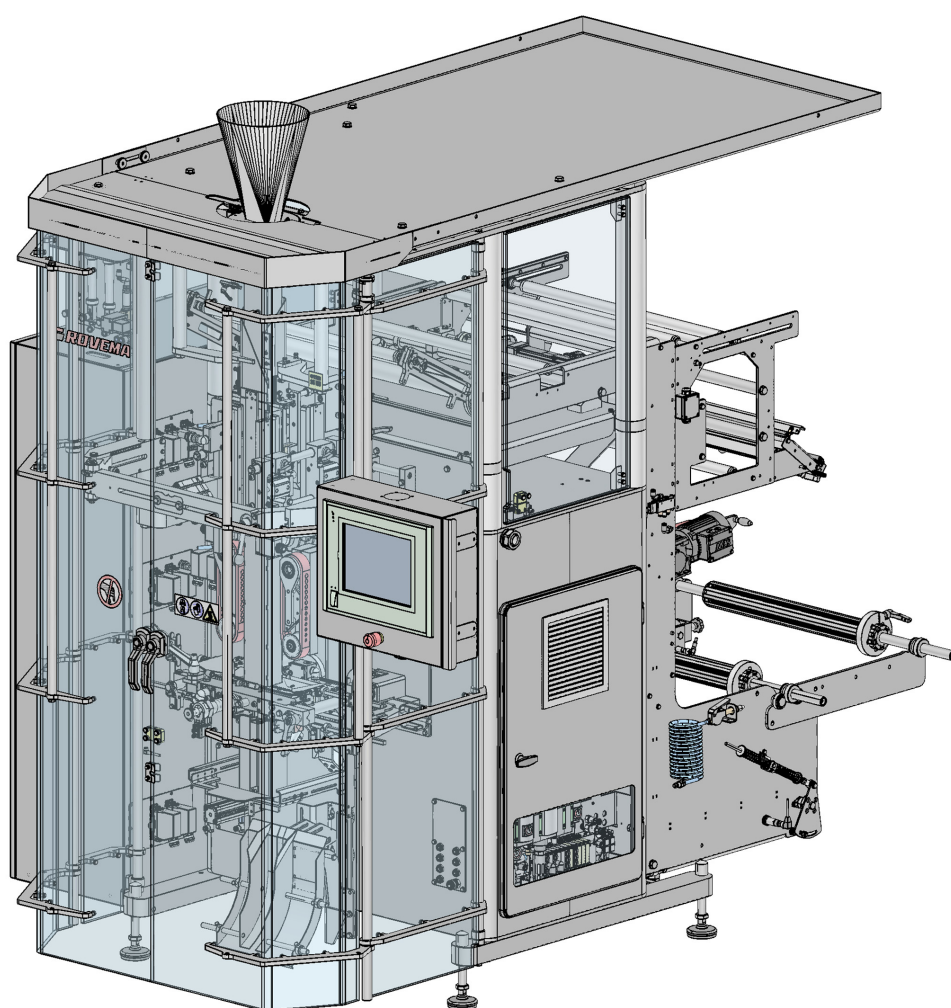


Form fill and seal machine BVI 260

Translation of the original operating manual



ROVEMA

Keep for future reference

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Rovema GmbH
Industriestraße 1
35463 Fernwald, Germany
Phone: +49 641 409 0
Fax: +49 641 409 212
www.rovema.de
email: info@rovema.de
email: service@rovema.de
email: spareparts@rovema.de

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With the help of this manual, the operator should be able to

- use the machine as intended
- recognize hazards independently
- quickly repair malfunctions
- achieve optimal production results
- maintain the machine's operational readiness

This introduction provides an overview of the machine functions.

It contains

- Machine views
- Safety regulations and instructions
- Information concerning protective devices
- A list of the most important technical data
- A brief functional description of the machine

and informs you about everything you must do before you can place the machine in operation.



WARNING!

Danger of injury!

In this machine there are various dangers, e.g. danger of crushing at different stations or danger of electric shock!

- Each person who is assigned to operate the machine must have read and understood the operating manual, particularly the safety instructions and guidelines, before starting up the machine.

Rovema packaging machines are special machines that are customized in equipment and function to the special requirements of the owner.

For each machine, a special operating manual is put together based on a standard machine; this manual is then valid only for the one machine (or a series of similar machines).

If your machine is not equipped with all available units, their descriptions also do not appear in the operating manual.

The user (every person assigned to operate this machine) must have read and understood the operation manual, particularly the safety instructions and rules, before starting the machine.

A copy of this operating manual should always be near the machine so that the operator can look at it at any time.

This operating manual only relates to the Rovema packaging machine itself. Other components of a system will only be discussed to the extent this is necessary for operation of the machine. These components have their own documentation available.

This operating manual belongs to the following machine:

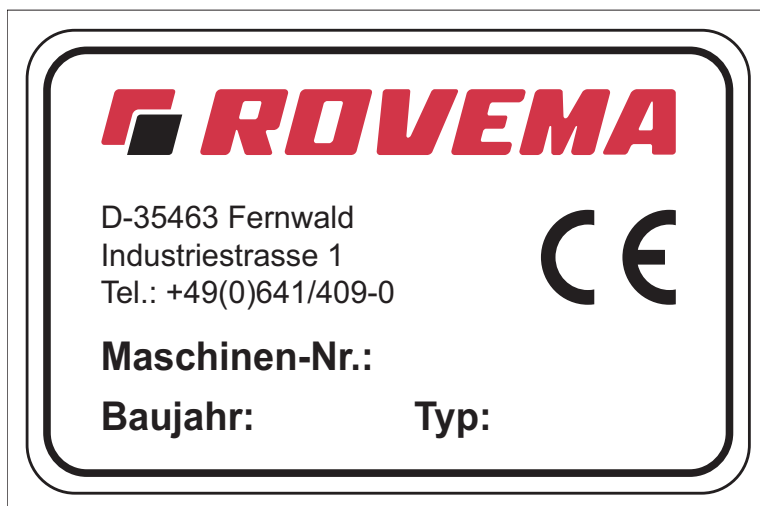


Fig. 1-1 Rating plate (sample)

Machine number

The information in this operating manual only applies to the machines whose machine number is indicated in the footer of the manual.

Rating plate

The rating plate with this machine number is attached to the machine housing. Please enter your machine's data in the depiction of the rating plate.

For all queries, it is important to have correct information about:

- Machine type
- Machine number

Only in this way does smooth, rapid processing become possible.

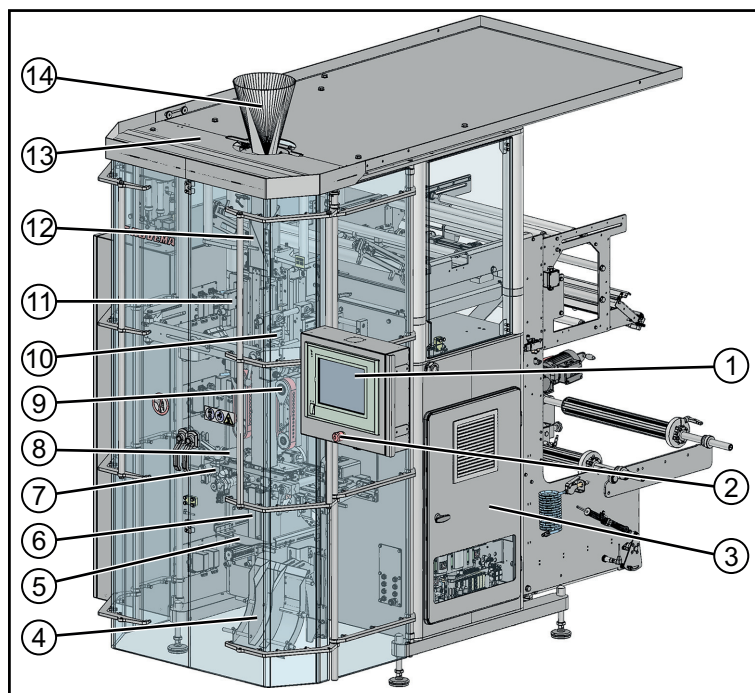
Retention

The operating manual is part of the product. Always keep a copy of this operating manual near the machine. It must be ensured that all persons who must perform work on the machine are able to view the operating manual at any time.

As a supplement to the operating manual, the operating instructions in accordance with the Work Safety Act and the work resource usage regulations should also be provided.

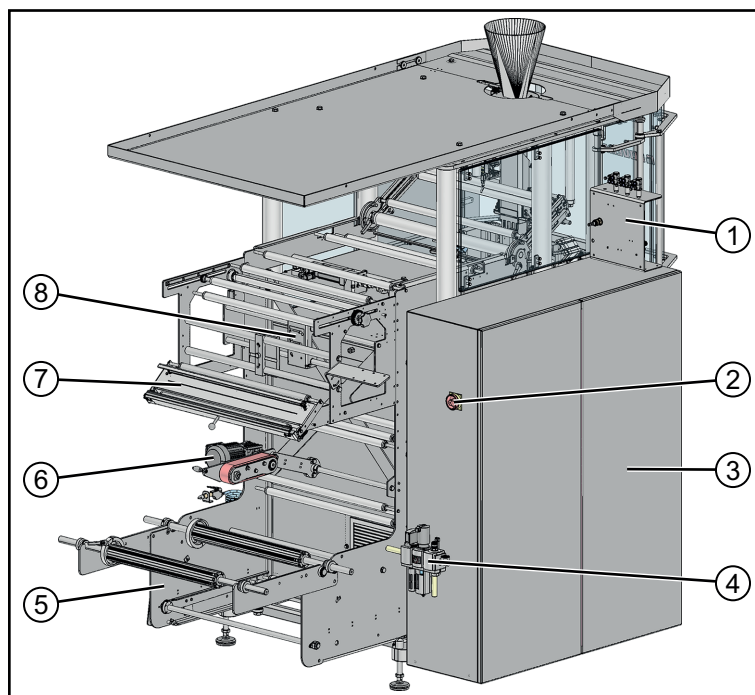
This manual	is subdivided into subsections, which should make it easy for you to follow.
The table of contents	helps you use this manual effectively. All section headings - and thus the most important terms - are recorded here.
The individual function descriptions	in part 2 are organized by machine work sequence. They also permit finding information rapidly. It may often be necessary to look things up in one or more subsections to get all the needed information.
If there are faults	the control unit display shows an error message and so lets you eliminate the malfunction. Part 5 offers help and/or refers to other parts and sections.
Symbols	in this manual should let you recognize at a glance what the respective text offers.

Front of the machine

*Fig. 1-2 Front of the machine*

- 1 Control panel / touchscreen display
- 2 EMERGENCY STOP button
- 3 Machine housing
- 4 Bag chute (optional)
- 5 Bottom seal slider (option)
- 6 Vibration and transfer shaft (optional)
- 7 Cross sealing station
- 8 Gusseting device (optional)
- 9 Draw-down device
- 10 Edge profile (option)
- 11 Vertical sealing jaw
- 12 Format set
- 13 Product catch tank (optional)
- 14 Transfer funnel (option)

Back of the machine

*Fig. 1-3 Back of the machine*

- 1 Gassing system (optional)
- 2 Main switch
- 3 Control cabinet
- 4 Maintenance unit
- 5 Packaging material carriage
- 6 Packaging material unwinding on packaging material roll (option)
- 7 Cut and splice device (option)
- 8 Printer (optional)

The special design of the packaging machine may make it necessary to go inside the machine to perform cleaning, maintenance and adjustment work.

Although the machine housing is equipped with safety switches, before entering the machine you must:

- **SWITCH OFF THE MACHINE**
- **SECURE THE MACHINE TO PREVENT IT FROM BEING SWITCHED BACK ON UNINTENTIONALLY!**



DANGER!

Danger of injury!

NEVER perform cleaning, maintenance and adjustment work on the SWITCHED-ON machine when a person is inside the machine!

- ▶ Failure to follow this instruction can cause severe bodily injury if the machine is started, thus triggering dangerous movements, while someone is within the danger area of these movements inside the machine housing!



DANGER!

Danger of injury!

NEVER perform a test run of the machine when someone is inside!

- ▶ Failure to follow this instruction can cause severe bodily injury if the machine is started, thus triggering dangerous movements, while someone is within the danger area of these movements inside the machine housing!

Safety devices

All technical devices - especially safety devices, must be checked

- before initial start-up
- after changes and
- after repair tasks

by trained or appropriately instructed specialists.

The machine or system may only be operated if all safety devices (protective hoods, protective doors, interlocks, couplings, etc.) are working.

Safety devices must not be bypassed or made ineffective.

Repair and maintenance tasks on safety devices and on the electrical system must only be performed by trained specialists.

Immediately replace defective technical equipment, especially safety devices (or have such equipment replaced).

The user must check the functionality of the protective devices daily before the start of production.

The owner must make sure that a higher-level technician, such as a safety representative, performs a check of all protective equipment at regular intervals, but at least once a year!

Requirements for the operating personnel

Only properly trained personnel may operate the machine.

The owner is required to provide operating manuals to all users and inform them of possible hazards from the machine. In principle, a copy of the operating manual should always be kept at the machine for this reason.

The user (every person assigned to operate this machine) must have read and understood the operation manual, particularly the safety instructions and rules, before starting the machine.

The owner should confirm this in each case with a signature.

The operator must become familiar with the safety symbols and information attached to the machine and understand their significance. The symbols used and their meaning are described in section [1.5.1 - Warning signs and information signs on the machine, Page 26](#).

Operating personnel must be informed about possible new dangers or operating modes after every change to the machine - such as changes in function or expansions of function.

Operating personnel must be instructed precisely about who can perform which tasks by the owner.

Personnel with suitable training (mechatronics specialists) must be used for mechanical repair and maintenance tasks.

Work in the control cabinet and on the electrical system must be performed by suitably trained personnel (electricians) using special safety precautions.

Personal protective equipment

The owner must provide operating personnel with the personal protective equipment necessary for danger-free operation of the machine.

Without this equipment, the operator must not perform tasks on areas of the machine that may be potential sources of hazard.

Such danger points are marked in the manual with a special notice. The protective equipment is described.

If special personal protective equipment is needed for packaging materials that are hazardous to health, the corresponding regulations of the company and of the country in which this machine is used must be followed. The owner of the machine is responsible for compliance with these regulations.



NOTE!

Before starting work, ensure that the prescribed protective equipment is available at the workplace and is in perfect condition.

Wear personal protective equipment, if prescribed.

Sound pressure level

Noise can arise depending on product, number of cycles and conditions in the set-up room. See the technical data for the sound pressure level of your machine (see section [1.6 - Technical data, Page 32](#)).

Before switching the machine on

Before switching on the machine, the operator must be sure that no other persons are in the danger area of the machine.

The user must check the functionality of the protective devices daily before the start of production.

If there is danger

... activate an **EMERGENCY STOP** button immediately!

The function of all **EMERGENCY STOP** buttons must be checked daily before the start of production! (See also section [2.1.4 - EMERGENCY STOP button, Page 53](#)).

Electrical equipment and electronic equipment

Electrical devices and electronics are important components of the machine's safety equipment.

Changes to and tampering with the electrical system and the electronic control are not permitted, since they can compromise safety. Only have ROVEMA execute retrofitting and changes!

Spare parts

Use only original ROVEMA spare parts and accessories.

ROVEMA assumes no liability for damage arising from the use of other companies' products that have not been approved by ROVEMA.

Maintenance

Begin cleaning, maintenance and repair tasks only when the power switch has been switched off and secured against being switched on again.

Use only cleaning agents and/or disinfectants for which the possibility of damage to the mechanical and electrical machine equipment can be excluded (for information on cleaning agents and cleaning tasks, refer to the section [4.2 - Cleaning, Page 273](#)).

Use of chemical solvents

Chemical solvents should only be used when conditions so require. But before use, you must ensure that they will not pose hazards for you or the machine.



DANGER!

Danger of fire through ignition!

- When working with solvents, ensure good ventilation, wear required protective equipment and avoid open fire! Comply with the safety instructions provided by the solvent supplier in the data sheet!

Machines in the food processing industry

Machines used to package food may need to be treated with special cleaning or disinfection agents in compliance with the particular hygiene requirements of the country in which the machine is operated.

You can obtain additional information in this regard from your country's responsible government agencies.

Health impairments due to improper adjustment

Health-impairing dangers can result from improper adjustment of the machine.

This includes, in particular, incorrect temperature settings for sealing/bonding and gluing of packing materials.

Hot melt adhesives, for example, emit vapors even when the prescribed processing temperature is complied with. Unpleasant odors can result.

In addition, if the prescribed processing temperatures are exceeded significantly for a longer period of time, there is the danger that harmful decomposition products could occur.

In this case, measures must be taken to eliminate the vapors.

Always comply with the instructions of the adhesive manufacturer!

Auxiliary material, hoists, scaffolding, etc.

If hoists, scaffolding, cleaning platforms or climbing aids, etc. are not included in the scope of supply from ROVEMA, the owner must provide them. Comply with and follow the applicable safety instructions!

Access aids

for packaging machines can be necessary for cleaning, inspection and maintenance of dosage units.

A ladder

is sufficient as a climbing aid if

- ascent is required occasionally, not daily
- objects that prevent a safe hold do not need to be transported (hands must be free!)
- No tasks that counteract safe stability of the ladder must be executed
- the ladder is safeguarded against unintended impact.

Fixed steps

must be attached if

- a regular ascent, as described above, is required (according to VBG 76 § 12, regular means daily or after every product or format change)
- cleaning, inspection and maintenance tasks must be performed, for which a secure hold on ladders is not ensured.

Work platforms

are required in addition to ladders or fixed steps when

- parts of the machine must be mounted, dismantled and/or set down and which, due to their weight or size, cannot be handled safely on ladders or steps
- Tasks on the ladder would be of unreasonably long duration.

There must be fixed steps to work platforms if objects which, due to their weight or circumference, cannot be transported without danger on ladders, must be transported to / from the work platform.

Additional transport aids

must be provided when loads cannot be transported without danger on ladders or fixed steps.

This can be the case, for example, when placing packaging material and changing format parts of heavy weight.

Safety instructions

The safety instructions help ensure careful action and thus prevent accidents, personal injury or material damage.

In this operating manual, safety instruction are indicated by symbols and a special colored background.

The safety instruction are introduced by signal words, which express the level of risk.



DANGER!

Immediate danger!

If this situation is not avoided, death or severe injury will result.

► Preventive measure.



WARNING!

Potentially dangerous situation!

If this situation is not avoided, death or severe injury can result.

► Preventive measure



CAUTION!

Potentially dangerous situation!

If this situation is not avoided, minor injury could result.

► Preventive measure

NOTE!

Possibly damaging situation.

If this situation is not avoided, the machine or something in its vicinity can be damaged.

► Preventive measure

Notices



Information and tips on error-free operation are indicated with the notice symbol in the margin column on the left edge of the text.

NOTE!

This symbol highlights useful information and tips, as well as information for efficient, fault-free operation.

**DANGER!****Risk of injury due to protective devices that have been rendered inoperable**

Injuries due to accessible danger zones on the machine.

- ▶ The protective devices of this machine are designed to protect the operator from any dangers that might arise.
- ▶ They must not be rendered inoperable or bypassed at any time.
- ▶ The machine may only be operated if all safety devices are installed in accordance with regulations and are functional.

Devices that lock or separate, contactless and electrical devices can be used as protective devices:

- Locking separating protective devices are locking mechanisms that cannot be opened while the machine is running, and thus prevent access to the danger zone until the dangerous movement has come to a standstill.
- Fixed separating protective devices interrupt an electrical circuit, which stops the machine (e.g. circuit breaker on the protective doors).
- Contactless protective devices are, for example, light barriers with a beam of light that monitors a specific area of the machine.
- Electrical protective devices are, for example, the **EMERGENCY STOP** button and the main switch.

EMERGENCY STOP

An **EMERGENCY STOP** button is located on the machine's control panel. Additional **EMERGENCY STOP** buttons can be located at other machine areas that are not in the immediate vicinity of the machine panel. These **EMERGENCY STOP** buttons can also be effective only in a limited area of the system. In this case, these **EMERGENCY STOP** buttons are marked accordingly.

As soon as an **EMERGENCY STOP** button is activated, the machine or the corresponding plant section stops; all drives are de-energized.

To restart the machine after an **EMERGENCY STOP** situation, see section [2.1.4 - EMERGENCY STOP button, Page 53](#).

Danger zones

Danger zones of the machine are covered with protective fixtures (e.g. protective doors, protective hoods, protective tunnels).

As soon as a protective fixture is opened, the safety chain is interrupted.

Opening the safety fixture stops all drives and de-energizes all drives. Comply with the warnings on the protective doors, if applicable!

In addition, areas can be covered by a protective tunnel designed to prevent reaching into dangerous areas of the machine.

ROVEMA can supply protective fixtures according to customer specification if they are designed in agreement with the applicable safety regulations of the country in which the machine is used.

Changes	A responsible expert must evaluate all changes made to safety devices for reliability of these changes, before they are performed and document these changes afterward. Changes (e.g. moving the safety switches) may only be performed when the owner ensures that all safety regulations of the country are still met after the change.
Cut-outs on protective doors	If the customer makes cut-outs on the protective doors, the areas must be covered by a protective tunnel designed to prevent reaching into dangerous areas of the machine. The design must take into account the specified safety clearances of the respective country.
Installation of accessories by the customer	If the customer installs additions (e.g. a conveyor) that can be removed without auxiliary material, special safety precautions must be taken: • It must be ensured that all of the specified safety clearances for reaching into the machine are also maintained after the attached part is removed. • If the safety clearances are no longer maintained after the attached part is removed, the attached part must be electrically interlocked with the drives of the machine so that all of the machine functions no longer present any danger after the attached part is removed.
Replacement of defective protective devices	Defective protective devices must be replaced by a corresponding original component. If this is not possible for certain reasons, the original must be replaced by a replacement part of at least the same quality with identical mode of operation.
Testing the protective devices	The protective devices must be checked at least once monthly according to the following descriptions. The check must be based on the statutory regulations, directives or standards of the country in which the machine is installed and operated. In the following descriptions, the term "statutory regulations" is used throughout. Obtain information about regulations from the responsible authorities in your country! Visual inspection when the machine at a standstill
Mechanical parts	check whether all mechanical parts are securely fastened and all sharp edges have been removed.
Pneumatic systems	check whether all pneumatic components and pipelines meet the safety requirements of the statutory regulations and have been properly installed.
Electrical systems	check whether all electrical components and connections meet the safety requirements of the statutory regulations and have been properly installed.

Separating protective devices check whether all separating protective devices are in their place and securely fastened. Verify that all locking devices have been installed and work properly.

Measurements with the machine at a standstill

Separating protective devices Verify that the ratio between the size of all openings in the separating protective devices and the distance of these devices from the nearest danger point meets the requirements of the statutory regulations.

Electrical installation Execution of checks in accordance with the statutory regulations.

Visual inspections when the machine is running

Separating protective devices When the machine is running, check whether the separating protective devices meet the safety requirements.

Locking devices The effectiveness of all **EMERGENCY STOP** devices and locking devices must be checked. Also to be checked is whether there are any residual dangers when the separating protective devices are opened as a result of a machine shut-down through an **EMERGENCY STOP** or locking device.

Contactless protective devices The effectiveness of all contactless protective devices must be checked. Also check whether there any residual dangers remain in the machine if the machine area monitored by the contactless protective devices is opened as a result of a machine shut-down through the contactless protective devices.

1.5.1 Warning signs and information signs on the machine

The operator must familiar himself with the warning signs and information signs attached to the machine and understand their significance.



NOTE!

Ensure that the warning signs and information signs are easy to see at all times.

Damaged and illegible signs or signs that have come off must be replaced immediately with new signs that are in conformance with standards. Replacements for damaged signs are available from Rovema Spare Parts Service.

The following warning signs and information signs are attached at the points of the machine where you must work with particular caution:

Entry into the danger zone is prohibited!



Fig. 1-4 Rovema ID no. 07035440

Fastening location on the machine
Safety guard

Danger of eye injuries: Wear protective goggles!



Fig. 1-5 Rovema ID no. 07035441

Fastening location on the machine
Glue applicator

Wear protective gloves!



Fig. 1-6 Rovema ID no. 07035442

Fastening location on the machine
Safety guard

Fastening location on the machine

Vertical and cross sealing station

Glue applicator

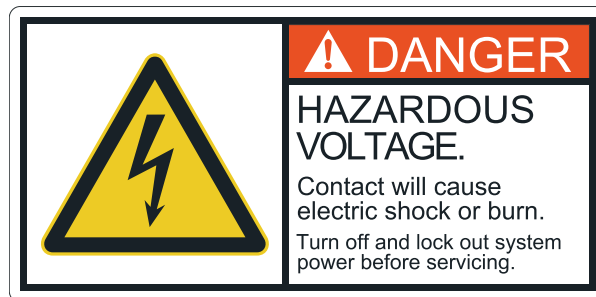
Life-threatening danger due to high voltage!

Fig. 1-7 Rovema ID no. 07035443

Fastening location on the machine

Control cabinet

Danger of injury due to moving machine parts!

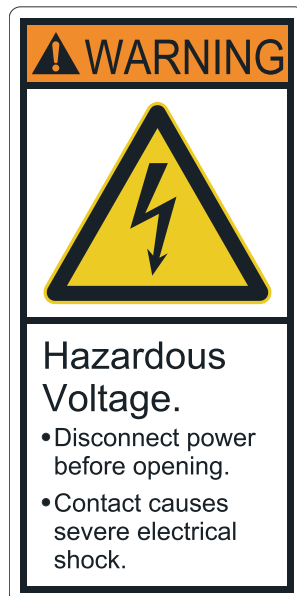
Fig. 1-8 Rovema ID no. 07035444

Fastening location on the machine

Infeed auger

Danger of burns due to hot surfaces!*Fig. 1-9 Rovema ID no. 07035447*

Fastening location on the machine
Safety guard
Vertical and cross sealing station
Glue applicator

Warning – high voltage!*Fig. 1-10 Rovema ID no. 07035448*

Fastening location on the machine
Control panel / touchscreen display

Warning – hand injuries!*Fig. 1-11 Rovema ID no. 07035449***Fastening location on the machine**

Cut and splice device

Danger of injury due to protective devices that have been rendered inoperable*Fig. 1-12 Rovema ID no. 07035450***Fastening location on the machine**

Safety guard

Reaching in prohibited!*Fig. 1-13 Rovema ID no. 02179438*

Fastening location on the machine

Safety guard

Technical data	for ROVEMA BVI
Type	260
Capacity (mech.) [cycles/min]	up to 120
Roll width / roll diameter (max.) [mm]	680 / 450 (680 / 600 with power unwinder)
Bag width (min. - max.) [mm]	60 - 260 (320 (gusseted bottom bag, gusseted bag))
Bag length (min. - max.) [mm]	40 - 340 (up to 680 for double draw-down)
Fill volume (max.) [cm ³]	5000 (6000 (gusseted bottom bag, gusseted bag))
Sealing force (max.) [N]	6000
Dimensions (length x width x height) [mm]	2300 x 2045 x 2055
Weight (standard design) [kg]	approx. 770
Power supply [volt]	230/400
Power requirement (max. rated connected load) [kVA]	10
Degree of protection	IP54
Compressed air connection [bar]	6
Air consumption at 6 bar without cooling [Nl/cycle]	0.5
Recipe memory	Standard: 100 (optional: 1000)
Machine color	RAL 9007L / gray-aluminium
Operating temperature (min. - max.) [°C]	+5....+35
Storage temperature (min. - max.) [°C]	-20...+50
Humidity [%]	15....95; no condensation
A-rated emission sound pressure level	78.3 dB (±1.5 dB)

Safety instructions for transport

To avoid damage to the machine or life-threatening injuries during transport, always comply with the following instructions:

Personnel must not stand under suspended loads.

During transport, personnel must exit the danger zone around the means of transport and the load.

Fork lifts or lift trucks must be approved for lifting and transporting the machine weight; pay attention to the gross weight of the machine!



NOTE!

During transport and loading, pay attention to the weight specifications on the shipment package.

The fork lift operator must be authorized to operate the fork lift.

Transport safeguards and transport aids must not be loosened before or during transport.

The fixing brackets fixing the machine on the pallet must not be loosened during transport.

The control cabinet contains sensitive components. Therefore, transport the machine without jolts or vibration!

Unpacking the machine

- Remove wooden casing and / or foil.
- Remove the fixing brackets (1) on the machine and pallet.

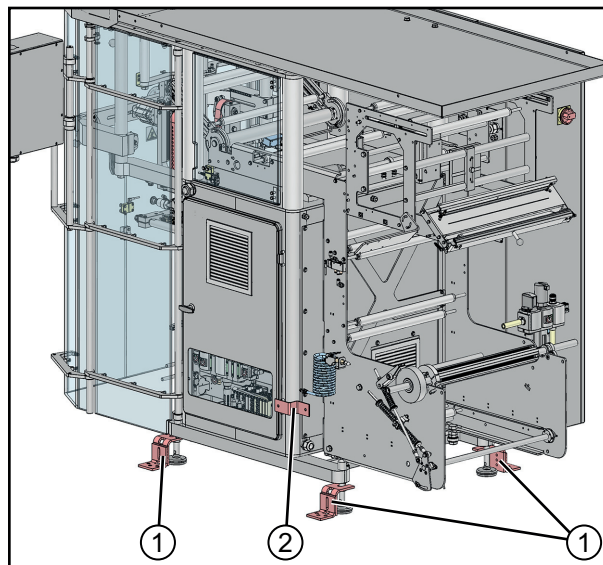


Fig. 1-14 Position of the fixing brackets

- Initially, leave the transport safeguard (2) mounted, it is used for fixing the packaging material carrier during transport.

Lifting the machine with a fork lift

The machine can be lifted using a fork lift and transported to its intended setup location.

- Mount the supplied transport aids (3) on the front and back of the machine frame. The fastening is done with lock nuts on the adjustable feet.
- Insert the forks under the installed transport aid.

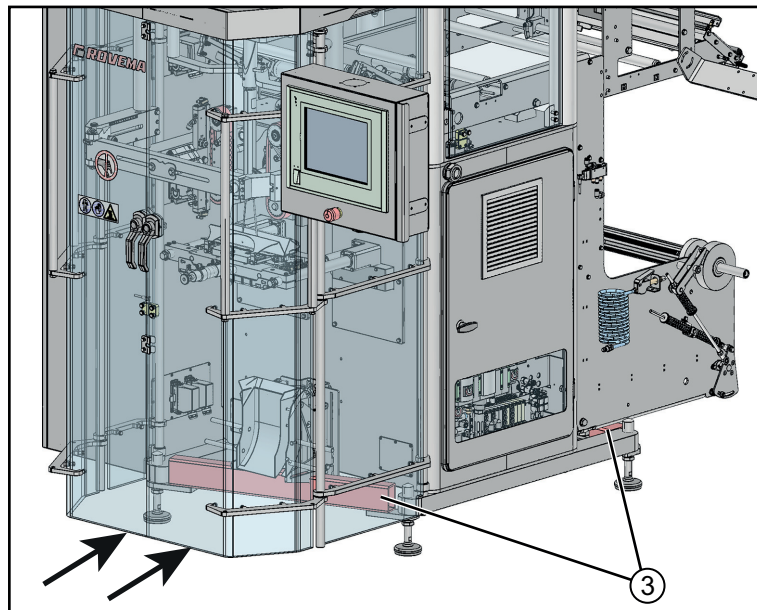


Fig. 1-15 Inserting the forks

**NOTE!**

The machine may not be lifted from the front without the installed transport aids. Therefore keep the transport aid on hand for later transports.

- Before lifting, ensure sure that the machine frame is grasped completely by the fork.
- Lift the machine carefully with the aid of the fork lift and transport it to the setup location.

**NOTE!**

Verify during lifting and transport that the machine is not likely to tip over. If necessary, reposition the fork lift truck!

Preparing and attaching the adjustable feet

Depending on the shipment type, the feet may already be screwed onto the machine frame or are packed separately.

- Check whether there is a sleeve (1) on each of the four supplied adjustable feet (2).
- Then check the distance between the base of the foot to the top edge of the sleeve. It must be preset to 115 mm. If the dimension should be made bigger, then correct the setting to this dimension. This means that the adjustable feet can be turned by approx. another 40 mm during the subsequent alignment tasks.

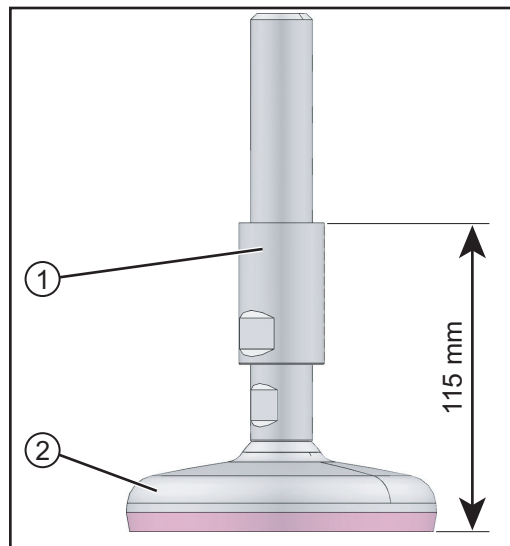


Fig. 1-16 Preparing the adjustable feet

- If the adjustable feet are not yet screwed in, lift the machine and screw in the feet up to the sleeve.
- When doing this, secure the lifting device so that it does not fall down!

Setting up the machine

If you set up the machine yourself, use the information on the installation drawing for orientation.

The following connections must be present:

- Electrical connection with the required voltage
- Compressed air connection (oil-free air)

Requirements imposed on the installation location

Floor conditions:

- The floor must have sufficient load-bearing capacity.
- The set-up area must be level.

Room climate:

- The room temperature must be between 0 °C and 35 °C. The relative humidity must be between 15% and 95%.
- Provide suitable air-conditioning if necessary.

Spatial requirements:

The set-up area must be large enough to operate the machine without danger.

The set-up area comprises:

- The floor space of the machine. Please refer to the installation drawing for the floor space dimensions.
- A work area with at least 1.50 m clearance around the machine. This space is needed as work area for operating and maintenance personnel to carry out their tasks.



NOTE!

The work area must be kept free during operation of the machine so that unrestricted access is possible at any time.

Removing corrosion protection

If there are special moisture protection requirements (e.g. during shipment), machine parts with bare, untreated metallic surfaces are sprayed with the temperature-resistant special creepage oil Befesta Btec 115 - which is suitable for the food industry - before the machine is dispatched.

When the machine is used in the food industry, the corrosion protection agent must be fully removed from all the surfaces of the machine that come into contact with foods.



WARNING!

Danger of injury!

Explosion hazard due to solvent vapors.

- Remove the corrosion protection only in a well ventilated room.

Preparing for alignment

- Remove the transport safeguard of the packaging material carrier.
- Make the following tools available for machine alignment: Rectangular flat iron, spirit level and open-end wrench, AF 30.
- Open the protective doors on the front of the machine.

Depth alignment

- For depth alignment, place the spirit level on a pull rod of the cross sealing station (see arrows in illustration).

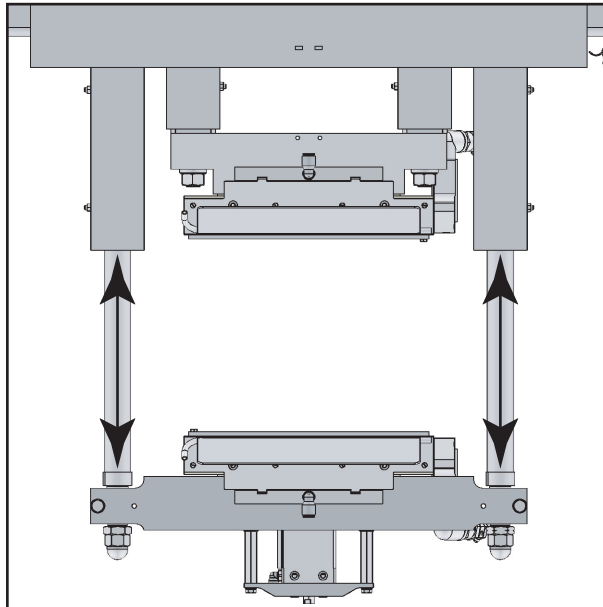


Fig. 1-17 Placement surface of the spirit level for vertical alignment

- Horizontal alignment**
- For horizontal alignment, place the flat iron and the spirit level on both pull rods of the cross sealing station at the front of the machine (see arrow in illustration).

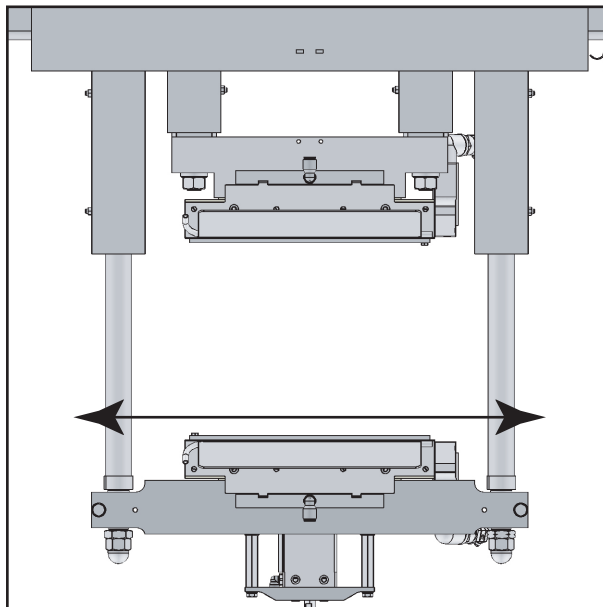
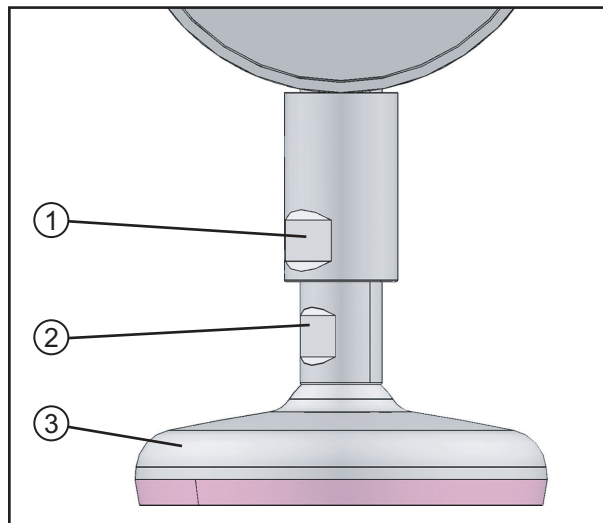


Fig. 1-18 Placement surface of the spirit level for horizontal alignment

Aligning the machine

- Align the machine using the adjustable feet (3).
- Using an open-end wrench, remove the fixation elements of all sleeves (1) on the adjustable feet.

- Place an open-end wrench on the flat area (2) of a foot and move the machine up or down by turning the hexagon. Observe the alignment in both horizontal directions.
- Repeat this setting with the other adjustable feet, until the machine is horizontal.
- After alignment, lock the adjustable feet with the sleeves (1).



Connecting the machine

- Before connection tasks, turn the power switch to the OFF position!
- Connect the machine to the compressed air system (6 bar) (use 3/4" compressed air hose; connection values must agree with the values specified in section [1.6 - Technical data, Page 32](#)).
- Ensure that that all hose connections are firmly seated and free of leaks.
- The connected electrical loads must agree with the power supply connection rating plate (see Fig below) on the control cabinet of the machine.

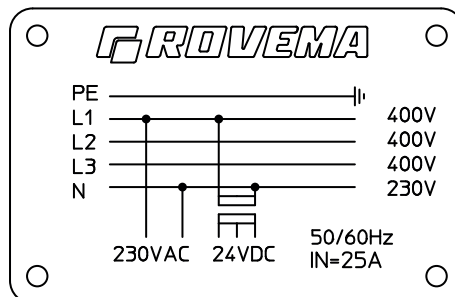


Fig. 1-19 Power supply rating plate (sample)

- See the electrical documentation of additional details (e.g. cable cross-sections, pre-fuses).

**DANGER!****Danger of injury!**

Life-threatening danger due to electric shock if tasks are executed improperly or if the connection is incorrect!

- ▶ Tasks on the electrical equipment of the machine must only be performed by specially trained specialized personnel!
- ▶ Do not make any changes to the electrical equipment that have not been previously approved by ROVEMA!

-
- Safeguard cable against damage.
 - Connect the machine to the electrical network according to the rotating field.

NOTE!

Incorrect connection can result in malfunctions or damage!

**Establishing the power supply**

- Plug color-coded plugs into the prepared connection on the packaging machine control cabinet
- Plug in or remove plugs only when the machine is switched off, otherwise the frequency converter can be damaged.

1.8.1 Workflow

The path from flat packaging material to completely filled tubular bag

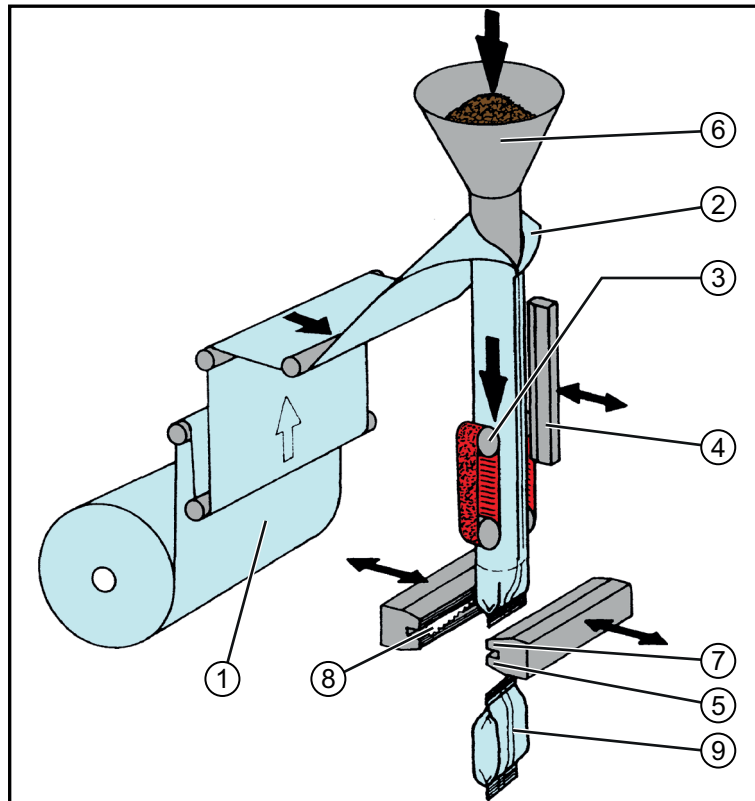


Fig. 1-20 Mode of operation of the form fill and seal machine

- 1 The packing material web is guided to the forming shoulder via deflection rollers.
- 2 The forming shoulder forms a tube from the packing material web.
- 3 The draw-down belts pull the formed packing material web down on the filling tube.
- 4 The vertical sealing tool seals the packaging material tube in the vertical direction.
- 5 The transverse sealing tools produce the transverse seam of the bag.
- 6 Product to be filled falls through the filling tube into the bag.
- 7 The cross sealing tools produce the lower cross seal of the bag.
- 8 The cutting knife cuts off the finished bag.
- 9 The finished bag is transported off.

1.8.2 Intended use of this machine

The machine described in this operating manual is used to

- Produce tubular bags from a flat packaging material (film)
- Filling the bags with fill material that can be poured, that is flowable, lumpy or gaseous

- Sealing the bags by means of hot sealing or thermoplastic sealing.

General instructions

This machine is technical equipment and must be used for industrial production only.

The machine is designed for operation by a single person.

Only personnel above the statutory minimum age are allowed to perform tasks on the machine.

1.8.3 Intended use



CAUTION!

Dangers due to non-intended use!

Any use other than the intended use for which this machine was designed and built requires ROVEMA's express written consent.

Packaging of hazardous substances or substances that are hazardous to health, especially toxic, corrosive, slightly or highly flammable and explosive substances is not in accordance with the intended use, and is considered as non-intended use of the machine.

Operation of the machine in a potentially explosive area is not in accordance with the intended use, and is considered as non-intended use of the machine.

1.8.4 Definition of terms

Rovema largely follows the national and international standards in its use of technical terms in the technical documentation.

In addition, there are terms that are still in general usage and thus are not listed here.

This section explains terms that repeatedly occur in the various sections in this manual.

Packaging material	Material (usually film) from which the packages (bags) are produced.
Packaged product	The product filled into the packaging, which can be in the form of granulate, powder, pellets, high-viscosity liquids or low-viscosity liquids, and must be able to be poured.
Packaging	Union of packaged product and packaging material.
Packaging types	With this vertical form fill and seal machine, various types of packaging can be created.

Pillow bags can be manufactured with the machine's base module. With optional additional component other packaging types, such as gusseted bags, stand-up bags, and Stabilo Seal bags, can be produced.

Pillow bag

Pillow bags are sealed on the top seal and bottom seal. The most simple and most frequently produced packaging type.

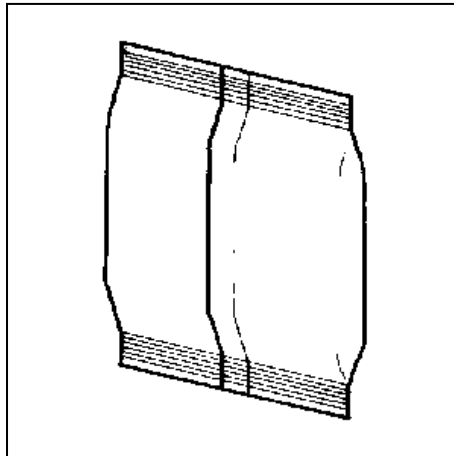


Fig. 1-21 Pillow bag

Gusseted bag

Gusseted bags are sealed at the top and bottom and the finished packaging is additionally formed using gusseting tools. Thanks to the gusset, the bag has a higher volume.

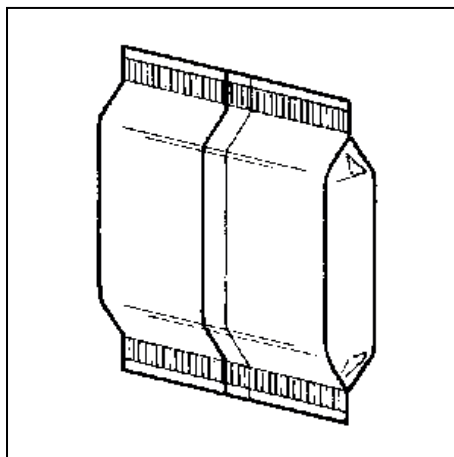


Fig. 1-22 Gusseted bag

Stand-up bag

Stand-up bags are sealed at the top and bottom. In addition, gussets are created and the bottom seal is shaped into a stand-up bottom using a bottom seal folder. The packaging is more stable and has large advertising surfaces.

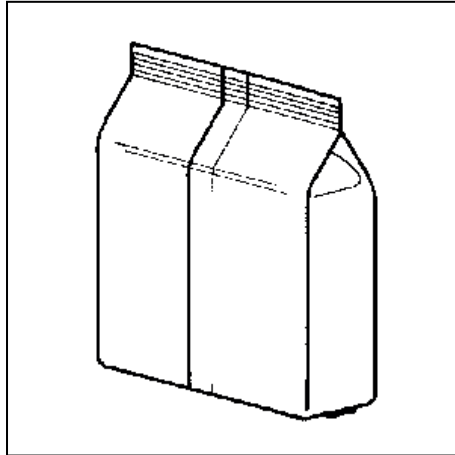


Fig. 1-23 Stand-up bag

Stabilo Seal bag

Stabilo Seal bags are sealed at the top and bottom. In addition, gussets are created and the bottom seal is shaped into a stand-up bottom. The gussets are additionally sealed to achieve a more stable form and an evenly shaped advertising surface. The Stabilo Seal bag was invented by ROVEMA GmbH.

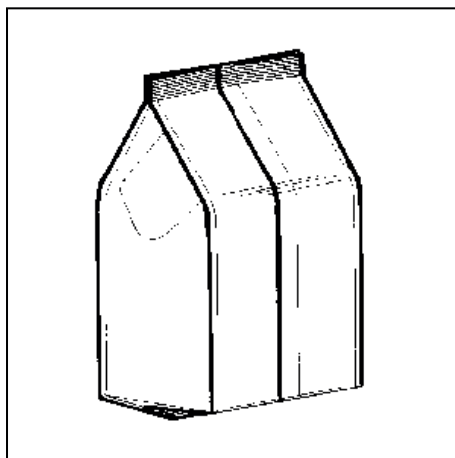


Fig. 1-24 Stabilo Seal bag

Filling

Conveying or dosing of the product into the bags.

Forming

Creation of a package ready for filling, from a packaging material. Through the use of certain aids the packaging form (flat fold or side gusset) and the size (forming set) can be changed.

Hot sealing

Binding of coated packaging materials under the effect of a permanently heated jaw body with the parameters heat, pressure, and time. In this regard, the packaging material generally consists of a non-sealable carrier material (paper, aluminium or plastic) that is coated with a thermoplastic sealing medium.

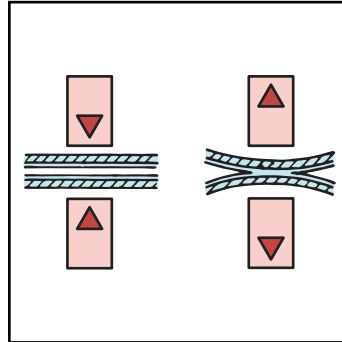


Fig. 1-25 Heat sealing process

Welding

Binding of mono-thermoplastic packaging materials under the effect of a pulse-heated (heat pulse welding) or permanently heated (permanently heated welding) jaw body with the parameters heat, pressure, time, and cooling. Here the packaging material consists of a carrier material-free monoplasic.

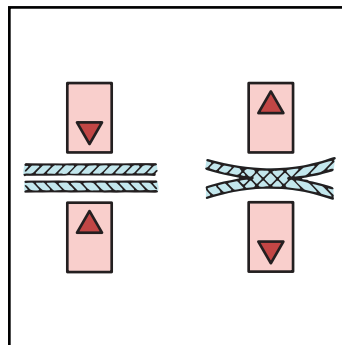


Fig. 1-26 Welding process

Machine area

A machine area is a part of an entire machine that fulfils a specific function (e.g. grouping, lidding unit, erection). Machine areas can contain separate drives, which are also controlled separately. Depending on the design, a machine area can also be a complete, functional individual machine within an entire machine.

1.8.5 Operating positions on the machine

Operating position

This is the operating position on the machine, where the operator normally is normally positioned to monitor the functions of the machine and ensure fault-free running.

In fault-free operation the operating positions are located at the following points on the machine:

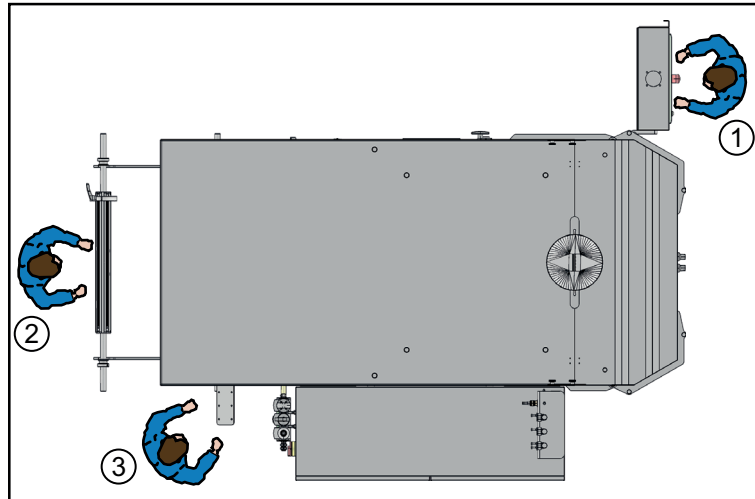


Fig. 1-27 Operating positions on the machine

- On the display (1) of the machine for monitoring the functions
- On the packaging material carrier of the VP machine area (2) for carrying out a roll change
- At the VP machine area's printer (3), to exchange consumables, such as colour ribbons, etc.

In the event of a malfunction the operating position is at the point where the malfunction can be corrected without danger to the operator.

For maintenance and service tasks the operator can use the entire area around the machine.

This part contains descriptions and depictions of individual machine functions.

Safety devices are used protect your personal safety and avoid health impairments! Therefore, knowledge of the following description is an absolute prerequisite for safe operation of the machine!

This section explains the location and mode of operation of the safety devices on the machine. If safety devices do not work as intended, you can perform a function check using this description.

Adjustments, repairs, and maintenance tasks on safety-related machine parts must only be performed by trained technicians. Have execution of such tasks confirmed in writing.

The precise number and location of safety devices depends on the respective design of the machine and the associated sources of danger.

Restart after a safety device has been activated

After the machine stops due to triggering of the safety device, the following work steps must be carried out to switch the machine back on:

- Eliminate machine faults
- Remove packages, packaging material and product residues from the machine, if necessary
- Close protective doors
- Press the "Standby" button
- "Machine is ready for production" appears on the display
- Activate the "Machine On" button
- "Machine running" appears on the display



NOTE!

Check functioning of the safety switches daily before start of production!

If the machine cannot be operated in spite of closed protective doors, check the safety switches for possible defects and replace defective safety switches immediately.

