	Wipe test	87	
Vacuum sensor	Exchanging the filter	90	
Vacuum filter (option)	Change	90	

Every 8 operating hours or daily

		Page	Completed
Entire machine	Visual inspection	86	
Entire machine	Alkaline cleaning and disinfection	87	
Entire machine	Intensive cleaning	87	
Chamber lid viewing window	Visual inspection	87	
Chamber lid gasket	Visual inspection	87	
Sealing bar	Visual inspection	87	
Internal vacuum pump	Checking oil level, refilling	88	

		Page	Completed
External vacuum pump	Checking oil level, refilling	88	
Basic setting	Checking, adjusting	90	

Every 50 operating hours or weekly

		Page	Completed
Entire machine	Acidic cleaning and disinfection	87	
Connections	Visual inspection	88	
Internal vacuum pump	Visual inspection	88	
External vacuum pump	Visual inspection	89	
Vacuum system	Check	90	

Every 1000 operating hours or yearly

		Page	Completed
Vacuum pump.	Changing the oil and oil filter	89	
Vacuum pump.	Exchanging the air de-oiling element	89	

7.2 Recommended maintenance

7.2.1 Entire machine - Visual inspection

- Check the entire machine for any external signs of damage.
- Check that all warning signs are present.
- Check that all safety devices are mounted and undamaged.

7.2.2 Entire machine - Perform intermediate disinfection

- Perform intermediate disinfection regularly during operation (e.g. before or immediately after short breaks), see Section 6 "CLEANING".

7.2.3 Entire machine - Alkaline cleaning and disinfection

- See company cleaning guidelines.
 - See the cleaning measures specified by the manufacturer, see Section 6 "CLEANING".
-

7.2.4 Entire machine - Wipe test

- Perform wipe tests to check the result of the cleaning and disinfection procedures.
See the company cleaning instructions and recommendations, see Section 6 "CLEANING".
-

7.2.5 Entire machine - Acidic cleaning and disinfection

- See company cleaning guidelines.
 - See the cleaning measures specified by the manufacturer, see Section 6 "CLEANING".
-

7.2.6 Entire machine - Intensive cleaning

- See company cleaning guidelines.
 - Check the components described in Intensive Cleaning for contamination
 - If there is any contamination perform Intensive Cleaning see Section 6 "CLEANING"
-

7.2.7 Chamber lid viewing window - Visual inspection

- Check the viewing window in the chamber lid for damage (e.g scratches, cracks).
 - If the viewing window in the chamber lid is damaged have it replaced immediately by the manufacturer.
-

7.2.8 Chamber lid gasket - Visual inspection

- Check chamber lid gasket for damage.
 - Have the chamber lid gasket replaced by the service department if necessary.
-

7.2.9 Sealing bar - Visual inspection

- Check sealing bar for damage.
-

-
- If necessary, replace the sealing bar, see Section 7.5 "REPLACE THE SEALING BAR".
-

7.2.10 Connections - Visual inspection

- Switch off the machine.
 - Disconnect the machine from the mains electricity.
 - Check power cable for damage.
 - If present, check that the line for inert gas is fitted tightly and undamaged.
-

7.2.11 Internal vacuum pump - Checking oil level, refilling

- Check oil level, see Section 3.2 "INITIAL START-UP".
 - If water is present in the oil, notify the service department.
 - If necessary, refill oil, see Section 3.2 "INITIAL START-UP".
-

7.2.12 External vacuum pump - Checking oil level, refilling

- Have a qualified electrician disconnect the vacuum pump from the mains.
-



Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.
-

- Check the oil level in the oil sight glass, Refer to the manual of the pump manufacturer.
 - If water is present in the oil, notify the service department.
 - If necessary, fill with oil; see the manual of the pump manufacturer.
 - Have the vacuum pump connected to the mains by a qualified electrician.
-

7.2.13 Internal vacuum pump - Visual inspection

- Switch off the machine.
-

-
- Disconnect the machine from the mains electricity.



Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.

-
- Remove the safety guard on the back of the machine.
 - Check that all connections are fitted tightly and undamaged.
 - Fasten the safety guard.

7.2.14 External vacuum pump - Visual inspection

- Have a qualified electrician disconnect the vacuum pump from the mains.



Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

Before performing any work on the vacuum pump:

- Wear personal protective equipment.

-
- Check that all connections are fitted tightly and undamaged.
 - Have the vacuum pump connected to the mains by a qualified electrician.

7.2.15 Vacuum pump. - Changing the oil and oil filter

- Have the service department change the oil and oil filter.

7.2.16 Vacuum pump. - Exchanging the air de-oiling element

- Have the air de-oiling element exchanged by the service department.

7.2.17 Vacuum sensor - Exchanging the filter

- Exchanging the vacuum sensor filter, see Section 7.4 "EXCHANGING THE VACUUM SENSOR FILTER".
-

7.2.18 Basic setting - Checking, adjusting

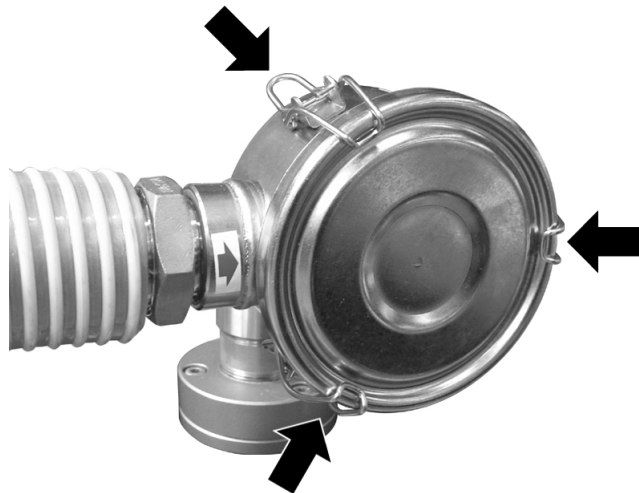
- For the gas flushing option: Check the operating pressure for sealing and adjust if necessary, see Section 5 "ADJUSTMENT WORK AND SETUP".
 - Check input pressure of inert gas (option), adjust if necessary, see "Technical specifications".
-

7.2.19 Vacuum system - Check

- Perform a vacuum test, see Section 7.3 "PERFORMING THE VACUUM TEST".
-

7.2.20 Vacuum filter (option) - Change

- Switch off the machine.
-



-
- Open the clamp locks on the filter housing.
 - Take off the lid.
-



-
- Remove the vacuum filter.

 - Insert a new vacuum filter.