2.1.1 Position of the safety devices

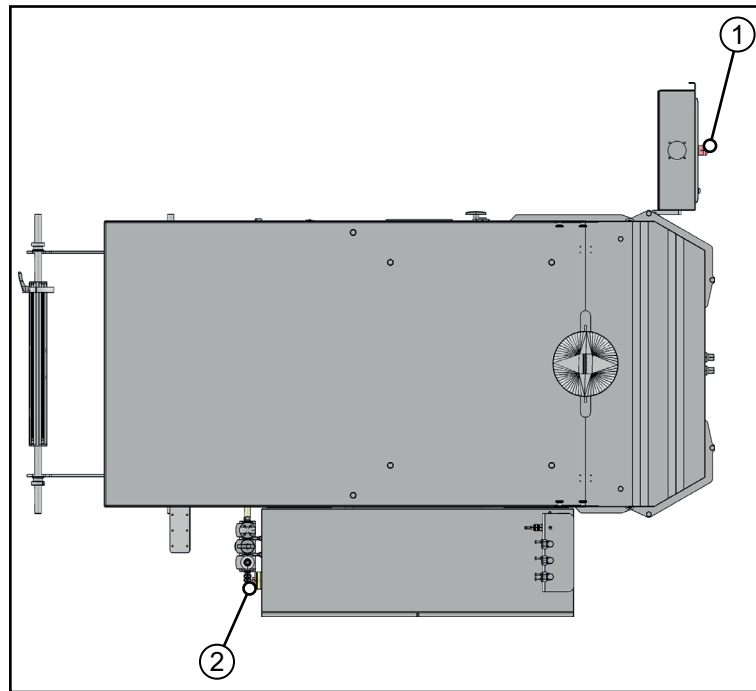


Fig. 2-1 Position of the safety devices

All the protective doors and hoods on the machine are secured with **safety switches**.

For information on the function of a safety switch, please refer to the section [2.1.2 - "Pilz" safety switch, Page 49](#).

The electrical cabinet doors are secured by a **safety switch with a guard lock**.

For information on the function of a safety switch, please refer to the section [2.1.3 - Safety switch with guard lock "Schmersal", Page 51](#).

The **EMERGENCY STOP button** (1) is located on the control panel under the display.

For information on the function of an EMERGENCY STOP switch, please refer to the section [2.1.4 - EMERGENCY STOP button, Page 53](#).

The **main switch** (2) is located on the control cabinet.

For information on the function of a main switch, please refer to the section [2.1.5 - Main switch, Page 54](#).

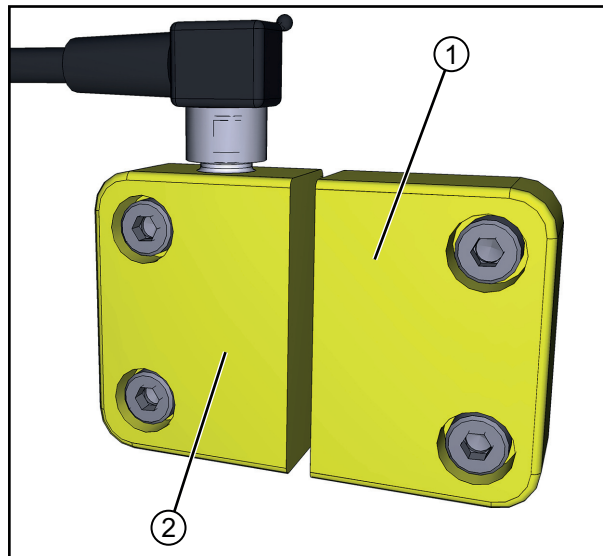
2.1.2 "Pilz" safety switch

The safety devices on the machine, such as protective doors, safety hoods, etc. are protected by safety switches.

These switches consist of an actuator and a safety switch.

The safety switch and actuator work together so that the safety device is released only as long as the actuating element is within the trigger range of the switch.

If a safety device is opened, the machine is de-energized; the work cycle begun is interrupted.



- 1 Actuator
- 2 Safety switch



NOTE!

All safety switches must be checked for proper function at regular intervals. In this regard, also see the instructions in sections [2.1.2.1 - Function test of the safety switches, Page 50](#) and [4.3 - Daily maintenance, Page 276](#).

After the machine stops due to opening of a safety guard, the following steps must be carried out to switch the machine back on:

- Remove residual product and packaging material from the machine
- Close protective hoods and protective doors
- Press the "Standby" button
- "Machine is ready for production" appears on the display
- Activate the "Machine On" button
- "Machine running" appears on the display

2.1.2.1 Function test of the safety switches

Check function of the safety switches **daily before start of production**.

Check for proper function as follows:

- If the machine is not yet in operation, switch the machine on by pressing the "Machine ON" button in the display.
- Open the safety fixture which has the safety switch you want to check:
 - If the machine switches off immediately after the safety fixture is opened, the safety control works properly.

- If the machine does not shut down after the protective fixture is opened, there is a fault in the corresponding safety switch. Check the switch for a possible defect. Replace defective parts immediately!



NOTE!

If the machine does remain at a standstill when a safety device is opened, the safety device must be checked.

The machine must not be operated again until all defects in the protective device have been rectified!

2.1.3 Safety switch with guard lock "Schmersal"

The protective devices on the machine, such as guard doors, protective hoods, etc. are secured through safety switches with guard locks.

These safety switches reliably safeguard danger zones and with the aid of their safety guard locks, they ensure that protective devices cannot be opened when the machine is running, until the risk status has ended.

When the machine is ready for operation the guard lock is locked. The protective device can no longer be opened. This lock will only be released when the safety controller releases the protective device.

A unit is formed from the safety switch and an actuator. The switch is located on the machine frame; the actuator is attached to the protective device.



- 1 Actuator
- 2 Safety switch with guard lock

As soon as both parts are securely interlocked, the secured area is notified to the safety control.

If a protective device is open, the machine is in a secure state.



NOTE!

All safety switches must be checked for proper function at regular intervals. In this regard, also see the instructions in sections [2.1.3.1 - Function test of the safety switches, Page 52](#) and [4.3 - Daily maintenance, Page 276](#).

After the machine stops due to opening of a safety guard, the following steps must be carried out to switch the machine back on:

- Remove residual product and packaging material from the machine
- Close protective hoods and protective doors
- Press the "Standby" button
- "Machine is ready for production" appears on the display
- Activate the "Machine On" button
- "Machine running" appears on the display

2.1.3.1 Function test of the safety switches

Check function of the safety switches **daily before start of production**.

Check for proper function as follows:

- If the machine is still operating, switch the machine off by pressing the "Machine OFF" button in the display.
- Open the protective device which has the safety switch you want to check.
- Visually check the condition of the actuator, e.g. for bending or damage.



NOTE!

Damaged or bent actuators must be immediately replaced!

- Close the protective device; when closing it, ensure that the actuator can slide into the safety contact on the switch with ease of movement.



NOTE!

Do not forcefully close or push shut the protective device with the attached actuator!

This can damage both the safety switch and the actuator.

- If necessary, repeat the tasks described above to check other safety switches.
- After closing all protective devices, press the "Standby" button; the guard locks on the safety switches will be locked.
- Check whether a protective device can be opened:
 - If no protective device can be opened, the safety control system is working properly.
 - If a protective device can be opened, there is a fault in the corresponding safety switch. Check the switch for a possible defect. Replace defective parts immediately.



NOTE!

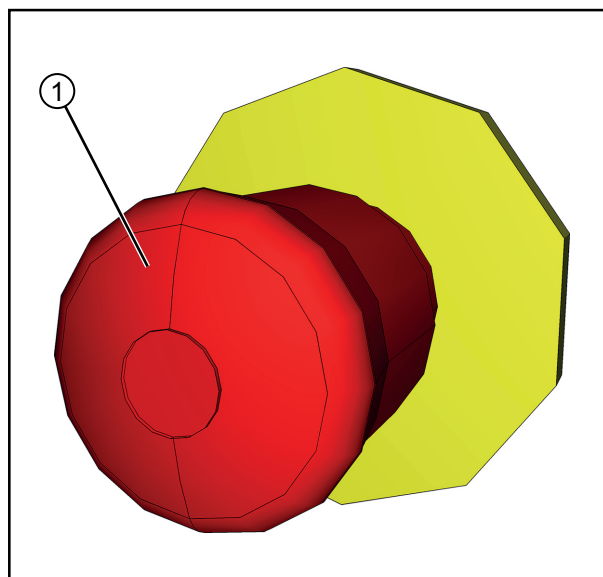
If a protective device can be opened after locking with the guard lock, there is a fault on the safety switch. In this case the safety device must be checked!

The machine must not be operated again until all defects in the protective device have been rectified!

2.1.4 EMERGENCY STOP button

In case of emergency, an EMERGENCY STOP button is used to immediately terminate all dangerous movements. The EMERGENCY STOP button remains locked in the pressed position; it must be pulled out manually to unlock it before restarting. The EMERGENCY STOP button must only be unlocked after the dangerous condition has been eliminated.

If necessary, also switch off the main switch to eliminate the danger!



1 EMERGENCY STOP button



NOTE!

All EMERGENCY STOP must be should be checked for proper function at regular intervals. In this regard, also see the instructions in sections [2.1.4.1 - Checking the function of the EMERGENCY STOP buttons, Page 54](#) and [4.3 - Daily maintenance, Page 276](#).

After the machine stops due to the **EMERGENCY STOP**, the following steps must be carried out to switch the machine back on:

- Open protective hoods and protective doors
- Rectify the **EMERGENCY STOP** situation
- Remove residual product and packaging material from the machine
- Close protective hoods and protective doors
- Unlock the **EMERGENCY STOP button**

- Press the “Standby” button
- “Machine is ready for production” appears on the display
- Activate the "Machine On" button.
- “Machine running” appears on the display



NOTE!

Only use the EMERGENCY STOP button in an emergency!

To save time and packaging material, switch the machine off with the “Machine OFF” button.

2.1.4.1 Checking the function of the EMERGENCY STOP buttons

Check function of the EMERGENCY STOP buttons **daily before the start of production**.

Check for proper function as follows:

- If the machine is not yet in operation, switch the machine on by pressing the "Machine ON" button in the display.
- Press the EMERGENCY STOP button for which you want to check the function:
 - If the machine switches off immediately after the EMERGENCY STOP button is pressed, the safety control works properly.
 - If the machine does not shut down after the EMERGENCY STOP button is pressed, there is a fault in the respective EMERGENCY STOP button. Check the button for a possible defect. Replace defective parts immediately!



NOTE!

If the machine does not come to a stop when an EMERGENCY STOP button is pressed, the safety device must be checked.

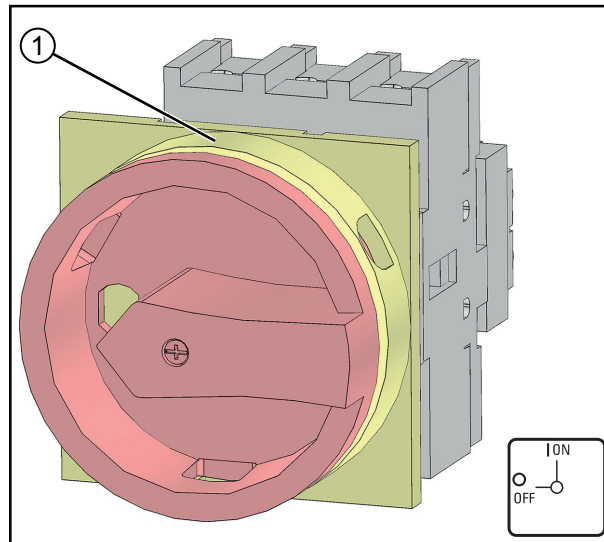
The machine must not be operated again until all defects in the protective device have been rectified!

2.1.5 Main switch

The main switch de-energizes all drives and units.

In this case, operating voltage then runs only to

- The covered main terminals
- The main switch terminals and also
- The connections marked with warning signs



1 Main switch

Move the switch to the "I" or ON position to supply electrical power to the machine.

Move the switch to the "O" or OFF position to de-energize the machine.

Safeguarding the main switch

The main switch can be secured with a padlock in the "O"/OFF position to protect against switch-on.



WARNING!

Danger due to electrical voltage!

There is danger of electric shock in the area of energized parts!

- Before all maintenance or repair tasks, disconnect the machine from the power grid by turning off the main switch and safeguarding it against re-start with a padlock.

General information

The "P@ck-Control" software, designed by ROVEMA for ROVEMA packaging machines, is an extremely powerful software program for control the complex processes in a packaging process.

In combination with the "Javis" visualization software, the touch screen is the central operating unit and display of all operating parameters for this packaging machine.

With this system, you operate the machine while the machine is running. The most important features of this system include:

- Display of machine conditions
- Production data input possibility
- Storage of recipes and configurations
- Movement of individual machine drives
- Switching individual machine functions on and off
- Use of the integrated online help system

To protect against incorrect operation, some operating areas are secured through passwords. (Password level)

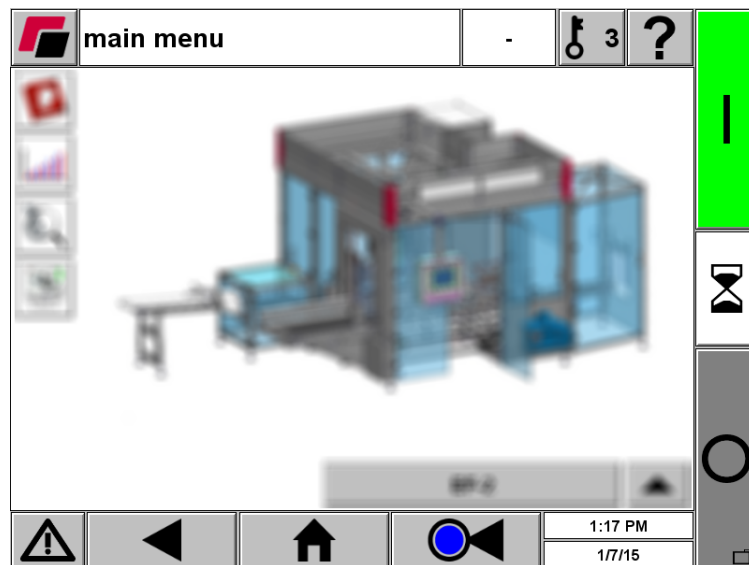
The following description contains the following information concerning:

- The external menu bar
- The alphanumeric keyboard
- The numeric keypad
- The password keys/password levels
- The online help system
- The information and error messages
- The switch and jog menu
- The recipe and configuration administration
- The machine data
- The system settings (date, time, language, network, etc.)

2.2.1 The user interface

2.2.1.1 Overview

The user interface is divided into two areas:



- The inner area contains display and operating elements that are typical for the respective selected menu.
- On the outer edge of the screen there are menu bars with displays and key fields that are the same in all screens. With these displays and keypads you can access the most important commands and menus at any time. In some cases displays and keys are combined.

2.2.1.2 The menu bars on the outer edge of the screen

2.2.1.2.1 The header

The **header** on the top edge of the screen contains the following elements:



Fig. 2-2 Elements in the header

- The Rovema logo  which masks the drop-down list of the System menu (see Chapter [2.2.3 - The System menu, Page 62](#)).
- The name of the currently selected menu.
- The machine area display, if the machine consists of several areas that must be operated separately.

- The password display and entry; the password level that is active at that time is displayed here. When this button is pressed, a drop-down menu is opened with "Password" as its first entry; this option can be used to call up the numeric keypad to allow a different password to be entered (see Chapter [2.2.4.2 - The settings in the "Access rights" menu, Page 65](#)).
- The "?" question mark, with which you can call up the online help system (see Chapter [2.2.8 - The online help system, Page 94](#)).

2.2.1.2.2 The footer

The **footer** on the lower edge of the screen essentially contains all elements required to navigate through the screens.

13:29 23/01/12	Display of date and time. By activating this display field the actual "Javis" version can be displayed. After a maximum of 10 s the display returns to date and time automatically.
	Button "Back to the Start screen switch": With this button you go to the switch menu of the Start screen (see Chapter 2.2.11 - The Switch menu, Page 98).
	Button "Back to the main menu": With this button you go back to the main menu of the machine from any submenu.
	Button "One screen back": With this button you go to the last screen displayed.
	Button "Go the alarm memory": : The alarm memory is called up when this button is activated. This memory contains a list of the alarm messages that have most recently occurred (see Chapter 2.2.10 - The alarm memory, Page 96). Display "Alarm status": The colour of the "Attention" symbol shown on the button indicates whether there is another alarm message in the queue or not. A green symbol means an info message; a red symbol means that there is still a malfunction that has not yet been acknowledged. If no message is currently queued, the symbol is shown in grey (see Chapter 2.2.9 - The alarm messages, Page 95).

Tab. 2-1 Elements in the footer

2.2.1.2.3 The control panel

The **control panel** on the right edge of the screen contains the following elements:

	Button "Machine On" button: Production is started with the aid of this button.
	Button "Standby" with status display: This button establishes standby status of the machine. If an error message has been displayed, after rectifying the error, this button must be pressed first. Activation acknowledges all malfunctions and puts the machine in stand-by if there are no other errors that can trigger a machine halt. At the same time the current status of the machine is displayed through an appropriate symbol on the button. Status display "no standby": If the machine is not in standby (e.g. due to a queued fault), this is indicated by a crossed-out open circle.
	Status display "Standby": Machine standby status present when an open circle is displayed. The machine can be started with the "Machine On" button only from this status.
	Status display "Machine running": This symbol is displayed when the machine is running in fault operation.
	Status display "Please wait": This symbol is displayed when various processes that do not permit data entry are running in the background.
	Button "Machine off": This button is used to switch off production.

Tab. 2-2 Elements of the operator panel

2.2.2 Value entry

2.2.2.1 The alphanumeric keyboard

With the alphanumeric keyboard, you can enter letters, numbers and special characters when saving a recipe name or the configuration administration. It appears automatically on the screen when needed by a menu for input.

The keyboard is operated like a computer keyboard:



By default, the display is shown in lowercase letters.

By pressing the **Shift key**, you change to uppercase letter display:



The keyboard contains the following elements:

- Keys for letters and numbers
- The **Space key** for entry of a character space
- The **arrow left/arrow right buttons** move the cursor, and hence the position of the requested editing, the text displayed at that time. As a result, it is possible to edit only parts of the text without having to enter the entire text again
- The **Backspace key** to delete the last character entered.
- The **Delete key** undoes any previously made changes and shows the original value again with a grey background
- The **Escape key** to exit the keyboard; the previously set values remain valid.
- The **Enter key** to exit the keyboard; the set value is applied and is now valid

2.2.2.2 The numeric keyboard

With the numeric keyboard, you enter only numbers for parameterizing various machine functions. It appears automatically on the screen when a user action makes entry of a numeric value necessary (value entry, access authorization, etc.).

bag length			
300			mm
▼	2		▼ ▲
▲	1000		
7	8	9	←
4	5	6	delete
1	2	3	cancel
0	.	-	↩

The keyboard contains the following elements:

- Display of the menu item for which values should be entered
- Display of the current entry
- Display of the physical unit of the value to be entered, if such is present
- Display of the maximum permissible value
- Display of the minimum permissible value
- the **Arrow Up/Down** keys to increase/decrease the value incrementally
- Keys for entry of numbers
- The **Decimal** For entering a number with decimal places.
- The **Minus button** For entering negative values.
- The **Backspace key** to delete the last character entered.
- The **Delete key** to delete all entered characters;
- the **Escape key** to exit the keyboard and return to the screen display, as depicted during entry in the numeric keypad; the previously set values remain valid unchanged.
- The **Enter key** to exit the keyboard; the set value is applied and is now valid.



NOTE!

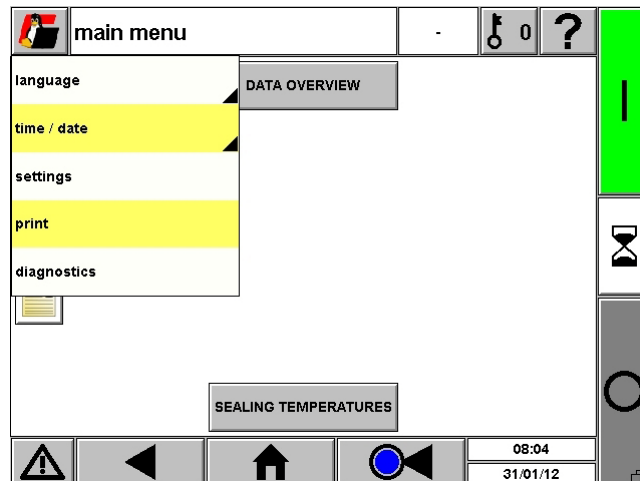
Please note that entries outside the displayed limits are not permitted and will not be accepted.

In specific situations, one set value might influence another, and it is automatically corrected to ensure the ability of the machine to function.

2.2.3 The System menu

The System menu can be reached via the Rovema logo  in the upper menu bar.

- Touch the Rovema logo  the drop-down list of the system menu appears.



Javis-specific settings can be made directly in this drop-down list or you will go to the appropriate screen for this. This screen, defined by Javis itself, contains both Javis-specific and system-specific settings and displays.

Drop-down menu **LANGUAGE**

The language for the visualization can be selected here.

The language can be switched over in any screen and this affects the display directly.

Drop-down menu **TIME / DATE**

The date and time can be set from this menu item.

Change screen **SETTINGS**

takes you to the System menu **Settings** (see Chapter [2.2.4 - "Settings" system menu, Page 63](#)).

Change screen **PRINT**

takes you to the System menu **Print** (see Chapter [2.2.5 - "Print" system menu, Page 83](#)).

Change screen *DIAGNOSTICS*

takes you to the System menu **Diagnostics**.

Drop-down menu *DISPLAY MODE* (Option)

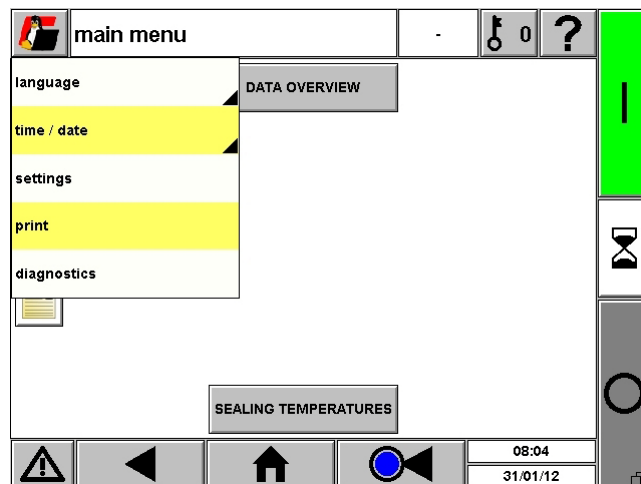
Here you can switch between a text-based and a graphics-based user interface. In this regard, the same contents are shown either through screen elements with text ("Text display mode") or screen elements with graphics ("Graphic display mode").

2.2.4 "Settings" system menu

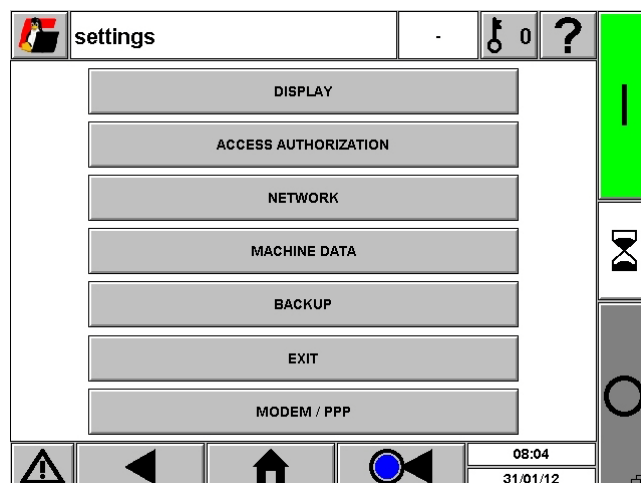
The System menu **SETTINGS** is a submenu of the system menu.

You access it as follows:

- Touch the Rovema logo  the drop-down list of the system menu appears.



- Call up the System menu **SETTINGS**.



From this point you can access various screens where settings affecting the entire system can be made.

Change screen **DISPLAY**

Settings for the appearance of the display (see chapter [2.2.4.1 - The settings in the "Display" menu, Page 64](#)).

Change screen **ACCESS AUTHORIZATION**

Setting and administration of access rights (passwords) (see Chapter [2.2.4.2 - The settings in the "Access rights" menu, Page 65](#)).

Change screen **NETWORK**

Settings for connecting the machine to a TCP/IP network (see Chapter [2.2.4.3 - The settings in the "Network" menu, Page 70](#)).

Change screen **MACHINE DATA**

Entering information about the machine (see Chapter [2.2.4.4 - The settings in the "Machine data" menu, Page 71](#)).

Change screen **BACKUP**

Settings for backup of all machine data (see Chapter [2.2.4.5 - The settings in the "Backup" menu, Page 72](#)).

Change screen **EXIT**

Setting for exiting and restarting the machine.

Change screen **MODEM / PPP**

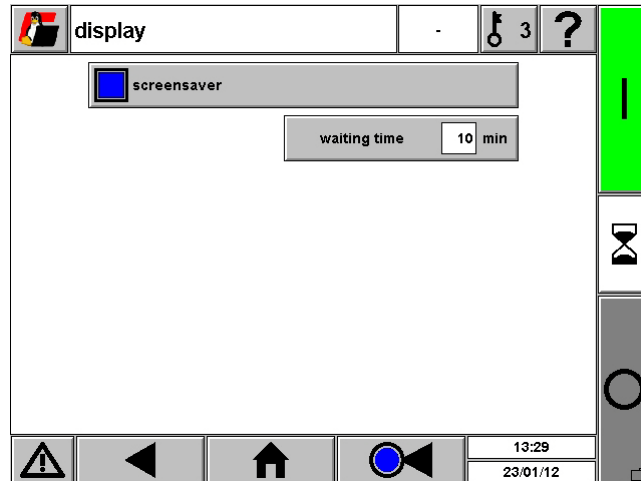
Settings for configuring a modem (see Chapter [2.2.4.6 - Settings in the "Modem/PPP" menu, Page 82](#)).

2.2.4.1 The settings in the "Display" menu

The menu **DISPLAY** is a submenu of the System menu **SETTINGS**.

You access it as follows:

- Rovema logo  -> System menu Settings -> Display



In this menu, you make settings that affect the appearance of the screen. As a result, you can adapt the screen to different environmental conditions or to your individual requirements.

"screensaver" button

This switch activates the screensaver.

wait time

Time period without operating after which the screensaver should be displayed. Alarms that occur on the machine will be displayed, even if the screensaver is activated.

Key "recalibrate touch panel"

This key initiates recalibration of the touch panel. This will also be executed the next time the system is booted (before Jarvis is started).

2.2.4.2 The settings in the "Access rights" menu

To prevent certain machine settings being changed by unauthorized persons, some menus and their contents are protected by passwords.

If the password entry prompt appears on the screen, the operator must first verify that he or she has access authorization by entering the correct password.

Passwords

are entered with the aid of the ten-key pad and concluded with the Enter key. The required access level is displayed in the header of the ten-key pad.

Access levels

There are four different access levels, three of which are granted only by entering the corresponding password. The higher access levels include the lower access levels.

Level "0", without password

Access to all operating and switch menus; reading of the settings; input of the basic parameters in the data overview; no password required.

Level "1" (operator), password 1

Loading recipes, changing all setting parameters and switch settings in the operating, switch and jog menus.

Level "2" (setup person), password 2

Loading, saving and deleting recipes; viewing the configuration data.

Level "3" (foreman), password 3

Changing the configuration data in the service menu; changing passwords. The access authorization remains valid until overridden by a new password or until the duration of password validity expires. (See: password timeout)

**NOTE!**

To keep this protection effective, you should assign passwords for the individual levels only to users who are familiar with the respective operations, and who are aware of the potential consequences of changing the setting data!

Access rights are administered in the menu **ACCESS RIGHTS**.

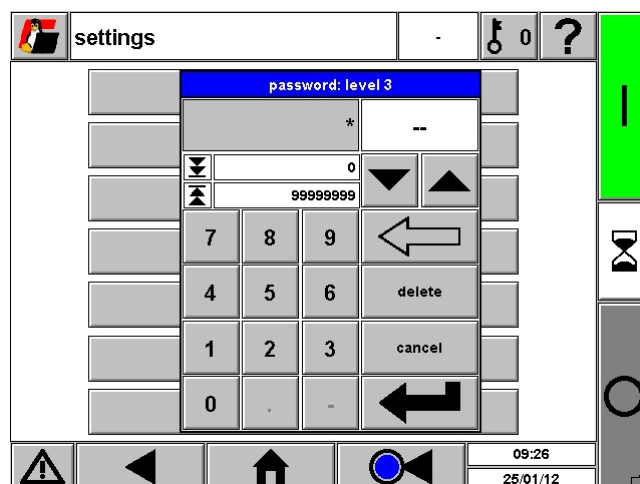
The menu **ACCESS RIGHTS** is a submenu of the System menu **SETTINGS**.

You access it as follows:

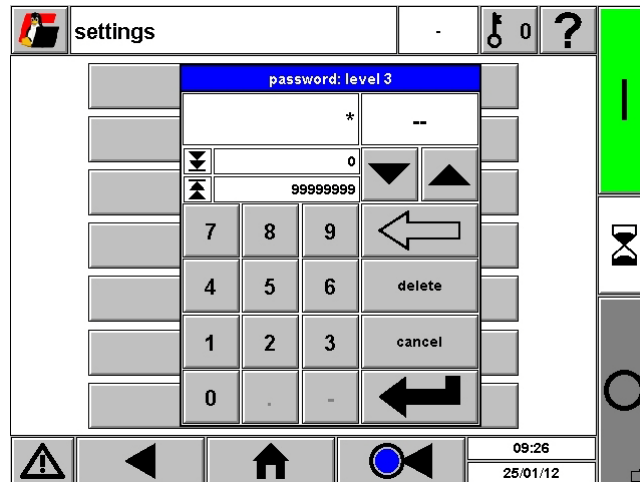
- Rovema logo  -> System menu Settings -> Access rights

In order to open the screen **ACCESS RIGHTS** the password for access level "3" is required, as the passwords themselves can be viewed and changed here.

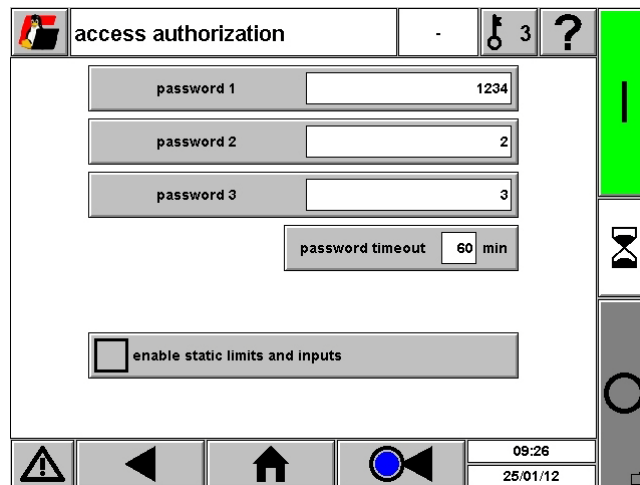
You will then be asked to enter the password for the highest level:



Your password is hidden during entry by displaying *** for the individual numbers you enter.



After the valid password is successfully entered, the **ACCESS RIGHTS** menu shows you a list of all currently valid passwords.



NOTE!

The passwords set by ROVEMA at the factory are shown on the last page of this operating manual; after referring to this page, you should keep it separate from the manual to prevent access by unauthorized persons.

Changing passwords

Select the password level that you want to reset. The numeric keypad then appears displaying the valid password for this level. Overwrite the old password (in the example shown, "1234") by entering the new value (in the displayed example, "4321") and conclude the entry by pressing the Enter key.

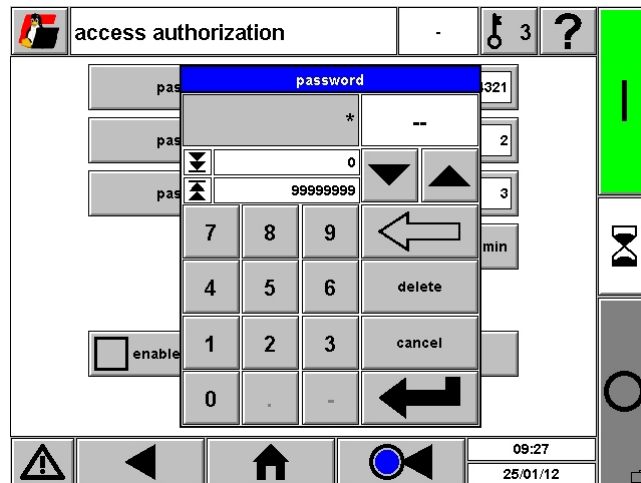
The screenshot shows the 'access authorization' screen. At the top, there is a title bar with a red icon, the text 'access authorization', a minus sign, a key icon with '3', and a question mark. Below this, there are three password fields labeled 'password 1', 'password 2', and 'password 3'. 'password 1' is currently active and shows '1234'. To the right of the password fields are three buttons labeled '234', '2', and '3'. Below the password fields is a numeric keypad with digits 0-9, a 'delete' button, and a 'cancel' button. There is also an 'enable' checkbox. On the right side of the screen, there is a green vertical bar with a white exclamation mark, a timer icon, and a circular button. At the bottom, there is a status bar with a warning icon, navigation arrows, a home button, a blue circle button, and the time '09:27' and date '25/01/12'.

This screenshot is identical to the previous one, but the password '1234' has been changed to '4321' in the 'password 1' field.

The overview then reappears with the new passwords:

The screenshot shows the 'access authorization' screen with the overview of password settings. The title bar is the same. Below the title bar, there are three password fields labeled 'password 1', 'password 2', and 'password 3'. 'password 1' shows '4321', 'password 2' shows '2', and 'password 3' shows '3'. Below these fields is a 'password timeout' field set to '60 min'. There is also an 'enable static limits and inputs' checkbox. On the right side of the screen, there is a green vertical bar with a white exclamation mark, a timer icon, and a circular button. At the bottom, there is a status bar with a warning icon, navigation arrows, a home button, a blue circle button, and the time '09:27' and date '25/01/12'.

Since you are still at the highest password level, you should now reset the password. To do this, press the key symbol on the upper menu bar:



You can now:

- Press the Enter key without making any further entries. This resets the password to level "0".

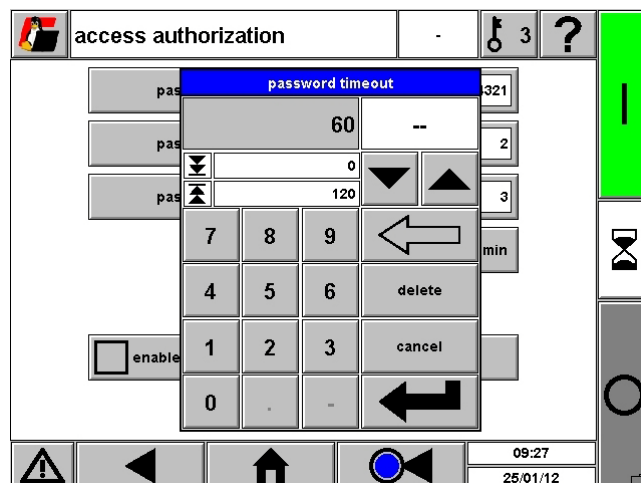
or

- enter a new password for Level 2 or 3, to enter a corresponding authorization for the machine user.

Password timeout

The access authorization remains valid until overridden by a new password or until the duration of password validity expires.

To change the duration of password validity, press the menu item **Password timeout xxx min**



You can now specify how long a password should remain valid, by setting a duration of between 1 and 120 minutes.

After this time expires, the password level is automatically set to "0". Additional entries requiring a higher access level can then only be made after the password has been entered again.

Enabling static limits and inputs

A machine may contain devices that do not belong to the standard equipment of the machine and that can be selectively switched on or off during production.

The following situations are possible for such a device

- If the device is switched off via the appropriate switch, all entry fields associated exclusively with this device can no longer be used. These entry fields may be hidden or greyed out. Possible course curves of this device are not calculated.
- If such a device is switched on again, a complete course curve calculation and limit value calculation are performed. If these calculations produce an error, the calculation module does not allow the device to be switched on, but the old limit values are retained.
- If the device cannot be activated again due to implausible values (for example, after the machine is switched on for the first time), the **"Enable static limits and inputs"** switch can be switched off in order to deactivate the dynamic limit value calculation. That means that all operating fields of the device can be used again, allowing valid values to be set.

The **"Enable static limits and inputs"** switch is a function that only trained personnel should operate!

The possibilities in an overview table:

Device	Switch position	Operation	Limit value calculation
activated	off	All input fields are active	active
activated	on	All input fields are active	not active
not activated	off	Input fields cannot be operated	active
not activated	on	All input fields are active	not active

2.2.4.3 The settings in the "Network" menu

The menu **NETWORK** is a submenu of the System menu **SETTINGS**.

You access it as follows:

- Rovema logo  -> System menu Settings -> Network

**NOTE!**

To make settings in this menu, you must first verify that you are authorized to do so by entering the appropriate password.

The machine network works with the TCP/IP protocol.

- Set the IP address that you get from your network administrator.

To prevent disruption to the network enter only an IP address released in your company!

When you exit the menu, the new IP address is applied immediately and displayed. (The IP address shown in the illustration is only an example!)

The host name cannot be entered here, but is not absolutely necessary for network operation.

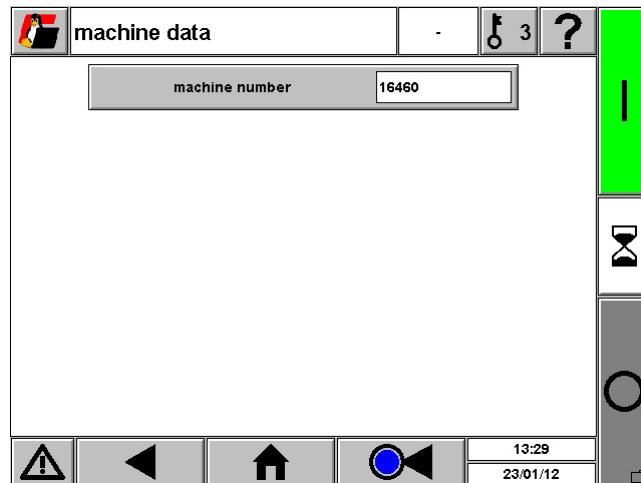
If you have entered the network address, you can perform data backup for the machine via an FTP program.

2.2.4.4 The settings in the "Machine data" menu

The menu **MACHINE DATA** is a submenu of the System menu **SETTINGS**.

You access it as follows:

- Rovema logo  -> System menu Settings -> Machine data



This screen is used to enter information about the machine.



NOTE!

To make settings in this menu, you must first verify that you are authorized to do so by entering the appropriate password.

Machine number

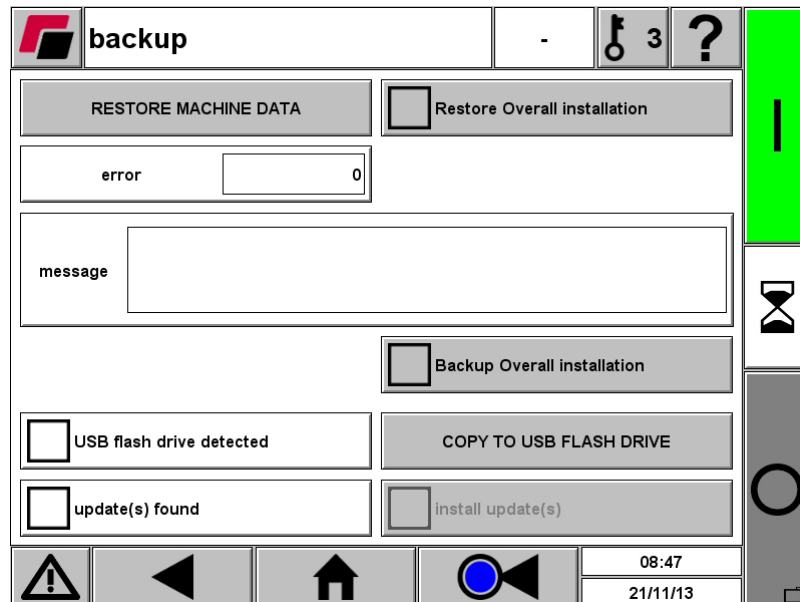
Enter the ROVEMA machine number here.

2.2.4.5 The settings in the "Backup" menu

The menu **BACKUP** is a submenu of the System menu **SETTINGS**.

You access it as follows:

- Rovema logo  -> System menu Settings -> Data backup



This menu contains switches that you can use to create backups of machine data. It is also possible to restore the entire installation of the system or to carry out an update of system components.

Whenever the control unit is powered up (main switch on), backups of the most recently active machine data (data resources) plus the recipe and configuration data are automatically created on the machine. These are sorted by day of the week with up to 10 individual states being saved on the system (i.e. up to 10 switch-off and restart operations). If the machine is not switched off and restarted for a whole day or more, the backups from the previous week (or even earlier) are retained for this particular day. As soon as the first backup of the day is created, all the existing backups from the previous week are deleted so that there is only ever one set of backups relating to a particular day.

Change screen **RESTORING THE MACHINE DATA**

For switching to a screen for selection of the machine data to restore.

"Restore entire installation" switch

This resets the entire machine control installation to the state of the existing backup.

The machine must not be running during the procedure and cannot be operated. The process can take up to one hour.

All changes made since the last backup will be lost. The machine must then be restarted via the main switch.

"Free space in the file system" value display

Indicates the free storage space available on the CompactFlash (hard disk).

"Error" value display

Display of all errors that occurred while creating or restoring a backup.
The display is reset at machine restart.

"Message" value display

If operating system messages occur when creating or restoring a backup, or when installing an update, they are displayed here.

"Backup entire installation" switch

This triggers a backup of the entire hard drive (CompactFlash). There precisely one backup of this kind on the system; older backups are overwritten.
The machine must not be running during the process. It can take a few minutes.

"USB stick detected" status display

The display signals that the system has detected a plugged-in USB stick and has mounted it, i.e. has integrated it into the file system.

"Update(s) found" status display

The display signals that a USB stick with a Rovema update has been detected on the control system's USB port.

Change screen *COPY TO USB STICK*

Takes you to a screen where a variety of data/files can be copied from the control system to the detected USB stick.

"Install update(s)" switch

This switch can be used to install a valid update from the USB stick. For the exact procedure, see also Chapter [2.2.4.5.4 - Installing an update via USB stick, Page 79](#).

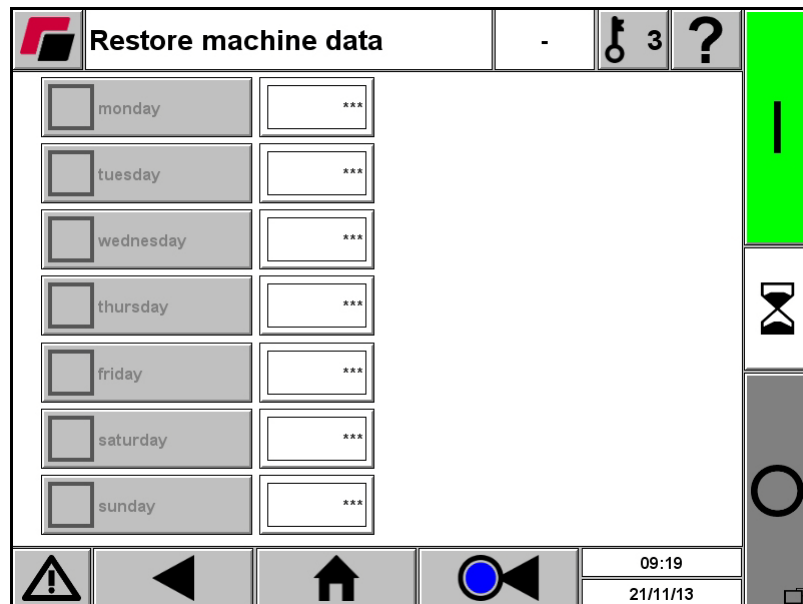
2.2.4.5.1 Requirements imposed on the USB stick

A USB stick must meet the following requirements before it can be used for copying files from a USB stick or for installing an update from a USB stick:

- The USB stick must be formatted with one of the compatible file systems: Ext2/3 or Vfat (called Fat32 in Windows).
- The USB stick must not be partitioned.

2.2.4.5.2 Restoring the machine data

This menu tells you the creation date of the backup of a weekday.



"Monday - Sunday" switch

Button(s) for selecting a day for the machine data or recipe and configuration backup that you want to restore. Only those days for which there is at least one backup are displayed.

The date that appears next to a particular button is the date on which a backup was last created for this day of the week. Backups that relate to the same day of the week but date from previous weeks are deleted automatically.

"Restore machine data" switch

This is used to reset the setting values and machine data to the state of the selected backup (state when machine is turned on).

The machine must not be running during the process! All values that have changed since the machine was turned on will be lost!

The machine must then be restarted via the main switch.

"Restore recipe and configuration data" switch

This is used to reset the configuration and recipe data to the state of the selected backup (state when machine is turned on).

The machine must not be running during the process! All recipes and configurations that have changed since the machine was turned on will be lost!

The machine must then be restarted via the main switch.

2.2.4.5.3 Copying data to a USB stick

For an easy transfer of data

- Data backups
- Printouts
- Recipes
- Service data (snapshots)

can be read from the control system and copied to a USB stick.

The data/files can then be transferred easily from the USB stick to a PC for further processing.



NOTE!

When selecting a suitable USB stick, note the information in Chapter [2.2.4.5.1 - Requirements imposed on the USB stick, Page 75](#)!

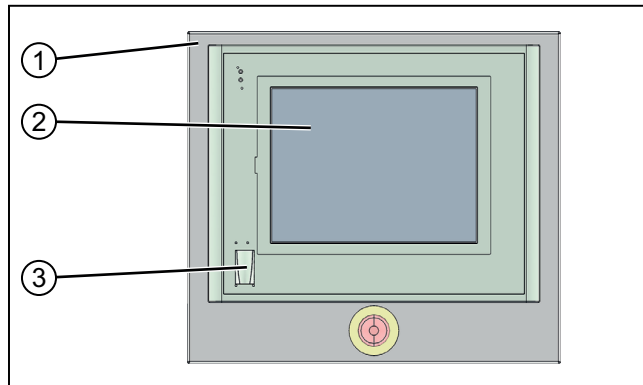
Proceed as follows to transfer data:

Preparing the USB stick

- Delete all partitions on the USB stick. The USB stick must not be partitioned.
- Format the USB stick with the FAT32 file system.

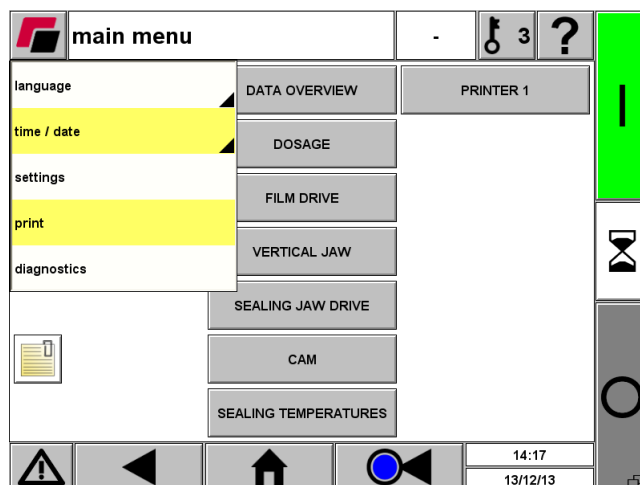
Copying the data

- Insert the USB stick into the USB port on the ROVEMA touch screen on the machine's control panel.

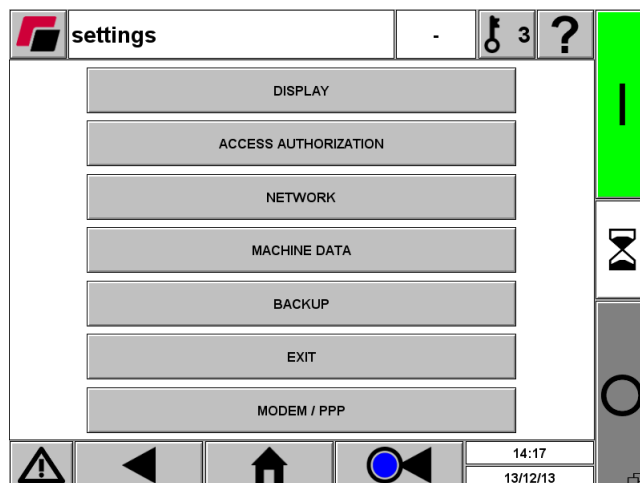


- 1 Control panel
- 2 Display/touch screen
- 3 USB interface

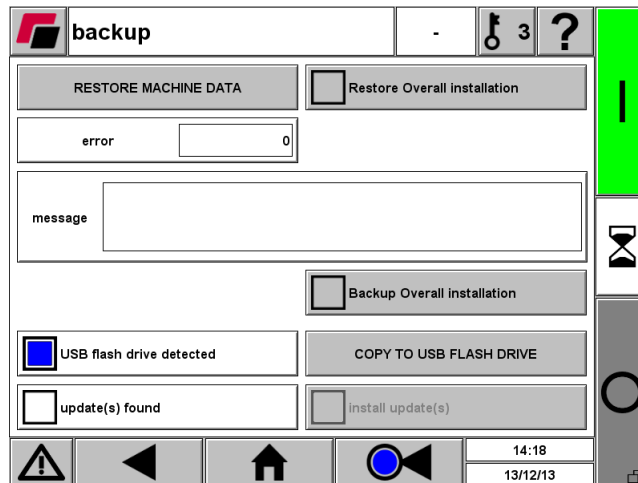
- Touch the Rovema logo  then the following system menu selection will appear:



- Go to the System menu **SETTINGS**:



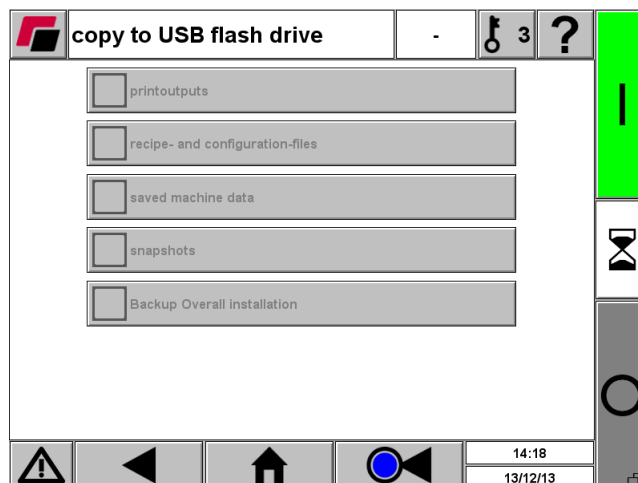
- Open the menu **BACKUP** :



The **“USB stick detected”** status display indicates that the inserted USB stick has been detected by the system and integrated into the file system.

If there are any errors or problems, a message will appear in the message window in the middle of the screen. Contact ROVEMA to remedy the error if necessary.

- Go to the menu **COPY TO USB STICK**.



You can use the switches in this menu to copy data/files to the USB stick. All operations are only enabled if a USB stick has been detected. The function of each of these switches is explained at the end of this Chapter.

- Select the kind of data backup to be copied to the USB stick by activating the appropriate switch.



NOTE!

When copying, any files of the same name already on the USB stick will be overwritten without further confirmation.

The copying process starts immediately when the switch is activated. Copying the data/files may take a few moments.

After copying, the switch status is resent automatically.

- If you want to copy more data/files to the USB stick, activate an additional switch.
- When all tasks have been completed, remove the USB stick from the USB port.

The individual switches and their functions:

“Printouts” switch

This copies all generated printouts (screen data, alarm list, etc.).

“Recipe and configuration files” switch

This copies all available configurations together with their recipes.

“Backed up machine data” switch

This copies all the available daily backups created automatically each time the machine is switched on.

Each of these contains the data tree at the time (possibly not saved), the recipe and configuration files and the “error.log” log file.

“Snapshots” switch

This copies all the snapshots created, i.e. all snapshots created whether automatically or manually.

“Backup entire installation” switch

This copies the full backup.

2.2.4.5.4 Installing an update via USB stick

Updates supplied by ROVEMA can be installed with the aid of a USB stick.



NOTE!

When selecting a suitable USB stick, note the information in Chapter [2.2.4.5.1 - Requirements imposed on the USB stick, Page 75](#)!

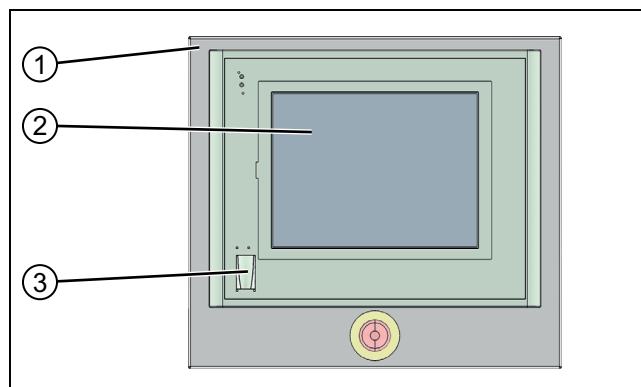
Proceed as follows to install:

Preparing the USB stick

- Delete all partitions on the USB stick. The USB stick must not be partitioned.
- Format the USB stick with the FAT32 file system.
- Copy the files “**updatexxx.tar.gz**” and “**keyfile**” to the root directory of the USB stick.

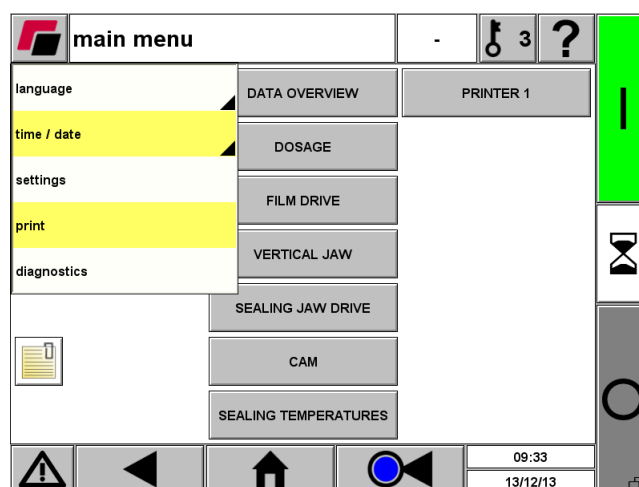
Importing the updates

- Insert the USB stick into the USB port on the ROVEMA touch screen on the machine's control panel.

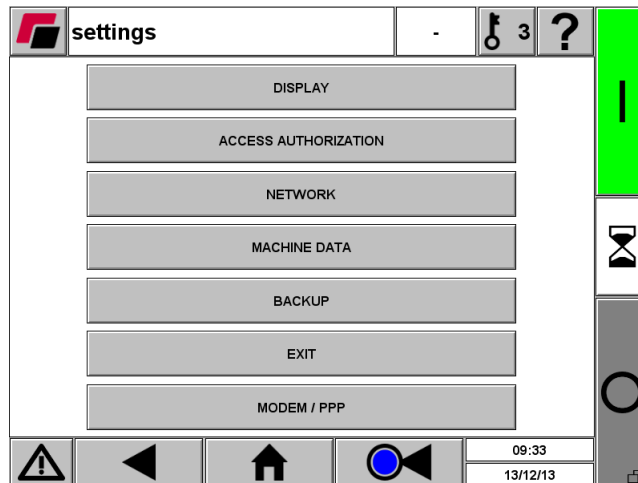


- 1 Control panel
- 2 Display/touch screen
- 3 USB interface

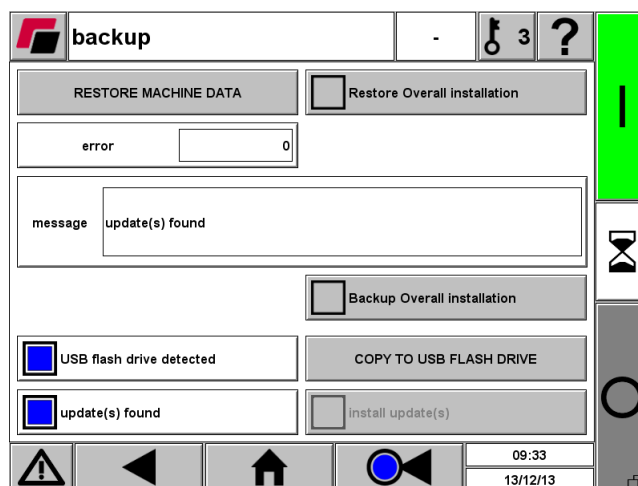
- Touch the Rovema logo  then the following system menu selection will appear:



- Go to the System menu **SETTINGS**:



- Open the menu **BACKUP** :



The “**Install update(s)**” switch on the lower edge of the screen becomes active as soon as a USB stick with valid updates is detected. This is also indicated by the status displays “**USB stick detected**” and “**Update(s) found**” in the display.

If there are any errors or problems, a message will appear in the message window in the middle of the screen. Contact ROVEMA to remedy the error if necessary.

- Activate the switch “**Install update(s)**”.

When the switch is switched on, the following confirmation prompt will appear: “Do you want to start the update installation now?”

When the “Yes” button is activate, the updates are copied to the update directory on the P@ck-Control computer.

Any errors occurring during the update process are displayed in the “Message” output window.

Copying the updates may take a few moments. Once the copying procedure is completed successfully, the following message dialog notifies the user that the machine must now be switched off and back on again in order to activate the update: "Update installed, restart required!".

- Before restarting the machine, remove the USB stick from the USB port, otherwise the system will attempt to boot from the USB stick (which is not possible).
- Switch the machine off via the main switch and then back on again.

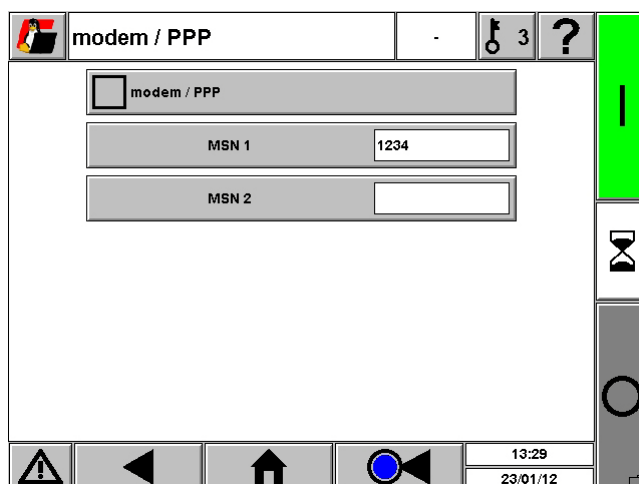
The updates will then be installed with the subsequent boot procedure. The installation may take a few moments. Once the boot procedure is completed successfully, the updates should have been loaded into the system, thus concluding the update procedure.

2.2.4.6 Settings in the "Modem/PPP" menu

The menu **MODEM / PPP** is a submenu of the System menu **SETTINGS**.

You access it as follows:

- Rovema logo  -> System menu Settings -> Modem/PPP



This screen contains settings for configuring a modem.



NOTE!

To make settings in this menu, you must first verify that you are authorized to do so by entering the appropriate password.

"Modem / PPP" switch

This switch activates the modem connection for the purpose of accessing the P@ck-Control system.

MSN 1

First dedicated ISDN telephone number of the P@ck-Control system.

MSN 1

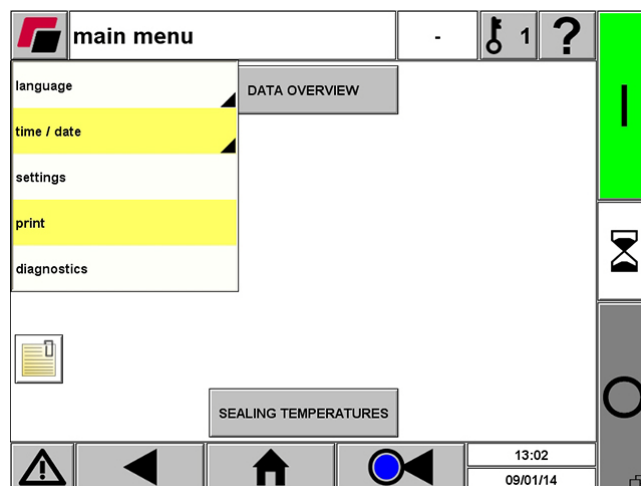
Second dedicated ISDN telephone number of the P@ck-Control system.

2.2.5 "Print" system menu

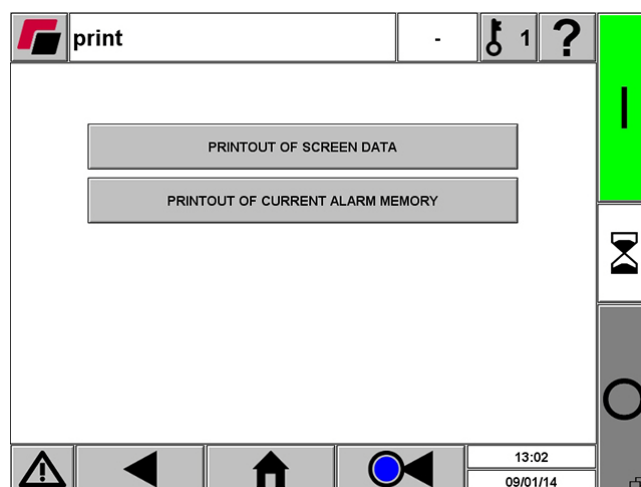
The System menu **PRINT** is a submenu of the system menu.

You access it as follows:

- Touch the Rovema logo  the drop-down list of the system menu appears.



- Call up the System menu **PRINT**.



The menu offers the option of printing out machine data.

- Select the machine data to be printed by activating the appropriate menu selection button:

Change screen **PRINTING OUT SCREEN DATA**

Change to the screen for creating screen data printouts (e.g. recipe data, configuration data, etc.).

Explanations of the settings you can make in this menu can be found in the chapter [2.2.5.1 - Printing out screen data, Page 84](#).

Change screen **PRINTOUT OF THE CURRENT ALARM BUFFER**

Change to the screen for creation of printouts of the current alarm buffer (error messages and/or info messages).

Explanations of the settings you can make in this menu can be found in the chapter [2.2.5.2 - Printout of the current alarm buffer, Page 86](#).



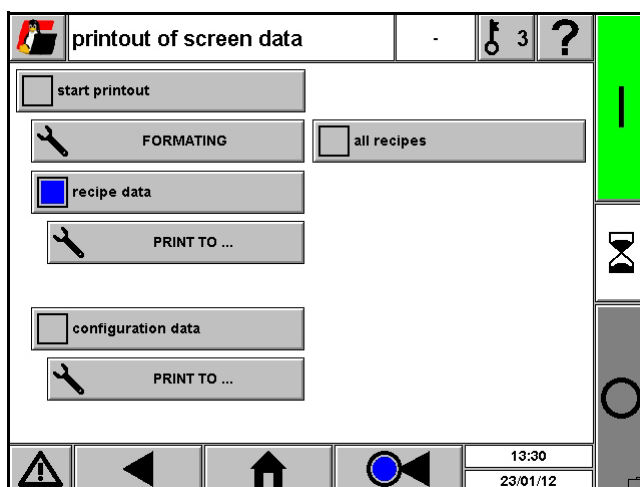
NOTE!

To change settings in the following menus, you must first verify that you are authorized to do so by entering the appropriate password.

- Check the print output settings in the selected screen menu and select the data that should be output.
- Activate the switch **"Start printing"** to start printing the data. The data will now be prepared digitally and the result then saved in an output file. The save location at which the output file was stored corresponds to the directory that was entered in the screen menu **PRINT TO ...** has been entered.

While the data printout is being created, the touch screen is blocked from further operations (see also corresponding info message).

2.2.5.1 Printing out screen data



"Start printing" switch

Pressing this switch starts the data print out.

The completed output file will be saved automatically in the directory defined in the **PRINT TO ...** screen menu.

While the data print is being created, the touch screen is blocked from further operations by an appropriate info message.

The switch will be reset automatically once the printing process is complete.

Change screen **FORMATS**

Go to the screen with the format settings.

Change screen **PRINT TO ...**

Go to the display of the print destination and any information that may already have been printed.

"Recipe data" switch

All saved recipe data of the actively loaded recipe will be printed out.

"Configuration data" switch

All saved configuration data of the actively loaded recipe is printed out.



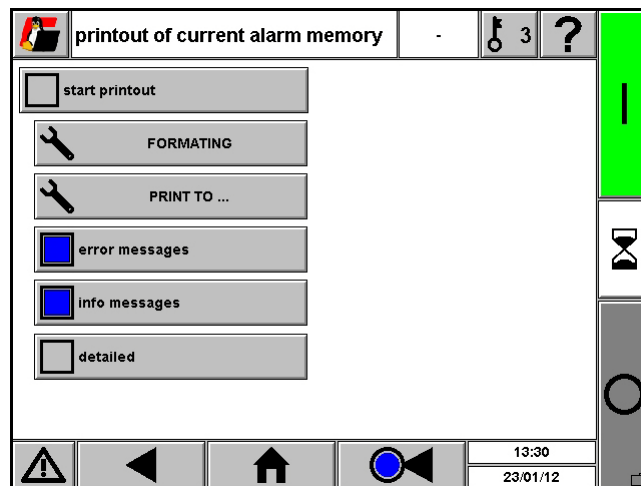
NOTE!

At least one switch must be switched on; otherwise, there is no output. Only when all are switched on will all messages be output.

"All recipes" switch

The screen data for all recipes will be printed out.

2.2.5.2 Printout of the current alarm buffer



"Start printing" switch

Pressing this switch starts the data print out.

The completed output file will be saved automatically in the directory defined in the **PRINT TO ...** screen menu.

While the data print is being created, the touch screen is blocked from further operations by an appropriate info message.

The switch will be reset automatically once the printing process is complete.

Change screen **FORMATS**

Go to the screen with the format settings.

Change screen **PRINT TO ...**

Go to the display of the print destination and any information that may already have been printed.

"Error messages" switch

This switch acts as a filter for the values to be output.

If the switch is on, the information from error messages will be included in the printout.

If the switch is off, the information from error messages does not appear in the printout.

"Info messages" switch

This switch acts as a filter for the values to be output.

If the switch is on, the information from info messages will be included in the printout.

If the switch is off, the information from info messages does not appear in the data printout.

**NOTE!**

At least one switch must be switched on; otherwise, there is no output. Only when all are switched on will all messages be output.

"Detailed" switch

This switch activates a substantially more detailed output of the contents of the alarm buffer.

2.2.5.3 Adjustment of the print output

The result of any print task is a file to be read in plain text in the current language. The formatting of this printed file can be defined individually in this screen for every type of printout.

"CSV file" switch

If this switch is on, the data will be saved in a CSV file (comma-separated values). This file can then be converted into an Excel file.

**NOTE!**

Its activation also renders the switch **"TXT file"** inoperable.

"TXT-file" switch

If this switch is on, the data will be saved in a text file (comma-separated values).



NOTE!

Its activation also renders the switch **"CSV file"** inoperable.

Lines per page

The parameter "Lines per page" specifies how many lines fit on a page before a page feed is triggered. The value must lie between 10 and 99999.

Up to 70 lines can be printed on matrix printers with 12-inch-long tabulating paper. For an inkjet printer with DIN A4 paper, a setting of 59 lines is recommended.

Characters per line

The parameter "Characters per line" defines the maximum number of individual characters to be output per line. Longer information will be automatically paginated and formatted in effectively.

Indentation from the left

If a multiply nested information structure is being printed, any deeper structure will be shown indented by the number of spaces indicated here.

In the example of the screen data printout this means that the task of any further screen called up from one screen will by default be shown further indented by three characters.

Separators

This menu parameter defines a sequence of characters that should be used to fill out the printing of label and value. This makes the output file easier to read.

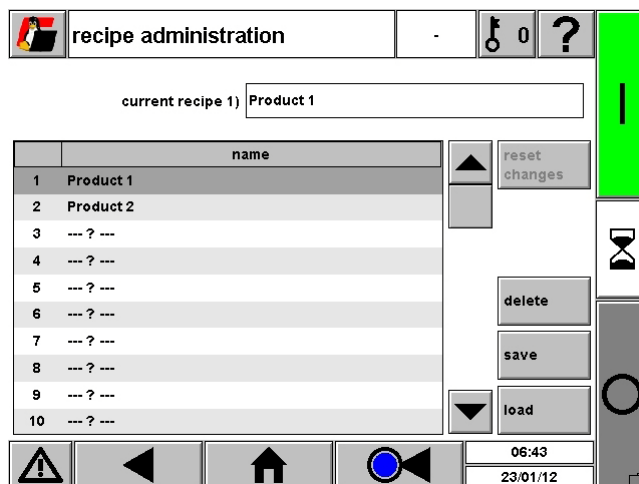
If the character sequence contains spaces at the start or end, the entire content must be placed within quotation marks. The quotation marks themselves will be removed automatically before use. Sequences without spaces do not need to be indicated inside quotation marks however.

2.2.6 recipe administration

General information

Activate the menu selection button  in the machine's main menu.

This takes you to the menu **RECIPE ADMINISTRATION**. This menu permits loading, saving and deleting of recipes.



The recipes each contain a complete machine data record, allowing product-specific machine data to be permanently saved and retrieved again at any time.

For easy identification, each recipe has a designation that the user can assign freely using the on-screen keyboard.

In the standard version, a maximum of 100 recipes can be saved.

Recipe administration contains the following elements:



The **Up arrow button**, for scrolling upwards in the recipe list.



The **Down arrow button**, for scrolling downwards in the recipe list.



The **Reset changes button**, for resetting the settings to the values saved in the recipe.

The **Delete button**, for deleting recipes.

The **Save button**, for saving recipes.

The **Load button**, for loading recipes.

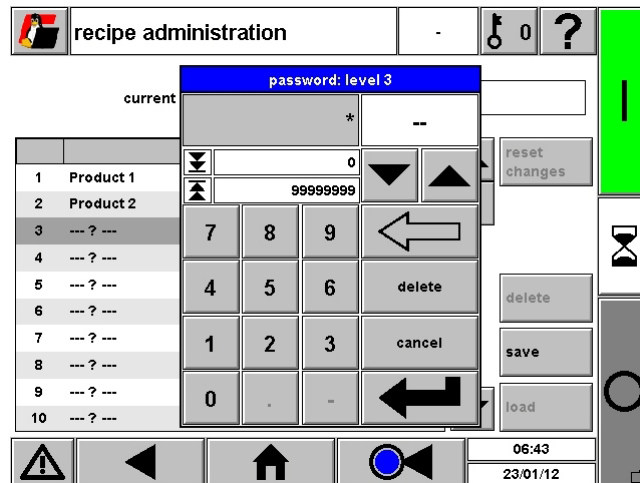
Optional: The **Changeover button** for changing over between recipe and configuration administration. (See also Chapter [2.2.6.1 - Configuration administration \(optional\)](#), [Page 91](#))

Creating a recipe

To save a new recipe to a specific storage location, first select the storage location where the recipe should be saved. To do this use the **Up/Down arrow buttons** to go to the appropriate location. You can use the scroll button to move the marking 10 lines up or down. While you hold down an arrow button, a dark-grey bar moves up or down, indicating the selected storage location.

Free storage locations are marked with **---?---**.

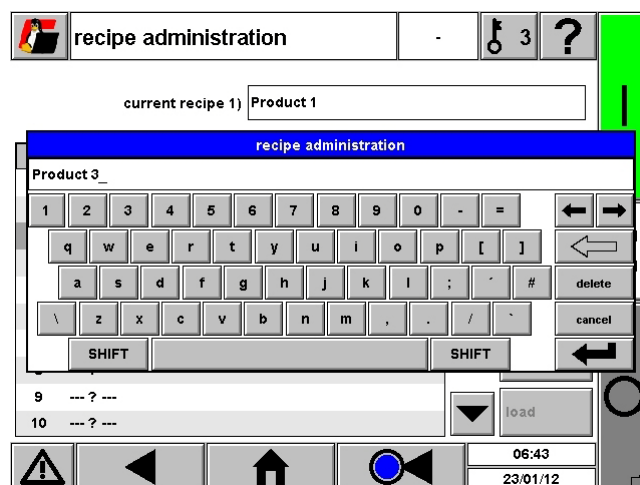
Now press the **Save button**. If you are not in the right access level, you are now requested to enter the password:



Once the correct password is entered, the alphanumeric keyboard appears:



Enter any desired name for your recipe.



Conclude your entry with the Enter key. Then you see the recipe on the previously selected storage location.

2.2.6.1 Configuration administration (optional)

General information

If a machine is equipped with various assemblies designed for certain modes of operation, the control must be set up for modes of operation. Setting up the software is facilitated by entering a configuration. The "Configuration administration" menu has been provided for this purpose.

Loading a machine configuration causes menus and/or individual menu parameters to be shown which are required for the selected machine configuration, and causes menus and/or individual menu items to be hidden which are not required for the selected machine configuration. Furthermore, limits are loaded for particular menu parameters which apply specifically to that machine configuration.

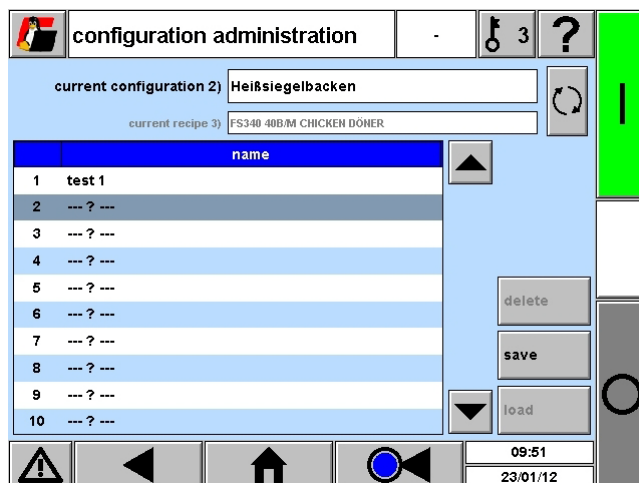
By activating the **Changeover button** Pressing the Changeover button (see figure below) allows you to change over between the "Recipe administration" and "Configuration administration".



Display of recipe administration:

	name
1	---
2	---
3	---
4	---
5	---
6	---
7	---
8	---
9	---
10	---

Display of configuration administration:



The procedure for **saving** and **deleting** a machine configuration is the same as the procedure described in the “Recipe administration” section.

To **load** a machine configuration, proceed as follows:

- Go to the menu **RECIPE ADMINISTRATION**.
- Activate the **Changeover button** When you press the Changeover button, the Configuration administration is displayed on the screen.
- Select the desired machine configuration.
- Activate the **Load button** When you press the Load button, the message “Please turn the machine off and back on via the main switch” is displayed.
- Turn off the machine via the main switch. **Do not switch the machine back on again yet!**
- First set up the machine for the selected configuration by mechanically installing/removing assemblies.
- Then, as the final step in the change of configuration, switch the machine back on via the main switch.

The selected machine configuration will not be loaded until the machine restarts!

- Go to the menu **RECIPE ADMINISTRATION**.
- In the menu **RECIPE ADMINISTRATION** load a recipe.

2.2.7 Machine data recording MDR

General information

Activate the menu selection button  in the machine's main menu.

By doing so, you go the MDR - (**M**achine-**D**ata **R**ecording) menu.

The operator of the machine has the option of entering or reading off production-specific machine data using this menu.

 MDR		VP	 3		
working (running) time	1.3 h	☐ reset working (running) time			
product counter	2957 piece	☐ reset product counter			
batch nominal	0 piece				
batch actual	0 piece	☐ reset batch counter			
film consumption production	19.8 m	☐ reset film consumption			
film consumption set up	30.065 m				
					8:49 AM
					6/8/16

operating hours

This menu item serves to display the operating time of the machine in hours.

product counter

This menu item displays the quantity of all of the filled packages produced with this machine so far.

batch nominal/actual

These two menu items are directly linked with each other.

The menu item **"batch nominal"** can be used to specify the quantity of product to be produced, e.g. during a product or format change.

The menu item **"batch actual"** can be used to display the products still to be produced within this batch.

At the beginning of a batch, first the value specified under "batch nominal" is adopted and the display counts down as production progresses. Once the desired quantity is reached, the message "batch reached" appears on the display, and production is interrupted.

The charge counter is switched off by entering the value 0 under **"batch nominal"**.

Film consumption during production (optional)

The quantity of packaging material consumed during a normal production run, i.e. when manufacturing filled bags, is displayed here (in meters).

Film consumption in setup mode (optional)

The quantity of packaging material consumed during the machine's setup or JOG mode, i.e. when the machine is running without product, is displayed here (in meters).

"Reset" buttons

The individual counters are reset with these buttons

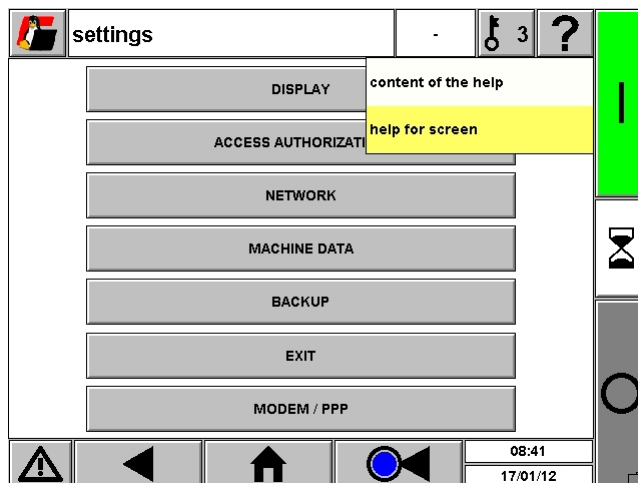
2.2.8 The online help system

ROVEMA offers you various possibilities to become familiar with the machine. These include printed manuals and the online help.

The touch screen always makes the online help system available in the upper menu bar. Access from the screen menus is possible at all times.

Starting the online help

Press the question mark key "?" on the display and choose from the sub-menus:



Content of the help

Under this menu item, you will find the complete instruction manual for the machine.

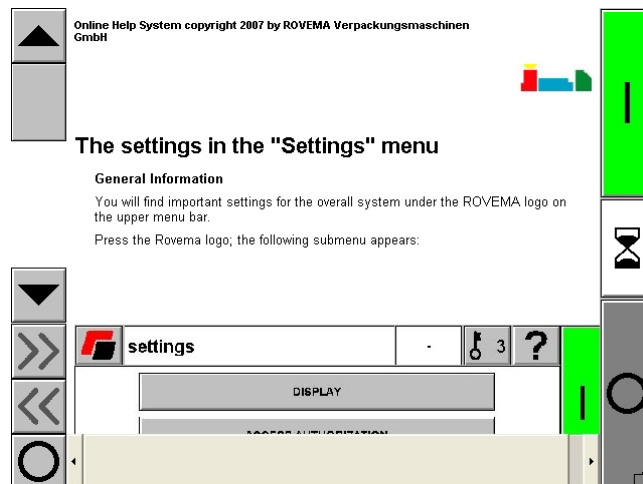
The help content is presented in the same structure as in the printed manual. If you are looking for a specific chapter, go there with the Arrow Up and Down keys or the PageUp and PageDown keys.

Each time you press on a heading in the table of contents, the subject is displayed in the window. After pressing the Forward and Back keys, you return to the overview; by pressing the Exit key, you return to machine operation.

help for screen

When you select this menu, the information on the menu screen from which you started the online help is provided to you.

If there is no help on the screen you called up, you automatically return to the main help directory. There you can search for further topics or exit the help.



Search in the table of contents for a subject

- Press on a title in the window.
The appropriate topic is displayed in the window.
- With the Forward and Back keys, you return to the table of contents.

This is how you exit the online help:

Press the button located in the lower left on the display.

2.2.9 The alarm messages

The fault messages shown on the display are differentiated between:

- info messages
- error messages

The **info messages** show only a certain running procedure or request an action; the message disappears automatically after a specific time.

The **errors** occurring during operation of the machine are displayed as a plain text **error message** on the touchscreen in a window.

The display occurs immediately after an error occurs.

At the same time, the button for changing into the alarm memory, on the footer, signals that an error is in the queue. The "Caution" symbol, shown on the button, changes its colour.

	Display color " grey ": There is no alarm message.
	Display color " green ": There is at least one info message.
	Display color " red ": There is at least one error message.

Tab. 2-3 "Alarm status"

If an error occurs, do the following:

- Rectify the error.
- Acknowledge the error by using the OK button in the alarm window if the alarm was not automatically acknowledged.
- The alarm window disappears.
- Press the "Standby" button on the outer menu bar.
- The "Caution" symbol, shown on the alarm memory button, changes its display colour to normal mode (grey).

2.2.10 The alarm memory

General information

All displayed info messages and errors are saved in an alarm memory. This memory is designed as a ring memory and can hold up to 99 items. This means that after the 99th memory space is reached, the oldest error entry is deleted and overwritten by the new one.

You access the alarm memory as follows:

- Via the button "**Go the alarm memory**" on the outside lower menu bar.
- Via the button "**Next**" within an alarm window.

The contents of the error memory can be viewed but not deleted. In certain cases, this makes it easier to trace an error following a machine fault.

alarm memory				-	key 3	?
↑	comes	gone	MA	alarm	↺	↻
06:58 (06/04/09)	07:01	VP 1	low temperature rear sealing jaw		▲	⌚ ○
06:58 (06/04/09)	07:00	VP 1	low temperature Vertical jaw left front			
06:58 (06/04/09)	07:00	VP 1	low temperature Vertical jaw right front			
06:58 (06/04/09)	07:00	VP 1	low temperature Ropack rear left			
06:58 (06/04/09)	07:00	VP 1	low temperature Ropack rear right			
06:58 (06/04/09)	07:00	VP 1	low temperature Vertical jaw left rear			
07:01 (06/04/09)	07:02	VP 1	excess temperature Vertical jaw right front			
07:24 (06/04/09)	07:25	VP 1	low temperature Vertical jaw left front			
07:24 (06/04/09)	07:25	VP 1	low temperature Vertical jaw right front			
08:46 (06/04/09)	08:48	VP 1	low temperature jaw zipper righth front			
08:46 (06/04/09)	08:48	VP 1	low temperature jaw zipper left front			
11:03 (06/04/09)	11:05	VP 1	low temperature front sealing jaw			
11:03 (06/04/09)	11:05	VP 1	low temperature rear sealing jaw			
11:10 (06/04/09)	11:11	VP 1	low temperature Ropack rear right			
11:10 (06/04/09)	11:11	VP 1	low temperature Ropack rear left			
					09:15	
					07/10/09	

Structure of the display

The structure of the error memory on the screen shown above:

Column **Incoming**: Start of the error (time)

Column **Outgoing**: End of the error (time)

Column: **MA** Machine area in which the error occurred

Column: **Error or info message** in plain text

Press the arrow key to determine the sort sequence category. It is possible to sort in ascending or descending order. Depending on the category, sorting is performed on the basis of time or alphabetically.

Select the error message for which you want to view more information: If Alarm is selected, all messages are displayed; otherwise, only error or info messages, depending on the selection.

The double arrow key can be used to toggle between the **Alarm, Error or Info message** displays.

Use the **Up/Down arrow buttons** to scroll through the error memory in single steps.

Touching an individual error message displays further details about that error. This display window can also be used to display an online help function for the error that has occurred.

2.2.11 The Switch menu

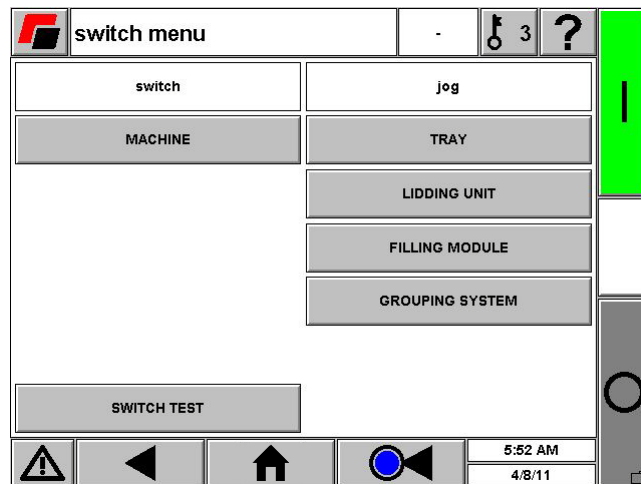


Fig. 2-3 Overview of a switch menu with multiple machine areas

General information

Press the **"Switch" button** on the outer menu bar to go to the

- Switch menu of the machine (for individual machines).
- A switch menu overview that is organized according to machine areas (for machines with multiple areas). Selecting a machine area in this overview then takes you to the Switch menu of the area concerned.

Structure

The Switch menu contains:

- **Switch** for switching machine functions on and off.

The function is switched on and off by pressing the corresponding switch field (rectangular). After it is switched on, the button is color-coded.



NOTE!

If a machine function is switched on or off in the "Switch" menu, the switch also changes for this function in the corresponding entry menu!

- **Jog buttons** for triggering certain functions and movements of individual drives in the machine. The jog buttons are used, for example, when setting up the machine or checking settings.

The function or movement is triggered by pressing the corresponding touch field (round) on the touchscreen. Motor drives normally run throughout the entire time that the button is being pressed. Pneumatic functions are triggered once.

Additional information on the functions of the individual switches and jog buttons of the machine areas can be found in the appropriate chapters.

2.2.12 Basic settings

In the following subchapters, you will find descriptions that belong to the basic settings of the machine. Basic settings are values belonging to a basic configuration and which refer to different areas of the machine.

In these basic settings, gear compensations, encoder resolutions, motor rotation speeds and currents, as well as other important basic values are defined.

The adjustment and evaluation of such values requires in-depth knowledge of machine control and programming, which is why these basic settings are made at the factory by Rovema.



NOTE!

The menus and values that are part of the basic settings are marked by the password level "E". This access is not permitted for the machine user!

If you must intervene as part of the remote diagnosis of the machine, you will receive a temporary password from Rovema to obtain this access!

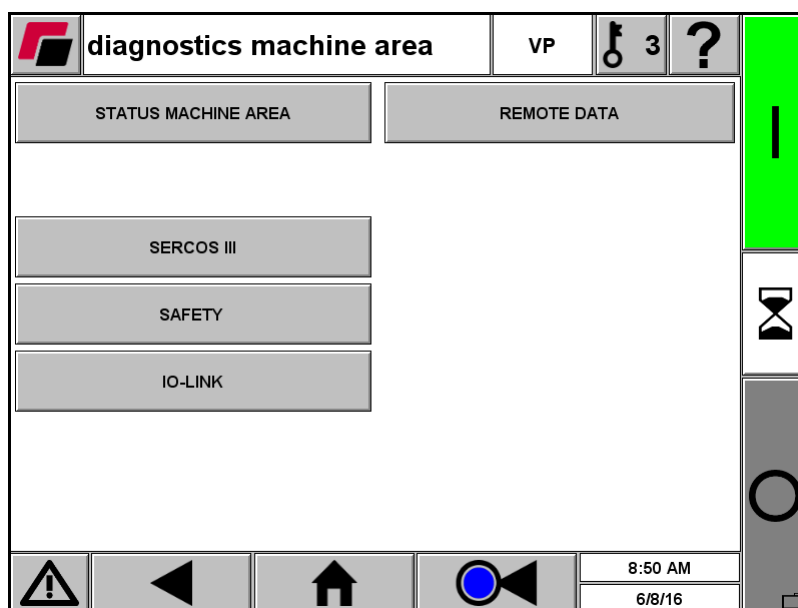
2.2.12.1 Menu - Diagnosis of machine area

General information

Activate the menu selection button  in the main menu of the machine area.

This takes you to the menu **DIAGNOSIS OF MACHINE AREA**.

In this menu, important data about the condition and status displays of the axes in this machine area can be viewed.



Change screen **STATUS**

Access to the menu **STATUS** for display of machine states.

Change screen *SERCOS III*

Access to the menu *SERCOS III* for display of the SERCOS III bus system states.

Change screen *SAFETY* (Option)

This takes you to the diagnostic screen for the Safety Bridge system.

2.2.12.1.1 "Machine area status" menu

This screen shows the current status of a machine area. The machine area is depicted in the upper menu bar to the left of the wrench.

Variables of the error reactions are displayed in the **left area** of the screen.

Status information of the PLC (Programmable Logic Controller) is displayed in the **right area** of the screen.

status machine area		VP	3	?
diagnostics machine area				
☐ stop	☐ ready			
☐ Stop	☐ first switch on			
☐ stop standby	☐ running			
☐ stop standby D	☐ set up			
☐ error	☐ safely closed			
PLC-CycleTime MainTask 6 ms		PLC-CycleTime SlowTask 200 ms		
8:50 AM		6/8/16		

Stop

The machine is stopped immediately after an error occurs.

Stop

The machine is stopped in a stop position after an error occurs; stand-by is lost.

stop standby

The machine is halted in a halt position after an error occurs; stand-by is maintained.

stop standby D

The machine is halted in a halt position with a delay after an error occurs; stand-by is maintained

error

There is an error. The information is also included here.

ready

The machine stand-by is present; the machine can be switched on.

First switch-on

The machine is switched on, but not yet in automatic mode.

running

The machine is in automatic operation

set up

The machine is in set-up mode

safely closed

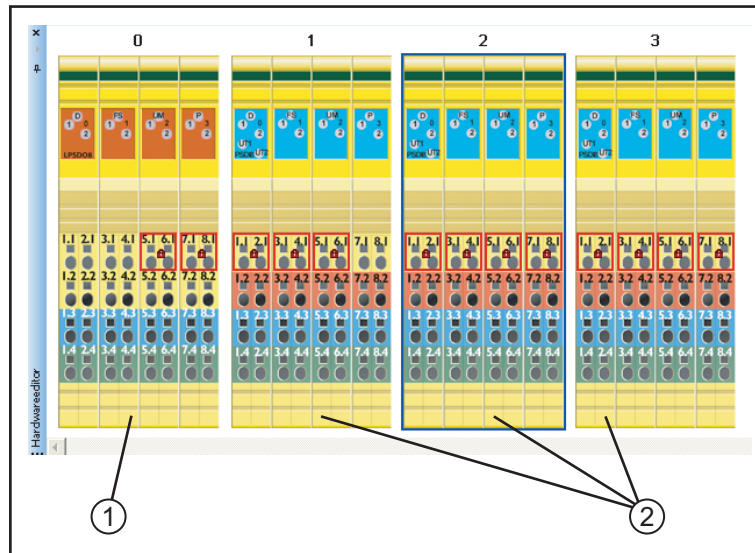
The safety chain is closed

2.2.12.2 "SafetyBridge" diagnostic menu (optional)**General information**

A SafetyBridge system uses input and output modules from the Phoenix Contact company; it is with their help that the safety switches can be read in and the safety-relevant components (mains contactor, air supply, etc.) can be switched.

The components of the SafetyBridge system are integrated into the existing in-line system. The output module, which is also called an "island", is housed in the main electrical cabinet. The input modules for the safety switches can be distributed over different terminal boxes in the machine.

Example for the structure of a SafetyBridge system



- 1 Output module
- 2 Input modules

The exchange of data between the individual output modules is controlled by the SERCOS III bus system.

diagnostics

The menu **SAFETYBRIDGE DIAGNOSTICS** This takes you to the diagnostics screen for the Safety Bridge system. All the information and messages delivered by the system are displayed in this menu, e.g. the error codes from the individual modules and the version of the safety project.

Diagnostic SafetyBridge		VP	3	?
diagnostics machine area				
Isle 1				
☐ Different Logic detected		☐ Activate different Logic		
Version		error code see documentation		
Project	SBT	LPSDO	0	
Description		Satellite 1 (PSDI)	0	
Name		Satellite 2 (PSDI)	0	
Version		Satellite 3 (PSDI)	0	
FileName		Satellite 4 (PSDI)	0	
CRC	0	Satellite 5 (PSDI)	0	
TimeStamp	0			
Date TimeStamp	*** 12:00:00 AM	*** 12:00:00 AM		
9:23 AM		5/24/12		

LPSDO

Designation for an output or logic module in the SafetyBridge system.

PSDI

Designation for an input module in the SafetyBridge system.

2.2.12.3 "Motor current" menu

In this menu the motor current for a motor is adjusted and the actual motor current is displayed.

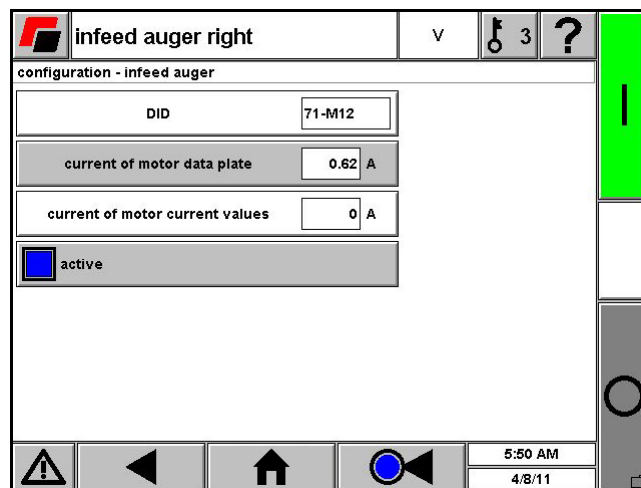
The Fig. below, showing a menu for the settings, is just an example!

NOTE!

Danger of permanent machine damage due to incorrect settings!

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!



"BMK" value display

This display field contains a motor labelling that is also used in the wiring diagrams of the electrical documentation to clearly identify the motor.

Motor current rating plate

Enter here the motor current that is on the motor rating plate.

"Current values of motor current" value display

This display field shows the momentary current consumption of the motor.

The displayed value is only correct if the correct motor current was previously entered in the "Motor current rating plate" menu parameter **"Motor current rating plate"** !

"Active" switch

With this switch, the motor can be switched off. But in this case, it can no longer be switched on in one of the submenus!

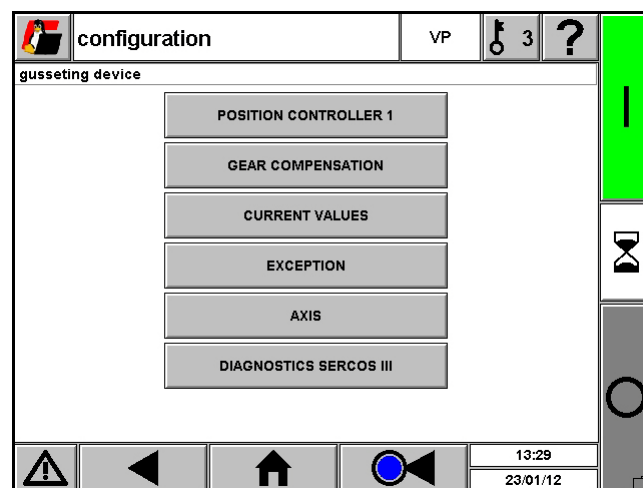
2.2.12.4 "Configuration" menu

NOTE!

Danger of permanent machine damage due to incorrect settings!

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!



Change screen *POSITION CONTROLLER*

The parameters for the drive and gear ratio of the axis are set in this menu.

Change screen *GEAR COMPENSATION*

Adjustment of "bent" gear ratios.

Change screen *ACTUAL VALUES*

This menu contains the current actual values of the axis.

Change screen *EXCEPTION*

The parameters for velocities when handling malfunctions of the axis.

Change screen *AXIS*

This menu includes definition of the maximum drive parameters and final positions.

2.2.12.5 "Position controller 1" menu

The screen is divided in two. With the ">>/<<" buttons on the lower edge of the display window, you change from one screen display into the other.

NOTE!

Danger of permanent machine damage due to incorrect settings!

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!

Position controller 1		VP	3	?	
gusseting device - configuration					
KP	5	encoder evaluation	4		
KI	0	encoder resolution	2000		
KD	0				
KV	100	i motor/encoder			
Maximum motor speed	7000 rev./min	numerator	1		
position error limit		2 mm	denominator	1	>>
13:29 23/01/12					

KP, KI, KD, KV

Controller parameters for the drive.

nMotor 10 V

Maximum speed of the connected drive. Depending on the maximum frequency of the converter servo.

position error limit

This value is calculated with the equation:

$$x = 0.004 \times [(nMotor10V \times \text{encoder resolution}) / (KP \times iMotor/encoder)]$$

encoder evaluation

Here, the value "4" must always be entered.

encoder resolution

Resolution of the connected encoder.

i motor/encoder

The value for this display is calculated according to the following equation:

$$\text{Motor rotational speed} \times (\text{numerator/denominator}) = iMotor/encoder$$

nominal value inversion

Inverting of these two values is used for setting the direction of rotation of the drive.

If the axis starts up quickly after the start and this triggers a position error, this switch must be switched over. (Direction of rotation and nominal value do not match.

However, if the axis is running correctly, but the direction of rotation is wrong (check via PLC in job mode: Jog forward=actual position becomes larger, jog backward=actual position becomes smaller) both switches must be adjusted.

encoder inverting

Inverting of these two values is used for setting the direction of rotation of the drive.

If the axis starts up quickly after the start and this triggers a position error, this switch must be switched over. (Direction of rotation and nominal value do not match.

However, if the axis is running correctly, but the direction of rotation is wrong (check via PLC in job mode: Jog forward=actual position becomes larger, jog backward=actual position becomes smaller) both switches must be adjusted.

line simulation

If this switch is switched on, the encoder is simulated. No signals of the encoder are evaluated thereby.



NOTE!

This switch is used exclusively for test purposes. This switch must be switched off during running operation!

encoder monitoring

Encoder monitoring is an important diagnostics function. The switched-on encoder monitoring monitors the zero track of the encoder and outputs the number of pulses per revolution.



NOTE!

If this function is switched off, this can lead to destruction of machine components if an encoder has a malfunction and this was not monitored!

2.2.12.6 "Position controller 2" menu

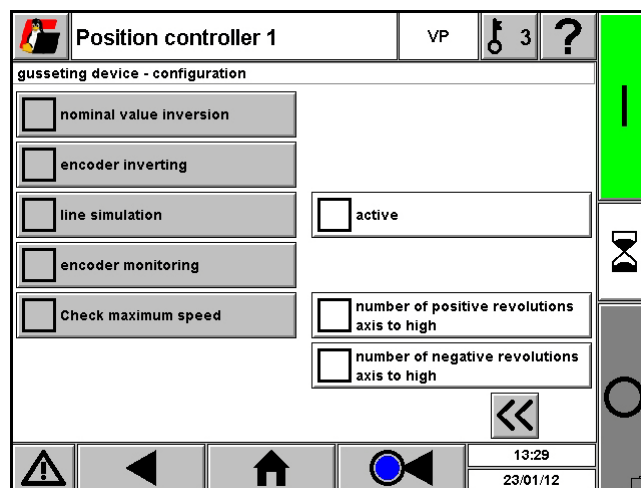
The screen is divided in two. With the ">>/<<" buttons on the lower edge of the display window, you change from one screen display into the other.

NOTE!

Danger of permanent machine damage due to incorrect settings!

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!
-



nominal value inversion

Inverting of these two values is used for setting the direction of rotation of the drive.

If the axis starts up quickly after the start and this triggers a position error, this switch must be switched over. (Direction of rotation and nominal value do not match.

However, if the axis is running correctly, but the direction of rotation is wrong (check via PLC in job mode: Jog forward=actual position becomes larger, jog backward=actual position becomes smaller) both switches must be adjusted.

encoder inverting

Inverting of these two values is used for setting the direction of rotation of the drive.

If the axis starts up quickly after the start and this triggers a position error, this switch must be switched over. (Direction of rotation and nominal value do not match.

However, if the axis is running correctly, but the direction of rotation is wrong (check via PLC in job mode: Jog forward=actual position becomes larger, jog backward=actual position becomes smaller) both switches must be adjusted.

line simulation

If this switch is switched on, the encoder is simulated. No signals of the encoder are evaluated thereby.



NOTE!

This switch is used exclusively for test purposes. This switch must be switched off during running operation!

encoder monitoring

Encoder monitoring is an important diagnostics function. The switched-on encoder monitoring monitors the zero track of the encoder and outputs the number of pulses per revolution.



NOTE!

If this function is switched off, this can lead to destruction of machine components if an encoder has a malfunction and this was not monitored!

2.2.12.7 "Gear compensation" menu

NOTE!**Danger of permanent machine damage due to incorrect settings!**

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!

The drives of the P@ck-Control control unit work incrementally. To record the location, a real encoder is attached to the drive unit. The drive unit can be a rotating motor or a linear motor. A general problem with positioning controls is that various gears and feed constants are located between the actual application and the real encoder of various gears. In the case of relative positioning tasks, it is essential that relative positioning paths should be converted into integral incremental paths.

Settings in this menu must only be made by Rovema technicians!

2.2.12.8 "Current values" menu

**NOTE!**

The "Current values" menu is a pure display menu and provides the experienced technician with information about important machine values.

positions virtual encoder		saved positions virtual encoder	
user desired	0	strobe positive	0
desired	0	strobe negative	0
real	0	index positive	0
actual reference	0	index negative	0
actual position error	0	zero pulse	0
real	0 mm	☐ index signal	☐ strobe signal
speed virtual encoder		☐ reference OK	
user desired	0	MEASUREMENTS CURRENT VALUES REAL ENCODER STATUS AXIS	
desired	0		
real	0		

Positions

The diagnostics values of the position controller are displayed in this menu section.

saved positions

This menu section displays the positions recognised by strobe, index or the zero track. In the case of strobe and index, this is both the positive and the negative edge.

drive type

The **drive type** indicates which run the axis is currently executing, e.g.: run by velocity, run by trapezoid cam disc, angle reference run, etc.

raw state

The **raw state** The raw state shows the condition of the axis during the respective run that is shown under **drive type**.

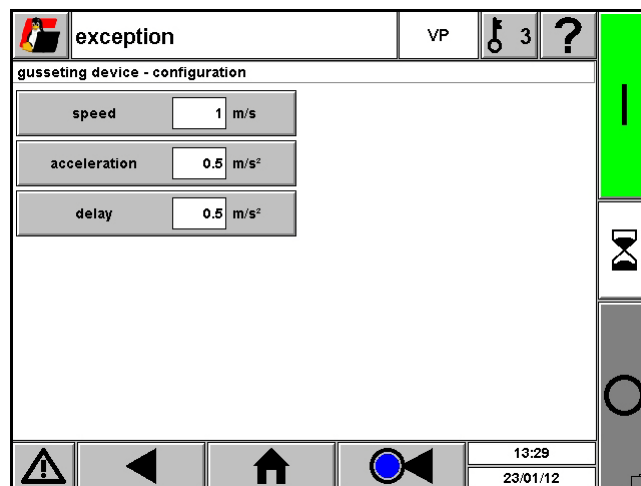
2.2.12.9 "Exception" menu

With these parameters, a correction run is performed within the exception.

NOTE!**Danger of permanent machine damage due to incorrect settings!**

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!



The control unit offers a universal opportunity for exception handling of axes. Exception handling permits handling malfunctions of an axis in such a manner that a machine's operation can be continued after a malfunction is remedied without having to re-reference individual axes. To allow this, relevant positions of the axes are restored through positioning processes during the exception handling. Exception handling is always necessary when an axis cannot follow the movement pattern demanded of it. This normally becomes apparent by exceeding the position error limit set by the user. Reasons for the incorrect behavior of an axis can be:

- The drive locks up
- The drive is overloaded
- There is no power supply
- The drive has a controller inhibit

In addition, when a machine is operated in specific situations, it can also be necessary to move an axis manually, e.g. to clear out a machine after a malfunction. In such situations, power to the drives is normally switched off, and they can then be moved manually. Through the use of exception handling, proper operation can also be resumed after such disturbances without having to newly reference the axes.

This area may only be operated by Rovema technicians!

2.2.12.10 "Axis" menu

In this menu, the limit values for an axis are set.

In the case of rotating axes, the values refer to revolutions (rev) or ($^{\circ}$); in the case of linear axes, to a length (m) or (mm); see lower examples of the displays of two axes.

NOTE!

Danger of permanent machine damage due to incorrect settings!

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!

axis		ETI	3	?
inserting device - inserting device				
max. speed	2.13 m/s	final position positive	900 mm	I
max. acceleration	10 m/s ²	final position negative	-320 mm	
max. deceleration	10 m/s ²	actual position	0 mm	
M/F max. drive automatic	10 Nm	zero point distance	0 mm	
M/F max. drive jog mode	2 Nm	— jog +		
Motor specifications		position at axis marking		0 mm
				8:08 AM
				4/1/11

axis		EW	3	?
suction device - configuration				
max. speed	75 rev./min	final position positive	360 $^{\circ}$	I
max. acceleration	10 rev/s ²	final position negative	0 $^{\circ}$	
max. deceleration	10 rev/s ²	actual position	0 $^{\circ}$	
		zero point distance	0 $^{\circ}$	
		position at axis marking		
				9:52 AM
				4/1/11

Max. velocity

With this setting, the maximum velocity of the drive is set in (rev/min).

Max. acceleration

This setting determines the maximum acceleration in (rev/s²) with which the drive starts (m/sec).

Max. delay

This setting determines the maximum deceleration in (rev/s²) with which the drive brakes (m/sec).

The final positions of rotating axes

The final positions of a **rotating axis** are always in the range of -359° to 360°.

The final positions of a linear axis

The example of a linear axis shows where the limit values of an axis are set. The entire movement path of the axis from right stop to left stop

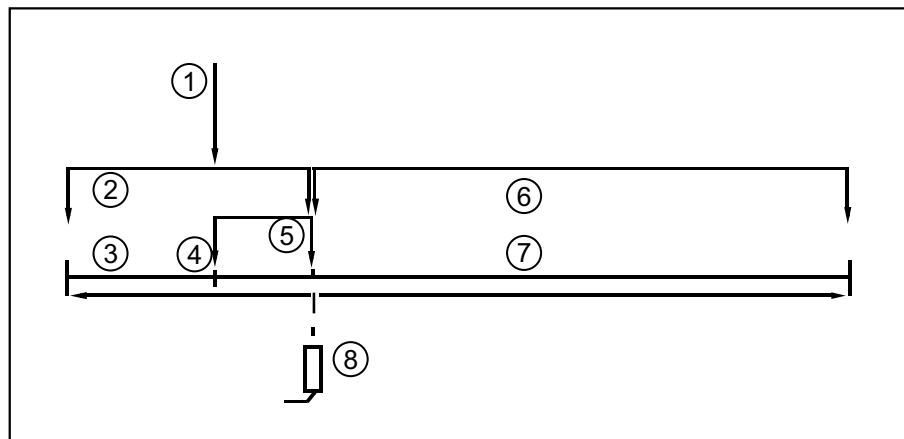


Fig. 2-4 Example of a linear axis:

- 1 Zero point
- 2 Max. negative
- 3 Final position negative
- 4 0 mm
- 5 offset
- 6 Max. positive
- 7 Final position positive

Final position positive

Section from the reference initiator to the positive stop

Final position negative

Section from the reference initiator to the negative stop

offset

Definition of the zero point (actual position "0").