 - Attach the lid.

 - Close the filter housing with the clamp locks.
-

7.3 Performing the vacuum test

- Call up the "Service" menu.

 - Call up the "test" menu.

 - Select *Vacuum test*.

 - Switch on the *vacuum test*.

 - Return to the status display.

 - Close and press down the chamber lid.
 - The vacuum system is tested for airtightness.
 - The processes in the machine run automatically.
 - The corresponding diagnostic message appears.
 - The chamber lid opens.

 - Acknowledge the diagnostic message.
 - The vacuum test is switched off.

 - If the vacuum test is not successful, see the displayed diagnostic message to correct the malfunction, see Section 8 "TROUBLESHOOTING".
-

7.4 Exchanging the vacuum sensor filter

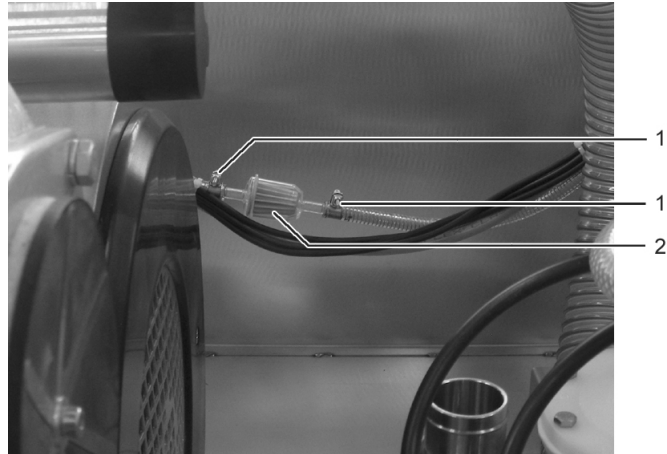


Fig. 36: Filter in measuring line of vacuum sensor

- 1 Clamp
- 2 Filter

-
- Switch off the machine.
-
- Disconnect the machine from the mains electricity.
-
- Remove the panel.
-
- Release the clamps in front of and after the filter.
-
- Replace the filter.
-
- Fasten the filter with the clamps.
-
- Fasten the side panel.
-

7.5 Replace the sealing bar

7.5.1 Remove the sealing bar

-
- Switch off the machine.
-
- Disconnect the machine from the mains electricity.
-
- Open chamber lid.
-
- Let the sealing bar cool down.
-



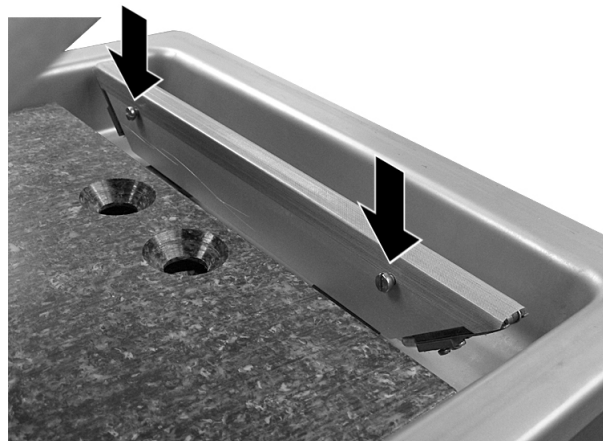
-
- Pull out the sealing bar.
-

7.5.2 Install the sealing bar

-
- Disconnect the machine from the mains electricity.
-



-
- Install the sealing bar on the carriers.
-



- Install the sealing bar in such a way that the screws on the sealing bar point to the middle of the chamber.

7.6 Lubricant table

Recommended lubricants:

Lubrication point	Type	Manufacturer	Designation	Designation	MULTIVAC part number	Quantity
Vacuum pump.	Oil	Shell	Shell Corena P100	-	9111111450 2	1 l
Vacuum pump.	Oil	Shell	Shell Corena P100	-	9111111450 1	20 l

8 Troubleshooting



Danger of injury!

Ignorance of proper machine handling is very dangerous.

Improper handling can lead to serious injuries.

For all service operations and repair work:

- Make sure you observe the safety instructions and accident prevention regulations.
- Disconnect the unit's power supply from the mains.
- Only qualified electricians are permitted to work on the electrical equipment.
- Service operations and repair work should be carried out by authorised specialists only.

8.1 Malfunctions with diagnostic message

Symptom	Cause	Solution
67	• Vacuum pump does not switch off.	• Notify the service.
	• Ventilation valve does not open.	• Notify the service.
68	• No inert gas available or almost depleted.	• Connect inert gas or ensure that there is sufficient gas supply (e.g. change gas bottle).
	• Stop valve for the gas supply is closed.	• Open the stop valve for the gas supply.
	• Gas hose has a kink in it.	• Remove the kink in the gas hose.
	• Value for the <i>gas flushing pressure</i> is set such that it cannot be reached.	• Correct the value for <i>Gas flushing pressure</i> .
	• The vacuum sensor is incorrectly calibrated.	• Notify the service.
	• Vacuum sensor is defective.	• Notify the service.
	• Gas valve does not open.	• Notify the service.
69	• Value for the <i>Evacuation pressure</i> is set so low that it cannot be reached.	• Correct the value for <i>Evacuation pressure</i> .

Symptom	Cause	Solution
	<ul style="list-style-type: none"> Vacuum hose between the chamber and the vacuum sensor is clogged, missing or leaking. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Vacuum hose is loose, leaking or clogged. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Chamber lid gasket is not airtight. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Vacuum sensor is defective. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Vacuum pump was not triggered, overload current relay has signalled or vacuum pump is defective. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Vacuum pump is leaky. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Filter in the line to the vacuum sensor is dirty and blocked. 	<ul style="list-style-type: none"> Notify the service.
80	<ul style="list-style-type: none"> Leak in hose connections. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Leak in vacuum hose. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> The vacuum sensor and associated line is leaking. 	<ul style="list-style-type: none"> Notify the service.
81	<ul style="list-style-type: none"> Sealing diaphragm leaks. 	<ul style="list-style-type: none"> Notify the service.