From a possible reference offset, the resulting limit values for the movement parameters, applied to the zero point, are calculated.

M/F max. Motor Automatic

This setting specifies the maximum torque of the drive in (Nm) in automatic mode.

M/F max. Motor Jog Mode

This setting specifies the maximum torque of the drive in (Nm) in jog mode.

Change screen to Motor specifications

For switching to a screen that lists the specifications of the axis drive motor.

zero point distance

This setting specifies the "zero point distance" of the drive (rotating axes in degrees, linear axes in mm). Before doing this, push or jog the drive to its zero position (marking on the axis). Then the value must be entered under **"Position Marking Axis"** if this menu item is available.

Position Marking Axis

This setting specifies which value in (mm) must be entered as **the "zero point distance"** of the drive.

jog

Use the +/- buttons to move the function forwards (+) or backwards (-)



NOTE!

Each jog function is assigned an "Actual Position" menu item where you can read off the position where the drive is located. To move the actual position forward press the (+) button; to move it back press the (-) button.

These values may also be taken over as values for the entry in a menu.



NOTE!

There is no position monitoring in jog mode! Therefore when you trigger the jog function, you must ensure that the movement does not cause a collision with other modules of the machine. The jog function only stops automatically when the mechanical final position of the axis is reached!

2.2.12.11 Diagnostics IO module

In the screen, Diagnostics machine area - SercosIII - devices - IO module X - Diagnostics IO module, a query of the diagnostic function of the inline bus coupler can occur.

The IDN/S-0-1500.0.32 is displayed. Reading of the IDN occurs only on request, by pressing the query button.

An evaluation of errors in the bus coupler is quite slow; this means that often a message can only be queried several minutes after the error occurred.

If no error is detected the IO diagnostic code 0 is displayed.

If the highest value bit (bit 63) is set, this is a manufacturer-specific code; in this case the evaluation of the bit fields in the displays that are underneath is not meaningful. (For the Phoenix Contact-SercosIII BC currently - 2012-03-02 - no manufacturer-specific codes are known).

The division of error codes corresponds to the Sercos III specification and is provided in the "IL S3 BK DI8 DO4 2TX-PAC" manual (BK(7791_de_02).pdf) chapter 12, page 23 and in other places.

Bit division of the IO diagnostic code

Bit no.:	Value	Description	Comments
63		Interpretation of the status code	
	0	Standard IO status codes	Status codes have been defined by Sercos International TWG IO
	1	Product-specific code	Status codes have been defined by the manufacturer
62-58		Reserved	

Bit no.:	Value	Description	Comments
57-56		Diagnostics class	
	00	No diagnostics class	FG/subbus slave/channel has no diagnostics message
	01	Info	FG/subbus slave/channel has information (e.g. preventative maintenance required - condition monitoring)
	10	Maintenance	FG/subbus slave/channel has a warning (e.g. undervoltage in the device) displayed with C2D. The warning disappears automatically when the reason for the warning no longer exists.
	11	error	FG/subbus slave/channel has an error (e.g. incorrect system bus slave is present) signalled with C1D.
55-40		Status code	Defined either by TWG IO or by the manufacturer. (See Table - Status codes)
39-24		IO function (module)	IO function that has caused this diagnostic message. (See Table - Function modules) e.g. 1503 for digital output
23-16		Slot number	Slot number of the module (position of the IO slot) to which the function group is assigned. (Sercos structure instance)
15-9		Subbus slave index	Subbus slave (subbus node) that has caused the diagnostics message. (Only used for function group 1508; 1509) subbus slave; subbus master.
7-0		Channel number	Channel that has caused the diagnostics message. A channel number between 0 and 255 points shows to specific channel of the function group (channel-based diagnostics results, e.g. cable break). Channel number 0 refers to the function group itself (function-related diagnostics messages, e.g. subbus error timeout)

Sercos IO function group

Function group	Name
S-0-1501	Unknown
S-0-1502	Digital output
S-0-1503	Digital input
S-0-1504	Analog output
S-0-1505	Analog input

Function group	Name
S-0-1506	Counter
S-0-1507	Complex protocol
S-0-1508	Sub bus master
S-0-1509	Sub bus slave
S-0-1510	Safety output
S-0-1511	Safety input
S-0-1512	Module PLC
S-0-1513	Motor starter
S-0-1514	PWM
S-0-1515	Positioning
S-0-1516	Passive

Status code of a Sercos IO module

Status code	Definition
0000	No error
1000	General error
1800 ... 1FFF	General error (manufacturer-specific)
2000	Current
2100	Current on the device input side
2110	Short circuit / short to ground
2120	Short to ground
2130	Short circuit
2131	Short circuit on VCC
2200	Current within the device
2300	Current on the device output side
2310	Continuous over-current
2320	Short circuit / short to ground
2330	Short to ground
2340	Short circuit
2341	Short circuit on VCC
2342	Short circuit to ground
2344	Output overloaded
2345	Sensor supply overloaded
2350	Short circuit
2360	Wire break
3000	Voltage

Status code	Definition
3100	Line voltage (voltage on the device input side - power supply)
3110	Line over-voltage
3120	Line under-voltage
3134	Phase sequence
3140	Line frequency
3200	Voltage within the device
3210	Over-voltage within the device
3220	Under-voltage within the device
3300	Output voltage (voltage on the device output side, e.g. supply voltage or working voltage for external parts)
3310	Output over-voltage
3320	Output under-voltage
3400	Supply voltage
3410	Sensor supply
3420	Actuator supply
4000	temperature
4100	Ambient temperature
4200	Device temperature
4300	External temperature (e.g. of the drive)
4400	Connection temperature
5000	Device hardware (only in the device interior)
5010	Component error
5100	Supply
5110	Low voltage supply (for all internal voltages 24 V, 5 V, 3.3 V, 3 V, 2.5 V, 1.8 V)
5120	Air supply
5150	Initiator supply (error in the supply of an external sensor that has been supplied from the interior of the device)
5160	Supply of the peripheral devices (error in the supply for external devices that are supplied from the device interior)
5200	Measuring circuit
5210	Measuring circuits
5220	Computer switch circuits
5230	Communication (within the device)
5300	Operating unit
5400	Power supply unit
5410	Output stages

Status code	Definition
5420	Choppers (interrupters)
5430	Input stages
5440	Contactors
5450	Fuses
5500	Communication with expansion modules
6000	Device software
6010	Software reset (watchdog)
6100	Internal software (firmware)
6200	Application software
6300	Dataset faulty
6310	Missing parameter
6320	Parameter error
6330	Parameter not yet initialised
7000	Expansion module(s) defective
7100	Power
7200	Measuring circuit
7300	Sensor
7400	Computer switch circuit
7500	Communication
7600	Data memory
7700	Cable break / cable error
8000	Monitoring
8100	Communication
8110	Process data monitoring
8120	Host monitoring
8200	Regulation
8210	High system deviation (target > actual, manufacturer-specific; deviation longer than specified present)
8211	Maximum control value
8220	System deviation (target > actual, manufacturer-specific; deviation longer than specified present)
8221	Maximum control value reached
8900	Sensors
8910	Measured value above the value range
8920	Measured value below the value range
8A00	Actuator
8B00	Preventative maintenance necessary (status monitoring)
9000	External error
A000	Subbus slave present

Status code	Definition
A001	Subbus slave missing
A002	Wrong subbus slave present
A003	Compatible replacement (the expected subbus slave has been replaced with a compatible slave)
A004	Error - number of subbus devices (too many devices)
A010	Device error
A012	Application on the subbus slave not ready
A013	Subbus device reset
A020	Communication error
A021	Subbus error - timeout (break)
A022	Multiple transmission errors on the subbus
A023	Subbus I/O data communication error
A024	Data communication error for the subbus management
A030	Subbus configuration error
A031	I/O data configuration shown double
A040	General error
A041	Subbus hardware error
A042	Subbus firmware error
A043	Subbus runs asynchronously (relative to the SERCOS bus cycle)
B000	Local bus (system bus of the modular station)
B001	Local bus slave missing
B002	Wrong local bus connected
B003	Compatible replacement (the expected local bus slave has been replaced with a compatible slave)
B004	Error in the number of local bus nodes (too many nodes)
B010	Node error
B012	Application on the local bus slave not ready
B013	Local bus node reset
B020	Communication error
B021	Local bus error - timeout (interruption)
B022	Multiple transmission error on the local bus
B023	Local I/O data communication error
B024	Data communication error for local bus management
B030	Configuration error on the local bus
B031	I/O data configuration shown double
B040	General error

Status code	Definition
B041	Hardware error on the local bus
B042	Firmware error on the local bus
B043	Local bus runs asynchronously (relative to the SERCOS bus cycle)

The source for these tables is the data sheet 7791_de_02 (IL S3 BK DI8 DO4 2 TX-PAC) from PHOENIX CONTACT (12/2009)

2.2.12.12 IO module list

diagnostics machine - Sercos III - devices - IO-module 1	
module type code (IDN/S-0-1500.0.3) in hex	IBS Id
Module 0	0
Module 1	0
Module 2	0
Module 3	0
Module 4	0
Module 5	0
Module 6	0
Module 7	0
Module 8	0

The IO module list is used for identification of the modules found by the bus coupler (IO-slices). In this regard, each slot is assigned to a module, module 0 is the bus coupler. On each screen, the codes of maximum 9 modules are displayed, 7 screens are present. For modules that are not present the module code 0 is output.

In this process a 64-bit binary code is output for each module. This code is module-specific and describes the function of the module. The content is manufacture-specific. For Phoenix Contact inline modules it has the following structure:

- The 2 highest value bytes are 4942hex (corresponds to the IB for InterBus)
- Followed by 0000hex, (reserve)
- Byte - module-specific code
- The lowest value byte corresponds to the Interbus module ID, which as a rule is stamped onto the module. (Rating plate on the left contact side, can only be seen when the module is pulled.)

The bus coupler has the module type code 49420000999981BF, thus it is an Interbus module ID von 191.

2.2.13 Runs

General information

The movement sequence of an axis is controlled via so-called runs. To adjust the runs in the various menus, different settings are made:

- Velocities
- Accelerations
- Positions
- E-shafts
- Cam disks
- Reference runs

These runs are in the data storage unit of the machine and are called up when needed by the PLC (Programmable Logic Controller), which coordinates the entire machine process.

Under the Runs menu item, for each axis you will find the settings of all runs of these axes. You thereby first find the runs that control the machine's automatic operation.

In addition, you will find runs that you need for references, jogging and format-dependent basic positions.

The individual functions are described in detail in the respective chapters of this manual.

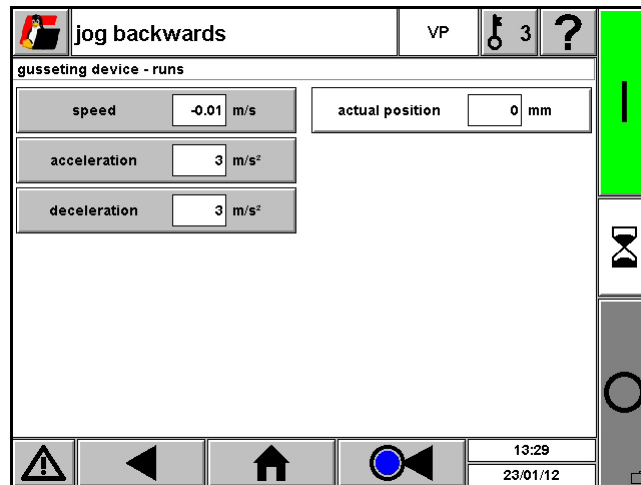
Value entries

You cannot enter some values because they are basic settings of the machine or these values are calculated by the control unit. You can recognize these fields by their bright background .

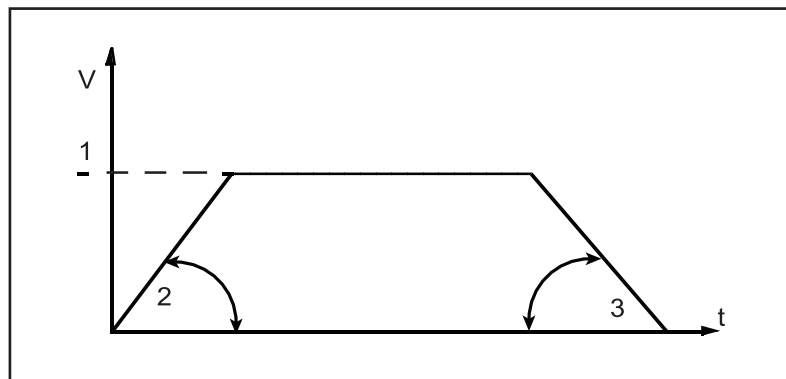
- All values are entered in so-called SI units.
- Values that refer to linear movement sequences are entered in [m, m/s, m/s²].
- Values that refer to rotary movements are entered in [Rev., °, Rev/s, Rev/s²].

2.2.13.1 Runs according to velocity

Settings of the runs of a drive according to velocities. This run is able to run through a velocity profile. The acceleration, deceleration and velocity for the velocity profile must be made available in the parameters described below.



Movement profile of a run by velocity



- 1 velocity
- 2 acceleration
- 3 delay

If the velocity movement is started, the run changes into the condition 'Axis runs through velocity' and accelerates to the velocity with the stated acceleration. If the movement is cancelled, the movement is braked with the stated deceleration into the standstill.

The jog mode is carried out with the settings of this run. The entry mask for setting of the run has 3 menu items:

velocity

With this setting, the final velocity of the drive is set. The axis moves forward when the velocity value is specified as a positive value. The axis moves backward when the velocity value is specified as a negative value.

The value for the velocity may be changed during the movement. If, for example, the value changes during the movement, the axis accelerates to this new velocity and continues to run with this. If the axis is currently in an acceleration or deceleration process, the velocity is reached in the subsequent movement phase.

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

The value for the acceleration may be changed during the movement. If, for example, the value changes during movement, the axis accelerates with this value immediately when it is currently in the acceleration process, or in the next acceleration process.

delay

This setting determines the deceleration with which the drive brakes (m/sec).

The value for the deceleration may be changed during the movement. If, for example, the value changes during movement, the axis decelerates with this value immediately when it is currently in the deceleration process, or in the next deceleration process.

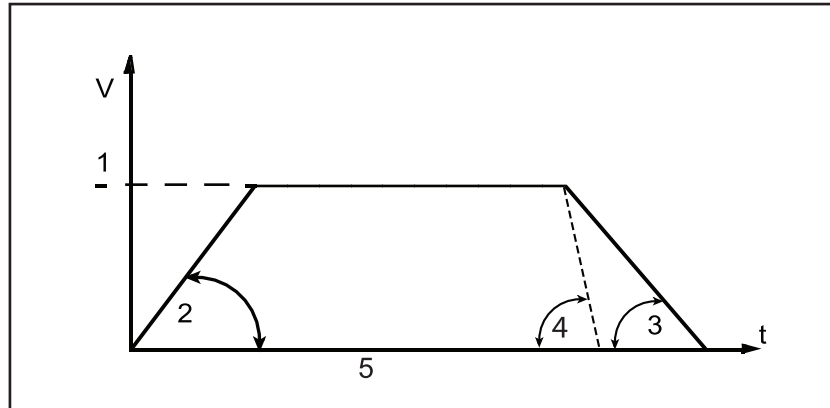
Actual position

This value is a pure display value that shows the momentary position of the drive

2.2.13.2 Runs according to trapezoid

Adjustment of the runs of a drive according to a trapezoid-shaped movement profile. Differentiation is made between two trapezoid runs:

	basic position	ETI	 3	
Inserting device - runs				
speed	2	m/s	actual position	0 mm
acceleration	7	m/s ²		
deceleration	7	m/s ²		
stop deceleration	5	m/s ²		
path	0	mm		

Movement profile of a run by trapezoid:

- 1 velocity
- 2 acceleration
- 3 delay
- 4 Stop - delay
- 5 path

velocity

With this setting, the final velocity of the drive is set

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

delay

This setting determines the deceleration with which the drive brakes (m/s).

Stop delay

This setting determines the deceleration with which the drive brakes in case of malfunctions (m/sec). This value should be higher than the value **"delay"** in order to achieve a fast standstill in a fault situation.

path

Here the entire path to be followed is entered (corresponds to the trapezoid surface in the graphic) or the path calculated by the control unit is displayed.

Actual position

This value is a pure display value that shows the momentary position of the drive

2.2.13.3 Format drive (orienting run)

The format drive (orienting run) is a trapezoid run with which the axis is moved into the format-dependent initial positions of the axis. It is started directly after the reference run or after a reset of the machine.

velocity

With this setting, the final velocity of the drive is set

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

delay

This setting determines the deceleration with which the drive brakes (m/s).

Stop delay

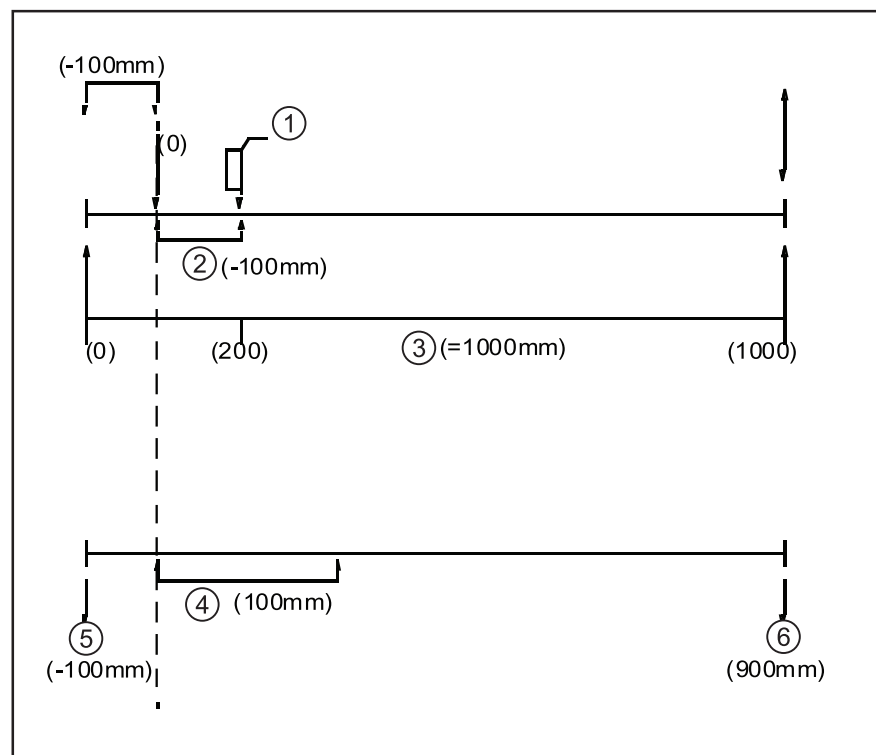
This setting determines the deceleration with which the drive brakes in case of malfunctions (m/sec). This value should be higher than the value **"delay"** in order to achieve a fast standstill in a fault situation.

offset

The objective in a movement cycle.

Actual position

This value is a pure display value that shows the momentary position of the drive

Example of a linear axis:

- 1 Reference initiator
- 2 Reference offset
- 3 Movement path
- 4 Format offset
- 5 Negative limit
- 6 Positive limit

The example of a linear axis shows how the movement path of an axis is set.

Movement path

The entire movement path of the axis from right stop to left stop

Final position positive

Section from the reference initiator to the positive stop

Final position negative

Section from the reference initiator to the negative stop

Reference offset

Definition of the zero point (actual position "0")

Positive limit

Value= Positive final position minus reference offset

Negative limit

Value= Negative final position minus reference offset

Format offset

The format offset displaces the start point of the axis in a format-dependent manner. The positions for switching functions located on the path are always the same.

2.2.13.4 Reference runs

NOTE!

The following information mainly provides a better understanding of the machine processes.

Reference run means running one or more drives of a machine to a previously determined reference position, from which the axis starts to carry out its movement.

To determine such a reference position, it must previously be defined in the menus described below.

Depending on the type of hardware used, there can be several screen masks in which settings must be made. It may also be that individual menu items cannot be set since they are automatically calculated. These menu items appear light gray in the presentation

**NOTE!**

The reference position remains in place until the machine is switched off or the reference offset adjusted! After a machine restart, a reference run is automatically performed.

2.2.13.4.1 Reference run to initiator

The reference run to pos./neg. initiator edge or zero impulse is described below.

**NOTE!**

The following information mainly provides a better understanding of the machine processes. You should not make any changes in this menu!

The purpose of a reference run is for an axis to find a reference position. This reference position remains in place until the machine is switched off or the reference offset adjusted.

This reference run makes it possible to run to the positive or negative edge of an initiator or to the zero impulse of the incremental encoder of the axis; then another optional offset is run. The run thereby covers at most the set search path using the parameters **acceleration**, **delay** and **velocity**.

Reference offset

The reference offset defines the path from the reference initiator to the point where the zero point of the axis should be. This point has the value "0" in the actual display.

Reference velocity

This is the velocity with which the axis carries out the reference run to find its reference point.

Offset velocity

The run to the offset point takes place at this velocity after the offset point is reached.

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

delay

This setting determines the deceleration with which the drive brakes (m/s).

Stop delay

This setting determines the deceleration with which the drive brakes in case of malfunctions (m/sec). This value should be higher than the value "**delay**" in order to achieve a fast standstill in a fault situation.

Max. search path

This is the maximum path that an axis covers to find its reference point (initiator, zero track in the encoder). A negative or positive algebraic sign determines the direction in which the reference run starts:

Negative algebraic sign = target direction backwards

Positive algebraic sign = target direction forwards

Actual position

This value is a pure display value that shows the momentary position of the drive



NOTE!

The menu parameters on the right side of the menu may only be changed by Rovema!

2.2.13.4.2 Reference run to edge and drive free of the initiator

The following describes the reference run to the pos. / neg. edge and the drive free of the initiator.



NOTE!

The following information mainly provides a better understanding of the machine processes. You should not make any changes in this menu!

The purpose of a reference run is for an axis to find a reference position. This reference position remains in place until the machine is switched off or the reference offset adjusted.

This reference run makes it possible to run to the positive (increasing) or negative (decreasing) edge of an initiator. After detecting the set edge of the initiator, the axis turns and moves back in the opposite direction to the position of the detected edge. Here it stops or moves the set reference offset. The run thereby covers at most the set search path using the parameters **velocity**, **acceleration** and **delay**.

Reference offset

The reference offset defines the path from the reference initiator to the point where the zero point of the axis should be. This point has the value "0" in the actual display.

Reference velocity

This is the velocity with which the axis carries out the reference run to find its reference point.

Offset velocity

The run to the offset point takes place at this velocity after the offset point is reached.

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

delay

This setting determines the deceleration with which the drive brakes (m/s).

Stop delay

This setting determines the deceleration with which the drive brakes in case of malfunctions (m/sec). This value should be higher than the value "**delay**" in order to achieve a fast standstill in a fault situation.

Max. search path

This is the maximum path that an axis covers to find its reference point (initiator, zero track in the encoder). A negative or positive algebraic sign determines the direction in which the reference run starts:

Negative algebraic sign = target direction backwards

Positive algebraic sign = target direction forwards

Actual position

This value is a pure display value that shows the momentary position of the drive



NOTE!

The menu parameters on the right side of the menu may only be changed by Rovema!

2.2.13.4.3 Wink reference run 01

NOTE!

The following information mainly provides a better understanding of the machine processes. You should not make any changes in this menu!

The purpose of a reference run is for an axis to find a reference position. This reference position remains in place until the machine is switched off or the reference offset adjusted.

This reference run makes it possible to run to the exact centre point of an initiator. The run thereby covers at most the set search path using the parameters **velocity**, **acceleration** and **delay**.

 reference run		GS	 3	
cycle chain - runs				
reference offset	12 mm	actual position	0 mm	
reference speed	0.1 m/s			
offset speed	0.1 m/s	source initiator signal		
acceleration	1 m/s ²			
deceleration	1 m/s ²			
stop deceleration	5 m/s ²			
max. search path	3000 mm			
   		5:52 AM		
		4/8/11		

Reference offset

The reference offset defines the path from the reference initiator to the point where the zero point of the axis should be. This point has the value "0" in the actual display.

Reference velocity

This is the velocity with which the axis carries out the reference run to find its reference point.

Offset velocity

The run to the offset point takes place at this velocity after the offset point is reached.

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

delay

This setting determines the deceleration with which the drive brakes (m/s).

Stop delay

This setting determines the deceleration with which the drive brakes in case of malfunctions (m/sec). This value should be higher than the value "**delay**" in order to achieve a fast standstill in a fault situation.

Max. search path

This is the maximum path that an axis covers to find its reference point (initiator, zero track in the encoder). A negative or positive algebraic sign determines the direction in which the reference run starts:

Negative algebraic sign = target direction backwards

Positive algebraic sign = target direction forwards

Actual position

This value is a pure display value that shows the momentary position of the drive



NOTE!

The menu parameters on the right side of the menu may only be changed by Rovema!

2.2.13.4.4 Wink reference run 02



NOTE!

The following information mainly provides a better understanding of the machine processes. You should not make any changes in this menu!

The purpose of a reference run is for an axis to find a reference position. This reference position remains in place until the machine is switched off or the reference offset adjusted.

This reference run makes it possible to run to the exact centre point of an initiator. If the axis runs to the block in this process, it turns and seeks the initiator in the opposite direction. The run thereby covers at most the set search path using the parameters **velocity**, **acceleration** and **delay**.

Reference offset

The reference offset defines the path from the reference initiator to the point where the zero point of the axis should be. This point has the value "0" in the actual display.

Reference velocity

This is the velocity with which the axis carries out the reference run to find its reference point.

Offset velocity

The run to the offset point takes place at this velocity after the offset point is reached.

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

delay

This setting determines the deceleration with which the drive brakes (m/s).

Stop delay

This setting determines the deceleration with which the drive brakes in case of malfunctions (m/sec). This value should be higher than the value "**delay**" in order to achieve a fast standstill in a fault situation.

Max. search path

This is the maximum path that an axis covers to find its reference point (initiator, zero track in the encoder). A negative or positive algebraic sign determines the direction in which the reference run starts:

Negative algebraic sign = target direction backwards

Positive algebraic sign = target direction forwards

Actual position

This value is a pure display value that shows the momentary position of the drive

Position error limit for turning

Position error limit, which should cause the axis to change its direction once it has been passed.



NOTE!

The menu parameters on the right side of the menu may only be changed by Rovema!

2.2.13.4.5 Reference run with filter 01

The reference run with filter 01 is described below.



NOTE!

The following information mainly provides a better understanding of the machine processes. You should not make any changes in this menu!

The purpose of a reference run is for an axis to find a reference position. This reference position remains in place until the machine is switched off or the reference offset adjusted.

With this reference run, it is possible to run reference to marks or mark sequences. How the mark is recognised is dependent on the selected filter. Then an optional offset movement will be made. The run thereby covers at most the set search path using the parameters **acceleration**, **delay** and **velocity**.

Reference offset

The reference offset defines the path from the reference initiator to the point where the zero point of the axis should be. This point has the value "0" in the actual display.

Reference velocity

This is the velocity with which the axis carries out the reference run to find its reference point.

Offset velocity

The run to the offset point takes place at this velocity after the offset point is reached.

acceleration

This setting determines the acceleration with which the drive starts (m/sec).

delay

This setting determines the deceleration with which the drive brakes (m/s).

Stop delay

This setting determines the deceleration with which the drive brakes in case of malfunctions (m/sec). This value should be higher than the value "**delay**" in order to achieve a fast standstill in a fault situation.

Max. search path

This is the maximum path that an axis covers to find its reference point (initiator, zero track in the encoder). A negative or positive algebraic sign determines the direction in which the reference run starts:

Negative algebraic sign = target direction backwards

Positive algebraic sign = target direction forwards

Actual position

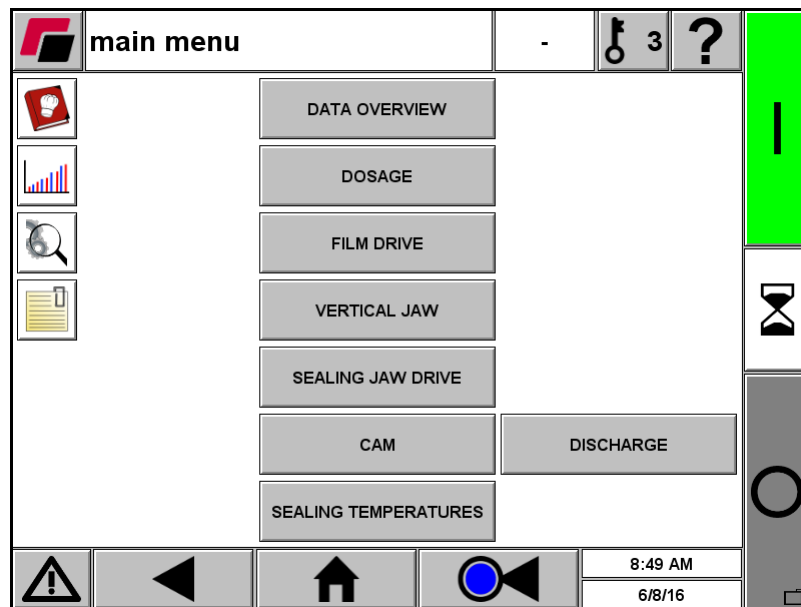
This value is a pure display value that shows the momentary position of the drive



NOTE!

The menu parameters on the right side of the menu may only be changed by Rovema!

2.2.14 The main menu of this machine



In the VP machine area you find all menus necessary for setting the functions of the form fill and seal machine.

Some menus branch to additional submenus. Additional settings may be necessary there.

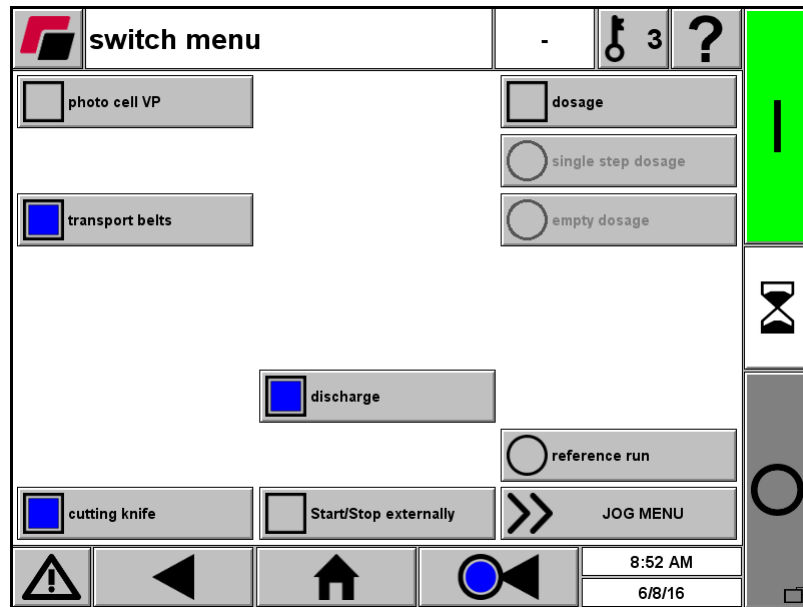
**NOTE!**

None of the on-screen settings and values shown in this operating manual are binding values. They are merely intended as explanatory aids. Binding values for production must be ascertained by the owner and entered.

Some menu items cannot be modified by you as they are for information purposes only.

The following always applies for all settings in these menus: Only trained personnel are allowed to make settings!

2.2.15 VP switch menu

**"photo cell" switch (optional)**

This switch activates and deactivates the photo cell.

"transport belts" switch

This switch is used to place the draw-down belts of the draw-down device onto the filling tube or lift them away from the filling tube.

 CAUTION!
Danger of crushing!

There is danger of crushing in the area between draw-down belts, draw-down device and filling tube when the draw-down belts are applied to the filling tube!

- ▶ Never reach into the crushing danger zone between draw-down belt and filling tube, as long as parts can move there.

"cutting knife" switch

This switch activates or deactivates the cutting knife.

**WARNING!****Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!**

There is a greater risk of injury from the sharp knife blade.

- Protect yourself from cutting injuries by wearing suitable safety gloves.

"dosage" switch

This switch activates or deactivates the discharge conveyor (e.g. belt conveyor).

"Start/Stop externally" switch

The starting and stopping of the machine by a signal from an upstream or downstream system (e.g. a final packaging plant) is switched on or off with this switch.

If the switch is on, then the machine will not start until the corresponding signal from the upstream or downstream system has been received. If the switch is on while the machine is already switched on and in operation, then the machine stops and needs to be switched back on.

If the switch is off, then the signal from the upstream or downstream system is ignored and the machine can be switched on independent of the upstream or downstream system. If the switch is off while the machine is already switched on and in operation, then the machine stops and needs to be switched back on.

"dosage" switch

Switch for switching the dosing unit on and off.

"single step dosage" button

Button for triggering a dosing unit step.

**NOTE!**

Do not use this button **TO** empty the dosing system. The emptying operation may only be carried out with the function provided (=button/switch "Empty dosing unit" in the **dosage** menu).

"empty dosing unit" button

With the help of this jog button possible to run the dosing unit empty.

The dosing auger will turn for as long as this button is pressed, conveying the remaining product out of the filling hopper and the auger tube.

The emptying operation is carried out at the reduced dosing auger speed set in the function menu **dosing unit/runs/empty**.

"reference run " button

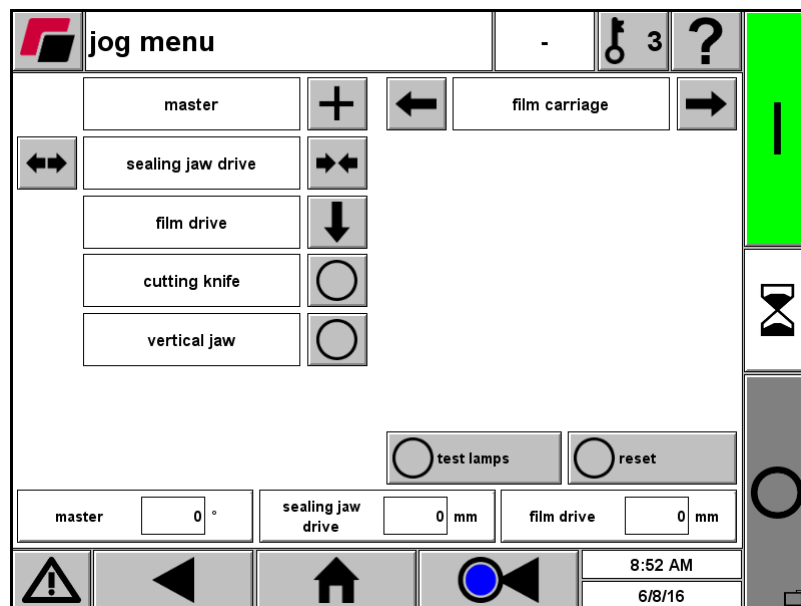
Button to trigger a reference run of all drive axes connected to the master axis of this machine area.

Change screen to "jog menu"

Changes over to the "jog menu" for this machine area.

2.2.15.1 VP jog menu

This menu contains all machine functions of a part machine area that can be moved in **JOG mode**. Information on **JOG mode** of operation can be found in section [3.5 - JOG mode, Page 268](#)



"Master" button

Activating this button moves all the axes connected to the master axis.

"sealing jaw drive" buttons

As long as button is depressed, the entire jaw assembly moves. Depending on the direction of movement selected for the material, the jaws will either open or close during this motion.

“film drive” button

The film drive is activated. The draw-down belts draw down the packaging material via the filling tube.

This motion can only be carried out in the one direction (draw-down).

 CAUTION!**Danger of injury!**

There is danger of burns and abrasion on the skin due to the friction of the skin with the rotating draw-down belts of the draw-down device.

- ▶ Never touch the draw-down belts during operation.
-

“cutting knife” button

This function extends and retracts the cutting knife on the cross jaws.

 WARNING!**Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!**

If the protective doors are opened after extending the cutting knife, the cutting knife will be located outside the cross jaw. There is a greater risk of injury from the sharp knife blade.

- ▶ Protect yourself from cutting injuries by wearing suitable safety gloves.
-

"Vertical jaw" button

Pressing this button places the vertical sealing jaws from the vertical sealing station on the filling tube of the change part or lifts them from the filling tube.

 **WARNING!****Danger of burns due to hot surfaces!**

The vertical sealing station is operated with a vertical jaw, whose surface is very hot under operating conditions. Touching this hot jaw can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
 - ▶ Switch off the corresponding heater before working on the station and let the station cool down until it is possible to work safely.
 - ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.
-

"film carriage" buttons

Using these buttons the packaging material carriage is moved to the left or the right.

"test lamps" button

This button can be used to test lamps fitted on the machine (e.g. signal lights).

"reset VP" button

This pushbutton resets all the functions on the VP machine section, back to a defined state. This pushbutton should be pressed if the machine will not start or if it is no longer running properly.

All reset functions can only be executed when the safety circuit is open (EMERGENCY STOP, open safety guard).

"master" value display

The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

"jaw drive" value display

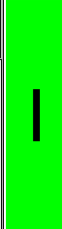
The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

"film drive" value display

The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

2.2.16 "VP data overview" menu

The data overview menu provides the operator with important, frequently used input parameters.

	data overview	VP	 3		   
nominal cycle number 35 1/min bag length 260 mm correction 10 mm		actual 0 1/min			
  		8:50 AM 6/8/16			

nominal cycle number (1/min)

This is where the nominal number of machine cycles is entered.



NOTE!

When the cycle number of the machine is modified, the travel parameters of all drive axes are calculated automatically.

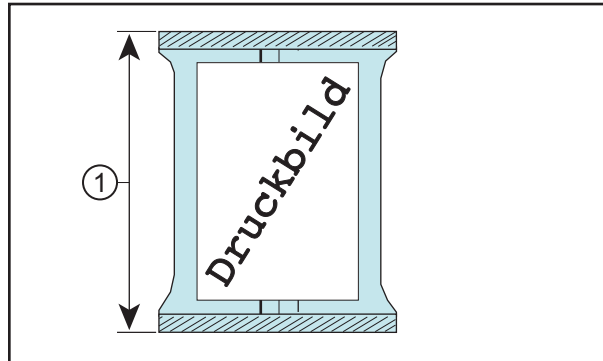
If one of the axes cannot carry out the desired number of cycles (e.g. because that exceeds the upper limit of its capacity) an error message to that effect is displayed and the old cycle number is retained.

"actual cycle number" value display

Display of the machine's current output.

bag length

The value entered here defines the bag length (in millimeters).

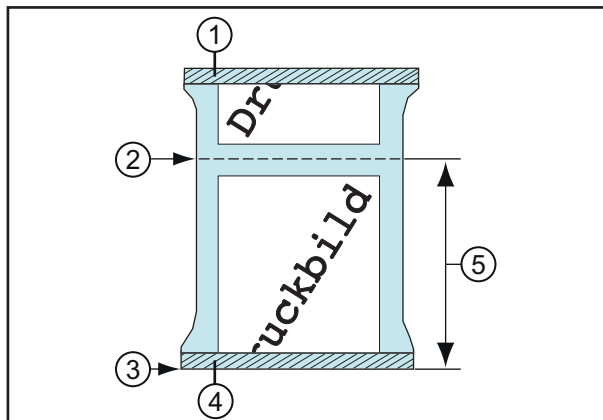


1 bag length

correction (optional)

Print image correction (in millimeters); effective only when printed packaging material and a photo cell are used.

This parameter is used to shift the film by the amount specified in order to correct the alignment of the print image on the film. Limit value calculation is not performed.



- 1 Top seal
- 2 Desired line of cut
- 3 Actual line of cut
- 4 Bottom seal
- 5 Correction



NOTE!

In order to prevent the print register mark from being too close to the photo cell in the event of a machine standstill, the following must be considered when entering the correction value:

The correction value must not be exactly as high as the bag length that has been entered, and it must be at least 20 mm longer or shorter.

If difficulties still arise, the packaging material path must be changed accordingly by adjusting the set-up swing or by moving a deflection roll on the packaging material carriage.

2.2.17 "VP cam" menu

General information

Pressing the "Cam" button takes you to the overview of the cam menu. All cam functions of the machine are listed here.

"Cam" refers to a range of machine functions which can be adjusted as needed for individual drive axes on the machine via the control system.

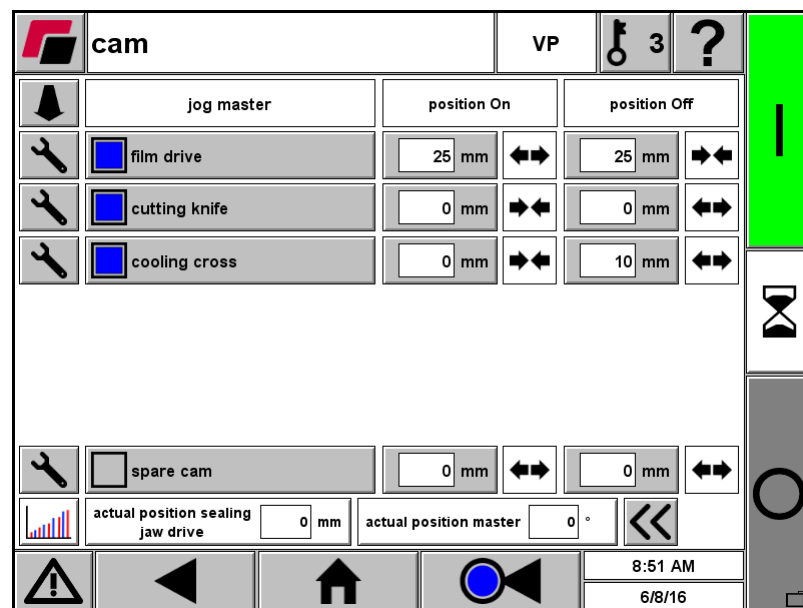
The number of programmable cams varies depending on which functions your machine is fitted with.

NOTE!

Danger of permanent machine damage due to incorrect settings!

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!



"Master" button

Activating this button moves all the axes connected to the master axis.

Wrench

Pressing this button takes you to the screen with the settings for the selected cam. All of the parameters for the cam can be set here.

"Cam On/Off" switch

This switch is used to switch the selected cam function on or off.

Position On/Off

These input fields are used for defining the start and end positions of the function.

Spare cam

Used for later programming of a machine function.

"jaw drive" value display

The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

"master" value display

The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

2.2.17.1 "Cam configuration" menu

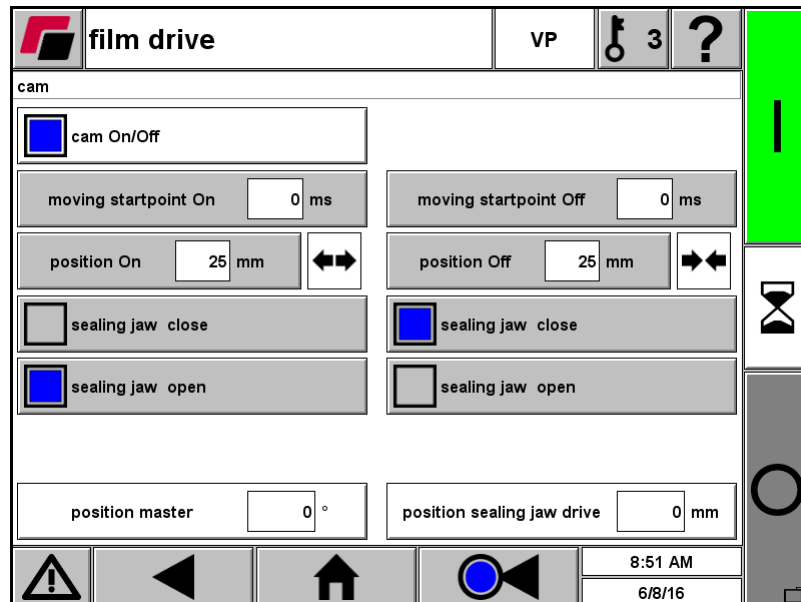
Pressing a button with a wrench symbol on the "Cam" overview screen takes you to the configuration screen of the cam concerned. All of the parameters for a cam can be set here.

The separate configuration menus all have the same structure, therefore the depicted screen represents only one example.

NOTE!**Danger of permanent machine damage due to incorrect settings!**

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!
-



"Cam On/Off" switch

This switch is used to switch the selected cam function on or off.

Moving start time On / Moving start time Off

By inputting a time, the starting time of the selected function (e.g. cut-off knife, cross cooling, spreader) can be shifted.

When entering the time, pay attention to the following:

Input of a negative time (e.g. -100 ms) causes the function to start before the On position has been reached.

Input of a positive time (e.g. 100 ms) causes the start of the function to be delayed after the On/Off position has been reached.

Input of the value "0 ms" causes the starting of the function to be determined exclusively by the On/Off position values.

Position On/Off

These input fields are used for defining the start and end positions of the function.

Close jaw/Open jaw

Here you select the jaw process for which the delay time is to be switched on or off.

"master" value display

The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

"jaw drive" value display

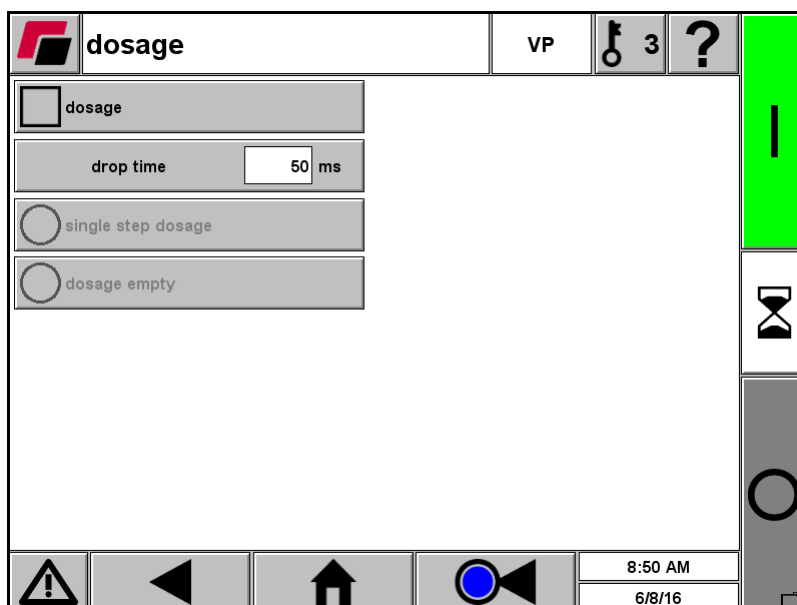
The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

2.2.18 "dosage" menu**General information**

The settings of all the menu items required for the operation of the dosing unit are made here. The menu parameters shown on the right half of the screen depend on which dosing unit is used.

**NOTE!**

Please refer to the separate manufacturer's technical description for additional information on the function and handling of the dosing unit used with this machine.

**"dosage" switch**

Switch for switching the dosing unit on and off.

Drop time

It is the time required for the product to go from the dosage unit after discharge to the cross sealing tools of the downstream packing machine.

Select the drop time so that all dumps from the dosage unit are inside the bag by the time the cross sealing tools on the form fill and seal machine are closed.

The required time is entered in milliseconds (ms).

For the exact procedure on how to select the correct drop time, see also the section [2.2.18.1 - Determination of the drop time, Page 150](#).

"single step dosage" button

Button for triggering a dosing unit step.



NOTE!

Do not use this button **TO** empty the dosing system. The emptying operation may only be carried out with the function provided (=button/switch "Empty dosing unit" in the **dosage** menu).

"empty dosing unit" button

With the help of this jog button possible to run the dosing unit empty.

The dosing auger will turn for as long as this button is pressed, conveying the remaining product out of the filling hopper and the auger tube.

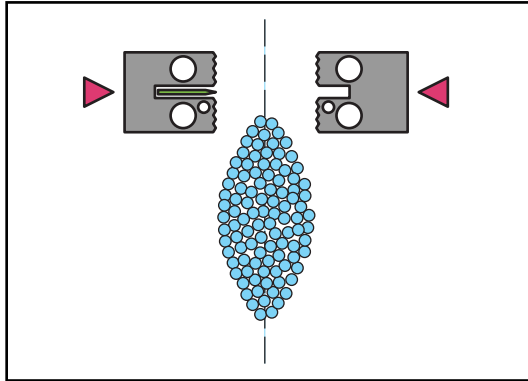
The emptying operation is carried out at the reduced dosing auger speed set in the function menu **dosing unit/runs/empty**.

2.2.18.1 Determination of the drop time

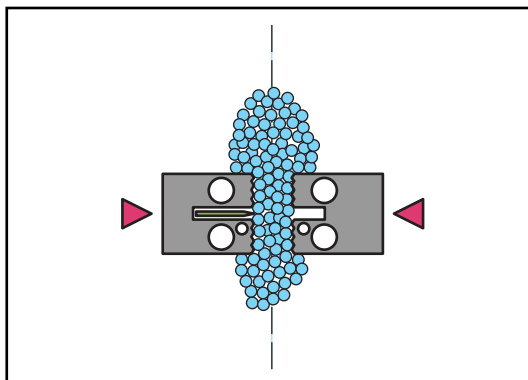
An example for setting the correct drop time: The correct setting should be 500 ms.

Drop time setting = 900 ms

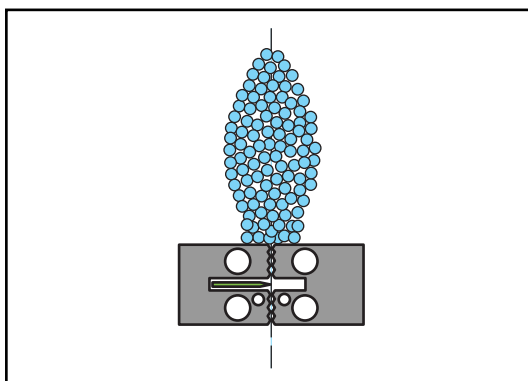
The selected time is too long, the dump falls through the jaws while they are still open.

**Drop time setting = 600 ms**

The selected drop time still is too long, the dump comes between the open jaws.

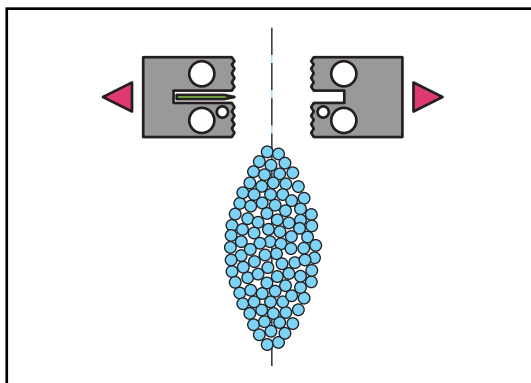
**Drop time setting = 500 ms**

The set drop time is correct, the dump falls onto the jaws while they are closed.



Drop time setting = 300 ms

The set drop time is too short; although the dump falls into the closed bag, the jaws are already open again. This can cause the cross seal of the bag to tear open when it is hit.

**Recommendation**

When determining the correct drop time, let the machine run at approx. 40 cycles/min. At this speed you can easily observe the arrival of the dump in the bag and the emptying of the cups, and can determine the time.

Enter the time on the display and save the determined value in a program if necessary. When this program is called up later, the control unit sets the machine to these values.

When the machine is started or stopped, the following situations can occur:

Situation 1:**When the machine is started:**

The first bag to be sealed is empty. One or more dumps are made in this bag before the machine starts.

When the machine is stopped:

The last bags are empty.

Cause:

The set drop time is set several times greater than the machine cycle time. When the machine continues to run the subsequent bags are filled correctly.

Remedy:

Set the drop time correctly.

Situation 2:**When the machine is started:**

Before the first bag is sealed, one or more dumps are already in the bag, and when the machine starts it produces one or more empty bags.

When the machine is stopped:

Dumps are still dropped after the machine is switched off.

Cause:

The set drop time is set several times faster than the machine cycle time.
When the machine continues to run the subsequent bags are filled correctly.

Remedy:

Set the drop time correctly.

2.3.1 Packaging material carriage (overview)

Function

The packaging material carriage serves as bracket and unwinding unit for the packaging material. It ensures a defined web tension and at the same time easy film transport via the deflection and guide rollers up to the forming shoulder.