8.2 Malfunctions without diagnostic message

Symptom	Cause	Solution
Machine does not run.	<ul style="list-style-type: none"> Machine is switched off. 	<ul style="list-style-type: none"> Switch on the machine.
	<ul style="list-style-type: none"> Power plug is unplugged. 	<ul style="list-style-type: none"> Plug in the power plug.
Chamber lid does not remain closed despite pump running.	<ul style="list-style-type: none"> Chamber lid pressed closed too briefly. 	<ul style="list-style-type: none"> Press chamber lid closed more firmly and for longer.
	<ul style="list-style-type: none"> Chamber lid gasket is dirty. 	<ul style="list-style-type: none"> Clean the chamber lid gasket.
	<ul style="list-style-type: none"> Chamber lid gasket is damaged. 	<ul style="list-style-type: none"> Notify the service.
Seal seam not airtight - pack is slack.	<ul style="list-style-type: none"> Sealing time is set incorrectly. 	<ul style="list-style-type: none"> Correct the sealing time.
	<ul style="list-style-type: none"> Target pressure value incorrectly set. 	<ul style="list-style-type: none"> Correct the target pressure value.
	<ul style="list-style-type: none"> Pouch neck is clamped by chamber lid. 	<ul style="list-style-type: none"> Insert the film pouch so that the pouch neck lies within the chamber.

Symptom	Cause	Solution
	<ul style="list-style-type: none"> Seal seam is dirty. 	<ul style="list-style-type: none"> Keep sealing bar and film pouch clean.
	<ul style="list-style-type: none"> Pack not air-tight. 	<ul style="list-style-type: none"> Use a new film pouch.
	<ul style="list-style-type: none"> Film pouch not suitable. 	<ul style="list-style-type: none"> Use a film pouch suitable for sealing.
	<ul style="list-style-type: none"> The sealing force is not sufficient. 	<ul style="list-style-type: none"> Without the inert gas option: check settings. Sufficient sealing force is only achieved if the target pressure is set under 400 mbar. Inert gas option: Increase the pressure on the gas cylinder, and then gradually increase the sealing force on the pressure regulator "sealing pressure".
	<ul style="list-style-type: none"> Sealing bar damaged. 	<ul style="list-style-type: none"> Replace sealing bar.
The target pressure value is not reached.	<ul style="list-style-type: none"> The set target pressure is not achieved (e.g. product contains water). 	<ul style="list-style-type: none"> Set a higher target pressure.
	<ul style="list-style-type: none"> Chamber lid gasket is dirty. 	<ul style="list-style-type: none"> Clean the chamber lid gasket.
	<ul style="list-style-type: none"> Insufficient oil quantity or oil in the vacuum pump is too old. 	<ul style="list-style-type: none"> Fill or replace oil.
	<ul style="list-style-type: none"> Chamber lid gasket is damaged. 	<ul style="list-style-type: none"> Notify the service.
	<ul style="list-style-type: none"> Evacuation system is not air-tight. 	<ul style="list-style-type: none"> Notify the service.
Odour or smoke.	<ul style="list-style-type: none"> Air de-oiling element defective. 	<ul style="list-style-type: none"> Change the air de-oiling element.
	<ul style="list-style-type: none"> Oil return valve of vacuum pump is blocked. 	<ul style="list-style-type: none"> Notify the service.

9 Shutdown, transport, storage



Info

Observe the safety instructions, see Section 1 "SAFETY".

9.1 Shutting down the machine

9.1.1 Cleaning the machine

- Perform intensive cleaning of the machine, see Section 6.2 "CLEANING THE MACHINE".
-

9.1.2 Closing and disconnecting supply lines



Dangerous voltage!

Switching off the machine does not rid it of electrical current. Touching electrically charged parts can cause serious or even fatal injuries.

Before performing any cleaning or maintenance work:

- Disconnect the machine's power supply from the mains electricity.
 - Have work in the control cabinet performed by authorised specialists only.
-

- Switch off the machine.
 - Disconnect the machine from the mains electricity.
 - Close stop valve for the gas supply, if present.
 - If present, remove the gas hose from the inert gas connection.
 - Close lid.
 - Lock lid in place.
-

9.1.3 Preserving the machine

- Preserving the machine, see Section 6.1.7 "CORROSION PROTECTION AND LUBRICATION".
-

9.2 Transporting the machine

9.2.1 Transporting the machine

- Wear personal protective equipment.

-
- Close and disconnect the supply lines.
-
- Use suitable and adequately sized load lifting equipment. Note here the machine dimensions and weight, see the shipping documents.
-
- Set the forklift to the widest setting.
-
- Position the lifting unit along the longer side of the machine.
 - While doing so establish the machine's centre of gravity. It can lie outside the centre point of the machine.
-
- Secure the machine on the lifting unit against tilting and falling over by using technically risk free means for secure transport..



Danger of injury!

Incorrect transport can cause the machine to fall or tip over. Standing in the danger zone can lead to serious injuries or even death.

- Do NOT stand under suspended loads.
- Lift the machine only at the designated points.
- Bear in mind the machine weight.

NOTICE Danger of equipment damage!

Incorrect transport can damage the machine. Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Transport the machine centred on the forks.

NOTICE Danger of equipment damage!

At an inclination of more than 15°, the oil in the vacuum pump shifts.

The air de-oiling elements will get wet from the oil and become ineffective. This will damage the vacuum pump.

- Transport and set the machine down as horizontally as possible.
- Do NOT tilt the machine.

-
- Lift the machine and transport it.

9.2.2 Preparing the machine for onward transport (i.e by truck)

-
- Wear personal protective equipment.

-
- Close and disconnect the supply lines.
-
- Use suitable and adequately sized load lifting equipment. Note here the machine dimensions and weight, see the shipping documents.
-
- Set the forklift to the widest setting.
-
- Position the lifting unit along the longer side of the machine.
 - While doing so establish the machine's centre of gravity. It can lie outside the centre point of the machine.
-
- Secure the machine on the lifting unit against tilting and falling over by using technically risk free means for secure transport..



Danger of injury!

Incorrect transport can cause the machine to fall or tip over. Standing in the danger zone can lead to serious injuries or even death.

- Do NOT stand under suspended loads.
- Lift the machine only at the designated points.
- Bear in mind the machine weight.

NOTICE Danger of equipment damage!

Incorrect transport can damage the machine. Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Transport the machine centred on the forks.

NOTICE Danger of equipment damage!

At an inclination of more than 15°, the oil in the vacuum pump shifts.

The air de-oiling elements will get wet from the oil and become ineffective. This will damage the vacuum pump.

- Transport and set the machine down as horizontally as possible.
- Do NOT tilt the machine.

-
- Lift up the machine.
-
- Position the machine on the wooden base
-
- Fasten the machine adequately to the wooden base
-
- Wrap or cover the machine with appropriate packaging material.
-
- Position the load lifting equipment under the wooden base.

- While doing so establish the machine's centre of gravity. It can lie outside the centre point of the machine.

- Secure the machine on the lifting unit against tilting and falling over by using technically risk free means for secure transport..



Danger of injury!

Incorrect transport can cause the machine to fall or tip over. Standing in the danger zone can lead to serious injuries or even death.

- Do NOT stand under suspended loads.
- Lift the machine only at the designated points.
- Bear in mind the machine weight.

NOTICE Danger of equipment damage!

Incorrect transport can damage the machine. Damage can cause the machine to malfunction, which in turn can result in reject packs.

- Transport the machine centred on the forks.

NOTICE Danger of equipment damage!

At an inclination of more than 15°, the oil in the vacuum pump shifts.

The air de-oiling elements will get wet from the oil and become ineffective. This will damage the vacuum pump.

- Transport and set the machine down as horizontally as possible.
- Do NOT tilt the machine.

- Lift the machine and position on the transportation to be used for the onward transport

9.3 Storing the machine

- Shutting down the machine.
- Select a suitable storage site.
 - Observe the ambient conditions for storing the machine, see "Technical specifications".
 - Ensure that the location site is of adequate load-bearing capacity and keep the weight of the unit in mind, see "Technical specifications".
- If necessary, cover the machine with film.

10 Disposal

10.1 Disposing of the machine



Info

- Sealing bars can be reused on other machines of the same series.
- If disposal of the machine is not handled by the manufacturer, dispose of the machine as described below.

-
- Disconnect the machine from the mains electricity, see Section 9.1.2 "CLOSING AND DISCONNECTING SUPPLY LINES".
-
- Dispose of the materials properly, observing all legal and company-internal regulations regarding environmental protection.
-

10.2 Dispose of operating materials

10.2.1 Disposing of oil and grease

NOTICE **Protect the environment!**

Operating materials and fluids are hazardous to the environment. Improper disposal is harmful to the environment.

- Handle operating materials and fluids properly.
- Dispose of operating materials and fluids at suitable collection points.
- Observe the environmental directives.

-
- Handle and dispose of lubricants and operating materials properly.
-



Info

Excerpt from the disposal directive:

- It is prohibited to mix used oil with other waste.
- Used oils may NOT be mixed with each other.
- Used oil filters should be collected, stored, transported and disposed of separately from other waste.

10.2.2 Disposing of film

NOTICE **Protect the environment!**

Operating materials and fluids are hazardous to the environment. Improper disposal is harmful to the environment.

- Handle operating materials and fluids properly.
- Dispose of operating materials and fluids at suitable collection points.
- Observe the environmental directives.

-
- Handle and dispose of films properly.
-



Info

Films are resources which can be recycled:

- Improper disposal damages our environment.
- Recycle films and film trim.
- Observe the disposal instructions of the film manufacturer.

10.2.3 Dispose of chemicals



WARNING

Chemical burn hazard!

Acidic cleansers are caustic. Caustic effects are NOT noticed immediately.

Contact with the skin can cause burns.

- Wear the prescribed personal protective gear when handling cleansers.
- Observe the manufacturer's instructions.



WARNING

Fire hazard!

Alcohol-based disinfectants are highly flammable.

Fire, naked light or smoking ignites the disinfectant and can thus cause fires.

- When disinfecting the machine, flames or naked lights are prohibited.
- Smoking is prohibited.
- Observe the instructions of the disinfectant manufacturer.

-
- Handle and dispose of cleansers and disinfectants properly.
-



Info

Improper disposal damages the environment:

- Observe the safety data sheets of the cleanser and disinfectant manufacturers.
- Follow the disposal instructions of the cleanser and disinfectant manufacturers.
- Observe regionally applicable disposal regulations.