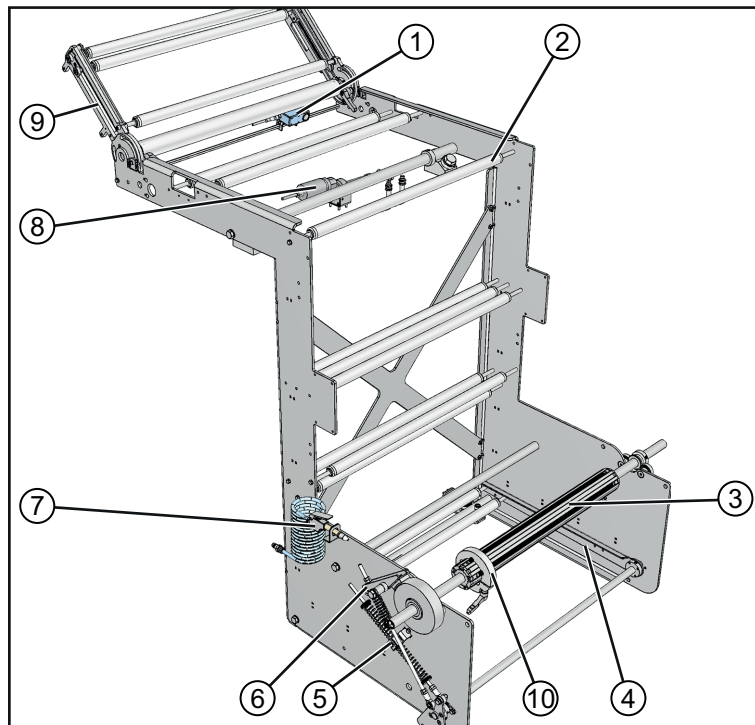


Fig. 2-5 Packaging material carriage overview

- 1 Photo cell (optional)
- 2 Deflection and guide roller
- 3 Pneumatic clamping shaft
- 4 Compensating rocker
- 5 Compression spring spindle
- 6 Packaging material brake
- 7 Filling gun for pneumatic clamping shaft
- 8 Packaging material carriage cross adjuster
- 9 Infeed rocker
- 10 Adjusting ring

Structure

The packaging material web is provided as a roll, which is placed on the packaging material carriage with the help of a clamping shaft (3), which is placed through the core of the roller.

The packaging roll is clamped onto the clamping shaft through pressurization of the pneumatic clamping shaft (3) using a filling gun (7). An adjusting ring is used to centrally align the roller on the clamping shaft (10).

The packaging material carriage is equipped with a cross adjuster (8) for rapid setting and correction of the packaging material run.

Using the compression spring spindle (5), a preset is made for the compensating rocker (4).

The infeed swing arm (9) supports the optimal settings of the packaging material run to the forming shoulder.

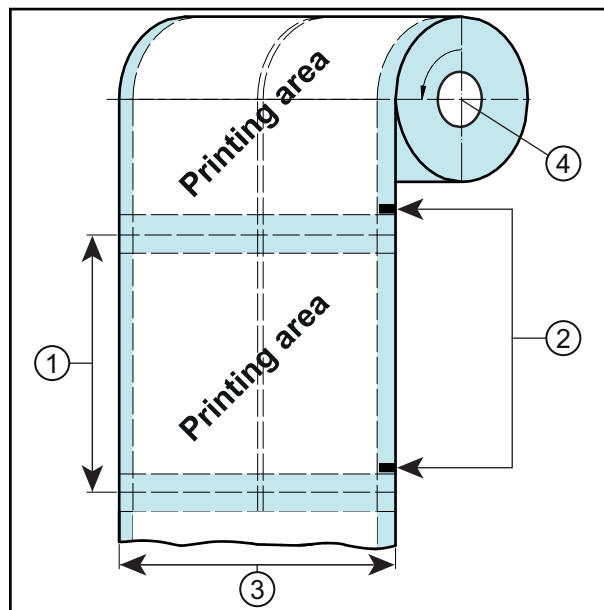
The unit can be fitted with additional options for film handling (printer, labeler, zip or adhesive strip applicator, etc.).

Pull off / unwind packaging material

When the packaging material is being drawn down by the draw-down device (see also [2.5 - Packaging material draw-down, Page 185](#)) the compensating rocker (4) is lifted. This causes the (6) to be released; the packaging material can be unrolled/pulled off freely. When the draw-down device is stopped the compensating rocker (4) falls back, the packaging material brake (6) stops the packaging material roll, thus tensioning the packaging material web.

Before fitting on a packaging material roll

ensure you are familiar with the terminology for bag creation explained below.



- 1 Bag strip width
- 2 Control marks (photo signals for the photo cell)
- 3 Roll width = 2 x bag width + dimension for the vertical seal
- 4 Roll core

Run direction the packaging material web

Check whether the bags can be produced as intended, maintaining the direction of movement. The illustration below shows the standard direction of movement for the packaging material web (example for print image direction of movement "Base forwards")

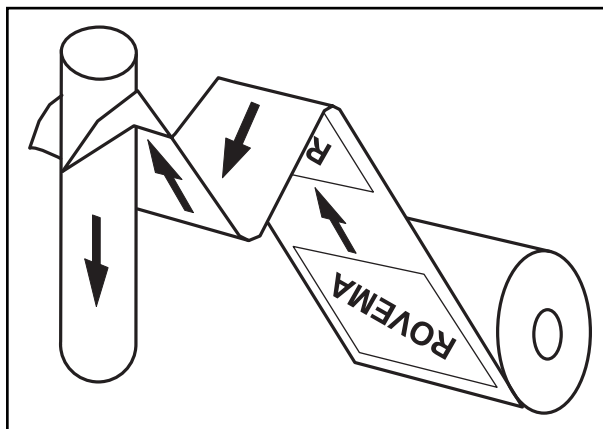


Fig. 2-6 Standard run direction

Packaging material movement plate

The packaging material movement plate on the machine housing shows you the exact path that the packaging material has to take over all of the guide and deflection rolls.

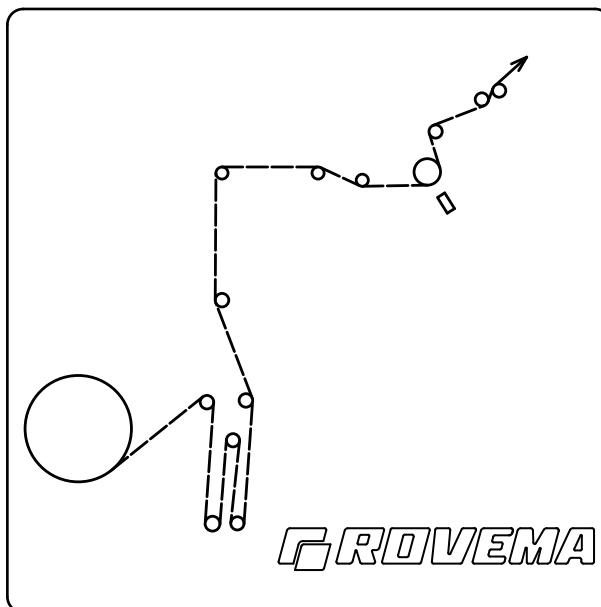


Fig. 2-7 Packaging material movement plate (sample)

The upper drawing is only an example. If units are subsequently added to your machine (e.g. printing device), the direction of movement can be different than shown here.

2.3.2 Guiding the packaging material to the draw-down device

Determining the packaging material roll

Guide value for the packaging material width (roll width):

- $2 \times \text{format size} + 20 \text{ mm}$ (for the vertical seal)

Note the specification in the packaging format drawing.

Format size is the name for the width of the pillow bag. The engraved numerals on the format bracket (see arrow in illustration) indicate this dimension in millimeters.

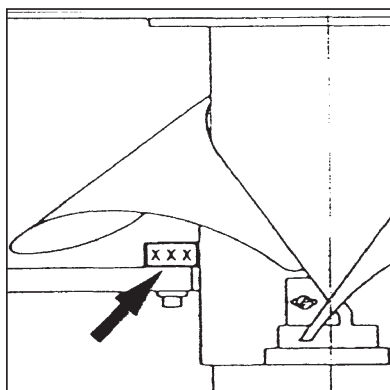


Fig. 2-8 Format size specification



NOTE!

Variations in dimension may be provided for certain format sizes and packaging material applications.

Observe the packaging format drawing and the specifications for the roll diameter!



NOTE!

In order to ensure malfunction-free operation of the machine, the packaging material intended for the production should be present at the production shop approx. 24 hours ahead of time. This allows the temperature and moisture content of the packaging material to adjust to the ambient conditions at the production location, for example.

Clamping the packaging material roll

Proceed as follows:

1. Remove the clamping shaft (1) from the packaging material carriage.

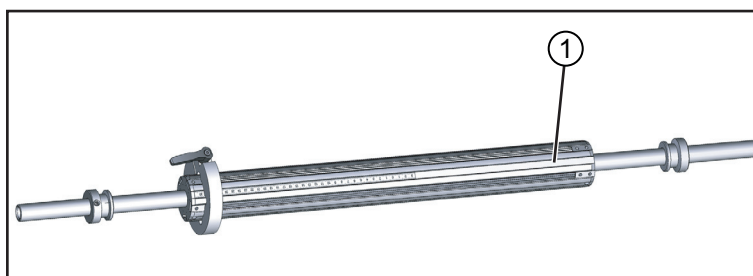


Fig. 2-9 Pneumatic clamping shaft

2. With printed packaging material: Before clamping the roll, check the direction of movement of the print image.

Procedure for changeover to a known bag format

1. Release the locking lever (2), set the stop ring (3) to the value specified in the format table on scale (4), fasten the locking lever again.

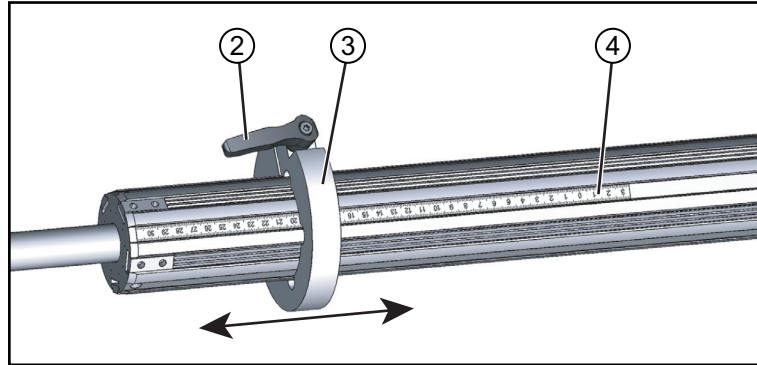


Fig. 2-10 Pneumatic clamping shaft with stop ring

2. Guide the clamping shaft (1) through the packaging material roll (5) until the stop ring (3) rests on the packaging material roll.

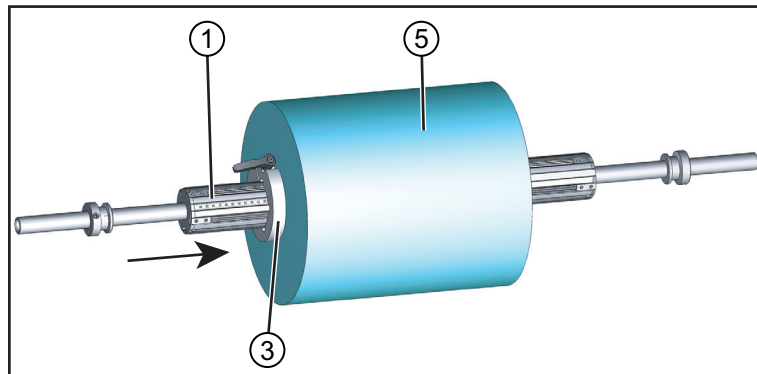


Fig. 2-11 Clamping the packaging material roll

Procedure for changeover to a new bag format

1. Position the packaging material roll centrally on the clamping shaft. There is a scale (4) on the clamping shaft. Transfer the scale value that is readable here into the format table as the new format value for this format. This means that when the packaging material is changed all that has to be done is to set the adjusting ring to this dimension as described above.
2. Place the filling gun (7) on the air valve (6) at the end of the clamping shaft and pump the air chamber up until the packaging material roll can no longer be moved.

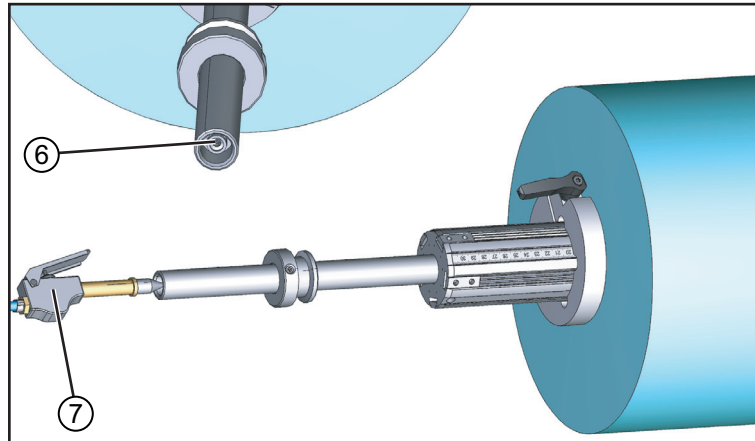


Fig. 2-12 Pumping up air chamber on the clamping shaft



WARNING!

Danger of crushing!

There is a danger of crushing between the packaging material roll and the clamping shaft.

- When pumping up the air chamber, keep body parts out of the area between the packaging material roll and the clamping shaft.



NOTE!

The air chamber of the clamping shaft may only be pumped up when a packaging material roll has been loaded!

Emptying air chamber

1. Before removing the empty packaging material roll from the clamping shaft, place the filling gun (7) slightly diagonally to the air valve (6) and empty the air chamber.

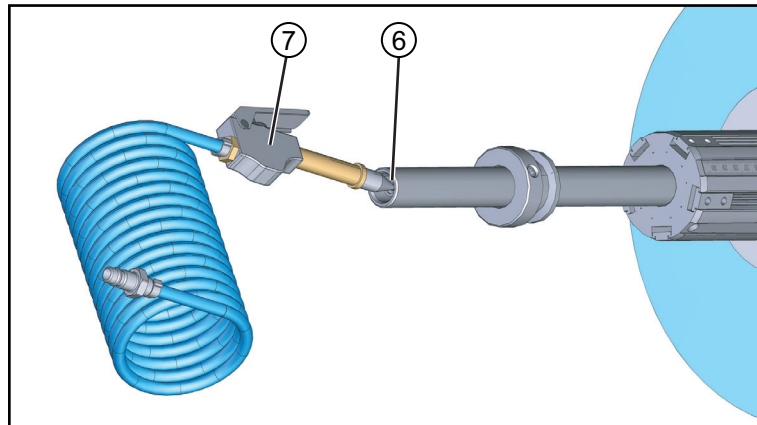


Fig. 2-13 Emptying air chamber on the clamping shaft

Putting on the packaging material roll

1. The clamping shaft (1) with the packaging material roll must rest on the carrier cheeks of the packaging material carriage in such a way that the two adjusting rings (3) of the clamping shaft enclose the guide bearings (2) of the packaging material carriage.

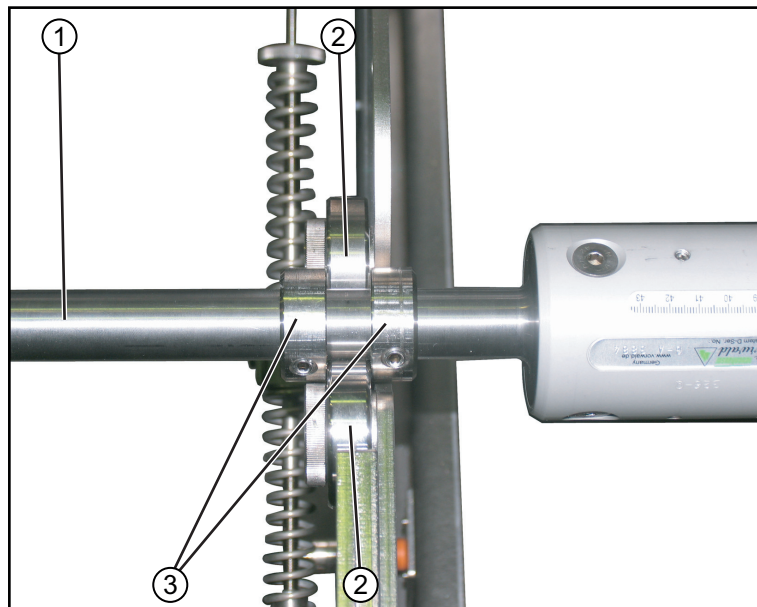


Fig. 2-14 Putting on the packaging material roll



WARNING!

Danger of crushing!

A packaging material roll can weigh up to 500 kg.

- When putting a heavy packaging material roll on to the packaging material carriage, use a lifting tool that is appropriate for the weight (e.g. fork lift,

crane, lifting device).

- Suitable lifting tools can also be obtained directly from ROVEMA.

1. Check that the packaging material roll is centrally aligned between the carrier side walls (4 and 5).



Fig. 2-15 Aligning the packaging material roll

2. If necessary, check the alignment of the packaging material roll once again:
 - a) Emptying air chamber of the clamping shaft.
 - b) Align packaging material roll by pushing the clamp shaft.
 - c) Fix the packaging material roll to the clamping shaft again by pumping up the air chamber.



NOTE!

Clean the pneumatic clamping shaft with a cleaning cloth and clean water only. Do not use any cleaning and disinfecting agents or jet cleaners!

Cutting off the packaging material web

1. Prepare the film knife (Rovema No. 07024107).
2. Using the knife, cut off the packaging material web at an approx. 45° angle.

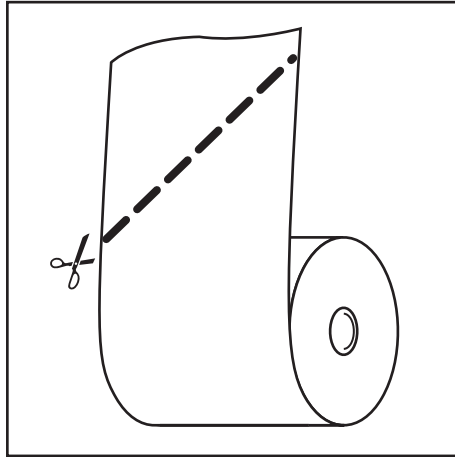


Fig. 2-16 Cutting off the packaging material web

Threading in the packaging material

1. The point thus created in accordance with the Guide the packaging material movement plate via the guide and deflection rolls to the infeed swing. The packaging material movement plate is located on the side of the machine housing.
2. When threading in the packaging material, ensure that no folds are created.



NOTE!

Packaging material direction changes when an additional printer and/or other additional units are used!

Setting the infeed rocker

The last set of rollers (moveable adjustment rollers) can be adjusted. These rollers allow the angle of the packaging material web to be changed on the infeed side of the forming shoulder. If the angles of the packaging material web and the forming shoulder do not match, then there is the risk that the packaging material will get stuck on the collar line of the forming shoulders. This then leads to problems when reshaping the packaging material.

The infeed swing is adjusted using two format adjusters.

The following images depict the problems which can occur with this setting.

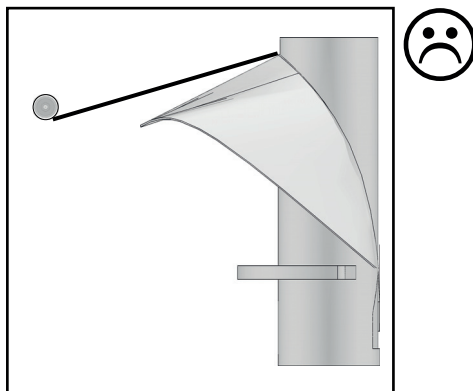


Fig. 2-17 The moveable set of rollers is set too high to the format shoulder collar, meaning that, when it is drawn into the forming shoulders, the packaging material web cannot be run over the shoulder collar.

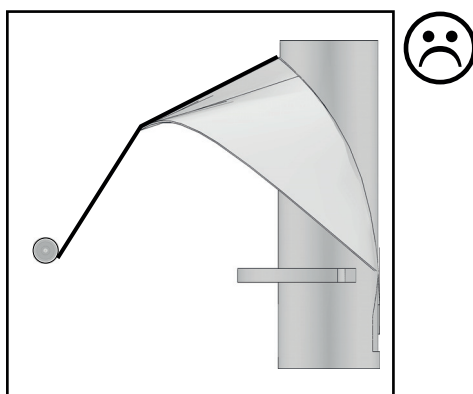


Fig. 2-18 The moveable set of rollers is set too low to the forming shoulder collar. This leads to kink formation on the packaging material web in the area of the collar line on the forming shoulder.

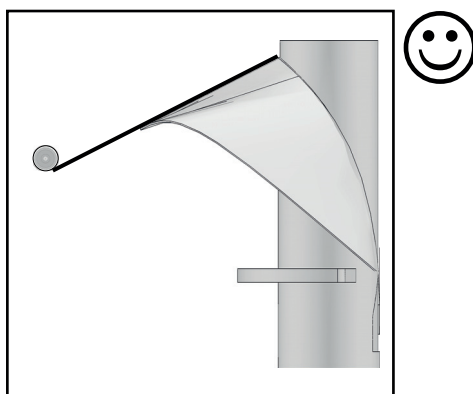


Fig. 2-19 The moveable set of rollers is correctly set to the forming shoulder collar. The packaging material forms a straight line from the last moveable roller to the reshaping of the packaging material in the forming shoulder.



NOTE!

There are various scales on the side of the infeed swing. Once the adjustment has been made, the set position (in millimeters or in degrees) can be read here and entered in the appropriate format table.

Angle setting of the infeed swing:

1. Grip the infeed swing (2) with your hand and secure it against falling.
2. Release the locking lever (1).
3. By turning the infeed swing, set the angle of the packaging material relative to the forming shoulder.

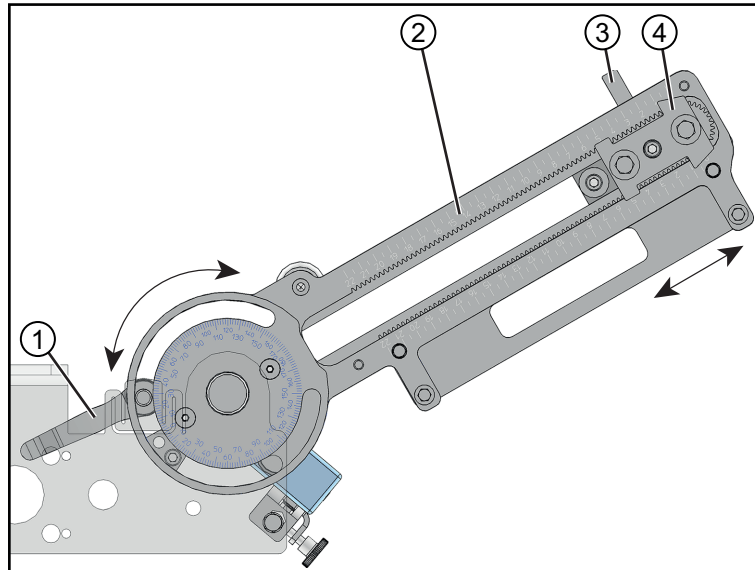


Fig. 2-20 Setting the infeed rocker

4. Retighten the clamping lever.

Height setting of the moveable set of rollers on the infeed swing:

1. Actuate the lever (3) and hold it in this position.
2. Adjust the distance of the movable set-up roller (2) to the forming shoulder by pushing the movable set-up roller (4).
3. Then, release the lever (3) again.
4. Guide the packaging material tip through the deflection rolls of the infeed swing to the forming shoulder.

Insert packaging material into the forming shoulder

1. Lift the draw-down belt of the draw-down device off of the filling tube (switch **"transport belt"** (from the **VP SWITCH MENU**)).
2. Swing the vertical sealing unit away from the filling tube.
3. Bend the packaging material tip (90°), guide the tip into the gap between the forming shoulder and the filling tube, and form the packaging material web into a tube by hand.

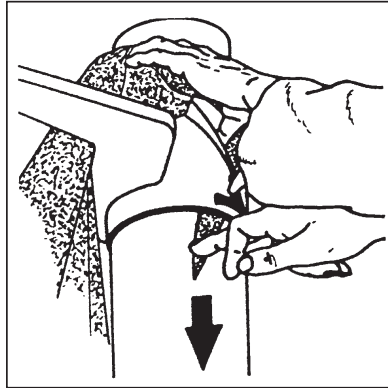


Fig. 2-21 Insert packaging material into the forming shoulder

4. Thread the packaging material (1) into the forming shoulder and pull down on to the filling tube until it can be caught and pulled off by the draw-down belts (2) of the draw-down device.

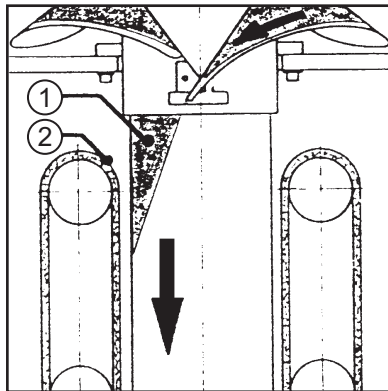


Fig. 2-22 Pull down packaging material on the filling tube

5. Reposition the draw-down belts (switch "**transport belt**").
6. Swing the vertical sealing unit back into the filling tube.

2.3.3 Correcting the tension of the packaging material web

2 knurled screws (1) on the compression spring spindle (2) are used to adjust the tension on the packaging material web. Evenly turning the knurled screws changes the spring force and thus also the packaging material web tension.

Increasing the packaging material web tension::

- Turn **both** knurled screws (1) in **direction B**.

Reducing packaging material web tension:

- Turn **both** knurled screws in **direction A**.

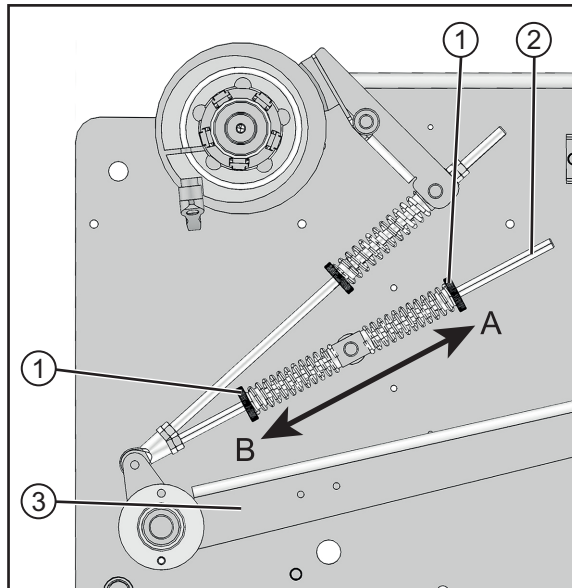


Fig. 2-23 Adjusting packaging material web tension

- 1 Knurled screw for spring force
- 2 Compression spring spindle
- 3 Compensating rocker



NOTE!

Always ensure that the tension on the packaging material web is uniform as far as the forming shoulder, and that the compensating rocker is in the horizontal position.

2.3.4 Packaging material carriage cross adjuster

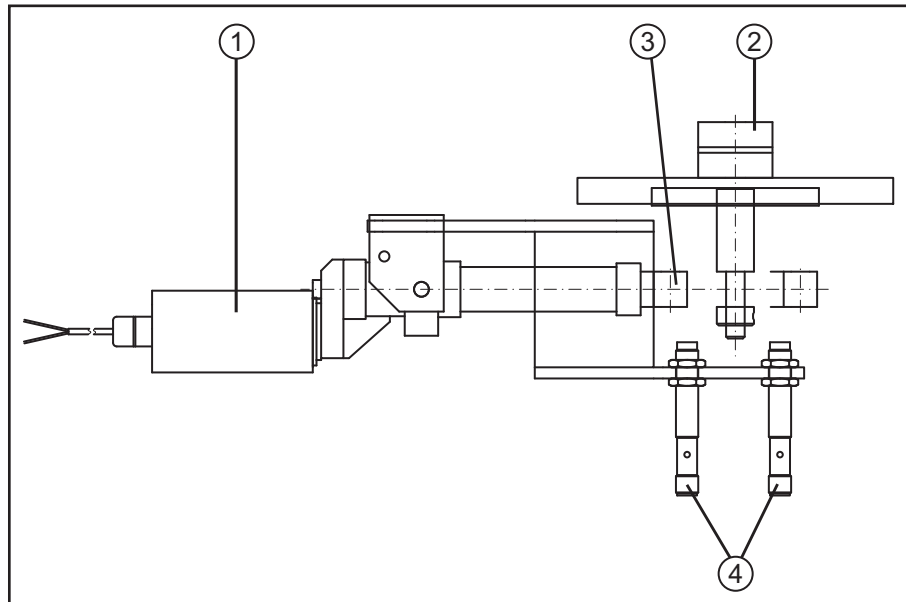


Fig. 2-24 Packaging material carriage cross adjuster

- 1 Motor
- 2 Packaging material carriage
- 3 Spindle
- 4 Proximity switch

Function

The packaging material carriage (as far as the last deflection roll in front of the forming shoulder) can be moved completely to the left and right. In this manner, the packaging material web can be aligned to achieve the correct vertical seal.

The packaging material carriage (2) - and thus the packaging material web, is moved when

- the job buttons **"Film carriage"** (in the **VP JOG MENU** of the display) are confirmed, or
- the motor receives a start signal from the packaging material edge control (optional)

The motor (1) is linked to a spindle (3) than transmits the drive to a linkage.

The traverse of the packaging material carriage is limited by the proximity switches (4).

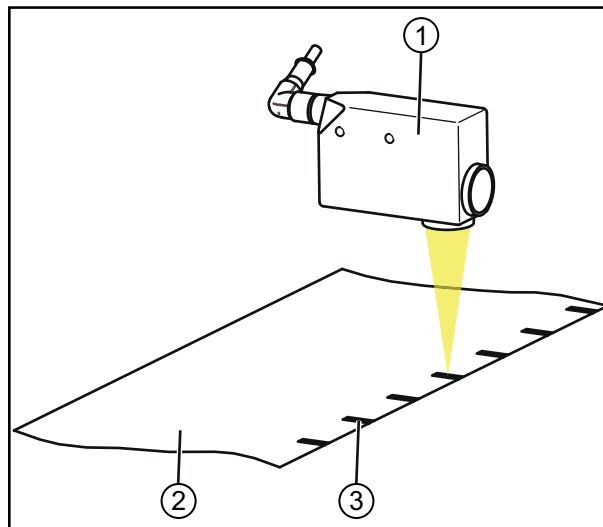
**NOTE!**

This function does not replace the careful alignment of the packaging material roll and packaging material web!

2.3.5 Photo cell

Function

The photo cell performs an important function in producing the bags. In combination with the machine controller, it ensures a consistent print image position on the bags. For this purpose, the packaging material must be printed with a suitable marking. This can be a so-called print register mark, or a high-contrast location within the print image.



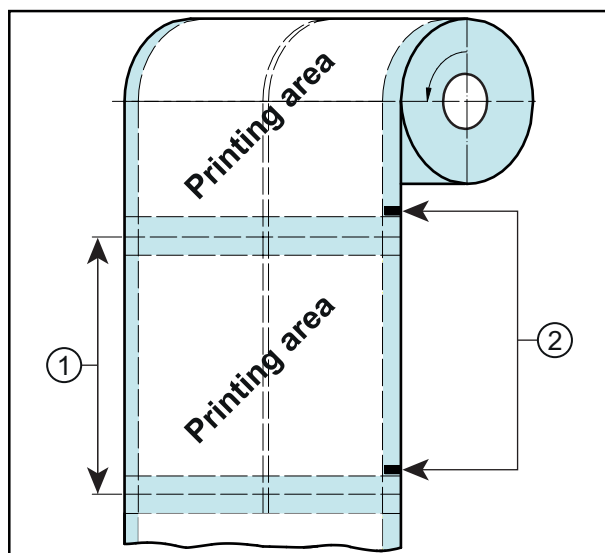
- 1 Photo cell
- 2 Packaging material
- 3 Print register mark



NOTE!

For further details on the function and handling of the photo cell, please consult the separate technical description from the manufacturer.

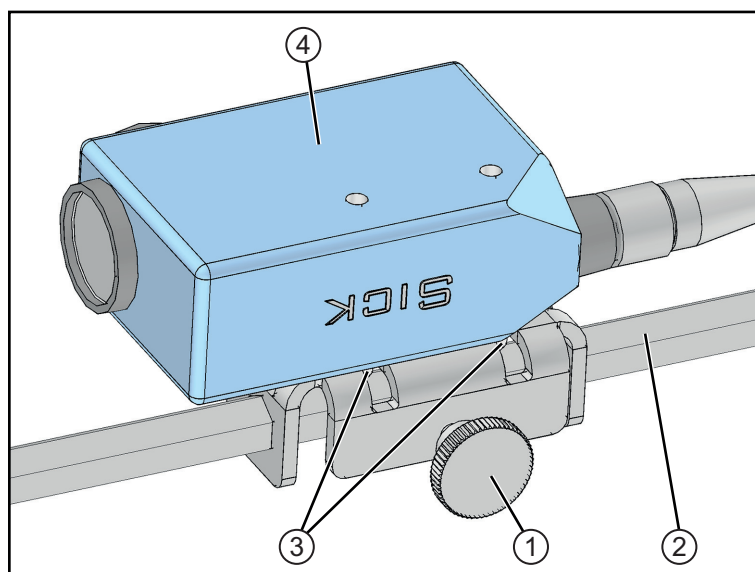
The photo cell responds to brightness and colour differences in the print image of the packaging material. Its sensitivity must be adjusted accordingly for each packaging material that is used (see also the operating instructions for the photo cell). It is installed so that it can be slid for easy alignment with the print register mark.



- 1 Bag strip width
- 2 Control marks (photo signals for the photo cell)

**NOTE!**

For further details regarding requirements for the packaging material, please consult the packaging format drawing.

2.3.5.1 Aligning the photo cell

- 1 Knurled screw
- 2 Hexagonal guide
- 3 Fastening screws
- 4 Photo cell

Preparation

- Determining the print mark.
- Transport (withdraw) the packaging material web, by operating the **"film drive"** in the **VP JOG MENU** or by hand until the light spot of the photo cell can be directed onto the print register mark.

Horizontal alignment

Manual adjustment:

- After loosening the knurled nut (1), adjust the photo cell (4) to the position of the print register mark by sliding it on the hexagonal guide (2).
- After sliding, retighten the knurled screw.

Motor-driven adjustment (optional):

- Photo cell with the jog buttons **"photo cell"** in the **VP JOG MENU** bring it into position.

Distance from the packaging material

- Unscrew the two fastening screws (3).
- Adjust the distance of the photo cell (1) from the packaging material by sliding the photo cell in the slot.
- After adjustment, retighten the fastening screws.

**NOTE!**

The photo cell must be switched off when processing packaging materials without a print image!

The repeat accuracy of the draw-down belts can only be checked when the photo cell is switched off. This must be done by switching off the electronic switch in the **FILM DRIVE** menu!

2.3.5.2 "photo cell" menu

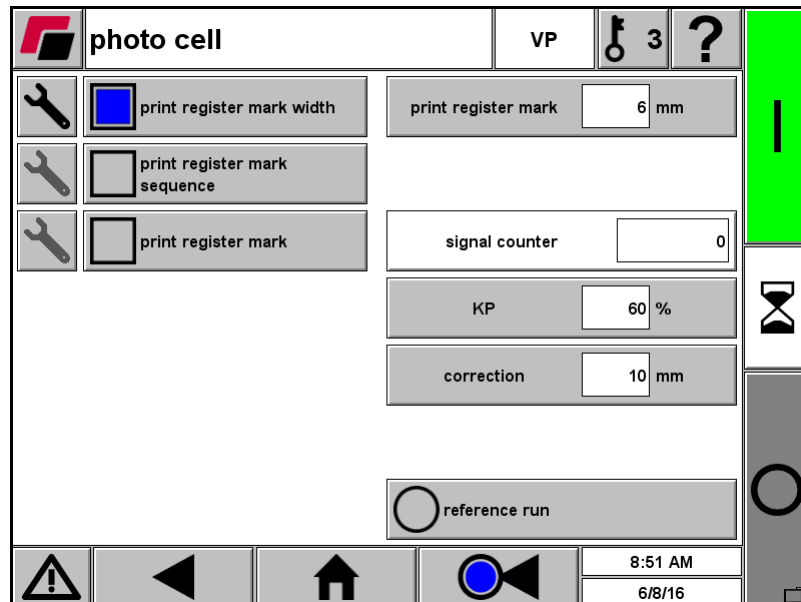
The photo cell can be used to detect areas designated as print register marks on packaging materials with various printed areas. These so-called print register marks are used to control the unrolling length.

In this menu you can select, depending on the type of printing on the packaging material, which method the photo cell uses to detect the print register mark.

Depending on the method selected, further settings have to be made in the associated submenus.

The left half of the screen displays switches for selecting the filter of the print register mark (method of the print register mark).

The menu parameters displayed in the right half of the screen depend on the method selected.



Wrench - change screen **PRINT REGISTER MARK WIDTH**

Access to the configuration menu **FILTER PRINT REGISTER MARK WIDTH**.

"Print register mark width" switch

Switch for switching the "Print register width" function on and off.

This function is selected if several markings of different widths are present per unrolling length (e.g. in the form of printed bars and/or graphical elements on the packaging material).

In this case a marking with a certain width must be selected as the print register mark. The print register mark in the selected width may only appear once per unrolling length, and there must be the same distance between the print register marks every time this print register mark appears.

After this detection method is selected, the additional menu parameter "Print register mark" appears on the right half of the screen. The width of the print register mark is entered here.

Wrench - change screen **PRINT REGISTER MARK SEQUENCE**

Access to the configuration menu **PRINT REGISTER MARK SEQUENCE**.

"Print register mark sequence" switch

Switch for switching the "Print register mark sequence" function on and off.

This function is selected when no unambiguous markings are printed on the packaging material that can be used as a print register mark.

In this case a particularly high-contrast area of the print image is selected. There must not be any colour change for a defined distance before this area. The high-contrast area that has been selected as print mark sequence may only appear once per draw-down length, and there must be the same distance between the print register marks every time this print register mark appears.

After this detection method is selected, in addition the menu parameters "Print register mark" and "Before print register mark" appear on the right half of the screen. This is where the width of the print register mark and the area without colour change before the print register mark are entered.

Wrench - change screen *PRINT REGISTER MARK*

Access to the configuration menu ***FILTER - PRINT REGISTER MARK***.

"Print register mark" switch

Switch for switching the "Print register mark" function on and off.

This function is selected if an unambiguous print register mark is present only once per unrolling length (e.g. in the form of a printed bar on the packaging material).

Because the print register mark is unambiguous, no further entry is required.

"Photo-cell teach-in" button (optional)

This button determines the print register mark for the photo cell:

Bring the print register mark to the photo cell's light spot.

When the button is pressed the type (colour, contrast) of the print register mark will be determined automatically by the photo cell and stored internally as a reference value. Now when the print register mark passes the photo cell, where the film is will be recognised.

"photo cell" buttons (optional)

For alignment to the print mark, the photo cell is moved in the desired direction with the aid of a motorized adjuster.

Print register mark

Enter the height of the print register mark [mm]

Before print register mark

Enter the area without colour change before the print register mark (in mm).

"Signal counter" value display

Number of detected print register mark signals.

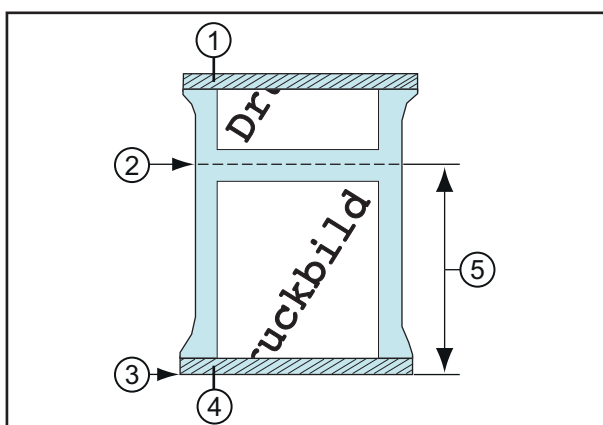
KP

is the proportional reinforcement value for the print image regulation. This value is preset by Rovema and should not be changed.

correction (optional)

Print image correction (in millimeters); effective only when printed packaging material and a photo cell are used.

This parameter is used to shift the film by the amount specified in order to correct the alignment of the print image on the film. Limit value calculation is not performed.



- 1 Top seal
- 2 Desired line of cut
- 3 Actual line of cut
- 4 Bottom seal
- 5 Correction

**NOTE!**

In order to prevent the print register mark from being too close to the photo cell in the event of a machine standstill, the following must be considered when entering the correction value:

The correction value must not be exactly as high as the bag length that has been entered, and it must be at least 20 mm longer or shorter.

If difficulties still arise, the packaging material path must be changed accordingly by adjusting the set-up swing or by moving a deflection roll on the packaging material carriage.

"reference run " button

Button to trigger a reference run of all drive axes connected to the master axis of this machine area.

2.3.5.2.1 "Print register mark width filter" configuration menu
"Filter switched on" value display

This display indicates whether the filter is active or inactive.

"Signal inversion" switch

Switch for switching the "Signal inversion" function on and off. Switching this switch on causes the input signal to be read out inverted.

Print register mark

Enter the height of the print register mark [mm]

tolerance

This tolerance value is used in the print register mark detection to distinguish whether a print register mark is detected as valid or invalid. A value of 3 mm is generally sufficient. In case of larger print register mark fluctuations a larger value may be necessary.

"Print register mark" value display

Display of the value currently being measured by the control system.

"Signal counter" value display

Number of detected print register mark signals.

"Signal position" value display

Displays the position of the film drive at which the print register mark is detected.

2.3.5.2.2 "Print register mark sequence" configuration menu

filter print register mark sequence		VP	3	?
photo cell				
☐	filter turned on	actual		
☐	signal inverting			
print register mark	6 mm	print register mark	0 mm	I
before print register mark	10 mm	before print register mark	0 mm	
tolerance	4 mm			
		signal counter	0	
		signal position		0
8:52 AM 6/8/16				

"Filter switched on" value display

This display indicates whether the filter is active or inactive.

"Signal inversion" switch

Switch for switching the "Signal inversion" function on and off. Switching this switch on causes the input signal to be read out inverted.

Print register mark

Enter the height of the print register mark [mm]

Before print register mark

Enter the area without colour change before the print register mark (in mm).

tolerance

This tolerance value is used in the print register mark detection to distinguish whether a print register mark is detected as valid or invalid. A value of 3 mm is generally sufficient. In case of larger print register mark fluctuations a larger value may be necessary.

"Print register mark" value display

Display of the value currently being measured by the control system.

"In front of print register mark" value display

Display of the value currently being measured by the control system.

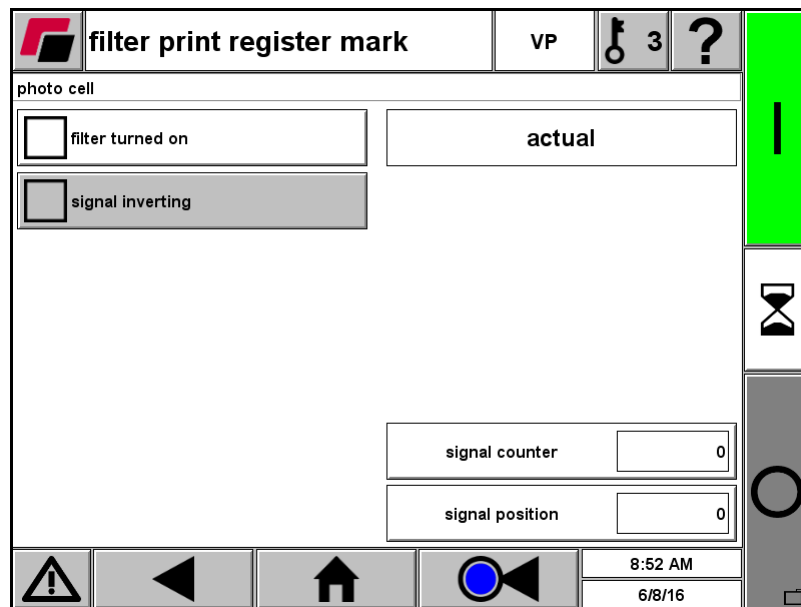
"Signal counter" value display

Number of detected print register mark signals.

"Signal position" value display

Displays the position of the film drive at which the print register mark is detected.

2.3.5.2.3 "Print mark filter" configuration menu

**"Filter switched on" value display**

This display indicates whether the filter is active or inactive.

"Signal inversion" switch

Switch for switching the "Signal inversion" function on and off. Switching this switch on causes the input signal to be read out inverted.

"Signal counter" value display

Number of detected print register mark signals.

"Signal position" value display

Displays the position of the film drive at which the print register mark is detected.

2.4.1 Format set (overview)

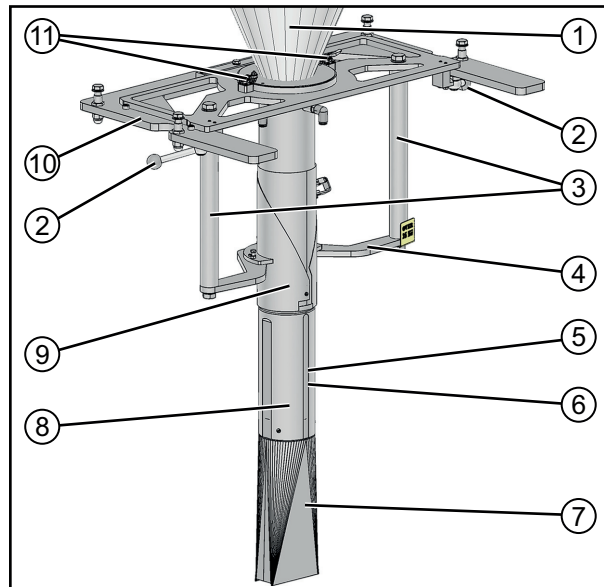


Fig. 2-25 Format set overview

- 1 Transfer funnel
- 2 Tensioning bolt
- 3 Mounting bracket
- 4 Flange
- 5 Silicone rubber strip
- 6 Teflon tape
- 7 Chute (option)
- 8 Filling tube
- 9 Forming shoulder
- 10 Format receptacle
- 11 Horizontal tensioner for transfer funnel

Function

The forming shoulder and filling tube comprise the format set (the interchangeable format set).

The flat packaging material web is formed into a tube by drawing it down over the forming shoulder (9) and around the filling tube (8).

A silicone rubber strip (5) will be bonded to the sealing surface of the filling tube as an elastic backing layer for the vertical sealing unit. The silicone rubber strip is masked with Teflon tape (6). This structure is a prerequisite for reducing heat transfer to the filling tube and achieving an even vertical seal. The Teflon tape also reduces friction and prevents the packaging material sticking permanently on the filling tube.

Shaping parts, such as hoods or spreaders, are fastened at the bottom end of the filling tube.

Format size

The format size is equal to the pillow bag width in millimeters. Refer to the format drawing when determining the packing form and size. Every bag size has its own complete format set assigned to it; the size is imprinted on the format set (see arrow on the top image).

When should the format set be changed?

It is necessary to switch the entire format set when:

- a different bag width or
- a different bag shape

with be manufactured using the machine.

When switching to another bag shape with the same bag width, either the complete format set can be replaced or only the shaping parts at the bottom end of the filling tube.

2.4.2 Changing the format set**NOTE!**

If a dosage unit is used, other parts may need to be removed before changing the format set. For more information, see the operating manual for the relevant dosage unit.

**WARNING!****Danger of burns due to hot surfaces!**

The vertical sealing station will be operated with very hot components. Touching these components can lead to very serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heater before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Prerequisites

- The draw-down device has been lifted off the filling tube (switch **"transport belt"** in the **VP SWITCH MENU**).
- The machine has been switched off at the main switch, and the main switch has then been secured against being switched back on unintentionally!
- The protective doors on the front of the machine are open.
- The new format parts have been selected according to the format list (see section **3.4.1 - format list, Page 265**) or the format table from the appendix of this operating menu, and are ready for installation.

- The sealing tools have cooled down completely in order to be able to work on them without risk.
- The vertical sealing unit is swung away from the filling tube.
- The front part of the product collection tray (optional machine equipment) has been removed.

Execution

- Cut the packaging material web slightly upstream of the forming shoulder and fully remove the packaging material from the area of the format set.
- Unplug the connecting cables for the visual packaging material edge control (optional machine equipment).
- Unplug the connection for the dust extraction from the filling tube (optional machine component).
- Unplug the transport cable of the gassing system from the connector on the filling tube (optional machine component).
- Remove the chute at the end of the filling tube (optional machine equipment)
- Undo the tensioning bolts (2).

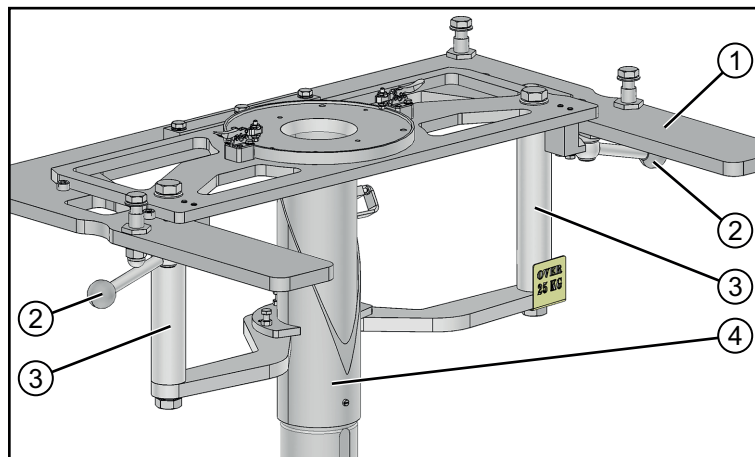


Fig. 2-26 Change part retainer with format set

- 1 Format receptacle
- 2 Tensioning bolt
- 3 Mounting bracket
- 4 Format set

- Grasp the old format set (4) with both hands on the support brackets (3), lift it down from the format receptacle (1) and carefully set it down.

**WARNING!****Danger of crushing!**

The format set can weigh more than 25 kilograms.

- ▶ Use suitable hoisting gear to remove and install the format set.
- ▶ Ensure that there is no one in the danger zone during these tasks.

- Clean the removed format parts and store them appropriately until next usage.

NOTE!**Danger of machine damage!**

The format parts are precision parts.

- ▶ When setting down and transporting or storing the format set, make sure that no components of the format set are damaged.

Reassembly

- The new format set is installed in the reverse order of removal.

2.4.3 Setting up the format set**Filling tube**

When carrying out a format change, alignment of the format set is generally not necessary. Do check, however, whether the center of the filling tube is even with the centre of the cross sealing station.

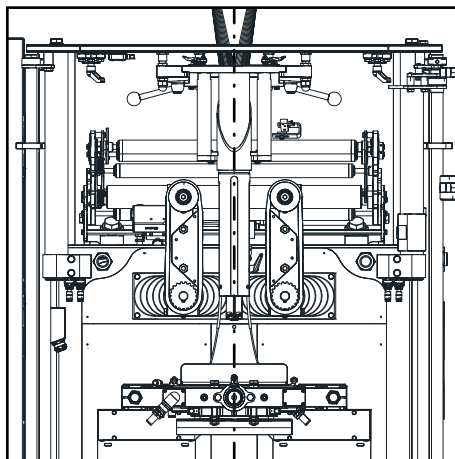


Fig. 2-27 Front view

Draw-down surfaces

The filling tube draw-down surfaces (2) must be arranged at an angle to the front plate (1). Thus the vertical sealing surface (3) must run automatically parallel to the front plate.

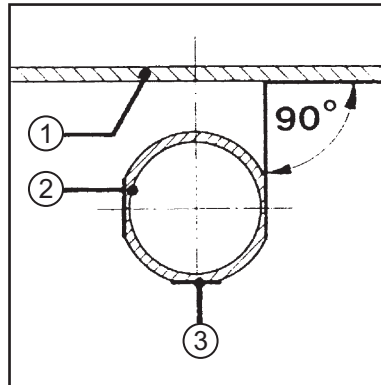


Fig. 2-28 Filling tube (top view)

- 1 Front plate
- 2 Draw-down surfaces
- 3 Vertical sealing surface

Annular gap

The space between the filling tube (1) and forming shoulder (2) is called the annular gap.

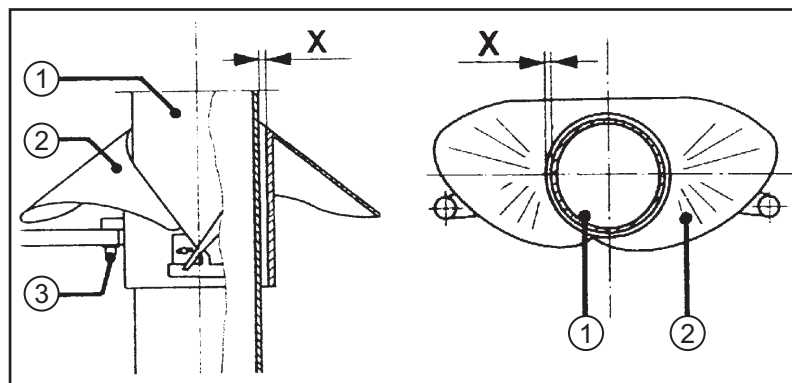


Fig. 2-29 format set (cut-away) and forming shoulder (top view)

- 1 Filling tube
- 2 Forming shoulder
- 3 Screws

The annular gap (x) between the filling tube and the forming shoulder must be uniform.

This can be checked easily:

- Insert a suitable packaging material cutting into the annular gap from above until it is visible below the forming shoulder.
- Now run the packaging material cutting along the gap around the filling tube. The packaging material must slide with uniform ease.

If the packaging material hits anything or if it is difficult to guide:

- Unscrew the screws (3).
- Change the position of the forming shoulder (2). The straight edge of the forming shoulder must be aligned in parallel to the packaging material deflection roller. There are markings for use as measurement point on the collar of the shoulders.
- The retighten screws.

2.4.4 Chute and spreader

Function

The chute (3) must be attached to the end of the filling tube (1) to create side-fold packaging.

Installation

- Push the chute into the filling tube from below and then secure it with the screws (2).

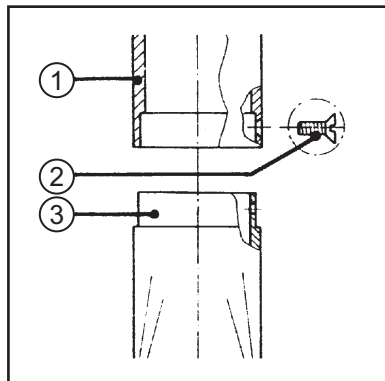


Fig. 2-30 Filling tube and chute (front view)

- 1 Filling tube
- 2 Screws
- 3 Chute

Removal

- Remove screws
- Pull the chute downwards and out of the filling tube

Alignment

The wire spreader (1) or the chute (2) must be aligned in the centre over the cross jaws (3).

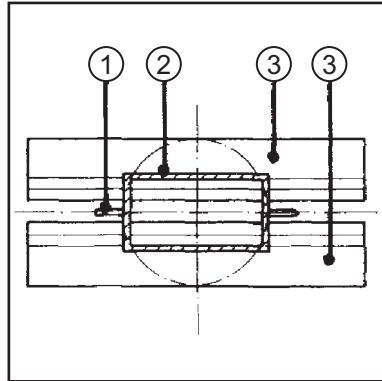


Fig. 2-31 Filling tube and chute or wire spreader (top view)

- 1 Wire spreader
- 2 Chute
- 3 Cross jaws

The first setting is carried out by **ROVEMA** but the user must check it and, if necessary, correct it when there are faults in bag production.

Extraction (optional)

The lower end of the suction tube must be located above the filling level of the bag (**see image below; dimension x = 10 - 30 mm**).

The output and design of the extraction unit are, amongst other things, aligned to the product properties, such as dust development.

Effective suction is only possible when the air can circulate.

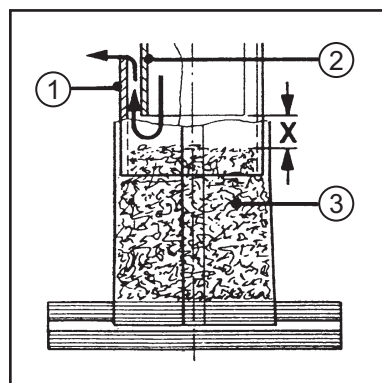


Fig. 2-32 Extraction

- 1 Filling tube
- 2 Extraction tube
- 3 Bag

2.5.1 Draw down device (overview)

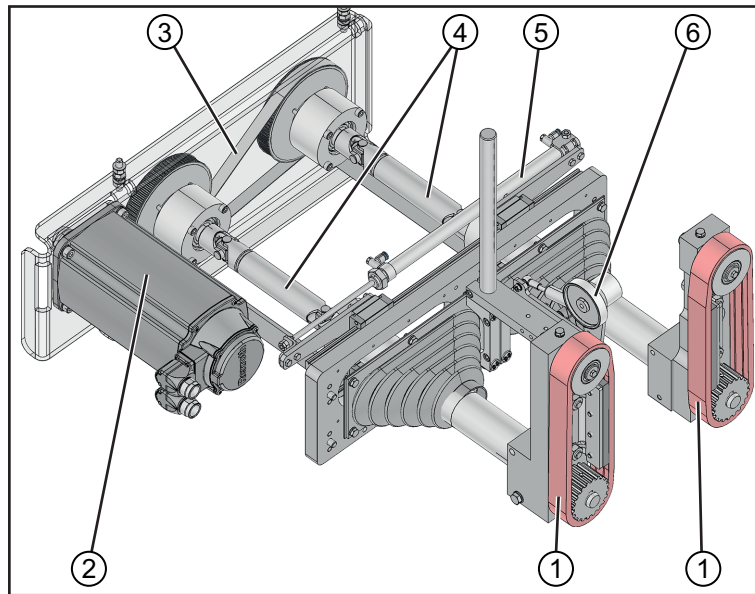


Fig. 2-33 Draw-down device overview

- 1 Draw-down belts
- 2 Motor
- 3 Toothed belt
- 4 Universal shaft
- 5 Pneumatic cylinder
- 6 Bag length control device

Function

The packaging material is pulled off of the supply roll and transported via deflection and guide rolls to the cross sealing station.

Draw-down belts (1) are applied at both sides of the filling tube. The pressure and motion of these belts serves to transport (draw-down) the packaging material.

The draw-down unit is driven by a motor (2). The power is transmitted via toothed belts (3) and universal shafts (4).

A pneumatic cylinder (5) enables movement for applying and lifting off the draw-down belts (1) on the filling tube.

The real unrolling length is measured with the bag length control device (6) and relayed to the control unit.

Operating elements

for this assembly are

- Switch **"transport belt"** in the **VP SWITCH MENU** of the display for lifting off / placing the draw-down belts
- Button **"film drive"** in the **VP JOG MENU** of the display
- Menu **FILM DRIVE** of the display

- Pressure reducer for the contact pressure of the draw-down belts (in the pneumatic switchgear cabinet)

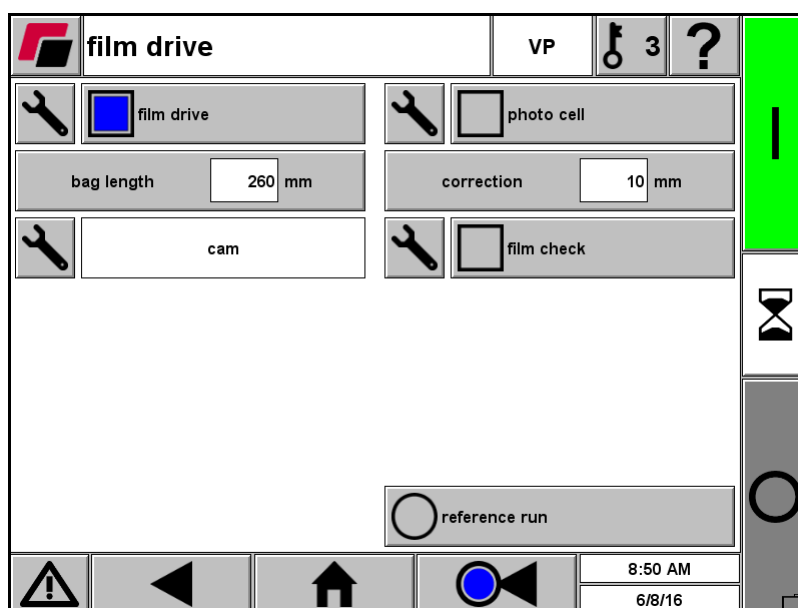
**WARNING!****Danger of entanglement of body parts or clothing due to rotating parts!**

There are rotating parts at the draw-down device, such as gear wheels or tension rollers. At these points, there is the risk of body parts or clothing being caught, wound up or drawn in.

- Prior to all tasks, switch the machine off at the main switch and secure the main switch against being switched back on unintentionally.

2.5.2 “Film drive” menu

All electronic settings for the draw-down unit function are made in this menu and additional sub-menus.

**Wrench - change screen *FILM DRIVE***

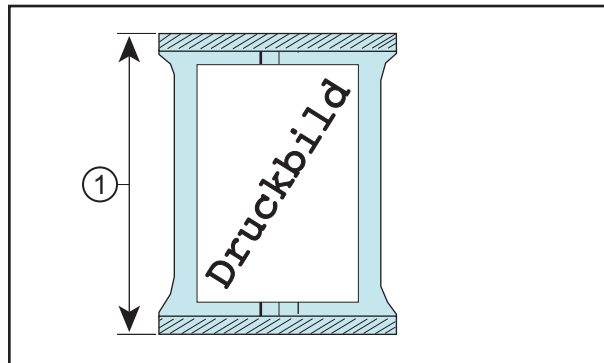
This takes you to the function screen for the film drive.

“Film drive” switch

Switch for switching packaging material transport on and off.

bag length

The value entered here defines the bag length (in millimeters).



1 bag length

Wrench - change screen *CAM*

This takes you to the overview of the cam menu.

Wrench - change screen *PHOTO CELL* (Option)

This takes you to the settings of the photo cell.

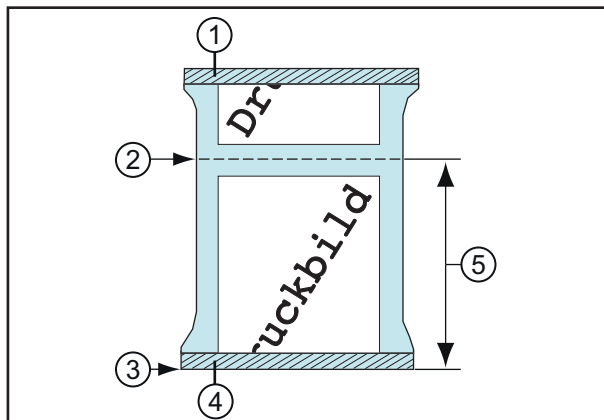
"photo cell" switch (optional)

This switch activates and deactivates the photo cell.

correction (optional)

Print image correction (in millimeters); effective only when printed packaging material and a photo cell are used.

This parameter is used to shift the film by the amount specified in order to correct the alignment of the print image on the film. Limit value calculation is not performed.



- 1 Top seal
- 2 Desired line of cut
- 3 Actual line of cut
- 4 Bottom seal
- 5 Correction



NOTE!

In order to prevent the print register mark from being too close to the photo cell in the event of a machine standstill, the following must be considered when entering the correction value:

The correction value must not be exactly as high as the bag length that has been entered, and it must be at least 20 mm longer or shorter.

If difficulties still arise, the packaging material path must be changed accordingly by adjusting the set-up swing or by moving a deflection roll on the packaging material carriage.

"reference run " button

Button to trigger a reference run of all drive axes connected to the master axis of this machine area.

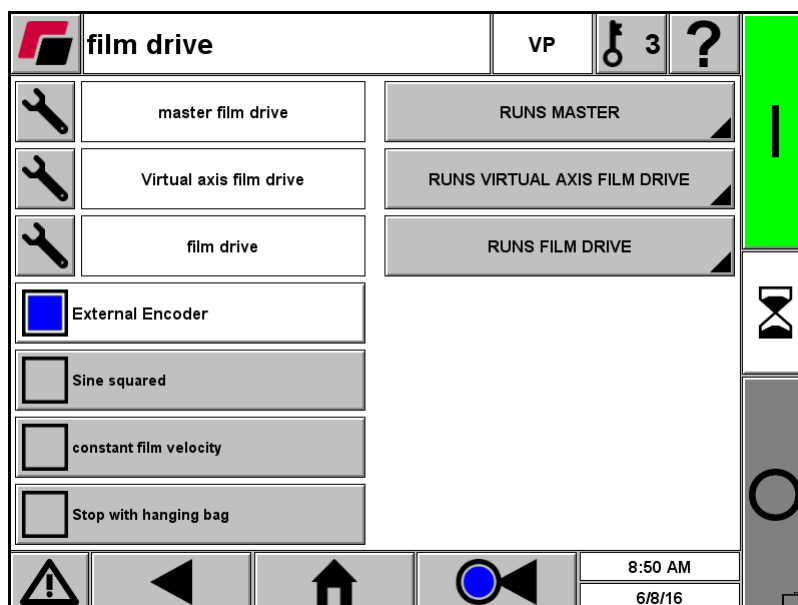
2.5.2.1 "film drive" function menu

The drive axis of the draw-down device is programmed in this function screen.

NOTE!**Danger of permanent machine damage due to incorrect settings!**

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!
-



Wrench - change screen *MASTER FILM DRIVE*

This takes you to the configuration of the axis (position controller, gear compensation, etc.).

The values accessed with the wrench were factory-set by ROVEMA. They cannot be changed by the operator, and are provided for information purposes only.

Drop-down menu *RUNS*

A drop-down menu appears here containing all runs of the axis.

For more about programming the different runs, see the explanations in section [2.2.13 - Runs, Page 122](#).

You can program the following runs:

- trapezoidal

Wrench - change screen *VIRTUAL AXIS FILM DRIVE*

This takes you to the configuration of the axis (position controller, gear compensation, etc.).

The values accessed with the wrench were factory-set by ROVEMA. They cannot be changed by the operator, and are provided for information purposes only.

Drop-down menu *RUNS*

A drop-down menu appears here containing all runs of the axis.

For more about programming the different runs, see the explanations in section [2.2.13 - Runs, Page 122](#).

You can program the following runs:

- Electronic cam
- draw-down 1
- draw-down 2
- draw-down 3
- draw-down 4
- draw-down 5

Wrench - change screen *FILM DRIVE*

This takes you to the configuration of the axis (position controller, gear compensation, etc.).

The values accessed with the wrench were factory-set by ROVEMA. They cannot be changed by the operator, and are provided for information purposes only.

Drop-down menu *RUNS*

A drop-down menu appears here containing all runs of the axis.

For more about programming the different runs, see the explanations in section [2.2.13 - Runs, Page 122](#).

You can program the following runs:

- Jog forward

Settings for jogging in the forward direction.

- reference run
- electronic gear

"External Encoder" status display

This field shows which encoder controls the film drive.

"Filled square" display: The encoder wheel on the forming tube controls the film drive.

"Unfilled square" display: The encoder in the motor is controls the film drive.

"Sinus square" switch

Switching on the switch selects acceleration for the drive axis with a sinus square-shaped profile. This sinus square-shaped profile enables softer acceleration and braking procedures.

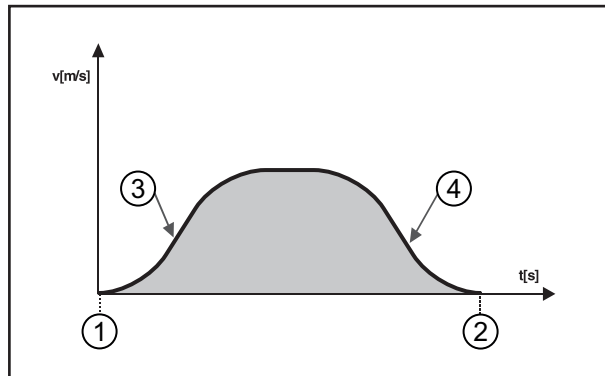


Fig. 2-34 "Sinus square" movement profile

- 1 On position
- 2 Off position
- 3 acceleration
- 4 delay

"Constant film velocity" switch

Turning on the switch selects acceleration for the drive axis with a trapezoidal profile. In this profile the packaging material is drawn down at a constant speed.



NOTE!

This movement profile should only be used in operation with a hot air sealing unit!

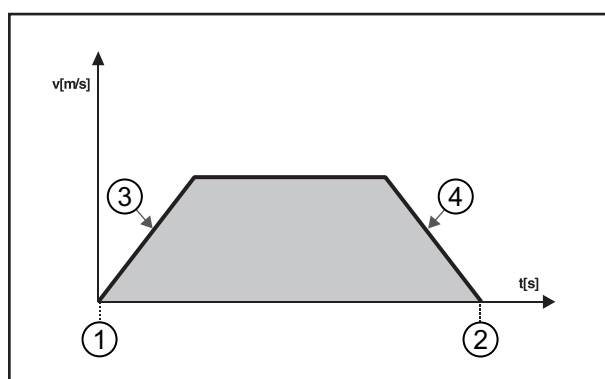


Fig. 2-35 Trapezoidal movement profile "Constant film velocity"

- 1 On position
- 2 Off position
- 3 acceleration
- 4 delay

"Stop with hanging bag" switch

This switch allows you to influence the behavior of the draw-down unit when there is a production stoppage:

In the "ON" position:

When there is a production stoppage, the packaging material tube will still be partially drawn down and the cross seal already placed on the filled bag. When production starts again the next bag can then be filled directly, sealed and the hanging bag removed.

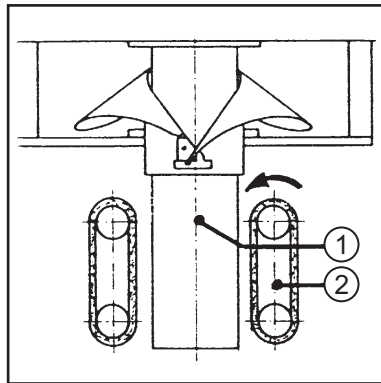
In the "OFF" position:

When there is a production stoppage, the machine finishes the filled bag and separates it from the packaging material tube. When production starts again, the jaws do not move together completely, but the already sealed seam is still not sealed. The subsequent draw-down takes place normally.

2.5.3 Important prerequisites for an optimal packaging material draw-down

Center setting

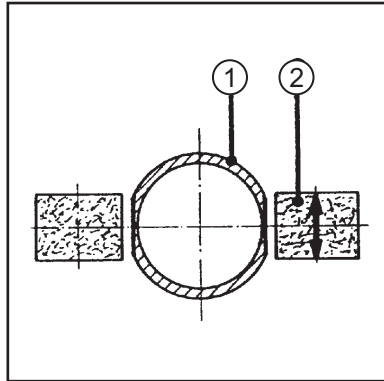
- The central axis of the filling tube (1) must match those of both draw-down holders (2).



- 1 Filling tube
- 2 Draw-down holder

Parallelity

- Ensure the axis distance of both draw-down holders (2) to the draw-down surfaces of the filling tube (1) is the same.
- The draw-down belts must run parallel to the draw-down surfaces.



- 1 Filling tube
2 Draw-down holder

Slip

Reference is made to slip when the draw-down belt slips on the packaging material without drawing down completely. This causes irregular draw-down lengths.

To avoid slip influences, the following settings should be checked:

- Vacuum on the draw-down belt; this includes checking the entire vacuum system (vacuum pump, vacuum connection, vacuum suction device in the draw-down unit, perforated toothed belt)

Before checking **slip influences** on the draw-down precision the **photo cell** must be switched off.

- Select the menu **FILM DRIVE VP**.
- Switch off the electronic switch "**photo cell**" there.
- Check the film drive in **JOG mode**.

Belt pressure



The belt pressure is crucial for the packaging material web to run evenly.

NOTE!

For the setting, please take note of the label of the pressure reducer on the machine housing!

A basic pressure setting is around 1 bar. The performance of the vacuum pump should be 0.6 ... 0.8 bar. Settings for belt pressure will vary depending on film thickness and quality and must therefore be worked out separately by the operator for every film.

- If pressure is too low, so-called slip will occur, creating variations in the draw-down lengths.
- If the pressure is too high, the packaging material rubs against the filling tube. This may cause the drive to be overloaded and increased belt wear should be expected.

2.5.4 Replacing and adjusting draw-down belts



WARNING!

Danger of injury!

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.



CAUTION!

Danger of crushing!

There is danger of crushing in the area between draw-down belts, draw-down device and filling tube when the draw-down belts are applied to the filling tube.

- Prior to all tasks, switch the machine off at the main switch and secure the main switch against being switched back on unintentionally.

Replacing draw-down belts

Prerequisites:

- ✓ The draw-down belts of the draw-down device are lifted off the filling tube (switch **"transport belt"** in the **VP SWITCH MENU**).
- ✓ The machine has been switched off at the main switch, and the main switch has then been secured against being switched back on unintentionally.
- ✓ The protective doors on the front of the machine are open.
- ✓ The vertical sealing unit is swung away from the filling tube.
- ✓ The new spare parts are ready for fitting.

Tool required:

- Wrench (AF10)
- Wrench (AF16)

Procedure:

1. Using the wrench (AF16), unscrew the fastening nut (1) on the rear side of the draw-down holder (2).

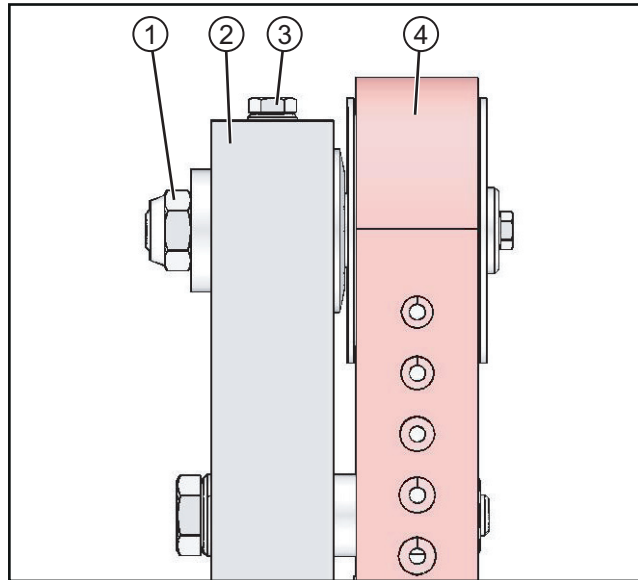


Fig. 2-36 Side view draw-down holder

- 1 Fastening nut
 - 2 Draw-down holder
 - 3 Tensioning screw
 - 4 Draw-down belts
2. Using the wrench (AF10), turn the tensioning screw (3) counterclockwise, in order to release the draw-down belt (4).
 3. Lift off the old draw-down belt.
 4. Clean the complete device.
 5. Put on the new draw-down belt.



NOTE!

When applying a new draw-down belt, make sure that the direction of movement corresponds to the arrow stamped on the belt!

6. Tension the draw-down belt as described below.
7. Retighten the fastening nut (1).
8. Start the function of the draw-down device when lifted off.



NOTE!

The new draw-down belts first have to run in, after installation. This running in avoids adverse effects to the draw-down due to so called "false air".

9. Let the draw-down belts run in for at least 10 minutes.

Tensioning the draw-down belts

Tool required:

- Wrench (AF10)
- Wrench (AF16)

Procedure:

1. Using the wrench (AF16), unscrew the fastening nut (1) on the rear side of the draw-down holder (2).
2. Turn at the tensioning screw (2) using the wrench (AF10).
 - a) Tensioning the belt further: Turn clockwise.
 - b) De-tensioning the belt: Turn counterclockwise.
3. After correct adjustment, retighten the fastening nut (1).

Checking the tension:

1. After tensioning, it should be possible to push the draw-down belt through on the outer face for approx. 5 mm.



NOTE!

To ensure the functioning of this assembly, use only original spare parts!

2.6.1 Vertical sealing jaw (overview)

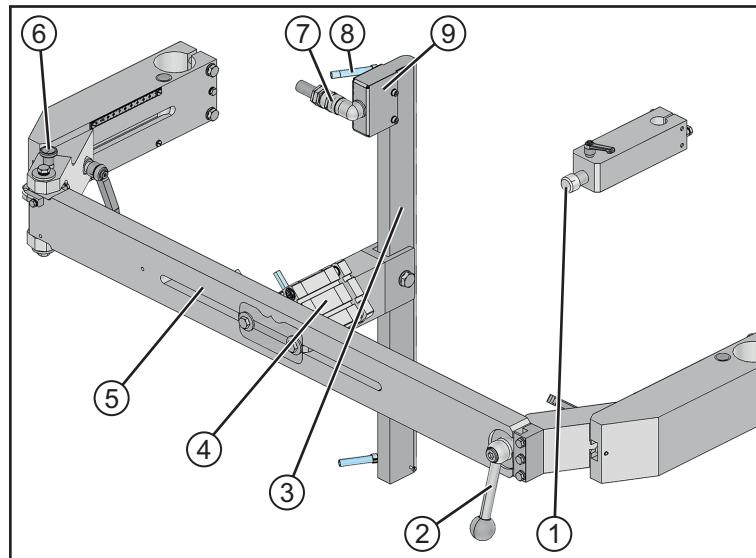


Fig. 2-37 Vertical sealing jaw overview

- 1 Counter-holder (optional)
- 2 Tensioning bolt
- 3 Vertical sealing jaw
- 4 Pneumatic cylinder
- 5 Mounting bracket
- 6 Lock bolt
- 7 Electrical connection
- 8 Vertical seam cooling (optional)
- 9 Terminal housing

Function

The flat packaging material is formed into a tube by applying the vertical seal. A continuously heated vertical sealing jaw (3) seals the bag along its entire length. During the sealing process, the packaging material is pressed by the vertical sealing jaw onto the support surface of the filling tube.

Seal pressure

A pneumatic cylinder (4) exerts pressure on the vertical sealing jaw and lifts it away from the packaging material during each cycle and in the event of interruptions in production. The amount of pressure can be adjusted via the allotted pressure regulators in the machine housing. **The pressure should be 1...1.5 bar.**

Heat source

A heating cartridge in the vertical sealing jaw serves as heat source.

Regulating the temperature

The temperature of the heating cartridge is controlled by a temperature controller. The desired parameters for the vertical jaw heating are entered on the display screen.

Counter-holder

The counter-holder ensures that when the vertical sealing jaw is pressed onto the support surface of the filling tube, the format set is not shifted.

Vertical seam cooling (optional)

To make the fresh vertical seam able to bear loads immediately it is cooled with air by a cooling device (4). This device in the form of a cooling tube is mounted on the side of the vertical sealing jaw.

The switch-on and switch-off time for the blowing operation of the cooling unit can be defined in the menu **VP VERTICAL JAW/VERTICAL COOLING** Cams/vertical cooling The amount of air is controlled via the pressure reducing valve (in the machine housing).

Swivel the unit

For cleaning and maintenance tasks, you can swing the vertical sealing jaw away from the filling tube without changing the format setting:

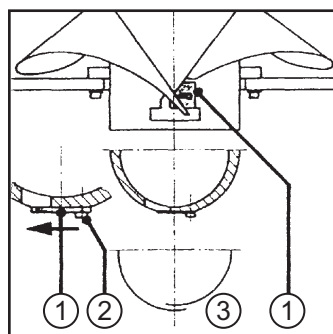
- Undo the tensioning bolts (2).
- swing the mounting bracket (5) with the vertical sealing jaw that is attached to it away from the filling tube until the lock bolt (6) engages.
- On completion of the tasks, push the lock bolt upwards and swing the vertical sealing jaw back towards the filling tube, then push the lock bolt back down again and secure the unit in this position with the help of the tensioning bolt.

2.6.2 Conditions for a good vertical seal quality

Forms of vertical seal

Overlap seal

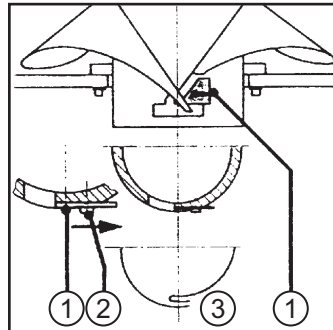
For packaging materials where the inner layer must be sealed to the outer layer, the packaging material tongue (1) must be moved in the direction of the arrow after the fastening (2) is released.



- 1 Packaging material tongue
- 2 Fastening screw
- 3 Overlap seal

Flange seal

For packaging materials where the inner layers are to be sealed onto each other, the packaging material tongue (1) must be moved in the direction of the arrow after the fastening (2) is unscrewed.



- 1 Packaging material tongue
- 2 Fastening screw
- 3 Flange seal

Aligning the vertical sealing unit at an angle

The filling tube (2) and the vertical sealing unit (3) must be situated parallel to the front plate (1). Their central axes must be aligned.

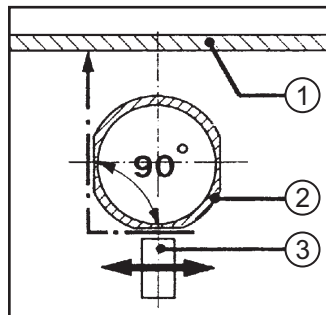


Fig. 2-38 Angularity

- 1 Front plate
- 2 Filling tube
- 3 Vertical sealing unit

Position of the vertical jaw relative to the support surface

The vertical jaw should run parallel to the support surface of the filling tube.

There must be a gap (Y) wide enough for the packaging material between the support surface and the vertical jaw.

The basic setting is for a gap width (Y) of 10 mm.

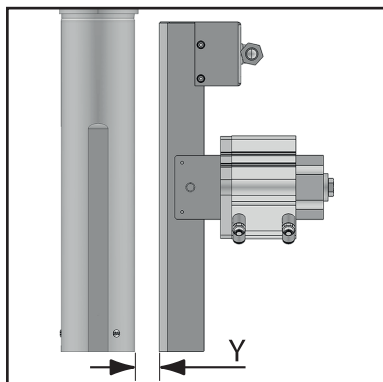


Fig. 2-39 Position of the vertical jaw

Counter-holder

Set a gap of $x = 5$ mm between the counter-holder (1) and the filling tube (2).

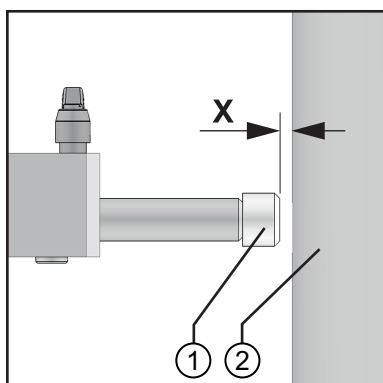


Fig. 2-40 Counter-holder

2.6.3 "Vertical jaw" menu

Electronic settings for the vertical bag closure are made in this menu.

The cleaning procedure depends on which closing system is currently mounted.

Seal time

The vertical sealing unit touches the packaging material for the time set here to seal the vertical seal.

Moving start time for vertical jaw

You can move the point in time for starting the “Vertical jaw” function by entering a time.

When entering the time, pay attention to the following:

Entering a negative time (e.g. -100 ms) causes the “Vertical jaw” function to start before the “Film transport” function has finished!

Entering a positive time (e.g. 100 ms) causes the “Vertical jaw” function to start after the “Film transport” function has finished!

Entering “0 ms” starts the vertical jaw immediately after the end of film transport!

“Vertical cooling” switch (optional)

This allows the vertical seam cooling to be switched on or off.

Cooling duration (optional)

Determines the duration of the cooling.

Moving start time of cooling (optional)

You can move the point in time for starting the “Cooling time” function by entering a time.

When entering the time, pay attention to the following:

Entering a negative time (e.g. -100 ms) causes the “Cooling time” function to start before the “Seal time” function has finished!

Entering a positive time (e.g. 100 ms) causes the “Cooling time” function to start after the “Seal time” function has finished!

Entering “0 ms” starts cooling immediately after the end of film transport!

2.6.4 “sealing temperatures” menu

In this menu, the temperatures are set for various heated machine functions. Every function listed in this menu has its own temperature control zone. When you make an entry in this menu, you are defining the temperature setpoint (in °Celsius) at which the function is to be carried out. Further settings for the control zone are entered in the corresponding configuration menu.

sealing temperatures		VP	3	?
		nominal	actual	control output
	☐ front sealing jaw	120 °C	0 °C	0 %
	☐ rear sealing jaw	120 °C	0 °C	0 %
	☐ vertical jaw	120 °C	0 °C	0 %
☒ main switch heating		☐ contactor heating		
				8:51 AM
				6/8/16

Wrench

Pressing this button takes you to the configuration menu for the appropriate heating function.

Switch for switching the temperature control zone on and off.

As soon as this switch is switched off, the heating for this function is deactivated. The values entered for the nominal temperature and the configuration data are retained. When switched on again, production is resumed with this data.

Nominal temperature

The nominal temperature is the setpoint at which the heating for that particular machine function should operate under normal circumstances. When the machine starts, the heating takes a certain amount of time to reach the nominal temperature set here. You cannot begin production during this time.

During the heat-up phase, observe the actual temperature display. This display should continually rise during the warm-up phase until the temperature setpoint is reached.

Value display "Actual temperature"

This is the temperature currently reached by the heating function. This value is displayed as information for the operator. The display of the actual temperature does not need to remain constant, but rather can display fluctuating values throughout operation.

Value display "manipulated variable"

This value displays the output level at which the heating function is operating, as a percentage of its maximum output. The control output display can vary between 0% and 100%. 0% means that no heating is occurring, 100% means that the heating is working at maximum power.

"Main switch for heating" switch

Switch for quickly switching all temperature control zones of the machine on and off.

"Heating element power contactor" status display

This display shows the current operating state of the power contactor.

Square filled: no fault is present. The power supply for the heating element is switched on.

Square unfilled: The power contactor function is faulty. A problem has occurred in one of the components of the heating element.

Change screen >>

Takes you to the next screen.

2.6.4.1 "Sealing temperatures" configuration menu

vertical jaw		VP	3	?
sealing temperatures				
☐ On/Off	channel			
nominal temperature	120 °C	DID temperature modul		
actual temperature	0 °C			
control output	0 %			
tolerance excess temperature	10 °C			
tolerance low temperature	-10 °C			
HI alarm	250 °C			
☐ fault	>> DIAGNOSTICS TEMPERATURE CONTROLLER			
8:52 AM 6/8/16				

Switch for switching the temperature control zone on and off.

As soon as this switch is switched off, the heating for this function is deactivated. The values entered for the nominal temperature and the configuration data are retained. When switched on again, production is resumed with this data.

Nominal temperature

The nominal temperature is the setpoint at which the heating for that particular machine function should operate under normal circumstances. When the machine starts, the heating takes a certain amount of time to reach the nominal temperature set here. You cannot begin production during this time.

During the heat-up phase, observe the actual temperature display. This display should continually rise during the warm-up phase until the temperature setpoint is reached.

Value display "Actual temperature"

This is the temperature currently reached by the heating function. This value is displayed as information for the operator. The display of the actual temperature does not need to remain constant, but rather can display fluctuating values throughout operation.

Value display "manipulated variable"

This value displays the output level at which the heating function is operating, as a percentage of its maximum output. The control output display can vary between 0% and 100%. 0% means that no heating is occurring, 100% means that the heating is working at maximum power.

tolerance

Due to various factors in the production environment, the set nominal temperature cannot always be kept constant. To ensure smooth production operations, a tolerance limit can be set to allow the temperature to rise above or fall below the nominal temperature. This means that production will not be interrupted because of an error message which would otherwise be triggered by the temperature monitoring in the control zone.

The value is entered in °Celsius. The tolerance limit should be large enough to compensate for temperature fluctuations resulting from production processes. However the value must not be allowed to cause faulty production results. If the fluctuations cannot be compensated adequately by entering a tolerance limit, you might need to adjust other settings for the temperature zone.

If the temperature nevertheless rises above or falls below the nominal temperature by the set tolerance value, a malfunction message appears on the display.

HI alarm

Adjustable upper temperature limit. A fault results if the value set here is exceeded.

"Fault" status display

This display serves as an overall fault display for the temperature control zone. If a fault occurs on the temperature controller, the temperature module or the temperature sensor, it will be shown using this display.

If the display is filled with colour = a fault has occurred on one of the components mentioned above!

If the display is not filled with colour = no fault is present.

**NOTE!**

For fault diagnostics and error rectification also take note of the status messages and diagnostic codes shown in the temperature controller's diagnostics menu.

channel

This is where display of the channel used occurs in the temperature controller.

"BMK" value display

This display field contains a motor labelling that is also used in the wiring diagrams of the electrical documentation to clearly identify the motor.

Change screen *TEMPERATURE CONTROLLER DIAGNOSTICS*

Access to the diagnostics screen of the temperature controller.

Change screen *AUTOMATIC OPTIMIZATION*

Access in the ***AUTOMATIC OPTIMIZATION*** in which a temperature controller self-optimisation process is carried out.

Using the self-optimisation the most favorable control parameters are determined by the controller itself.

**NOTE!**

This screen change and thus the access to this menu only appears after the password for the "E" password level has been entered on the screen.

2.6.5 Format adjustment**WARNING!****Danger of burns due to hot surfaces!**

The vertical sealing station is operated with a vertical jaw, whose surface is very hot under operating conditions. Touching this hot jaw can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heater before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

After replacing the format set it may be necessary to adapt the vertical sealing unit mechanically to the dimensions of the new format set.

NOTE!**Danger of machine damage!**

Incorrect settings can lead to interruptions in production and damage to the machine!

- ▶ Perform the format change on the machine with the utmost care!
- ▶ Make sure that the specified dimensions are precisely complied with!

Prerequisites

- The basic adjustment of the vertical sealing unit was already carried out.
- The new format set has been attached.
- The vertical sealing unit has been swung to the filling tube.
- All of the machine's jaw heaters are switched off (switch **"heating unit" main switch** in the display's overview screen **Pulse sealing VP**).
- the vertical sealing jaw has cooled down so safe work on the unit is possible.



CAUTION!

Danger of crushing!

There is danger of crushing in the area between the vertical sealing jaw and filling tube when the vertical sealing jaw is applied to the filling tube.

- Prior to all tasks, switch the machine off at the main switch and secure the main switch against being switched back on unintentionally.

Distance between the vertical sealing jaw and the filling tube (adjustment "A")

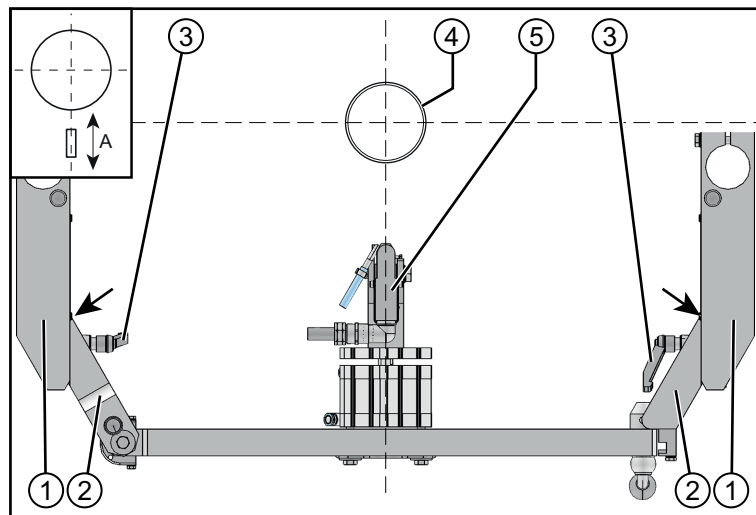


Fig. 2-41 Vertical sealing unit, adjustment points – side guide

1. Loosen the locking levers (3) on the brackets (2).
2. Reset the distance between the vertical sealing jaw (5) and the filling tube (4); for this purpose slide the complete vertical sealing unit into the vertical slots on the side support (1) to the new adjustment position in accordance with the scale value previously read from the format table. Orient yourself using the scales on the supports of the sealing unit (see arrows in figure).
3. Retighten the clamping levers.

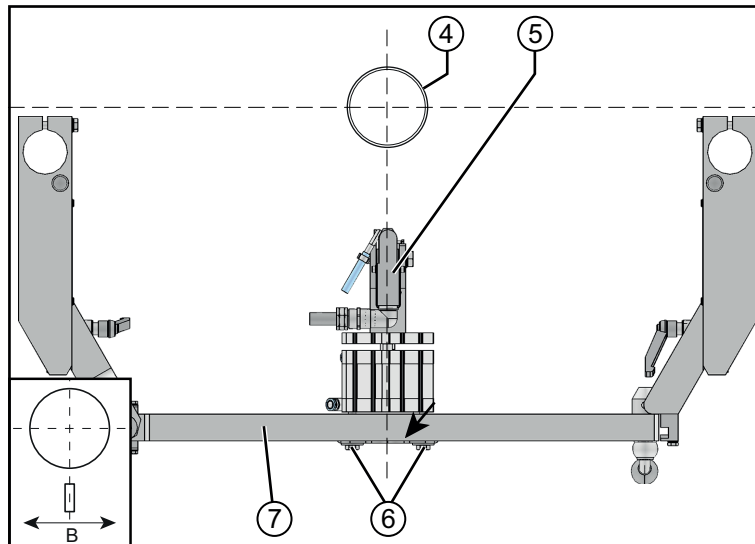
Horizontal adjustment of the vertical sealing jaw (adjustment "B")

Fig. 2-42 Vertical sealing unit, adjustment points – front guide

1. Unscrew the two fastening screws (6).
2. Slide the vertical sealing jaw to the new adjustment position in the vertical slots of the support bracket (7) in accordance with the scale value read-out earlier from the format table. Orient yourself using the scale on the front of the support bracket (see arrow in figure).
3. Retighten the fastening screws.

2.6.6 Replacing the heating cartridge and/or temperature sensor**WARNING!****Danger of burns due to hot surfaces!**

The vertical sealing station is operated with a vertical jaw, whose surface is very hot under operating conditions. Touching this hot jaw can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heater before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

**WARNING!****Danger of injury!**

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.

Prerequisites

- The machine has been switched off at the main switch, and the main switch has then been secured against being switched back on unintentionally!
- The vertical sealing unit has cooled down completely in order to be able to work on it without risk.
- The protective doors on the front of the machine are open.
- The vertical sealing unit is swung away from the filling tube.
- The new spare parts are ready for installation.

**NOTE!**

After installation, the functions of the safety devices, such as the protective circuit and residual-current circuit-breaker, must be checked in accordance with the applicable regulations!

Execution

1. Unscrew the fastening screws (1) and remove the terminal housing (5).

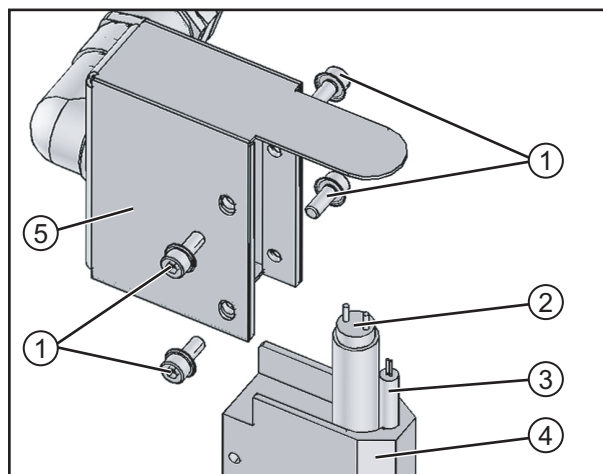


Fig. 2-43 Remove the terminal housing

2. Pull the temperature sensor (3) upwards and out.
3. Unscrew the clamp screw (6) at the lower end of the vertical jaw (4).

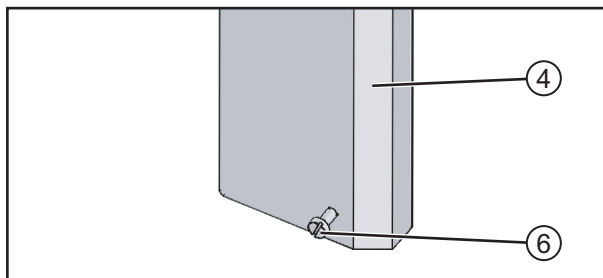


Fig. 2-44 Release the clamping of the heating cartridge

4. Pull the heating cartridge (2) upwards and out of the vertical jaw.
5. Clean the holes.



NOTE!

Before installation, compare the specifications for the power supply on the heating cartridge with those in the electrical documentation.

6. Apply thermally conductive/anti-corrosive paste on the new heating cartridge.

Reassembly

1. Re-insert the heating cartridge and the temperature sensor into the vertical jaw and establish the connection.
2. Fasten the terminal housing on the vertical jaw.
3. Reclamp the heating cartridge with the screw (6).
4. Swing the vertical sealing unit back to the filling tube.
5. Close the protective doors.
6. Switch on the machine again via the main switch.



NOTE!

To ensure the functioning of this assembly, use only original spare parts!

Overview

This section describes the application of the cross seals; in other words, the process by which a bag is formed from the packaging material tube.

First, individual components of this complex machine area are presented, followed by a general description of the process.

The overview below is intended as an orientation to the information on the following pages.

- General description
- Sealing tools
- Drive and drive transmission
- Operation using the menus of the display
- Setting up the sealing tools
- Checking the cross seal profile
- Adjusting the pressure distribution
- Installing and removing the sealing tools
- Replacing the heating cartridge(s) and/or temperature sensor
- Cutting knife

General description

The primary components of the cross sealing station are the pair of intermittent, horizontal jaws, which are driven via a reversing curve, and the pneumatic cutting knife.

2.7.1 Definitions

Hot sealing	is the joining of coated packaging materials under the effect of a permanently heated jaw member using the adjustable parameters of temperature, pressure and time.
Seal	is the bonded area of the packaging material formed by sealing (in this case by hot sealing).
Seal profile	The seal profile formed by hot sealing is marked by a grid, webs or toothed edging created by the sealing jaws on the packaging material in the area of the seal.
Sealing temperature, sealing pressure and sealing time	are the essential variables in the formation of cross seals. If the sealing time is reduced, the sealing temperature and sealing pressure may need to be increased.
Conditions required for good cross seal quality	• Correct jaw setting (seal profile - check of the pressure distribution by means of the so-called carbon paper test) • Adequate but not excessive pressure from the sealing jaws • Optimum sealing temperature • Adequate sealing time • No product caught in the cross seal • No wrinkling in the cross seal • Packaging materials with sealing properties that meet the production requirements

2.7.2 Cross sealing station (overview)

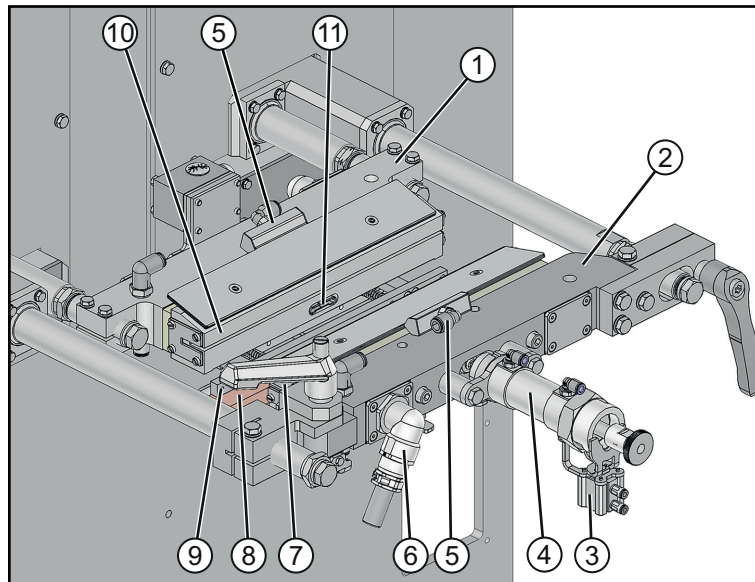


Fig. 2-45 Overview of cross sealing station

- 1 Jaw carrier, rear
- 2 Jaw carrier, front
- 3 Chainbag equipment (option)
- 4 Pneumatic cylinder for cutting knife
- 5 Cross seal cooling (optional)
- 6 Electrical connection
- 7 Cross-sealing jaw, front
- 8 Air expeller (optional)
- 9 Bag clamping bar (optional)
- 10 Cross-sealing jaw, rear
- 11 Euro hole punch (option)

Task

The cross-sealing tools apply the cross seals to the bags by exerting pressure and heat on the packaging material.

The cutting knife cuts off the completed filled bags from the packaging material tube.

Functional sequence

The vertically sealed packaging material tube is pushed by the draw-down belt of the draw-down device (see also [2.5 - Packaging material draw-down, Page 185](#)) between the opened cross-sealing tools, the heated cross-sealing tools are moved together by pressure and seal the top cross seal of the bottom bag and the bottom cross seal of the top bag.

Immediately after applying the cross seals, the cutting knife separates the finished bottom bag from the packaging material tube.

Structure	The cross-sealing tools mainly consist of the front (7) and rear cross-sealing jaws (10), which are mounted on jaw carriers (1 and 2).
Heat source	The heat required for sealing is generated using heating cartridges inside the cross-sealing jaw. A regulating system, controlled via temperature sensors, holds the set sealing temperature constant within programmable limits.
Seal pressure	The pressure required for sealing is generated by the motor drive of the cross sealing tools which move the front and rear cross jaws towards each other. The sealing pressure is adjusted in the SEALING JAW DRIVE menu in the menu item "Seal force" (see section 2.7.4 - "Sealing jaw drive" menu, Page 215).
Cutting knife	The cutting knife (not shown) is housed in the front jaw. The knife cuts off the completed bags from the packaging material tube. It is actuated by a pneumatic cylinder (4).
Bag clamping bar (optional)	Bag clamping bars (9) are attached underneath the cross-sealing tools. Their task is to hold the bag that has been drawn down below the cross jaws and already filled, and to take the offload its top seal during the sealing process.
Air expeller (optional)	Air expellers (8) are attached underneath the cross-sealing tools. Their job is to force excessive air out of the top seal area before sealing. The air expeller model is dependent on the product to be packaged.
Cross seal cooling (optional)	Cooling devices (5) to cool down the sealed cross seal are attached above the cross-sealing tools. Excess heat energy is dissipated immediately after the sealing phase by precise blowing of a series of air bubbles onto the top section of the sealing tools. This increases the resilience of the bottom seal that has just been created (see also section 2.8.3 - Cross seal cooling, Page 252).
Euro hole punch (optional)	The Euro hole punch (11) is built into the rear jaw. The thermal hole punch melts an opening in the form of a Euro hole in the top seal.

2.7.3 Drive and drive transmission

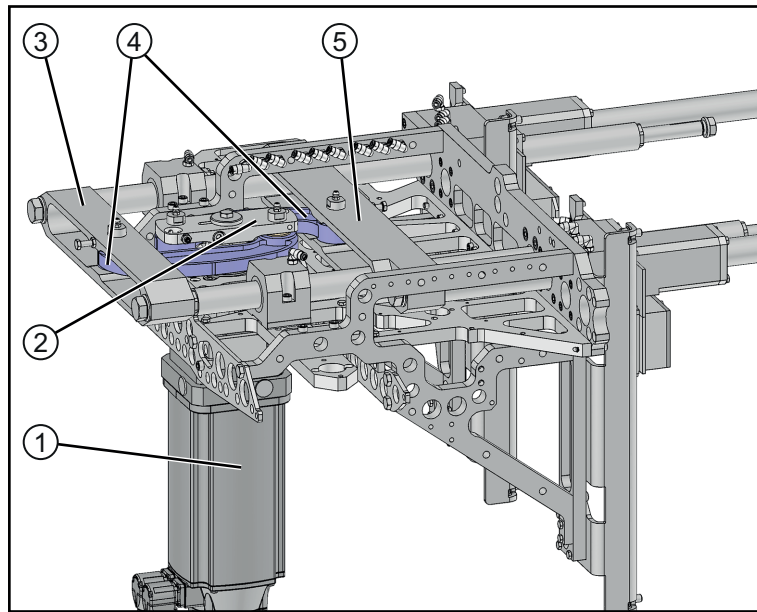


Fig. 2-46 Cross jaw drive

- 1 Servo motor
- 2 Swivel arm
- 3 Push rod traverse
- 4 Piston rod
- 5 Pull rod traverse

The drive source is a servo motor (1).

A swivel arm (2) is used to reverse the rotary drive motion. The swivel arm transmits the drive force via the piston rods (4) to the push and pull rod traverses (3 and 5), setting the cross-sealing tools in motion.

NOTE!

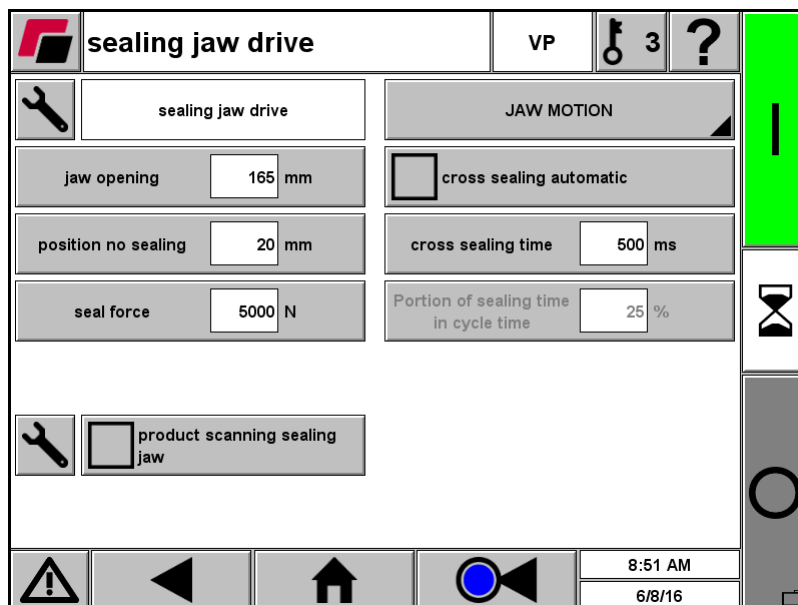
Danger of machine damage!

When creating additional drill holes in the machine housing, there is the risk that shavings could enter the cross sealing station and thus damage the drive.

- No additional boreholes may be made in the machine housing.

2.7.4 “Sealing jaw drive” menu

Electronic settings for the horizontal bag closure are made in this menu and in other sub-menus.



Wrench - change screen **SEALING JAW DRIVE**

This takes you to the function screen for the jaw drive.

Jaw opening

This entry defines the distance between the jaws which is to be reached in the course of a cycle.

To work out the distance required, proceed as follows:

- Measure the space required by a filled bag in order to move between the jaws.
- Add a supplement of 20 - 40 mm to this measurement
- Enter the resulting value under "**Jaw opening**".



NOTE!

The maximum value that can be entered here is limited by the maximum jaw opening entered in the sealing jaw drive configuration menu **SEALING JAW DRIVE** Entered **maximum jaw opening**.