11 Spare parts

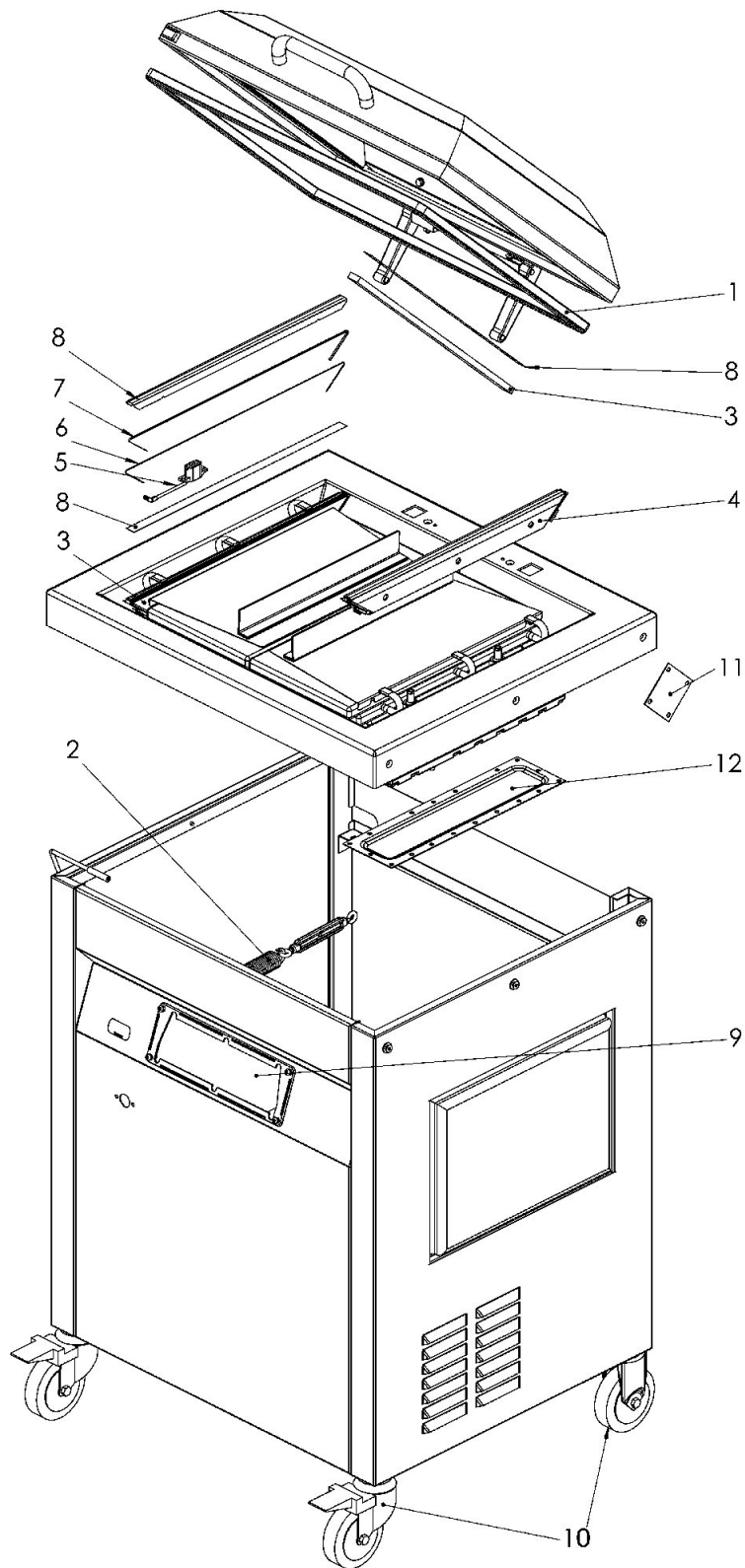


Fig. 37: Spare parts drawing

Item	Material number	Designation	Quantity and unit of measurement
1	81863140000	Profile thread (Chamber lid gasket)	2 m
2	19784252000	Tension spring (d=20 mm)	1 pc.
2	19784322700	Tension spring (d=27 mm)	1 pc.
3	81863151040	Profile thread 9 mm x 20 mm for counter-pressure bar	Specify length
3	81863150620	Profile thread 2 mm x 20 mm for sealing bar	Specify length
4	105069966	Sealing bar in lid for 1 seal seam	2 pc.
4	105085928	Sealing bar in lid for 2 seal seams	2 pc.
4	11131213712	Sealing bar in bottom section for 1 seal seam	2 pc.
4	11131213704	Sealing bar in bottom section for 2 seal seams	2 pc.
4	11131213701	Sealing bar in bottom section for 2 seal seams and separation	2 pc.
4	11131213700	Sealing bar in bottom section for 2 seal seams	2 pc.
5	85123126100	Contact bushing	8 pc.
6	11131198600	Sealing strip 3 mm flat	Specify length
6	11131198110	Heating tape 3 mm concave	Specify length
6	85662810102	Heating tape 6 mm flat for teflon tape 81848121006	Specify length
6	85662801115	Vacromium tape 6 mm flat for teflon tape 91661211024	Specify length
7	85662802090	Round wire for separating	Specify length
8	91661211024	Teflon tape 0.13 mm x 40 mm continuous adhesive surface	Specify length

Item	Material number	Designation	Quantity and unit of measurement
8	81848121006	Teflon tape 0.13 mm x 40 mm divided adhesive surface	Specify length
8	81848121005	Teflon tape 0.13 mm x 49 mm	Specify length
8	81848121001	Teflon tape 0.25 mm x 16 mm	Specify length
9	105326625	Control	1 pc.
10	81948111102	Fixed castor	2 pc.
10	81948111002	Swivel castor with lock	2 pc.
11	11181798040	Diaphragm	1 pc.
12	11181798080	Diaphragm	1 pc.

Glossary

Automatic	<p>[Parameter of the control unit] If the function <i>Automatic</i> is set, the machine will reach the optimum evacuation time and pressure depending on the product. The automatic evacuation is suitable for the following cases:</p> <ul style="list-style-type: none">• Achieving the best possible vacuum for long shelf life.• Packing of products for which the optimum evacuation pressure is not known.• Packing of the same product but one which has varying properties (e.g. varying moisture content, varying temperature). <p>If the evacuation is automatic the value for <i>Automatic sensitivity</i> can be adapted to the product.</p>
Automatic sensitivity	<p>[Parameter of the control unit] Determines the evacuation time and the evacuation pressure reached, when evacuating with the <i>Automatic</i> function. The sensitivity is adjustable from 1 to 10. The lower the sensitivity, the lower the evacuation pressure reached. High value for <i>Automatic sensitivity</i> (value 10):</p> <ul style="list-style-type: none">• Is suitable for very moist or fluid products.• Evacuation process ends early.• Evacuation pressure reached in the pack is high. <p>Low value for <i>Automatic sensitivity</i> (value 1):</p> <ul style="list-style-type: none">• Is suitable for dry products.• Evacuation process ends late.• Evacuation pressure reached in the pack is low.
Configuration code	<p>The configuration code determines the machine characteristics and functions. It can be shown in the display. The configuration code is preset at the factory, modifications can only be made by the MULTIVAC service department.</p>
Cooling down Sealing	<p>[Parameter of the control unit] Value for the cooling down time of the seal seam. The vacuum in the chamber and the sealing pressure are maintained for this length of time. The seal seam can harden. The sealing is switched off during this time.</p>
Counter-pressure bar	<p>The counter-pressure bar is part of the sealing. During the sealing procedure, the sealing bar is pressed against the counter-pressure bar. Depending on the machine equipment, there may be a sealing bar instead of the counter-pressure bar.</p>
Cycle end	<p>[Optional] [Parameter of the control unit] Defines if evacuation or gas flushing takes place before sealing in the MRP process.</p>

Cycle time [Parameter of the control unit]
The display contains the times of the individual procedures of the last packaging procedure.

Delayed ventilation - Sealing [Parameter of the control unit]
The ventilation of the chamber begins with a delay after sealing.

Diagonal insert

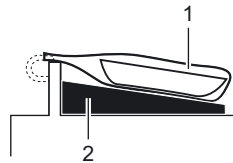


Fig. 45: Diagonal insert

- 1 Pack
- 2 Diagonal insert

The diagonal insert is used for the optimal positioning of liquid products. As a result of this the product does not spill out of the film pouch.

Distribution time - evacuation [Parameter of the control unit]
Switching interval between the completed evacuation process and the beginning of the gas flushing process. During the distribution time remaining air pockets in the products can escape before the package is sealed.

Distribution time - Gas flushing [Optional] [Parameter of the control unit]
Switching interval after the gas flushing process, during which the gas can distribute itself in the the film pouch.

Double-seam sealing [Optional]
The double-seam sealing function produces two seal seams.

Double-seam separation sealing
The double-seam separation sealing function produces two seal seams. The integrated separating wire severs the pouch trim.

Evacuation
Evacuation is the physical term for creating a vacuum by removing the air from a space. This reduces the oxygen content, thereby extending product shelf-life.

Evacuation pressure [Parameter of the control unit]
Is the pressure to which the film pouch and the chamber are evacuated. The pressure is measured in the chamber.

Factory settings
Factory settings are preset values (default values). The factory settings are stored in recipe 30.

Fill diaphragm [Parameter of the control unit]
During this time sealing pressure is applied to the sealing diaphragm.