"No sealing" position

Position to which the jaws move when sealing of the film is not required, e.g. when dosing is interrupted.

Wait position of the the cross sealing jaws until the next packaging cycle.

Seal force

Adjustment of the seal force. The force set here is only achieved for a short time during the sealing phase. The force is built up after the jaws touch, and the maximum set force is reached after half of the sealing time. The seal force is dissipated again in the second half of the sealing time.

Wrench - change screen *PRODUCT SCANNING, JAW* (Option)

Access in the configuration menu *PRODUCT SCANNING, JAW*.

"Product scanning jaw" switch (optional)

Switches the product detection on and off.

If there is product between the sealing jaws during the closing motion, then this is detected and the jaws stop within an extremely short time.

Drop-down menu *JAW MOTION*

A drop-down menu containing all stop positions that are supposed to be moved to by the cross jaw drive within one cycle is displayed here. Through selection of a stop position from this drop-down menu, you immediately go to a corresponding sub-menu, in which the stop positions are programmed.

In the standard version, the drop-down menu always contains the stop positions "*Jaw open*" and "*Sealing position*". The machine always moves to these two positions. Additionally, other customer-specific stop positions, which can likewise be moved to during a cycle, can be included in the menu.



NOTE!

The stop positions are moved to in the same sequence as displayed in the drop-down menu.

"Cross sealing automatic" switch

Switching between automatically calculated cross sealing time (cross sealing automatic) and cross sealing time that can be input by hand (manual sealing time). See also the description "Constant film velocity" above! If you switch off the cross sealing automatic, then the cross sealing time can be entered by hand.

Cross sealing time

The cross sealing time specifies how long the sealing jaws are closed. It can only be set when "Cross sealing automatic" is switched off (see above), and is otherwise calculated and displayed based on the parameter "Portion of sealing time in cycle time".

Proportion of sealing time in cycle time

This parameter (also called "sealing factor" or "sealing time factor") makes it possible to influence the sealing time even when the "cross sealing automatic" is switched on.

As is indicated by the name of the parameter itself, the sealing time is set here as a percentage of the cycle time (i.e. the time for once cycle of the machine).

Limiting parameters are:

- Cycle number
- Jaw opening upon contact with film

2.7.4.1 "Sealing jaw drive" function menu

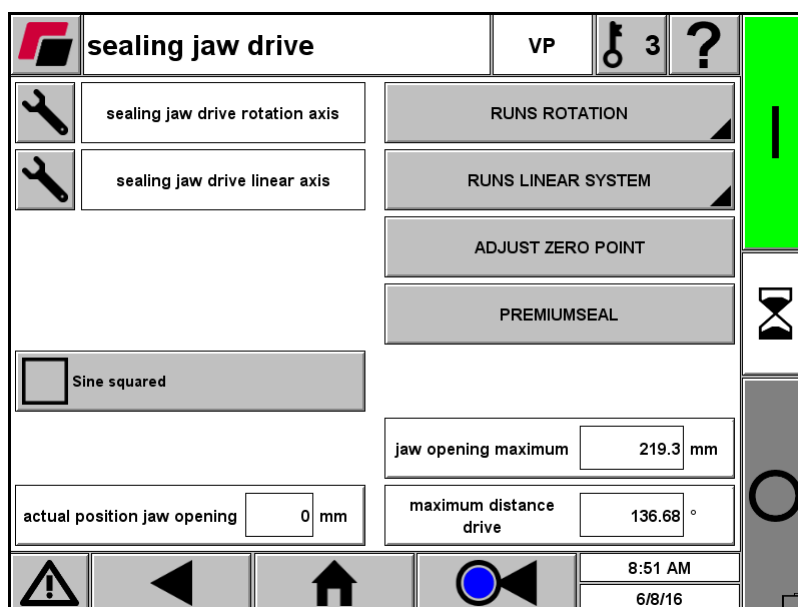
The drive axis of the cross-sealing station is programmed in this function screen.

NOTE!

Danger of permanent machine damage due to incorrect settings!

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!



Wrench - change screen JAW DRIVE ROTATION AXIS

This takes you to the configuration of the axis (position controller, gear compensation, etc.).

The values accessed with the wrench were factory-set by ROVEMA. They cannot be changed by the operator, and are provided for information purposes only.

Drop-down menu *RUNS*

A drop-down menu appears here containing all runs of the axis.

For more about programming the different runs, see the explanations in section [2.2.13 - Runs, Page 122](#).

You can program the following runs:

- reference run
- Orientation run
- Electronic cam
- Jog forward

Settings for jogging in the forward direction.

- Jog backwards

Settings for jogging in the backward direction.

Wrench - change screen *JAW DRIVE LINEAR AXIS*

This takes you to the configuration of the axis (position controller, gear compensation, etc.).

The values accessed with the wrench were factory-set by ROVEMA. They cannot be changed by the operator, and are provided for information purposes only.

Drop-down menu *RUNS*

A drop-down menu appears here containing all runs of the axis.

For more about programming the different runs, see the explanations in section [2.2.13 - Runs, Page 122](#).

You can program the following runs:

- Electronic cam
- Orientation run

"Actual position jaw opening" value display

This value indicates the actual position relative to the jaw opening. The display range extends from "0 mm" (=cross jaws closed) to the maximum jaw opening (value display "Maximum jaw opening").

Maximum jaw opening

The maximum possible distance between the jaws is entered here.

**NOTE!**

This value is factory-set by ROVEMA. It cannot be changed by the operator, and is provided for information purposes only.

"Maximum distance drive x axis" value display

Displays the drive position at which the sealing jaws barely touch each other. This position is very important for calculation of the course curve of the x-axis! Therefore this setting should be made very carefully. The setting is made using the "Accept actual position" button, and only has to be made once after installation of the sealing jaws.

Change screen *PREMIUMSEAL* (Option)

This takes you to the menu ***PREMIUMSEAL*** where the settings for the "**Premiumseal**" sealing procedure can be made.

Change screen *ADJUST ZERO POINT*

In this menu area, the zero point of the drive axis is set.

2.7.4.1.1 "Premiumseal" menu

All the settings for the "**Premiumseal**" sealing operation are made in this menu.

"On/Off" switch

Switch for switching the ROVEMA **"Premiumseal"** sealing process on and off. In the switch position **"Off"** the cross jaws run through the programmed standard movement sequence during the sealing procedure.

The menu parameters **"Force reduction"**, **"Amount of time with reduced force"** and **"Amount of time from reduced force level to maximum force"** in this menu are not taken into account when calculating the movement sequence.

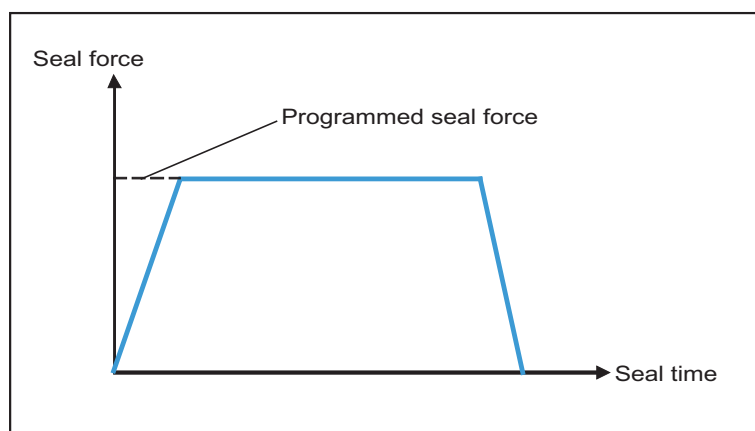


Fig. 2-47 Sealing force sequence/force profile without Premium seal

In the switch position **"On"** the movement profile of the cross jaw drive is switched to movement sequence optimized for the **"Premiumseal"** sealing process. Now, with the aid of the menu parameters **"Force reduction"**, **"Amount of time with reduced force"** and **"Amount of time from reduced force level to maximum force"** the movement sequence can be directly influenced.

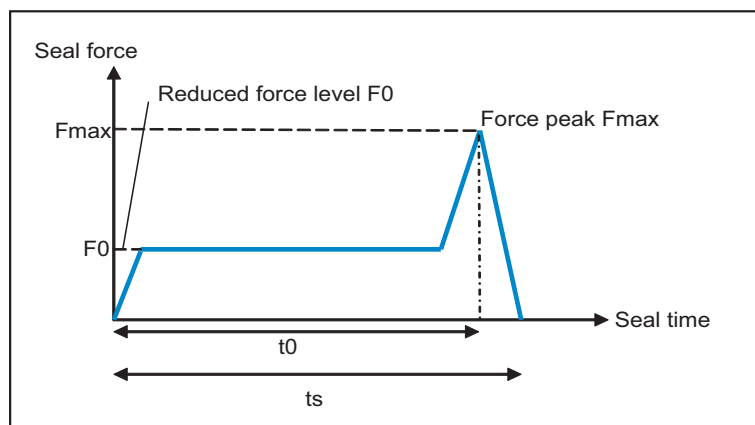


Fig. 2-48 Sealing force sequence/force profile with Premiumseal

Force reduction (in %)

The reduced force level F_0 is set by a percentage value (0 to 100%) relative to the force peak F_{max} (sealing force).

"Amount of time with reduced force"

This value describes the time "t0" in the upper sequence diagram. After elapsed time "t0" in the sealing the force peak should be reached. This time "t0" is set as a percentage (0 to 100%) of the cross sealing time (main menu **SEALING JAW DRIVE**). The higher "t0" is set, the less time remains for the drive to move the sealing jaws out of the coating by the end of the remaining sealing time. Thus the accelerations increase! The withdrawal movement from the coating begins at time "t0".

"Amount of time from reduced force level to maximum force"

Time for force increase "F0" to "Fmax".

The time in which the force increase should take place from the reduced level "F0" to the force peak can be set as a percentage relative to the cross seal time "ts":

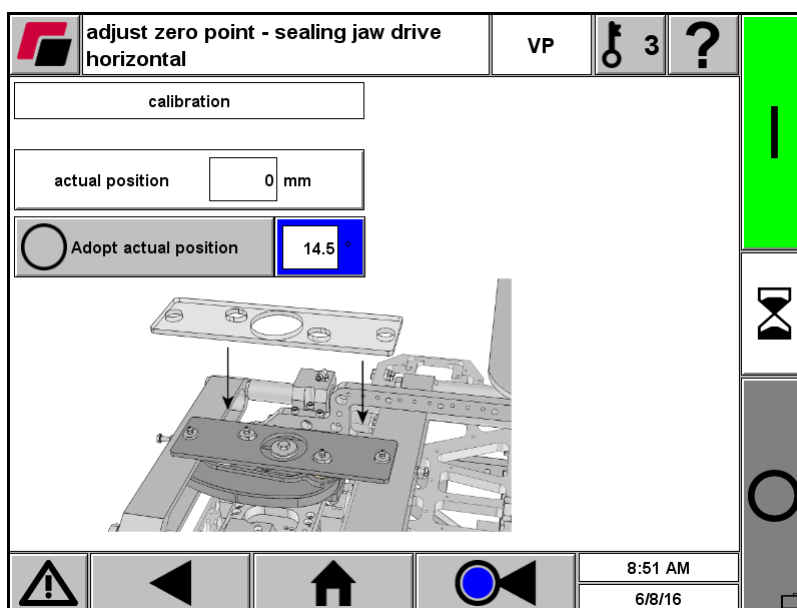
Value = "0": Jump from "F0" to "Fmax".

Value > "0": Linear increase as shown in the upper sequence diagram.

2.7.4.1.2 "Adjust zero point - sealing jaw drive horizontal" menu**NOTE!****Danger of permanent machine damage due to incorrect settings!**

Incorrect settings can result in malfunctions and damage to the machine

- This area of the control unit must only be operated by appropriately qualified personnel!



"Actual position X-axis" value display

Displays the actual position of the x axis on the drive. This is not the current position (opening) of the jaws!

"Accept actual position" button

Pressing this button applies the current position of the drive as the zero point for the drive axis. For this purpose, the actual position of the axis is set to the value "0".

This button can only be operated if the E-dongle is plugged in.

**NOTE!**

This button must only be operated when the machine is stopped and after the zero point template has been inserted!

2.7.4.2 drop-down menu "Jaw motion: Jaw open"

The "Jaws open" stop position is programmed in this menu. It is defined as the position of the cross jaws drive when the cross-closing tools are open.

This position was preset permanently at the factory. It is 1 of 2 positions which the cross jaws drive must always approach during a machine cycle.

The user can set the acceleration of the drive and the stop time.

Switch "Adjust acceleration manually"

Switch to switch between automatically-calculated acceleration and manually-entered acceleration.

If this switch is switched off, the acceleration for the drive is calculated automatically by the controller. This automatically-calculated value is shown as a value display **"Acceleration"**.

If this switch is switched on, the value display **"Acceleration"** changes to an adjustable menu parameter. This parameter can now be used to enter the drive acceleration manually.

acceleration

This menu parameter determines the acceleration with which the drive starts. The entry is in meters per second².

Value display "Acceleration"

The acceleration calculated automatically by the controller (in meters per second²) is displayed.

Duration

This menu parameter can be used to set a period of time, during which the sealing jaw drive is to stay in the stop position. Time entry is in milliseconds.

"jaw drive" value display

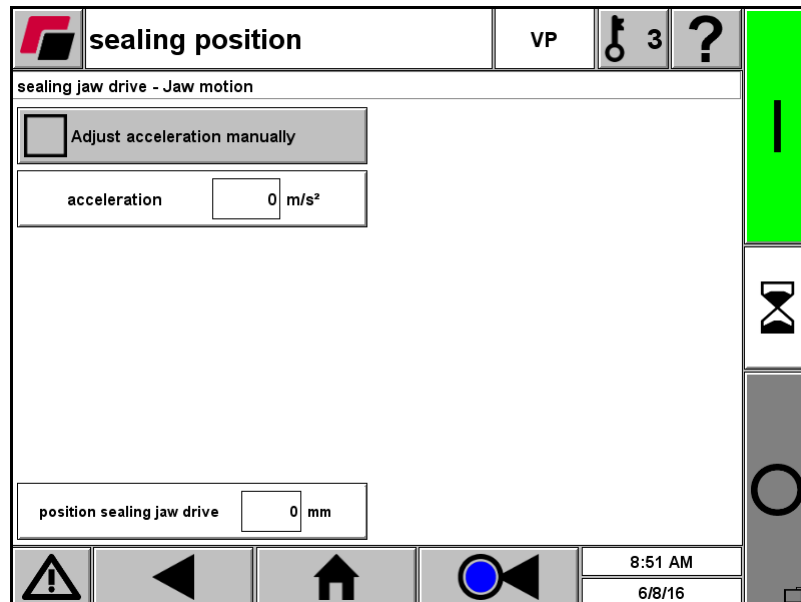
The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

2.7.4.3 drop-down menu "Jaw motion: "Sealing position"

The "Sealing position" stop position is programmed in this menu. It is defined as the position of the cross jaws drive when the cross-closing tools are closed to apply the cross seal to the bag.

This position was preset permanently at the factory. It is 1 of 2 positions which the cross jaws drive must always approach during a machine cycle.

The user can set the acceleration of the drive. The stop time is specified here through the cross-sealing time.



Switch "Adjust acceleration manually"

Switch to switch between automatically-calculated acceleration and manually-entered acceleration.

If this switch is switched off, the acceleration for the drive is calculated automatically by the controller. This automatically-calculated value is shown as a value display **"Acceleration"**.

If this switch is switched on, the value display **"Acceleration"** changes to an adjustable menu parameter. This parameter can now be used to enter the drive acceleration manually.

acceleration

This menu parameter determines the acceleration with which the drive starts. The entry is in meters per second².

Value display "Acceleration"

The acceleration calculated automatically by the controller (in meters per second²) is displayed.

"jaw drive" value display

The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

2.7.4.4 drop-down menu "Jaw motion: Reserve"

An additional stop position for the cross jaws drive is programmed in this menu. The function to be programmed can be derived from the menu title.

The user can set the acceleration of the drive, the stop position and the stop time.

Switch "Adjust acceleration manually"

Switch to switch between automatically-calculated acceleration and manually-entered acceleration.

If this switch is switched off, the acceleration for the drive is calculated automatically by the controller. This automatically-calculated value is shown as a value display **"Acceleration"**.

If this switch is switched on, the value display **"Acceleration"** changes to an adjustable menu parameter. This parameter can now be used to enter the drive acceleration manually.

acceleration

This menu parameter determines the acceleration with which the drive starts. The entry is in meters per second².

Value display "Acceleration"

The acceleration calculated automatically by the controller (in meters per second²) is displayed.

Stop position

This menu parameter can be used to set a stop position. The cross jaws drive moves to this position and remains for the time set in **"Duration"**.

It is entered in millimeters. "0" millimeters corresponds to closed cross sealing tools.

Duration

This menu parameter can be used to set a period of time, during which the sealing jaw drive is to stay in the stop position. Time entry is in milliseconds.

"jaw drive" value display

The current position of the drive axis is read by a sensor system and displayed by the control as the actual position. This value can be used as an aid when determining setting values.

2.7.4.5 Programming of stop positions

General information

Concerning the drop-down menu **JAW MOTION** you go to the screen for programming the stop positions.

At a **stop position** (menu parameter **"Stop position"**) the cross jaws drive is stopped for the duration of the **stop time** (menu parameter **"Duration"**) so that more time is made available to another machine process.

The stop positions **"Jaw open"** and **"Sealing position"** are part of the standard version of the machine. They were preset at the factory. These positions are always approached during a set machine cycle (cycle).

Additionally, other customer-specific stop positions, which can likewise be moved to during a cycle, can be included in the menu. The number of selectable stop positions depends on the equipment of the machine.

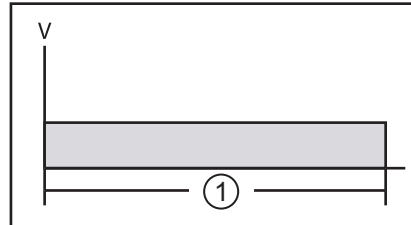
For an explanation of the appropriate menu parameters, see sections:

- [2.7.4.2 - drop-down menu "Jaw motion: Jaw open", Page 223](#)
- [2.7.4.3 - drop-down menu "Jaw motion: "Sealing position", Page 224](#)
- [2.7.4.4 - drop-down menu "Jaw motion: Reserve", Page 226](#)

Selecting the stop times

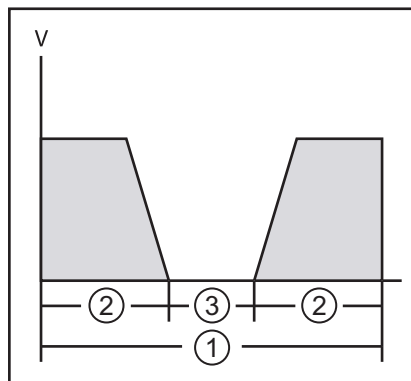
When programming the stop times, note that the length of the stop time (see graphs below) will impact the speed of the sealing jaw drive in the remaining time of the machine cycle (before and after the stop time)

No stop time



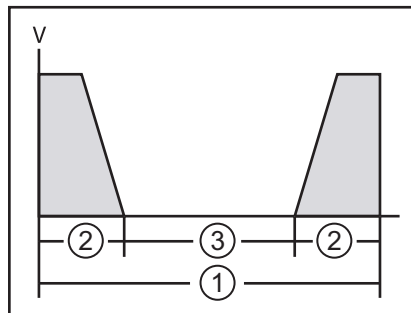
- 1 Time per cycle

Short stop time



- 1 Time per cycle
- 2 Drive
- 3 Stop time

Long stop time



- 1 Time per cycle
- 2 Drive
- 3 Stop time

The machine process becomes less and less smooth by extending the stop times or by entering several stop times.

Reasons for a necessary stop time can be:

- Sealing times are not adequate:
the time of the vertical or cross sealing can be extended by inputting a stop time.
- Film drive is running too fast:
the transport time drops as a result of inputting a stop time, the film drive can be run more slowly.
- Need for additional time, for example, cooling the seams, vibration, etc.:
The extra time to cool the seams for example is created by entering a stop time.

2.7.4.6 Product scanning (optional)

General information

The product scanning is a function that detects product that is trapped in the area of the bag seam. Depending on the type of product being packaged, this can damage the sealing jaws or the cutting knife during the sealing process.

The presence of product is determined through the fact that high force has to be exerted by the drive motor of the sealing station in order to close the jaws compared to normal operation.

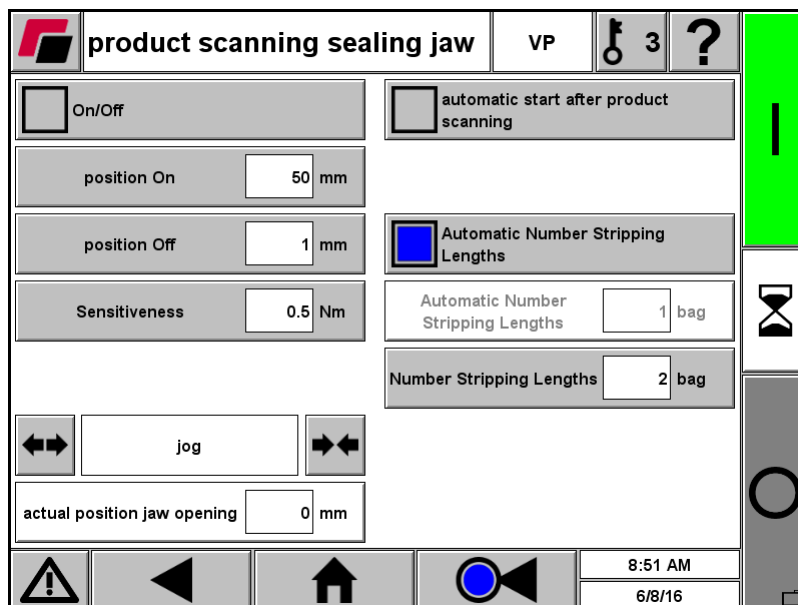
The product scanning is used to monitor a defined area for product inclusions before the sealing jaws close. If the product inclusions represent a measurable obstacle for the sealing jaws (increased force exertion), then the sealing jaws open immediately. This protects the profiles of the sealing jaws and the cutting knife effectively against damage.



NOTE!

Attention" Every time the switches or parameters described here are changed, the sealing jaws have to be jogged together completely once using the jog function.

During the first five cycles after the product detection is switched on, a teaching process takes place, during which no product should be allowed to come between the jaws!



"Product scanning" switch

Switch for switching the product scanning on and off.

Position On / Position Off

The range to be monitored is set using Position On / Position Off.



NOTE!

The product inquiry must be active before the lateral jaw clamps come into contact with each other.

Sensitivity

The sensitivity can be used to adapt the triggering characteristics, e.g. for various velocities.

"sealing jaw drive" buttons

As long as button is depressed, the entire jaw assembly moves. Depending on the direction of movement selected for the material, the jaws will either open or close during this motion.

"Automatic start after product scanning" switch

By means of this switch, the function **"Automatic start after product scanning"** can be switched on or off.

If the switch is on, when the product detection is triggered a double bag is generated and this double bag automatically ejected. Production then continues automatically.

If the switch is off, when the product detection is triggered a double bag is generated and the machine stops with the double bag between the jaws. The operator must remove this double bag manually and restart production.

"Automatic Draw-down Length Number" switch

By means of this switch, the function ***Automatic Draw-down Length Number*** can be switched on or off.

When the switch is in the On position, the necessary number of draw-down lengths is automatically calculated when a product inclusion is recognised.

When the switch is in the Off position, the number of draw-down lengths must be set with the parameter ***Draw-down Length Number***.

"Automatic Draw-down Length" value indicator

Here the number of the automatically calculated draw-down lengths is displayed.

Draw-down Length Number

This is where the number of draw-down lengths is entered when the automatic is switched off.

2.7.5 "sealing temperatures" menu

In this menu, the temperatures are set for various heated machine functions. Every function listed in this menu has its own temperature control zone. When you make an entry in this menu, you are defining the temperature setpoint (in °Celsius) at which the function is to be carried out. Further settings for the control zone are entered in the corresponding configuration menu.

sealing temperatures		VP	3	?
		nominal	actual	control output
	☐ front sealing jaw	120 °C	0 °C	0 %
	☐ rear sealing jaw	120 °C	0 °C	0 %
	☐ vertical jaw	120 °C	0 °C	0 %
☒	main switch heating	☐ contactor heating		
				8:51 AM 6/8/16

Wrench

Pressing this button takes you to the configuration menu for the appropriate heating function.

Switch for switching the temperature control zone on and off.

As soon as this switch is switched off, the heating for this function is deactivated. The values entered for the nominal temperature and the configuration data are retained. When switched on again, production is resumed with this data.

Nominal temperature

The nominal temperature is the setpoint at which the heating for that particular machine function should operate under normal circumstances. When the machine starts, the heating takes a certain amount of time to reach the nominal temperature set here. You cannot begin production during this time.

During the heat-up phase, observe the actual temperature display. This display should continually rise during the warm-up phase until the temperature setpoint is reached.

Value display "Actual temperature"

This is the temperature currently reached by the heating function. This value is displayed as information for the operator. The display of the actual temperature does not need to remain constant, but rather can display fluctuating values throughout operation.

Value display "manipulated variable"

This value displays the output level at which the heating function is operating, as a percentage of its maximum output. The control output display can vary between 0% and 100%. 0% means that no heating is occurring, 100% means that the heating is working at maximum power.

"Main switch for heating" switch

Switch for quickly switching all temperature control zones of the machine on and off.

"Heating element power contactor" status display

This display shows the current operating state of the power contactor.

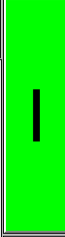
Square filled: no fault is present. The power supply for the heating element is switched on.

Square unfilled: The power contactor function is faulty. A problem has occurred in one of the components of the heating element.

Change screen >>

Takes you to the next screen.

2.7.5.1 "Sealing temperatures" configuration menu

 front sealing jaw		VP	 3		  
sealing temperatures					
☐ On/Off	channel				
nominal temperature 120 °C	DID temperature modul				
actual temperature 0 °C					
control output 0 %					
tolerance excess temperature 10 °C					
tolerance low temperature -10 °C					
HI alarm 250 °C					
☐ fault	 DIAGNOSTICS TEMPERATURE CONTROLLER				
				8:51 AM 6/8/16	

Switch for switching the temperature control zone on and off.

As soon as this switch is switched off, the heating for this function is deactivated. The values entered for the nominal temperature and the configuration data are retained. When switched on again, production is resumed with this data.

Nominal temperature

The nominal temperature is the setpoint at which the heating for that particular machine function should operate under normal circumstances. When the machine starts, the heating takes a certain amount of time to reach the nominal temperature set here. You cannot begin production during this time.

During the heat-up phase, observe the actual temperature display. This display should continually rise during the warm-up phase until the temperature setpoint is reached.

Value display "Actual temperature"

This is the temperature currently reached by the heating function. This value is displayed as information for the operator. The display of the actual temperature does not need to remain constant, but rather can display fluctuating values throughout operation.

Value display "manipulated variable"

This value displays the output level at which the heating function is operating, as a percentage of its maximum output. The control output display can vary between 0% and 100%. 0% means that no heating is occurring, 100% means that the heating is working at maximum power.

tolerance

Due to various factors in the production environment, the set nominal temperature cannot always be kept constant. To ensure smooth production operations, a tolerance limit can be set to allow the temperature to rise above or fall below the nominal temperature. This means that production will not be interrupted because of an error message which would otherwise be triggered by the temperature monitoring in the control zone.

The value is entered in °Celsius. The tolerance limit should be large enough to compensate for temperature fluctuations resulting from production processes. However the value must not be allowed to cause faulty production results. If the fluctuations cannot be compensated adequately by entering a tolerance limit, you might need to adjust other settings for the temperature zone.

If the temperature nevertheless rises above or falls below the nominal temperature by the set tolerance value, a malfunction message appears on the display.

HI alarm

Adjustable upper temperature limit. A fault results if the value set here is exceeded.

"Fault" status display

This display serves as an overall fault display for the temperature control zone. If a fault occurs on the temperature controller, the temperature module or the temperature sensor, it will be shown using this display.

If the display is filled with colour = a fault has occurred on one of the components mentioned above!

If the display is not filled with colour = no fault is present.



NOTE!

For fault diagnostics and error rectification also take note of the status messages and diagnostic codes shown in the temperature controller's diagnostics menu.

channel

This is where display of the channel used occurs in the temperature controller.

"BMK" value display

This display field contains a motor labelling that is also used in the wiring diagrams of the electrical documentation to clearly identify the motor.

Change screen *TEMPERATURE CONTROLLER DIAGNOSTICS*

Access to the diagnostics screen of the temperature controller.

Change screen *AUTOMATIC OPTIMIZATION*

Access in the ***AUTOMATIC OPTIMIZATION*** in which a temperature controller self-optimisation process is carried out.

Using the self-optimisation the most favorable control parameters are determined by the controller itself.



NOTE!

This screen change and thus the access to this menu only appears after the password for the "E" password level has been entered on the screen.

2.7.6 Check jaw alignment by testing with carbon paper

Preparation

The test must only be performed on cold cross jaws!

- Provide white paper, carbon paper (blue carbon paper is also suitable) and adhesive tape.
- Place the coated side of the carbon paper on the white paper and fold as shown in the illustration below.

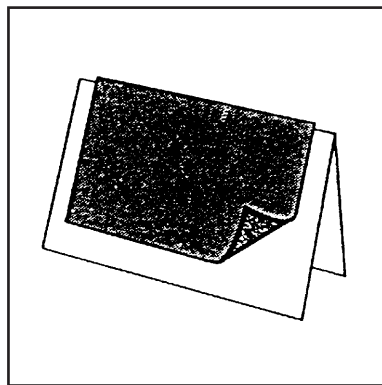


Fig. 2-49 Preparation of the paper sheet

Execution

- Open the protective doors.
- Hang the prepared paper sheet between the cross jaws and tape it to the rear jaw with a strip of adhesive tape.

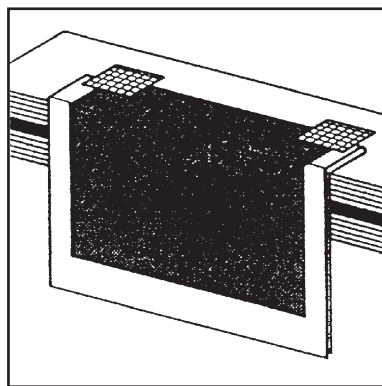


Fig. 2-50 Fastening of the paper sheet

- Close the protective doors.
- In the **JOG MENU** move the cross jaws together in **JOG mode**.

**WARNING!****Danger of crushing!**

There is danger of crushing between the cross jaws when they are moved together.

- ▶ Do not hold the paper sheets between the cross jaws by hand.
- Separate the cross jaws, open the protective doors, lift off the carbon paper and check the marks on the paper.
- In case of deviations from the ideal pattern (=complete impression of the seam profile on the paper, as in the illustration below), the jaw alignment must be repeated. Use a new sheet of paper for repetition of the test.

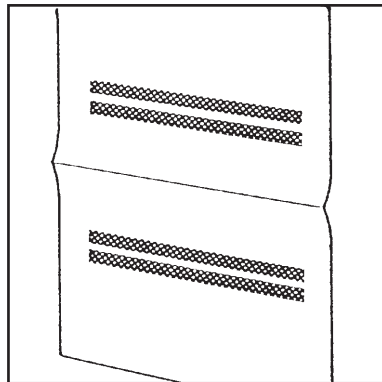


Fig. 2-51 Imprint of the seam profile on the paper sheet

- Remove the paper if the results are satisfactory, change the pressure distribution if a satisfactory setting cannot be found by aligning.

2.7.7 Adjusting the pressure distribution**DANGER!****Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!**

There is a greater risk of injury from the sharp knife blade.

- ▶ Prior to performing work at the station, switch the machine off via the main switch and safeguard the main switch against being switched back on unintentionally
- ▶ Protect yourself from cutting injuries by wearing suitable safety gloves.



WARNING!

Danger of burns due to hot surfaces!

The cross sealing station is operated with cross jaws whose surfaces are very hot under operating conditions. Touching these hot jaws can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heaters before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Preparatory tasks

- Switch off the heating units of the cross-sealing tools in the display (**"heating unit" main switch** in the overview screen **Sealing temperatures VP**).
- Open the protective doors.
- Clean the cross jaw tooth profiles with a wire brush while they are still warm.
- Close the protective doors.
- Wait until the jaws cool down and carry out a test with carbon paper (on this point see section **2.7.6 - Check jaw alignment by testing with carbon paper, Page 236**).
- Move the cross-sealing jaws together in JOG mode until they touch.
- Open the protective doors.

Execution

- Undo the two fastening screws (1) in the rear jaw carrier (3); leave the setting of the front jaw carrier as it is!

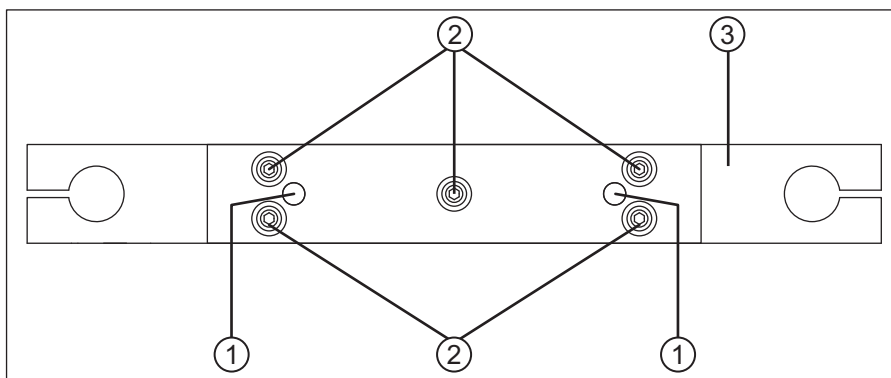


Fig. 2-52 Adjusting screws on the rear jaw support

- 1 Fastening screws
- 2 Adjusting screws
- 3 Jaw carrier, rear

- To achieve even distribution of pressure, you must tighten or loosen the adjusting screws (2) as indicated by the results of the carbon paper test; use the following images as a guide.

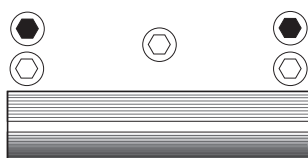
The top part of the images show the view of the rear jaw from the rear. Beneath that, you can see the imprint of the carbon paper test.

Shifting pressure towards the top seal (excessive pressure on the bottom seal)



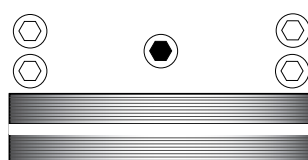
Loosen two upper adjusting screws (2)
and/or tighten two lower adjusting screws

Shifting pressure towards the bottom seal (excessive pressure on the top seal)



Loosen two lower adjusting screws (2)
and/or tighten two upper adjusting screws

Shifting pressure towards the middle (increase pressure)



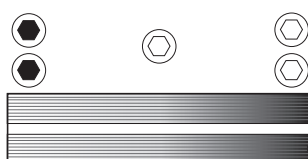
Tighten middle adjusting screw (2)
and/or loosen the two adjusting screws at right
and left

Shifting pressure away from the middle (reduce pressure)



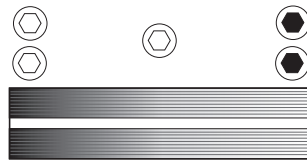
Loosen middle adjusting screw (2)
and/or tighten the two adjusting screws at right
and left

Shifting pressure to the left (excessive pressure on the right-hand side)



Loosen two right adjusting screws (2)
and/or tighten two left adjusting screws

Shifting pressure to the right (excessive pressure on the left -hand side)



Tighten two right adjusting screws (2) and/or loosen left adjusting screws

- After adjusting, retighten the loosened fastening screws (1) to secure the new setting.
- Following another carbon paper test, you may need to repeat the above steps.

2.7.8 Installation and removal of the cross sealing tools



DANGER!

Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!

There is a greater risk of injury from the sharp knife blade.

- ▶ Prior to performing work at the station, switch the machine off via the main switch and safeguard the main switch against being switched back on unintentionally
- ▶ Protect yourself from cutting injuries by wearing suitable safety gloves.



WARNING!

Danger of burns due to hot surfaces!

The cross sealing station is operated with cross jaws whose surfaces are very hot under operating conditions. Touching these hot jaws can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heaters before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

The combination of jaw carriers and cross jaws is described as cross-sealing tools. In this, a set of tools that belongs together always consists of a front and rear sealing tool.

Removal or replacement of the cross-sealing tools may be required when

- there is to be a retooling to another sealing system (e.g. conversion from welding to hot sealing operation).
- maintenance tasks, such as the replacement of a faulty heating cartridge or a temperature sensor, must be carried out on the cross jaws.



WARNING!

Caution: The weight of individual modules being removed can be more than 20 kg!

- ▶ Use suitable hoisting gear to remove and install the modules. This type of hoisting gear can be obtained from ROVEMA if required.
- ▶ Ensure that there is no one in the danger zone during these tasks.

Prerequisites

- The cross sealing tools were moved apart to the maximum distance in JOG mode.
- The machine has been switched off at the main switch, and the main switch has then been secured against being switched back on unintentionally!
- The surfaces of the cross jaws have already cooled down completely in order to be able to work on them without risk.
- The protective doors on the front of the machine are open.

Removal of the front cross sealing tool

1. Remove the cutting knife as described in section [2.7.10 - Cutting knife, Page 246](#).
2. Disconnect all related pneumatic hoses from the front plate (e.g. knife actuator, cross seal cooling, etc.).
3. Disconnect the associated electrical connections (the connecting boxes are located on the side of the electrical cabinet).
4. Remove fastening screws (7) and bushings (6) on both sides of the pull rods (5).

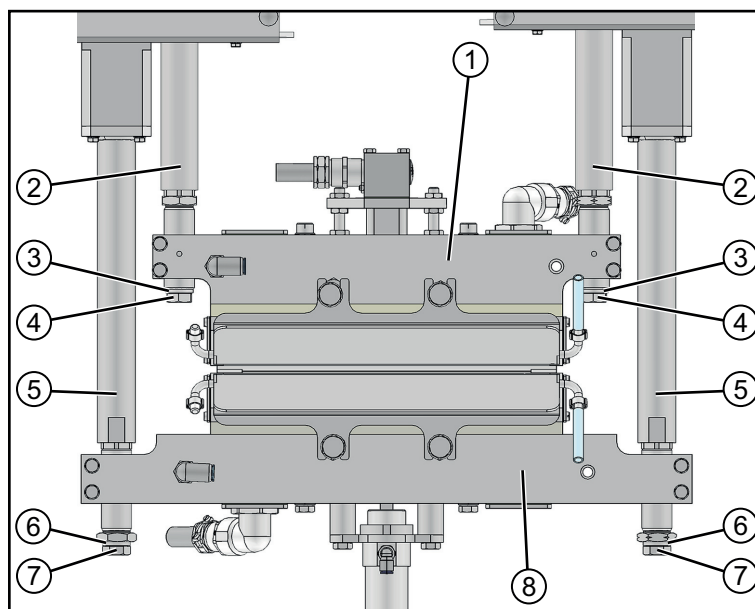


Fig. 2-53 Cross-sealing tools - Plan view

5. Take down front cross sealing tool (8) from the pull rods and lay down carefully.

Removal of the rear cross sealing tool

1. Remove the spreader / hood (optional machine fitting) at the end of the filling tube.
2. Disconnect all related pneumatic hoses from the front plate (e.g. cross seal cooling, etc.).
3. Disconnect the associated electrical connections (the connecting boxes are located on the side of the electrical cabinet).
4. Remove fastening screws (4) and bushings (3) on both sides of the push rods (2).

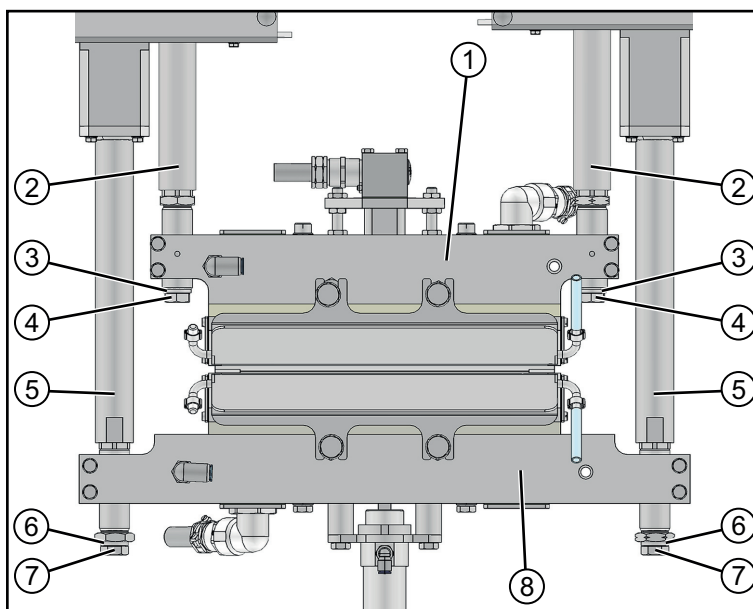


Fig. 2-54 Cross-sealing tools - Plan view

5. Take down rear cross sealing tool (1) from the push rods and lay down carefully.

Reassembly

1. Install the rear cross sealing tool.
2. Plug the pneumatic and electrical connector plugs of the rear cross sealing tools in again.
3. Install the front cross sealing tool.
4. Plug the pneumatic and electrical connector plugs of the front cross sealing tools in.
5. Fasten the chute on the end of the filling tube (optional machine equipment)
6. Close the protective doors.
7. Switch on the machine again via the main switch.
8. After fitting, check that the pair of jaws is correctly adjusted using the so-called carbon paper test (see [2.7.6 - Check jaw alignment by testing with carbon paper, Page 236](#)).

2.7.9 Replacing the heating cartridge and/or temperature sensor

**DANGER!****Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!**

There is a greater risk of injury from the sharp knife blade.

- ▶ Prior to performing work at the station, switch the machine off via the main switch and safeguard the main switch against being switched back on unintentionally
- ▶ Protect yourself from cutting injuries by wearing suitable safety gloves.

**WARNING!****Danger of burns due to hot surfaces!**

The cross sealing station is operated with cross jaws whose surfaces are very hot under operating conditions. Touching these hot jaws can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heaters before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

**WARNING!****Danger of injury!**

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- ▶ Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.

Prerequisites

- The cross-sealing tools have been removed, as described in section [2.7.8 - Installation and removal of the cross sealing tools, Page 240](#).
- The new spare parts are ready for installation.

**NOTE!**

After installation, the functions of the safety devices, such as the protective circuit and residual-current circuit-breaker, must be checked in accordance with the applicable regulations!

Replacing the heating cartridges / temperature sensors

1. Unscrew the fastening screws (9).

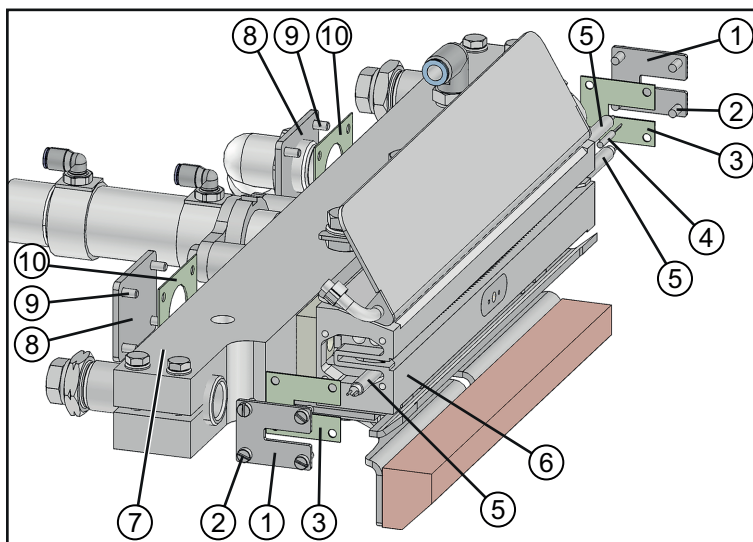


Fig. 2-55 Cross-sealing jaw with terminal housing

2. Remove seals (10) and cover plates (9) on the back of the jaw carrier (7).
3. Unscrew the fastening screws (2).
4. Remove seals (3) and cover plates (1) on both sides of the cross-jaw carrier (6).
5. Disconnect and pull out the heating cartridge(s) (5)/the temperature sensor (4).
6. Clean the borehole(s).



NOTE!

Before installation, compare the specifications for the power supply on the heating cartridge with those in the electrical documentation.

7. Apply heat conducting/anti-corrosive paste to the new heating cartridge(s).

Reassembly

1. Re-insert and connect the heating cartridge(s) and the temperature sensor into the cross-sealing jaw.
2. Re-attach cover plates to the jaw carrier and cross-sealing jaw.
3. Refit the cross-sealing tools, as described in section [2.7.8 - Installation and removal of the cross sealing tools, Page 240](#), to the push and pull rods of the cross-sealing station.

**NOTE!**

To ensure the functioning of this assembly, use only original spare parts!

2.7.10 Cutting knife

The front (outer) cross jaw contains the cutting knife, which separates the finished bags from the tube.

The cutting time is specified so that the pneumatically operated cut-off knife thrusts out from the cross jaw immediately after application of the seams.

Minor adjustment of the cutting knife activity is required when the number of cycles is changed.

Cut timing corrections can be made in the **CAM VP/CUTTING KNIFE** menu. You can also switch the cutting knife activity on and off there.

The cut-off knife is actuated with the aid of a pneumatic cylinder (4). The cutting knife (1) is inserted into the knife bar (3) on the pneumatic cylinder and fixed in place with a clamp screw (2). This clamp screw can be accessed through the opening on the underside of the front cross jaw. **Note that the clamp screw is visible only when the cutting knife is extended!**

The cutting knife actuating unit is screwed onto a carrier plate (5) that enables the cut-off knife to be fastened on the front cross jaw.

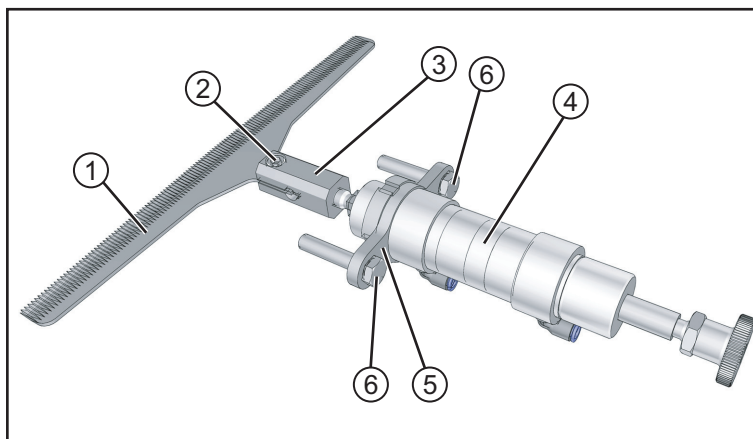


Fig. 2-56 Cutting knife and knife activation

- 1 Cutting knife
- 2 Clamp screw
- 3 Knife bar
- 4 Pneumatic cylinder
- 5 Carrier plate
- 6 Fastening screws

**DANGER!****Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!**

There is a greater risk of injury from the sharp knife blade.

- ▶ Prior to performing work at the station, switch the machine off via the main switch and safeguard the main switch against being switched back on unintentionally
- ▶ Protect yourself from cutting injuries by wearing suitable safety gloves.

**WARNING!****Danger of burns due to hot surfaces!**

The cross sealing station is operated with cross jaws whose surfaces are very hot under operating conditions. Touching these hot jaws can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heaters before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Preparing for cutting knife replacement

- Close protective doors.
- Switch off cross jaw heating (in the appropriate menu on the display).
- In the **VP JOG MENU** by activating the button "**sealing jaw drive**" bring the cross jaws to the greatest relative distance.
- then, by pressing the button "**cutting knife**" extend the cutting knife.
- Open the protective doors.

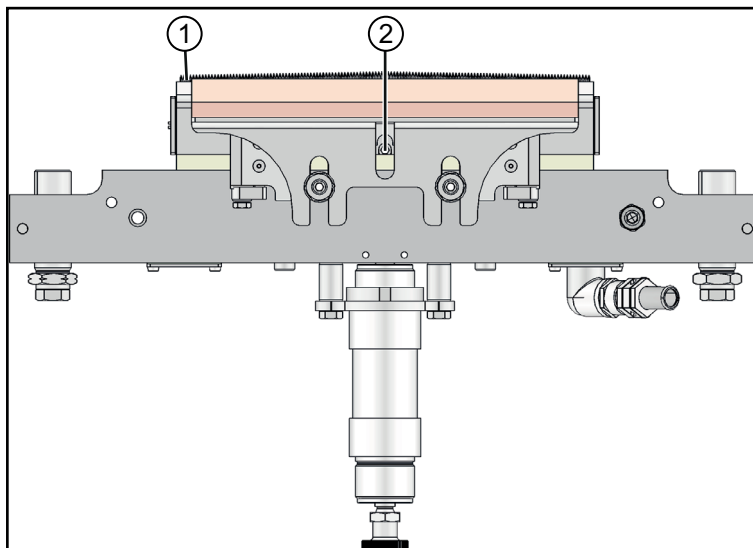


Fig. 2-57 Front cross-sealing jaw - lower view

- 1 Cutting knife
- 2 Clamp screw

Removing and installing the cutting knife

1. Unscrew the clamp screw (2).
2. Pull out cutting knife (1) using pliers.
3. Clean the knife slot.
4. Slide new knife into the stop on the knife rod and then fasten the new knife in this position with the clamp screw (2).
5. Close protective doors.
6. Extend and retract the knife in **JOG mode**. When the knife is retracted, the cutting edge must not protrude beyond the teeth of the jaw (the seal profile).



NOTE!

Check the knife and knife slot for contamination daily; clean while warm.



NOTE!

To ensure the functioning of this assembly, use only original spare parts!

This section contains individual descriptions of machine parts that are not part of the standard equipment of this machine.



NOTE!

The scope and content of this section is dependent on your machine's equipment.

2.8.1 Warning signal – packaging material end

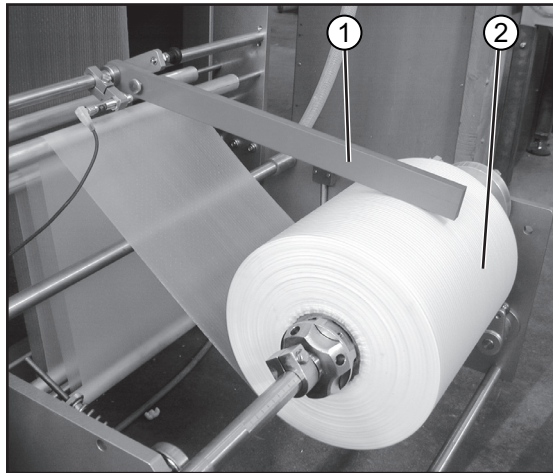


Fig. 2-58 Warning signal – packaging material end overview

- 1 Arm
- 2 Packaging material roll

Function

As the diameter of the packaging roll (2) decreases, the cam (5) turns against the proximity switch (4). If the proximity switch is activated, a signal sounds that requests a new packaging roll be put on, or alerts that the machine will be switched off after 5 minutes.

Swing the arm (1) up into its bracket before putting on a new roll.

Put it back on the roll after putting on the packaging material. Hold the arm, pull on the arrest knob (6) and guide the arm downwards until it rests on the packaging roll.

Mechanical adjustment

You can shift the switching time by moving the proximity switch, thus influencing the time of the warning message:

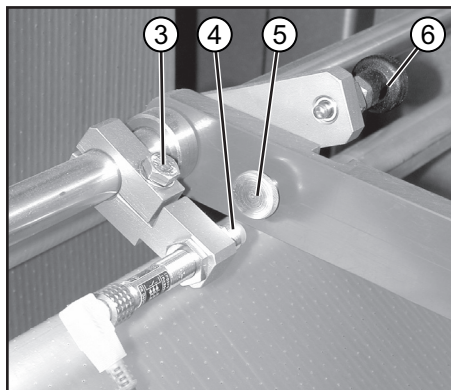


Fig. 2-59 Warning signal before end of packaging material - proximity switch

- 3 Screw
- 4 Proximity switch
- 5 Cam
- 6 Arrest knob
- Undo screw (3)
- Adjust proximity switch (4)
- Retighten screw

**NOTE!**

Note: If the machine is equipped with a packaging material draw-down (optional), there is no arm (1). In this case, the function of the arm is performed by the bracket of the packaging material draw-down unit.