Gas flushing	<p>[Optional] The film pouches are filled with inert gas. Gas flushing with inert gas has the following advantages:</p> <ul style="list-style-type: none">• It extends the shelf life of the product.• It reduces oxygen content.• It avoids putting pressure on the product.
Gas flushing pressure	<p>[Optional] [Parameter of the control unit] Indicates the pressure up to which the film pouch is back filled with inert gas. Pressure is measured in the chamber.</p>
Gas flushing time	<p>[Optional] [Parameter of the control unit] Indicates the amount of time for which the film pouch will be filled with inert gas. The pressure can not be influenced by this.</p>
Hours of operation	<p>[Parameter of the control unit] Shows the time the machine has been operating. The counter begins to count as soon as the machine is switched on and can not be reset.</p>
Instructed person	<p>An instructed person is someone who has been instructed and trained in regard to the potential hazards of his or her assigned tasks, as well as in regard to the necessary safety devices, protective measures, relevant stipulations, accident prevention regulations and operating conditions, and whose competence has been demonstrated.</p>

Machine cycles

[Parameter of the control unit]

Counts the number of complete machine cycles. The counter can be modified and reset. It is used to control the quantities produced.

MCV

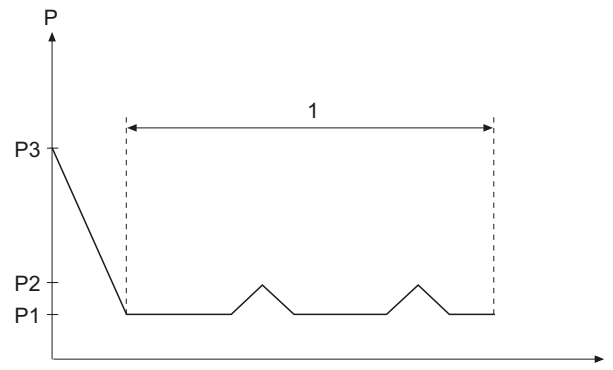


Fig. 40: Example diagram of MCV

1 Duration of the held vacuum (MCV Duration)

P1 Evacuation pressure

P2 Tolerance range for the evacuation pressure (MCV threshold)

P3 Ambient pressure

During the MCV (MULTIVAC Continuous Vacuum) process, a product or a pack is exposed to a vacuum for up to 20 days. The chamber is evacuated to the set pressure, which is then maintained for the set time. If the pressure exceeds an adjustable threshold, post-evacuation takes place automatically.

MCV duration

[Parameter of the control unit]

This time determines the duration of the MCV process.

MCV threshold

[Parameter of the control unit]

If the pressure value set here is exceeded during the MCV process, further evacuation automatically takes place.

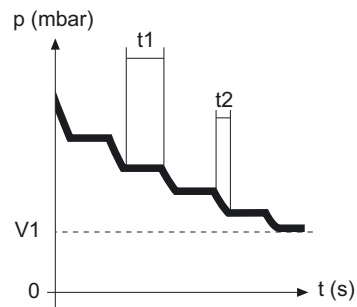
MHP

Fig. 41: Example diagram of MHP

t1 Evacuation pause**t2** Evacuation time**V1** Evacuation pressure

During the MHP process, evacuation takes place in several steps. The air is suctioned out for a set time (evacuation time); a set pause in suctioning (evacuation pause) follows. Afterwards, the air is further evacuated. The steps are repeated.

MHP evacuation pause [Parameter of the control unit]
Defines the duration of the intervals between two evacuation pulses during the MHP process.

MHP evacuation time [Parameter of the control unit]
Defines the duration of the evacuation pulses during the MHP process.

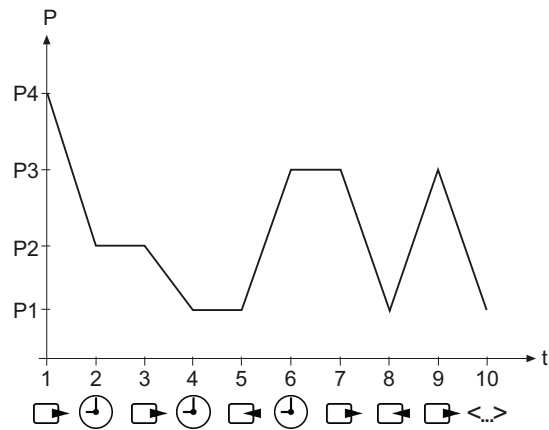
MPP


Fig. 42: Example diagram of MPP

1- Steps 1 to 10

10

P1 Evacuation pressure in steps 3, 7 and 9

P2 Evacuation pressure in step 1

P3 Gas flushing pressure in steps 5 and 8

P4 Ambient pressure

During the MPP (MULTIVAC Programmed Processing) process the progression of the evacuation curve and gas flushing curve can be freely selected. The entire procedure can be comprised of up to 30 steps, with each step assigned a function and a value.

MRP

[Optional]

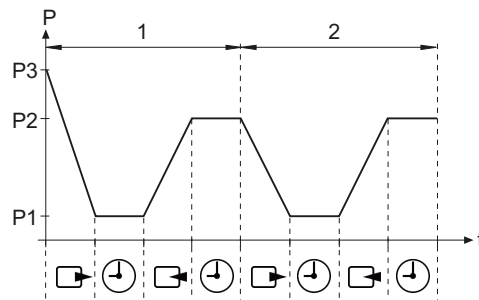


Fig. 43: Example diagram of MRP (cycle end: gas flushing)

- 1 Cycle 1
- 2 Cycle 2
- P1 Evacuation pressure
- P2 Gas flushing pressure
- P3 Ambient pressure

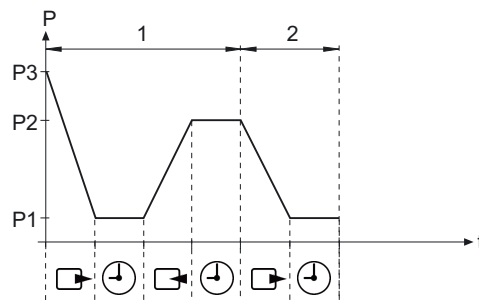


Fig. 44: Example diagram of MRP (cycle end: evacuation)

- 1 Cycle 1
- 2 Cycle 2
- P1 Evacuation pressure
- P2 Gas flushing pressure
- P3 Ambient pressure

During the MRP (MULTIVAC Repeated Processing) process, evacuation and gas flushing takes place alternately over several cycles. The machine evacuates and flushes gas to the set pressures and repeats the procedure according to the settings.

Number of cycles

[Optional] [Parameter of the control unit]

Defines how many cycles are to be completed in the MRP process. A cycle is comprised of evacuation and gas flushing. The residual oxygen content is reduced by the repeated evacuation and gas flushing.

Post-evacuation time	[Parameter of the control unit] This time extends the evacuation process. Through this, the reached evacuation pressure is lower than the set value. This time begins, when the set pressure is reached. Suitable for damp products.
Purging time, gas flushing	[Optional] [Parameter of the control unit] During this time the vacuum valve and gas valve are opened simultaneously. On one side of the chamber a vacuum is created, on the other side gas is supplied. The film pouch is thoroughly flushed with gas. This reduces the residual oxygen content.
Recipe	A recipe contains the machine settings adapted for a product. The settings for a specific product can then be loaded quickly.
Sealing	The sealing procedure closes the evacuated film pouch to form a pack. In sealing, the pouch neck is pressed together and the sealing bar is heated. At the heated point the pouch neck melts to form a seal seam. The following sealing procedures are available: <ul style="list-style-type: none"> • Double-seam sealing (option) • Double-seam sealing at top and bottom (option) • Double-seam separation sealing
Sealing time	[Parameter of the control unit] During this time the film pouch is sealed. The sealing time depends on the material and the thickness of the film pouch.
Sealing time max	[Parameter of the control unit] This time determines the maximum value for the sealing time.
Settings - Production Data	[Parameter of the control unit] Shows all currently set target values.

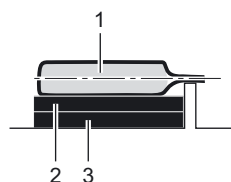
Spacer plate


Fig. 39: Filling plates

- 1 Pack
- 2 Spacer plate
- 3 Spacer plate

The product positioning height can be manually set to the height of the sealing bar by means of the spacer plates. The product is correctly positioned when the pouch neck lies half way up the pouch height. Additionally, the chamber volume is reduced and the chamber is evacuated more quickly.

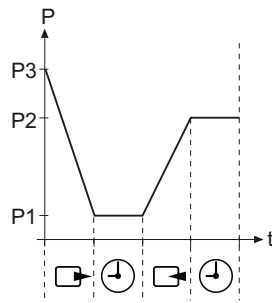
standard

Fig. 46: Example diagram of standard process

P1 Evacuation pressure**P2** Gas flushing pressure**P3** Ambient pressure

During the standard process, air is suctioned out until the set pressure is reached. Afterwards, gas is flushed at the set pressure (option).

Technician

A technician is defined as someone who, based on his/her technical training, knowledge and experience with the product and familiarity with relevant applicable norms, can evaluate the tasks delegated to him/her and recognise and avert dangers.

total cycles

[Parameter of the control unit]
Shows the completed machine cycles.

**Vacuum pump -
Production data**

[Parameter of the control unit]
Counts the vacuum pump's hours of operation. Counting starts as soon as the vacuum pump is turned on. The display cannot be changed.

**Vacuum pump
running-on time**

[Parameter of the control unit]
After sealing the film pouch, the vacuum pump switches off in a time-delayed manner by the amount of the running-on time. The running-on time bridges the temporary stopping of the vacuum pump. This prevents the vacuum pump from overheating due to continual switching on and off.

Vacuum test

[Parameter of the control unit]
Automatic leakage test of the vacuum system and the sealing diaphragm.

Ventilate diaphragm

[Parameter of the control unit]
During this time the sealing diaphragm is evacuated. The sealing is without sealing pressure.

Ventilation

During ventilation the pressure in the chamber adapts to the ambient pressure. As a result of this, the film pouch shrinks tightly to the product. After the chamber has been ventilated the lid opens automatically, if it is not locked. .

Ventilation pulse pressure

[Parameter of the control unit]

During the closing of the sealing unit, the chamber is ventilated until this pressure value is reached. As a result, the film pouch settles better on the product.

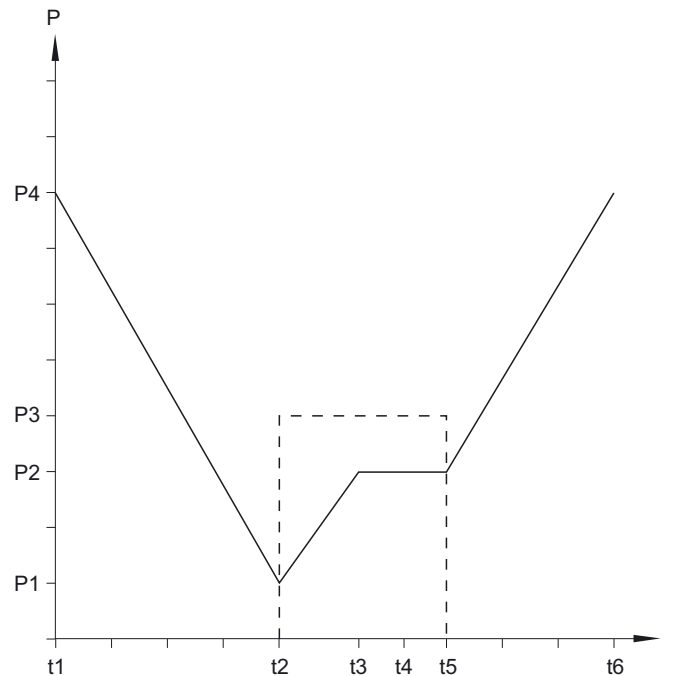


Fig. 38: Sequence diagram packaging procedure with ventilation pulse

- t1** Start evacuation procedure
- t2** The evacuation pressure is reached, the sealing unit closes, start ventilation pulse
- t3** Pressure value for ventilation pulse is reached
- t4** The film pouch is sealed
- t5** The sealing unit open, the chamber is ventilated until the ambient pressure is reached
- p1** Evacuation pressure
- p2** Pressure value for ventilation pulse
- p3** Sealing pressure
- p4** Ambient pressure

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MULTIVAC branch offices

GERMANY

MULTIVAC Sepp Haggenmüller GmbH & Co. KG
 Tel.: +49 8334 601 0
 +49 8334 601 199
 muwo@multivac.de
 www.multivac.com

SWITZERLAND

MULTIVAC EXPORT AG
 Tel.: 041 / 785 65 65
 041 / 785 65 10
 meag@multivac.ch
 www.multivac.com

USA

MULTIVAC INC.
 Tel.: +800 877 5200
 Tel.: +1 816 891 0555
 +800 347 6164
 +1 816 891 0622
 muinc@multivac.com
 www.multivac.com

AUSTRALIA

MULTIVAC AUSTRALIA
 PTY. LTD.
 Tel.: +61 3 9339 8000
 +61 3 9339 8010
 australia@multivac.com
 www.multivac.com

AUSTRIA

MULTIVAC Vertriebsgesellschaft
 mbH
 Tel.: +43 1 698 1300
 +43 1 698 1300 99
 info@multivac.at
 www.multivac.com

BELGIUM

Multivac N.V./S.A.
 Tel.: 00 32 / 15 / 56 95 00
 00 32 / 15 / 56 95 01
 mub@multivac.be
 www.multivac.com

CHILE

MULTIVAC CHILE S.A.
 Tel.: 4/6005546
 Tel.: 4/6005547
 4/60055449
 mucl@multivac.com
 www.multivac.com

CROATIA

MULTIVAC d.o.o.
 Tel.: 00385 / 1 / 4855 205
 00385 / 1 / 4855 204
 multivac@zg.t-com.hr
 www.multivac.com

DENMARK

MULTIVAC A/S
 Tel.: 0045 / 75 / 85 34 22
 0045 / 75 / 85 34 54
 mudk@multivac.dk
 www.multivac.com

FRANCE

MULTIVAC FRANCE SARL
 Tel.: 0033 / 1 / 641 213 14
 0033 / 1 / 641 275 30
 Infomuf@multivac.fr
 www.multivac.com

GREAT BRITAIN

MULTIVAC UK Ltd.
 Tel.: 0044 / 1793 42 58 00
 0044 / 1793 61 62 19
 sales@multivac.co.uk
 www.multivac.com

ITALY

MULTIVAC Italia Service
 S.R.L.
 Tel.: 02/4503208
 02/45863819
 muit@it.multivac.com
 www.multivac.com

JAPAN

MULTIVAC JAPAN
 Tel.: +81/3/366 34 006
 +81/3/366 24 941
 tfm@tokyofoods.co.jp
 www.multivac.com

MEXICO

MULTIVAC Mexico S.A. de C.V.
 Tel.: (0052) 55-5020-5555
 (0052) 55-5020-5560
 contacto@multivac.com
 www.multivac.com

NETHERLANDS

MULTIVAC B.V.
Tel.: 348/436570
348/436580
munl@multivac.nl
www.multivac.com

NORWAY

MULTIVAC AS
Tel.: 33445250
33445251
mun@multivac.no
www.multivac.com

POLAND

MULTIVAC Sp. z o. o.
Tel.: 81/7466700
81/7466701
mupl@multivac.pl
www.multivac.com

PORTUGAL

Multi Vacuo Sistemas de
Embalagens Lda.
Tel.: 214195541
Tel.: 937774355
214195543
geral@pt.multivac.com
www.multivac.com

SOUTH AFRICA

MULTIVAC Southern Africa
(Pty.) Ltd
Tel.: 16-341-5911
Tel.: 16-341-5912
16-341-5918
muza@za.multivac.com
www.multivac.com

SWEDEN

MULTIVAC AB
Tel.: 46/311700
46/150300
mus@multivac.se
www.multivac.com

FINLAND

MULTIVAC Oy
Tel.: 207921-300
207921-371
multivac@fi.multivac.com
www.multivac.com

SINGAPORE

MULTIVAC Pte. Ltd.
Tel.: 65629129
65629131
dan.huaqi@sg.multivac.com
www.multivac.com

CZECH REPUBLIC

MULTIVAC Packing Machines,
Ceska Republika S.R.O.
Tel.: +42 02 61 26 05 16
+42 02 61 26 05 18
mucz@cz.multivac.com
www.multivac.com

NEW ZEALAND

MULTIVAC New Zealand
Ltd.
Tel.: 92383055
Tel.: 21460807
92383054
info@multivac.co.nz
www.multivac.com

CANADA

MULTIVAC Canada INC.
Tel.: 905-264-1170
905-264-0227
canada@multivac.com
www.multivac.com

UNITED ARAB EMIRATES

MULTIVAC Middle East FZE
Tel.: +971 4 299 1980
+971 4 299 1981
muae@ae.multivac.com
www.multivac.com

ARGENTINA

MULTIVAC Argentina S.A.
Tel.: 11/47196173
11/47196174
info@ar.multivac.com
www.multivac.com

CHINA

MULTIVAC Packaging
Equipment Ltd.
Building 7, Lane 195,
Qianpu Road (Shanghai)
Tel.: 86-21-37018118
86-21-37660051
info@cn.multivac.com
www.multivac.cn

COLUMBIA

MULTIVAC Colombia
Tel.: 4118790
4119283
info@co.multivac.com
www.multivac.com

ESTONIA

MULTIVAC Estonia
Tel.: 6800-880
Tel.: 6800-873
6800-875
multivac@ee.multivac.com
www.multivac.com

HUNGARY

MULTIVAC Hungária Kft.
Tel.: 23-500-287
23-500-288
info@hu.multivac.com
www.multivac.com

IRELAND

MULTIVAC Ireland Ltd.
Tel.: 00 353 1 6436810
00 353 1 6300826
suzanne.mccullagh@ie.multivac.com
www.multivac.com

LITHUANIA

MULTIVAC Oy Lithuania
Branch
Tel.: 5/2105036
5/2336413
info@multivac.lt
www.multivac.com

LATVIA

MULTIVAC Oy Latvia
Branch
Tel.: 7892-335
Tel.: 7892-336
7892-332
multivac@lv.multivac.com
www.multivac.com

SERBIA

MULTIVAC d.o.o.
Tel.: 21/4721144
21/4721146
multivac@eunet.yu
www.multivac.com

SLOVAKIA

MULTIVAC Export AG
Organizačná zložka
Slovakia
Tel.: 244464070
244464072
info@sk.multivac.com
www.multivac.com

TURKEY

MULTIVAC Ambalaj
Makineleri Sanayive Ticaret
A.S.
Tel.: 5332520444
Tel.: 216526-0033
216526-0383
info@tr.multivac.com
www.multivac.com

SPAIN

MULTIVAC Packaging Systems
España, S.L.
E - 08396 Sant Cebrià de Vallalta
(Barcelona)
Tel.: 902290909
937632517
info@es.multivac.com
www.multivac.com

SPAIN

MULTIVAC Packaging
Systems
E - 28320 Pinto (Madrid)
Tel.: 91 670 69 91
Tel.: 676 321 811
91 670 69 12
mues@es.multivac.com
www.multivac.com