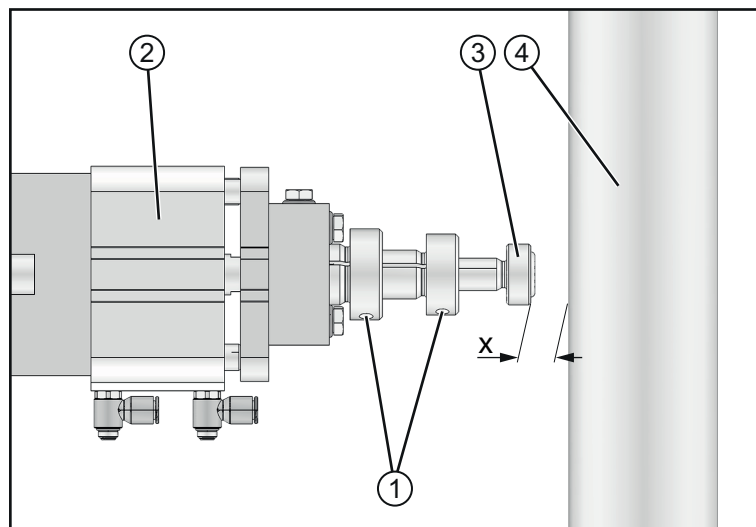
2.8.2 Fill pipe counter-holder (moving design)

Fig. 2-60 Counter-holder (moving design)

- 1 Fastening screw
- 2 Pressure cylinder
- 3 Counter-holder
- 4 Filling tube

Function

The counter-holder ensures that when the vertical sealing unit is pressed onto the sealing area of the filling tube, the change part is not shifted.

A pneumatic pressure cylinder presses the counter-holder onto the filling tube, in order to stabilize the format set. Actuation occurs simultaneously with the vertical sealing unit. The pressure force is adjusted with the compressed air regulator of the vertical sealing unit

Adjustment

In the idle position (stop in the direction of the pressure cylinder), the distance between the counter-holder and the filling tube should be approx. $x = 5-7$ mm.

For adjustment purposes, slacken the screw (1) and adjust the counter-holder to the above dimension. Then retighten the screw.

2.8.3 Cross seal cooling

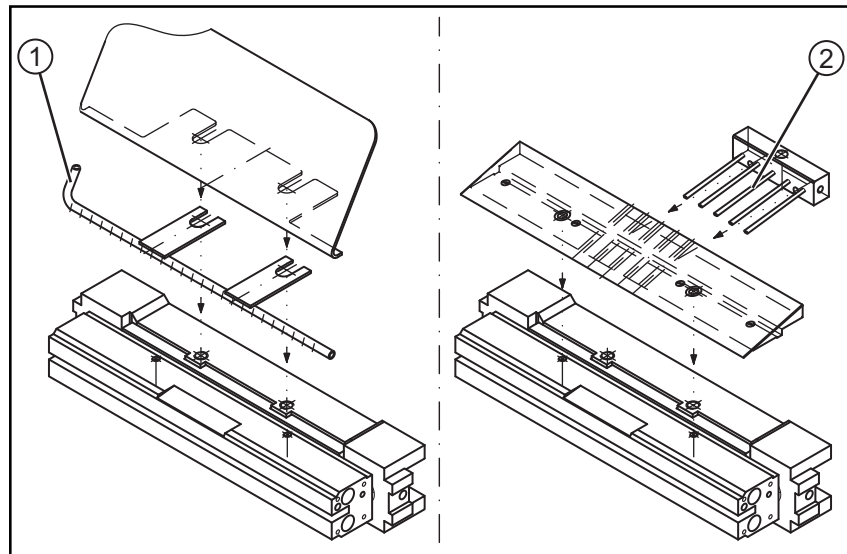


Fig. 2-61 Cross seal cooling overview

- 1 Air nozzle (pillow bag model)
- 2 Air nozzle (design for stand-up pouches)

Function

Excess heat energy is dissipated immediately after the sealing phase through precise blowing from a series of air nozzles (1) on the top section of the cross-sealing tools. This increases the load-bearing capacity of the bottom seal that has just been produced.

Basic settings

Basic settings are made by ROVEMA.

Changes may be required due to increased machine cycles and/or higher fill weight.



NOTE!

Increasing fill weight and higher cycle number require a greater amount of air.

Electronic settings

The cooling time per work cycle is matched to the movement sequence of the cross-sealing tools and specified by a program in each case.

In the submenu **CAMS/CROSS COOLING** the switch-on and switch-off time for the blowing activity of the cooling unit can be defined.

**NOTE!**

It is not practical to extend the cooling time, as switching on the cooling too early results in the cross-sealing tools cooling down, while switching off too late causes unnecessary consumption of compressed air. The amount of air should be controlled only via the pressure reducing valve (in the machine housing).

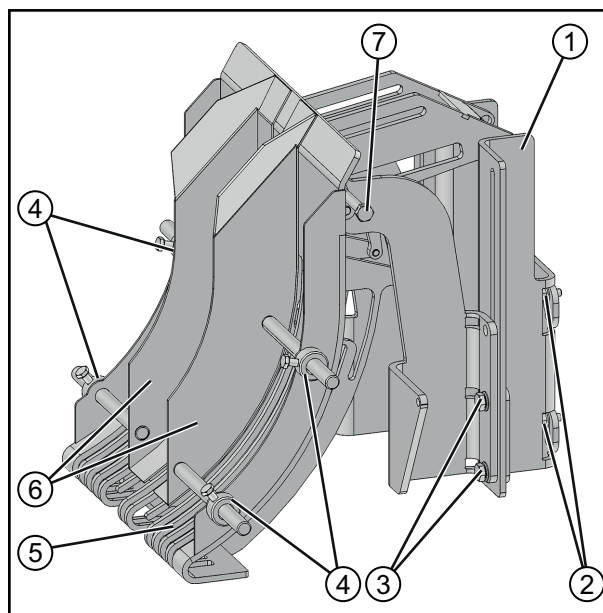
2.8.4 Bag chute

Fig. 2-62 Bag chute overview

- 1 Holder
- 2 Fastening screw
- 3 Fastening screw
- 4 Adjusting ring
- 5 Bag chute
- 6 Side walls
- 7 Clamp screw

Function

The finished bag is routed to a different transport system, a transport conveyor for example, via the bag chute.

Mechanical settings

The bag chute (5) can be adapted to different production conditions (bag formats):

- Vertical adjustment (height adjustment): Undo the fastening screws (3) and reset the height of the chute.
- Inclination: Undo the clamping screw (7) and reset the inclination of the chute to the bag.

- Distance between the side walls: Undo the clamping rings on the adjusting rings (4); adjust the space between the two side walls by evenly pushing the side walls (6) in relation to each other.

All parts must be refastened after the adjustment.

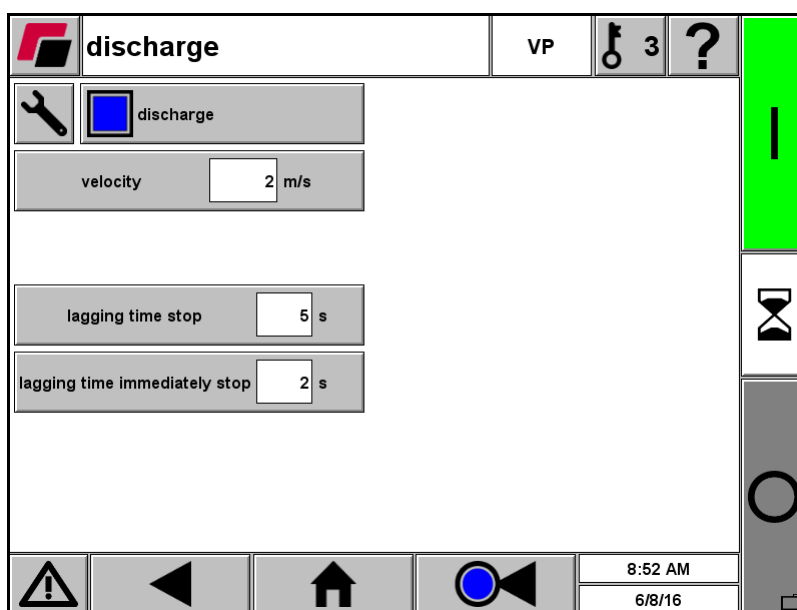
Removal

- Loosen the fastening screws (2) and remove the bag chute.

2.8.5 Bag conveyor

The finished packages are discharged from the machine via a conveyor system. This system consists of one or more conveyor belts.

In the menu **DISCHARGE** all of the settings necessary for operation of this conveyor system are made.



Wrench to change screen to "conveyor belt"

This takes you to the configuration screen for the conveyor belt.

"dosage" switch

This switch activates or deactivates the discharge conveyor (e.g. belt conveyor).

Conveyor velocity

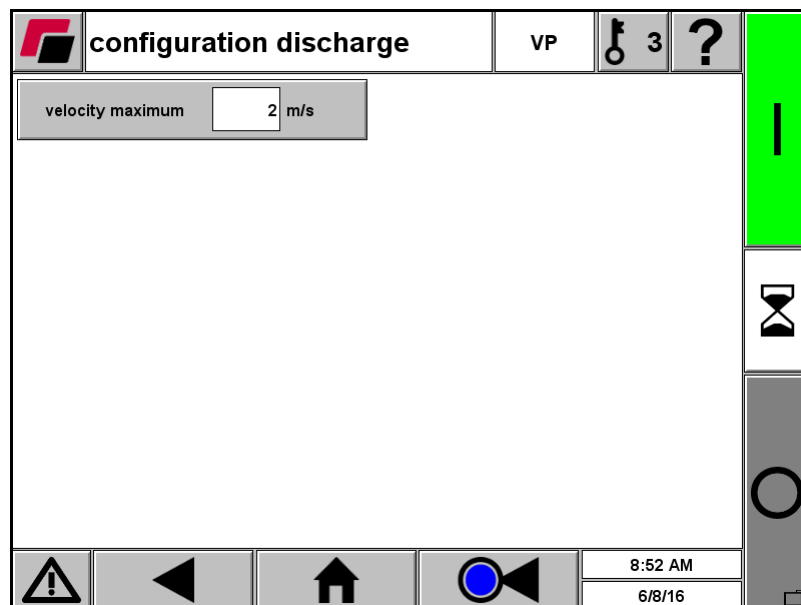
Set the velocity with which the belt conveyor should run. The entry is in meters per second (m/s)

Shut-off delay - machine stop

If a fault occurs in the machine or if a normal machine stop is initiated, the conveyor belt comes to a stop after this time has expired.

Shut-off delay - external stop

If the downstream system cannot process the bags (e.g. EMERGENCY STOP on the downstream system), the conveyor belt comes to a stop after this time has expired.

2.8.5.1 "Discharge" configuration menu**Maximum velocity**

Set the maximum velocity at which the conveyor belt should run. The entry is in meters per second (m/s)

The actual nominal velocity is set in a separate menu.

Prerequisites for start-up are

- Knowledge and understanding of all previous sections
- Completed set-up and connection tasks
- Strict compliance with safety regulations

Part 3 contains instructions on

- First start-up
- Function test
- Set-up of the machine
- Starting of production
- Interruption of production
- Ending of production

Preparatory tasks

The following work must be done before starting the machine up for the first time. Detailed instructions concerning these preparatory tasks can be found in the section **1.7 - Set-up and connection tasks, Page 33**.



CAUTION!

Danger if machine is not set up correctly!

Incorrect set-up of the machine can result in risk of injury.

- ▶ Set-up and connection tasks must only be performed by trained specialists.
- ▶ Every person assigned to operate the machine must have read and understood the operating manual, particularly the safety instructions, before starting the machine.

Unpacking and setting up the machine

- Unpack the machine.
- Transport the machine to the intended installation location.
- Attach the packaging material carriage. If the carriage is already attached - remove all transport aids and locks!
- Align the machine using the adjustable feet; use a precision spirit level.

Connecting the machine

- Connect machine with upstream and downstream systems.
- Is the main switch in the Off position? - Connect the power supply. See the power supply rating plate for the connected loads on the control cabinet (see illustration below) and the electrical documentation.

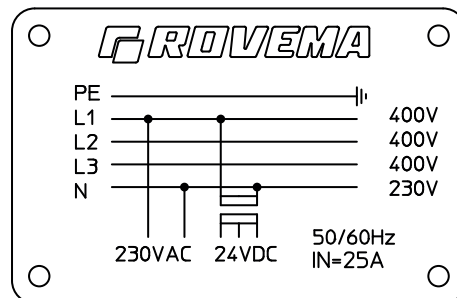


Fig. 3-1 Power supply rating plate (sample)

NOTE!**Danger of machine damage!**

Incorrect connection can result in malfunction or damage to the machine!

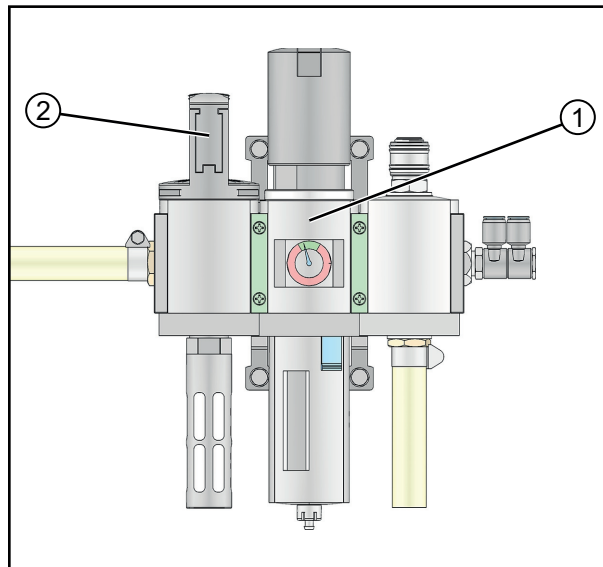
The machine is set up for connection to a clockwise rotating three-phase power system. Under no circumstances may it be connected to a network with the wrong field of rotation.

- ▶ This connection work must be carried out and checked by authorized specialists only.
- ▶ Connect the machine to the electrical network according to the rotating field.
- ▶ Safeguard cable against damage.

- Establish the compressed air supply - system pressure 4.5 - 6 bar.

3.1.1 Switching on the machine

- Switch on the compressed air supply; open the cock or the valve for this.



- 1 Maintenance unit
- 2 Cock

- Switch on the machine via the main switch, wait and watch the display screen; continue with the start-up when the machine's main menu is displayed on the screen.
- Close all protective fittings on the machine and carry out a safety check (**EMERGENCY STOP buttons**, safety switches on protective doors and hoods, etc.) - for information concerning execution, see section [2.1 - Safety devices, Page 48](#).

**NOTE!**

Check the functions of the **EMERGENCY STOP** buttons and the safety switches daily before start of production.

- Select a recipe.

A recipe is a group of all the setting values valid for a particular product and/or format. As a rule, the machine is delivered with at least one such recipe. Detailed instructions concerning the loading and saving of recipes can be found in section [2.2.6 - recipe administration, Page 88](#).

- Switch off the jaw heaters of all sealing stations.

**NOTE!**

When the jaw heaters are switched on the machine would not work due to under-temperature, furthermore set-up tasks can be performed more safely with cold jaws!

- Go to the menu **DOSAGE VP** and switch off the upstream dosage unit

3.1.2 Function test in JOG mode

- In **JOG mode**, check whether all the functions of the machine are working correctly (for more information on this procedure, see section [3.5 - JOG mode, Page 268](#)).

JOG mode means:

- **Motorized drives** are moved for as long as the button is pressed on the display, and they stop immediately as soon as it is released.
- **Pneumatic drives** are triggered by pressing the button on the display.

3.2.1 Preparing for bag production

- Lift by activating the switch **"transport belt"** (in the **VP SWITCH MENU**) lift the draw-down belt of the draw-down device off of the filling tube.
- Swing the vertical sealing unit away from the filling tube and arrest the unit in this position.
- Fit on the roll of packaging material and route the packaging material web over the guide rollers and deflection rollers to the draw-down device.
- Switch on the jaw heaters again, pay attention on the nominal value entry and the temperature display; take the heat-up time into account.
- Make preliminary adjustment of the packaging material web - fine adjustment or fine correction is only possible through motorized packaging material cross adjustment when the machine is running (buttons **"Film carriage"** in the **VP JOG MENU**).



NOTE!

Careful alignment of the packaging material web is an important prerequisite for production of a faultless vertical seam!

- Place the draw-down belts on the fill tube.
- By activating the button **"film drive"** in the **VP JOG MENU** pull off the packaging material until both draw-down belts have completely "grasped" the packaging material.
- Swing the vertical sealing unit back to the filling tube.
- If necessary, enter bag length and machine cycles on the touchscreen (in the menu **DATA OVERVIEW VP**).
- Align the photocell to the packaging material and in the menu **FILM DRIVE/PHOTO CELL** switch it on (only necessary for packaging material with print register marks).
- Ensure that all units attached on the machine (printer, dust extraction, etc.) are ready for production.
- Switch on all units by activating the appropriate switch.
- Press the "Standby" button on the outer menu bar of the touchscreen - the "Machine is ready for production" screen appears on the outer menu bar.

3.2.2 Produce empty bags and check them

- Activate the "Machine On" button - the jaw drive and film drive now perform an orientation run. Then bag production is automatically started - the "Machine running" display is shown.
- Produce a few empty bags until the print image is stable.
- Activate the "Machine off" button to interrupt production.

- Measure the bag length, check the print image position, check the quality of the vertical and cross seams (test methods are described in a data sheet at the end of this operating manual); if necessary, execute corrections and repeat the process.

3.2.3 Produce filled bags

- Set all parameters for the upstream dosage unit on the touchscreen in the menu **DOSAGE** also see the separate operating manual for the dosage unit.
- Switch on the dosage unit by activating the appropriate switch.
- Activate the "Machine ON" button - now the machine produces filled bags.
- Activate the "Machine OFF" button



NOTE!

Avoid loss of time and packaging material! Stop the machine with the "Machine Off" button. You can then resume production directly by pressing the "Machine On" button. If, on the other hand, you interrupt production by opening the protective doors or by pressing the **EMERGENCY STOP button**, a reference run will have to be executed!

3.2.4 Stopping the machine

- Check the filled bags - for the test procedure please read the data sheet "Test Methods" at the end of this operating manual.
- If necessary, correct the settings on the display and start the machine by activating the "Machine On" button.
- Stop the machine and check again the quality and weight of the bags produced.
- Save the newly ascertained or modified settings by saving the program.

3.3.1 Production

Take random samples during production.

Monitor the dosing of the product by means of weight checks and correct if necessary (these procedures can be omitted if there is a downstream check-weigher with tendency control).

Execute package checks. Check the following:

- Bag length and
- print image position, as well as
- Seam quality

(These checks are especially important after changing the packaging material!)

Execute product checks. Pay attention to:

pouring and flow characteristics of the product

Volume changes

Dust deposits, grease deposits, lumping, sticking of the product due to moisture

Behavior if there are faults



Read error number and error text off the touchscreen; look for specified error source and rectify or eliminate the cause of the malfunction.

NOTE!

Adjustment of the setting values to changed production conditions must normally be made when the machine is at a standstill!

Planned production interruptions



should always be carried out by pressing the "Machine Off" button. You can then resume production directly by pressing the "Machine On" button.

In case of production interruptions resulting from **EMERGENCY STOP** or opening of the protective doors, before restart you must:

- close the protective doors or
- unlock the **EMERGENCY STOP** button.
- Press the "Standby" button; "Machine is ready for production" appears on the outer menu bar.
- Press the "Machine on" button; "Machine running" appears on the outer menu bar.

NOTE!

In the event of packaging material end or if the packaging material web breaks, the packaging material limit switch switches the machine off, the machine is no longer "ready" and a reference run is necessary.

This sequence is changed by equipping the machine with a packaging material splicing device.

3.3.2 Planned switch off / end of production

You should switch off the machine in this sequence:

- Run dosing unit / product infeed empty and switch it off.
- Stop machine by activating the "Machine Off" button.
- Lift off draw-down belts.
- Switch off main switch and secure it against unauthorised restart.
- Remove product, glue and packaging residues from the sealing tools.
- Remove dust and other deposits.
- Service machine for resumption of production or prepare it for subsequent production.



NOTE!

Avoid loss of production and packaging material by always interrupting production with the "Machine Off" button, not the EMERGENCY STOP button.

A format change means that the machine must be adjusted for a new package size (bag, carton, etc.).

During a format change, please note that certain work steps have to be performed in a particular sequence.

For each format change, consult the appropriate tables, as all of the points and setting values are recorded there.

Optional: After loading the recipe appropriate for the format, open the menu **Format list** on the display (to do so, see also the instructions in section [3.4.1 - format list, Page 265](#)).

Do not start production until you have made sure that the conversion has not created any risk of collision, due to the changed settings.

The conversion comprises the following items:

Adjustment via digital meters/scales/markings:

If fixed values are necessary for the adjustments, they are set at the corresponding adjustment points either via digital meters, scales, or at certain stop marks.

Some settings may have to be adapted directly to the dimensions of the packaging material or the product to be packaged.

Exchanging format parts:

If parts must be replaced during the format change, this will be indicated separately. The parts concerned are listed in the format table with their precise designation. For the procedure of exchanging a format part, please refer to the corresponding description of this assembly in PART 2: INDIVIDUAL FUNCTIONAL DESCRIPTIONS of the operating manual.

Selecting a recipe:

A recipe is a group of all the setting values valid for a particular product and/or format. As a rule, the machine is delivered with at least one such recipe. Detailed instructions concerning the loading and saving of recipes can be found in section [2.2.6 - recipe administration, Page 88](#).



NOTE!

Perform the format change on the machine with the utmost care!

Make sure that the specified dimensions are precisely complied with!

Incorrect settings can lead to interruptions in production and damage to the machine!

If your machine is designed for only one format, no adjustment tasks are required.

3.4.1 format list

General information

Activate the menu selection button  in the main menu of the machine/machine area:

This takes you to the menu **FORMAT LIST**.

The Format list contains:

- a list of all adjustment points on which adjustment work must be carried out when the machine is being converted to a new format.

If fixed values are necessary for the adjustments, they are set at the corresponding adjustment points either via digital meters or scales.

The adjustment points are defined by ROVEMA prior to delivery and then marked on the machine with numbers. All of the format adjustment points provided with numbers in this list can be found again on the corresponding points on the machine.

- all format parts used for the format to be produced, which must be replaced, with their precise designation.

If parts must be replaced during the format change, this will be indicated separately. The parts concerned are identified in the format list with their precise designation.



NOTE!

Saving all format list settings values takes place automatically via storing the currently loaded recipe! If a new recipe is loaded, the associated format list will be automatically shown on the display.

format list 1		VP	3	?
position	Scale value	Adjustment point		
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

8:50 AM
6/8/16

"Position" value display

The number of the adjustment point on the machine.

Scale value

The setting value read-off from the machine adjustment point will be entered in this field.

Adjustment point

The designation of the adjustment point on the machine. The designation text can be changed at any time by the operator.

Change screen >>

Takes you to the next screen.

JOG mode means:

Motorized drives are moved for as long as the button on the touchscreen is pressed, and stop immediately as soon as it is released. The motion is performed with the acceleration and velocity that is set for this drive in the run menu of the respective run.

Pneumatic drives are triggered by pressing the button on the touchscreen.

The machine can thus be moved precisely to any desired position through "jogging".

All machine functions that can be moved in **JOG mode** are grouped in a **Jog menu**. Each machine function has certain buttons assigned to it. The symbols on the buttons indicate in which direction the drive moves the machine function:

Symbol on the jog button	Direction of movement
	backwards
	forward
	upwards
	downwards
	to the left
	to the right
	moving together
	separating
	backwards
	forward
	trigger pneumatic function

Execution

- Go to the **JOG MENU** of the machine
- Press the "Standby" button on the outer menu bar of the touchscreen - the "Machine is ready for production" screen appears.
- "Jog" the machine function in the desired direction by touching the corresponding button.



NOTE!

After activating a button in the **JOG MENU** the standby indicator of the machine goes out.

- Once the adjustment work is completed, press the "Standby" button on the outer menu bar again.



NOTE!

The JOG mode is intended for adjustment and inspection tasks, not for maintenance and repair tasks!

For maintenance and repair tasks: Stop the machine, switch the main switch off and safeguard it against unauthorized or unintentional restart.

General information

Operational readiness and service life of your machine are significantly influenced by proper maintenance.

For this purpose, all maintenance tasks must be performed carefully and on schedule.

The intervals specified here are based on 1-shift operation.

These maintenance intervals should be understood as guide values. They must be adapted to the requirements, depending on production time (1-, 2- or 3-shift operation).

The owner should determine who will perform which tasks and when. The various tasks should be assigned in writing to the various persons or groups of persons in a manner that cannot be misunderstood.

Persons assigned to perform cleaning, setting, repair and maintenance work must be informed of the hazard warnings described below.



DANGER!

Life-threatening danger due to electric shock!

- Repair and maintenance tasks on energized parts of the machine may only be performed by persons who are qualified through suitable training and who know the dangers associated with handling energized components.



WARNING!

Danger of injury!

Incorrect execution of cleaning tasks can result in risk of injury!

- Cleaning tasks must always be performed only by appropriately trained personnel.



DANGER!

Danger of injury!

There is the risk of serious injury from machine movements!

- Never try to perform cleaning tasks on machine areas while the machine is in operation.
- Do not reach into freely accessible machine areas above or below the machine housing while the machine is in operation!
- Do not insert any cleaning devices into freely accessible machine areas above or below the machine housing while the machine is in operation!



WARNING!

Danger of injury!

Increase risk of accidents when performing maintenance tasks!

- Cleaning, repair and maintenance tasks must only be performed when the machine is switched off via the main switch and is secured against unintentional restart!



WARNING!

Danger of injury!

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.



NOTE!

All spare parts and wear parts can be re-ordered using the Spare Parts List.

4.2.1 Cleaning intervals

Among other things cleaning intervals are dependent on:

- The packaged product
- The frequency of product changeover

The owner must determine the cleaning intervals according to operational conditions.

The machine should always be cleaned once each day per production shift.

4.2.2 Cleaning and disinfecting agents

For the cleaning and disinfecting of machines used to package food, it may be necessary to comply with specific regulations due to special hygiene requirements of the country in which the machine is operated.

These regulations can apply for the cleaning agents to be used and may possibly also include guidelines for disinfection of the machine.

Inform yourself of these regulations!



WARNING!

Danger of injury!

There are various hazards due to chemical cleaning agents!

- ▶ If chemical cleaning agents are used for cleaning, pay attention to the manufacturer's instructions for handling the cleaning agents.
- ▶ In particular, comply with the hazard notices of the cleaning agent manufacturer.



WARNING!

Danger of injury!

There are various hazards due to chemical reactions with cleaning agents!

- ▶ If chemicals or other reaction-capable substances are packaged with the machine, care must be taken that the cleaning agents used do not cause chemical reactions with product residues.

4.2.3 General cleaning instructions



WARNING!

Danger of injury!

Incorrect execution of cleaning tasks can result in risk of injury!

- ▶ Cleaning tasks must always be performed only by appropriately trained personnel.

Product-contacting parts

All product-contacting parts are removed for cleaning.

The cleaned parts may only be reused when care is taken that no cleaning or disinfecting agents remain on them and the parts are dried off. Especially with threaded connections and connection couplings, make sure that these parts are reinstalled only in an absolutely dry condition.

Product-contacting parts of this machine are:

- Filling tube
- Chute
- Spreader

protective doors

To clean the plastic protective covers, we recommend an antistatic cleaning agent or a mild dish washing detergent.

NOTE!

Danger of machine damage!

The plastic protective covers can be scratched or become opaque.

- Do not, under any circumstances, use highly alkaline agents, sharp tools, gasoline or benzene, acetone or carbon tetrachloride for cleaning.

Housing

Common paint-cleaning and care agents can be used for cleaning painted machine housings. Also commercially available mild household cleansers may be applied using a moist cloth.

Display with touch-screen

As a cleaning agent, only detergents or foaming screen cleaning agents may be used.

- Switch off the machine at the mains; this will prevent the inadvertent triggering of functions when touching the screen.
- Moisten a soft cleaning cloth.
- Spray the cleaning agent on the cleaning cloth and not directly onto the screen.
- Clean the surface of the screen with the cleaning cloth.

NOTE!

Danger of machine damage!

The surface of the touchscreen can be damaged.

- Do not clean the device using abrasive solvents or abrasive cleansers, pressurized air or steam cleaners.

Pneumatic clamping shaft (optional)

The pneumatic clamping shaft must not be treated with cleaning and disinfecting agents or jet cleaners!

Before starting to clean the machine, remove the clamping shaft from the packaging material and clean it separately. Only use an off-the-shelf cleaning cloth and clean water to clean it.

This section lists all maintenance tasks that must be executed daily. The tasks to be executed are divided into individual machine areas.

**WARNING!****Danger of injury!**

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.

4.3.1 General maintenance tasks**4.3.1.1 Safety devices****Check**

- Check the safety devices for functionality **daily before starting production**, e.g.: EMERGENCY STOP buttons, main switch, as well as all safety switches on protective doors.

You can learn about how the safety devices is required to function in section [2.1 - Safety devices, Page 48](#).

**NOTE!**

Check functioning of the safety switches daily before start of production!

If the machine cannot be operated in spite of closed protective doors, check the safety switches for possible defects and replace defective safety switches immediately.

- Check protective hoods, protective doors, locks, couplings for damage. Immediately replace defective technical equipment, especially safety devices (or have such equipment replaced).

4.3.1.2 General cleaning tasks

- Remove product and packaging residue from the machine at least once per day by suctioning or sweeping

**NOTE!**

Do not use compressed air to clean the machine!

When compressed air is used, dirt can get inside the machine or into machine parts, which can lead to malfunctions there.

**⚠ DANGER!****Danger of injury!**

Life-threatening danger due to electric shock!

- ▶ Do not use high-pressure cleaners to clean the machine!
- ▶ Using a high-pressure cleaner can result in moisture penetrating the interior of electrical components. This can lead to an electrical shock when electrical components are touched.

⚠ DANGER!**Danger of injury!**

There is the risk of serious injury from machine movements!

- ▶ Never try to perform cleaning tasks on machine areas while the machine is in operation.
- ▶ Do not reach into freely accessible machine areas above or below the machine housing while the machine is in operation!
- ▶ Do not insert any cleaning devices into freely accessible machine areas above or below the machine housing while the machine is in operation!

4.3.1.3 Maintenance unit**Check**

- During operation, check the sight glass (1) of the maintenance unit for accumulation of condensate; if necessary drain any liquid that accumulated by removing the drain screw (2).

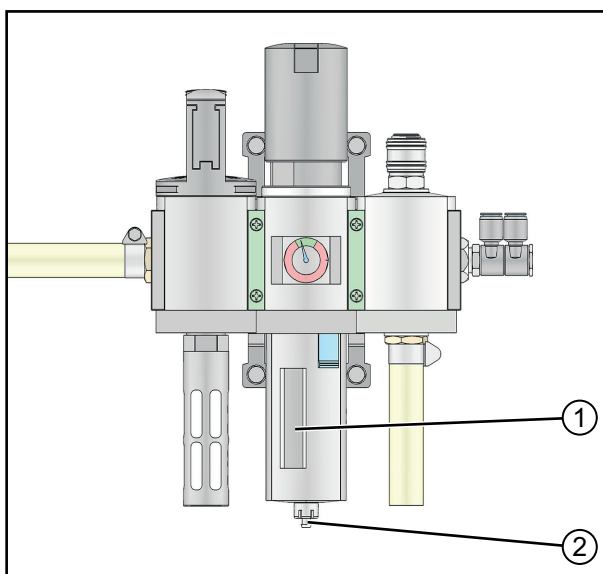


Fig. 4-1 Maintenance unit

- 1 Sight glass
- 2 Drain screw

Drain condensate:

1. Place a collection container for the condensate underneath the maintenance unit.
2. Unscrew the drain screw.
3. Let the liquid drain.
4. Insert the drain screw and tighten it.
5. Remove and empty the collection container.

4.3.2 Machine area VP**4.3.2.1 Vertical sealing station****WARNING!****Danger of burns due to hot surfaces!**

The vertical sealing station is operated with a vertical jaw, whose surface is very hot under operating conditions. Touching this hot jaw can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heater before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Daily immediately after switching off:

- Check vertical sealing station for dirt and clean if necessary; the required tools can be found in the ROVEMA tool bag.

The cleaning procedure depends on which closing system is fitted:

Closing tools for **hot sealing**:

Clean the closing tools with a brass brush.

Closing tools for **pulse welding**:

Clean the closing tools with a very soft brass brush which ensures that the Teflon tape above the pulse tapes is not damaged.

- Check the condition of the Teflon tapes; in case of damage or wear, exchange the Teflon tapes (only if the machine is equipped with sealing tools for impulse welding)

4.3.2.2 Cross sealing station

**DANGER!****Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!**

There is a greater risk of injury from the sharp knife blade.

- ▶ Prior to performing work at the station, switch the machine off via the main switch and safeguard the main switch against being switched back on unintentionally
- ▶ Protect yourself from cutting injuries by wearing suitable safety gloves.

**WARNING!****Danger of burns due to hot surfaces!**

The cross sealing station is operated with cross jaws whose surfaces are very hot under operating conditions. Touching these hot jaws can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heaters before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Clean

Daily immediately after switching off:

- check the closing tools for dirt and clean if necessary; you can find the appropriate tools in the ROVEMA tool bag

The cleaning procedure depends on which closing system is fitted:

Closing tools for **hot sealing**:

Clean the closing tools with a brass brush.

Closing tools for **pulse welding**:

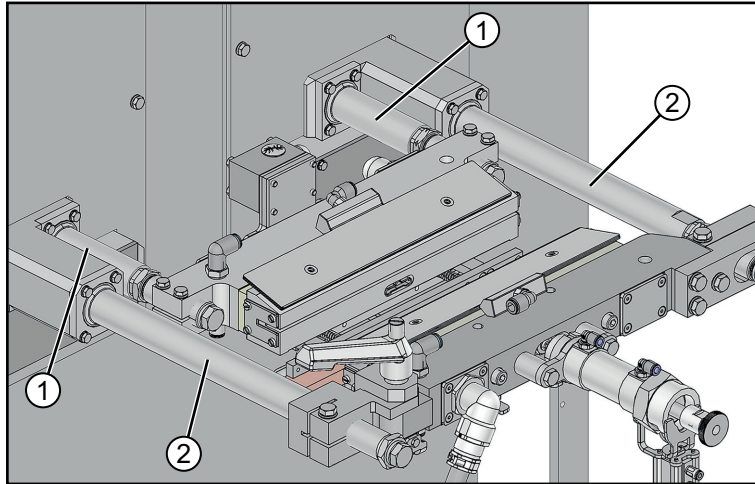
Clean the closing tools with a very soft brass brush which ensures that the Teflon tape above the pulse tapes is not damaged.

Closing tools for **permanently heated welding**:

Clean the closing tools with a plastic spatula.

Lubrication

Push and pull rods are not made of stainless material for technical reasons to do with production. To prevent rust building up/being deposited on the machine during the standstill period, checks must be carried out daily to ensure that there is an adequate protective film on the push and pull rods.



- 1 Push rods
- 2 Pull rods

- Check daily to ensure that there is an adequate protective film on the surfaces of the push and pull rods.

If there is not an adequate protective film, then replace it. After the machine has been cleaned, the push and pull rods must be dried and then re-oiled.

**NOTE!**

You can find information on the oils/lubricants that must be used in the ROVEMA Table of Lubricants in the Appendix.

Check

- Check the quality of the teflon tapes on the welding inserts; if there is damage or wear, replace the Teflon tapes (only if the machine is equipped with closing tools for pulse welding)
- Check the plastic coating on the welding bars; if there is damage or wear the entire welding bar must be replaced (only if the machine is equipped with closing tools for permanently heated welding)

Clean

- Check the knife and knife slot of the closing tools for contamination and clean if necessary; blunt knives are to be replaced.

As far as possible, remove and install the knife prior to production (cold closing tools!).

This section lists all maintenance tasks that must be executed weekly. The tasks to be executed are divided into individual machine areas.

**WARNING!****Danger of injury!**

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.

4.4.1 Machine area VP**4.4.1.1 Packaging material carriage****Guide and deflection rollers****Check**

- Check the ease of movement of all the guide and deflection rollers (1) of the packaging material carriage; bearings that are defective or difficult to move must be replaced.

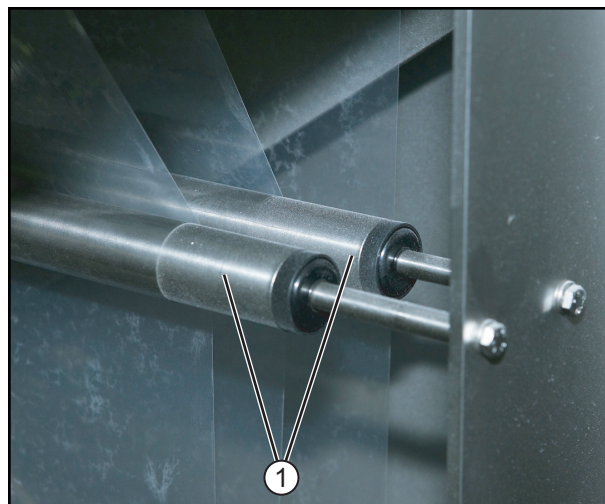


Fig. 4-2 Guide and deflection rollers

- Check the lateral play of the rollers.

Packaging material brake**Check**

- Check the state of the brake lining (1) on the brake pad of the packaging material brake. Replace if the brake pad if the brake lining is worn.

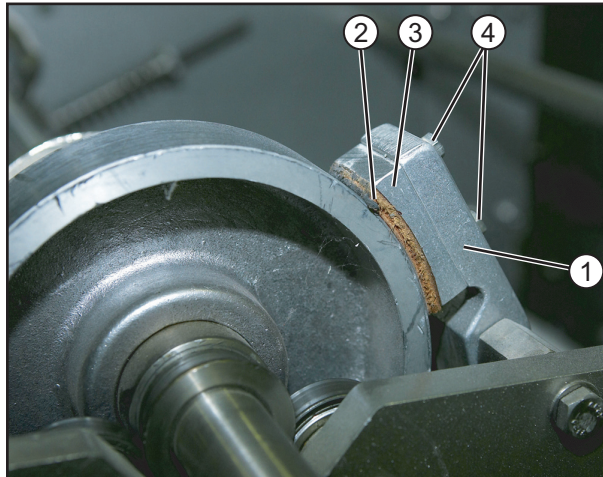


Fig. 4-3 Packaging material brake

Replacing the brake pad:

1. Remove the fastening screws (2) with washers.
2. Remove the old brake pad (3) from the braking jaw (1).
3. Mount the new brake pad on the braking jaw using the fastening screws.
4. After mounting, check whether the brake lining pushes fully against the brake drum with its contact side.

If this is not the case:

- a) Loosen the fastening screws.
- b) Realign the brake pad to the brake drum by moving it in the slots of the braking jaw.
- c) Retighten the fastening screws.

**NOTE!**

When the machine is equipped with a packaging material draw-down on the packaging material roll (optional), there is no packaging material brake. In this case, the function of the brake is performed by the packaging material unrolling.

4.4.1.2 Format set**Check**

- Check the Teflon tape (2) on the filling tube (1) of the format set for damage. Replace the Teflon tape if the fabric is damaged

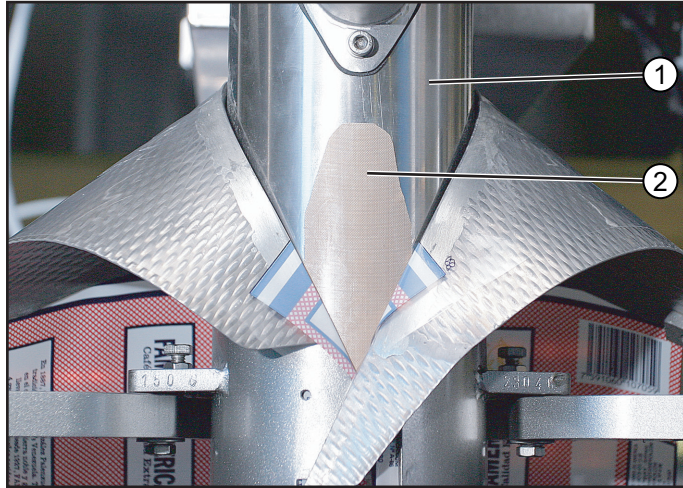


Fig. 4-4 Format set

- 1 Filling tube
- 2 Teflon tape

If the Teflon tape is damaged, then there is danger that the effect of the heat can cause the packaging material to stick to the filling tube during the sealing operation.

This section lists all maintenance tasks that must be executed monthly. The tasks to be executed are divided into individual machine areas.



WARNING!

Danger of injury!

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.

4.5.1 General maintenance tasks

4.5.1.1 Control panel / touchscreen display



DANGER!

Life-threatening danger due to high voltage!

There life-threatening danger due to electric shock if work is carried out improperly on the open control cabinet or on other energized parts of the machine!

- Tasks on the electrical equipment of the machine must only be carried out by personnel specially trained for these tasks!

Housing ventilation

The touchscreen display (1) is built into a hinged control panel (2). To help prevent the control unit overheating, a housing fan is fitted to the bottom of the control panel. This acts as a heat exchanger. This ventilation system consists of the fan filter (4) and an outlet filter (3). Filter mats on the inside of the filter are used for filtering dust.

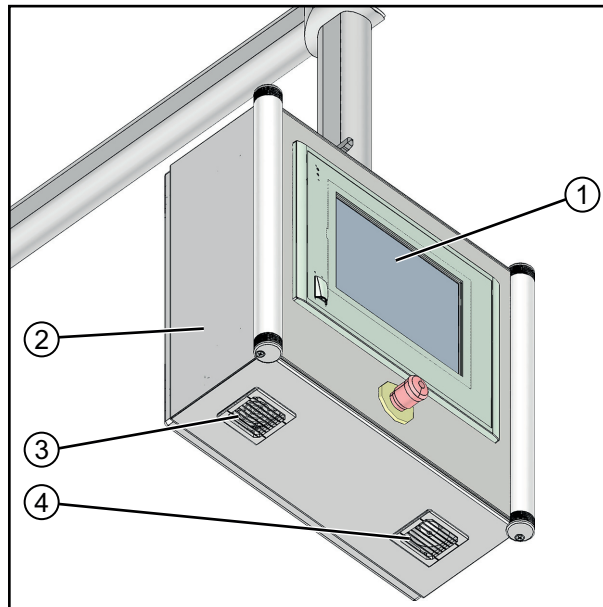


Fig. 4-5 Housing ventilation in the control panel

- 1 Display with touchscreen
- 2 Control panel
- 3 Outlet filter
- 4 Fan filter

Check

- Regularly check and clean the filter mats in the fan filter (4) and the outlet filter (3) according to the contamination of the surrounding air; if there is severe contamination, the filter mats must be replaced.

NOTE!

Danger of machine damage

A contaminated filter mat causes an increase in temperature inside the housing.

A temperature increase may result in faults in machine components or reduced service life of the components.

► Replace filters in good time!

Replacing and cleaning a filter mat:

1. Take off the covering grid and pull out the appropriate filter mat.
2. Rinse off the mat in water of up to 40°C, using typical commercial mild-action detergents, if necessary.
3. It is possible to vacuum or blow off the mat with compressed air.
4. For types of dust that contain grease: Rinse off with warm water and grease solvent additive.
5. Insert the filter mat and close the cover.



NOTE!

Avoid wringing out and strong water jets!

4.5.1.2 Machine housing



DANGER!

Life-threatening danger due to high voltage!

There life-threatening danger due to electric shock if work is carried out improperly on the open control cabinet or on other energized parts of the machine!

- Tasks on the electrical equipment of the machine must only be carried out by personnel specially trained for these tasks!

Housing ventilation

To help prevent overheating inside the machine housing (4), a housing fan was fitted to the side door in the housing (2). This acts as a heat exchanger. This ventilation system consists of the fan filter (3) and an outlet filter (1). Filter mats on the inside of the filter are used for filtering dust.

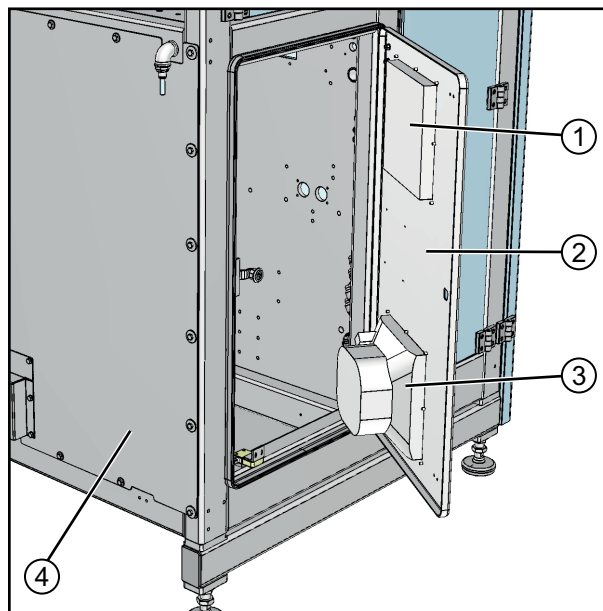


Fig. 4-6 Housing ventilation in the machine housing

- 1 Outlet filter
- 2 Housing door
- 3 Fan filter
- 4 Machine housing

Check

- Regularly check and clean the filter mats in the fan filter (3) and the outlet filter (1) according to the contamination of the surrounding air; if there is severe contamination, the filter mats must be replaced.

NOTE!

Danger of machine damage

A contaminated filter mat causes an increase in temperature inside the housing.

A temperature increase may result in faults in machine components or reduced service life of the components.

- Replace filters in good time!

Replacing and cleaning a filter mat:

1. Take off the covering grid and pull out the appropriate filter mat.
2. Rinse off the mat in water of up to 40°C, using typical commercial mild-action detergents, if necessary.
3. It is possible to vacuum or blow off the mat with compressed air.
4. For types of dust that contain grease: Rinse off with warm water and grease solvent additive.
5. Insert the filter mat and close the cover.



NOTE!

Avoid wringing out and strong water jets!

4.5.1.3 Control cabinet



DANGER!

Life-threatening danger due to high voltage!

There life-threatening danger due to electric shock if work is carried out improperly on the open control cabinet or on other energized parts of the machine!

- Tasks on the electrical equipment of the machine must only be carried out by personnel specially trained for these tasks!

Housing ventilation

To help prevent overheating inside the control cabinet (2), a housing ventilation system was fitted to the control cabinet doors. This acts as a heat exchanger. This ventilation system consists of the fan filter (3) and an outlet filter (1). Filter mats on the inside of the filter are used for filtering dust.

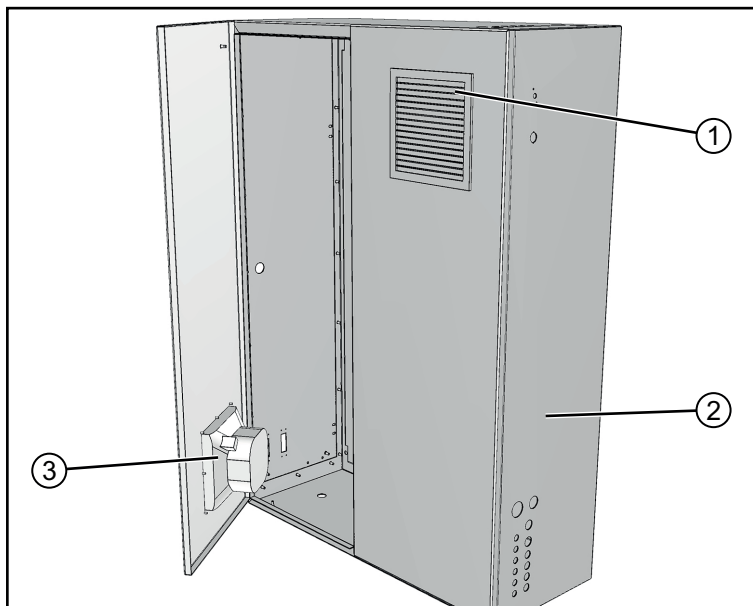


Fig. 4-7 Housing ventilation system in the control cabinet

- 1 Outlet filter
- 2 Control cabinet
- 3 Fan filter

Check

- Regularly check and clean the filter mats of the control cabinet ventilation system according to the contamination of the surrounding air; if severely contaminated, the filter mats must be replaced.

NOTE!

Danger of machine damage

A contaminated filter mat causes an increase in temperature inside the housing.

A temperature increase may result in faults in machine components or reduced service life of the components.

► Replace filters in good time!

Replacing and cleaning a filter mat:

1. Take off the covering grid and pull out the appropriate filter mat.
2. Rinse off the mat in water of up to 40°C, using typical commercial mild-action detergents, if necessary.
3. It is possible to vacuum or blow off the mat with compressed air.
4. For types of dust that contain grease: Rinse off with warm water and grease solvent additive.
5. Insert the filter mat and close the cover.



NOTE!

Avoid wringing out and strong water jets!

4.5.1.4 Pneumatic equipment

- Check condition of the pneumatic hoses
- Check pneumatic couplings for firm seat
- Check pneumatic valves

4.5.1.5 Mechanical equipment

- Check threaded fittings for firm seat
- Check bearings, spherical bushings for ease of movement
- Clean joint heads and check for wear
- Clean guide rollers and check for wear

4.5.1.6 Electrical equipment



DANGER!

Life-threatening danger due to high voltage!

There life-threatening danger due to electric shock if work is carried out improperly on the open control cabinet or on other energized parts of the machine!

- Tasks on the electrical equipment of the machine must only be carried out by personnel specially trained for these tasks!

- Check electrical threaded fittings
- Check position of light barriers/reflectors
- Clean light barriers/reflectors
- Check position of end position switches

4.5.1.7 Vacuum equipment

- Clean air filter in the vacuum pump
- Clean prefilter

Prefilter closed:



Prefilter opened with filter insert:



The filters must be replaced if they are excessively contaminated.
Use the documentation of the vacuum pump manufacturer for help with maintenance work on the vacuum pump.

4.5.2 Machine area VP

4.5.2.1 Draw-down device

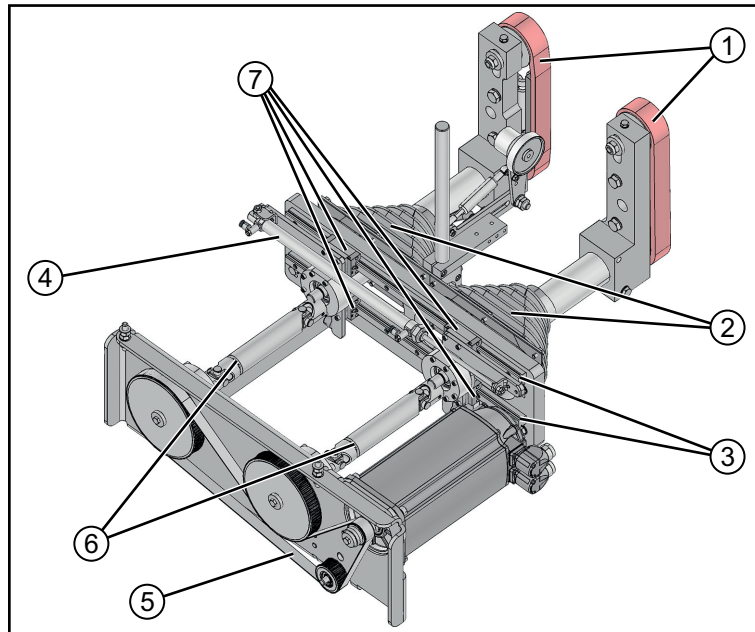


Fig. 4-8 Draw-down device

- 1 Draw-down belts
- 2 Bellows
- 3 Slide rail
- 4 Pneumatic cylinder
- 5 Toothed belt
- 6 Universal shaft
- 7 Guide carriage

Draw-down device - draw-down belt:

Tension

- Check draw-down belt for correct tension, retension if necessary.

Draw-down belts that have a significantly convex surface reduce the draw-down capacity due to deficient vacuum. Damaged toothing on the draw-down belt can result in the belt not being properly driven by the motor.

Check

- Check the draw-down belts for damage and mechanical wear, replace if necessary.
- Check the bellows for damage and mechanical wear, replace if necessary.



NOTE!

When installing a new belt make sure that the direction of movement corresponds to the arrow stamped on the belt.

Draw-down device - toothed belt:

Tension

- Check the toothed belt for correct tension, retension if necessary.
The toothed belt must be tight enough to guarantee an even draw-down.

Check

- Check the toothed belt for damage and mechanical wear, replace if necessary.

Draw-down device - slide rails/guide carriage:

To ensure ease of movement of the mechanical motion, check the lubrication of the slide rail and guide carriage. If necessary, relubricate the mechanism via the lubricating nipples.

Check

- Check the slide rails and carriage for adequate lubrication, if necessary relubricate at lubricating nipples.



NOTE!

You can find information on the oils/lubricants that must be used in the ROVE-MA Table of Lubricants in the Appendix.

Draw-down device - universal shafts:

- Check the universal shafts and carriage for adequate lubrication, if necessary relubricate at lubricating nipples.

4.5.2.2 Cross sealing station



DANGER!

Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!

There is a greater risk of injury from the sharp knife blade.

- Prior to performing work at the station, switch the machine off via the main switch and safeguard the main switch against being switched back on unintentionally
- Protect yourself from cutting injuries by wearing suitable safety gloves.



WARNING!

Danger of burns due to hot surfaces!

The cross sealing station is operated with cross jaws whose surfaces are very hot under operating conditions. Touching these hot jaws can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heaters before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Cross jaw drive

The mechanism of the cross sealing drive is lubricated via lubricating nipples which the lubricant is pressed into with a grease gun.

For lubricating points that are easy to reach, lubrication occurs directly on the lubricating nipple of the component.

Via a lubricating strip, inaccessible lubricating points within the drive are lubricated. To do this the lubricating point is connected to a lubricating nipple of the lubricating strip via transport lines.

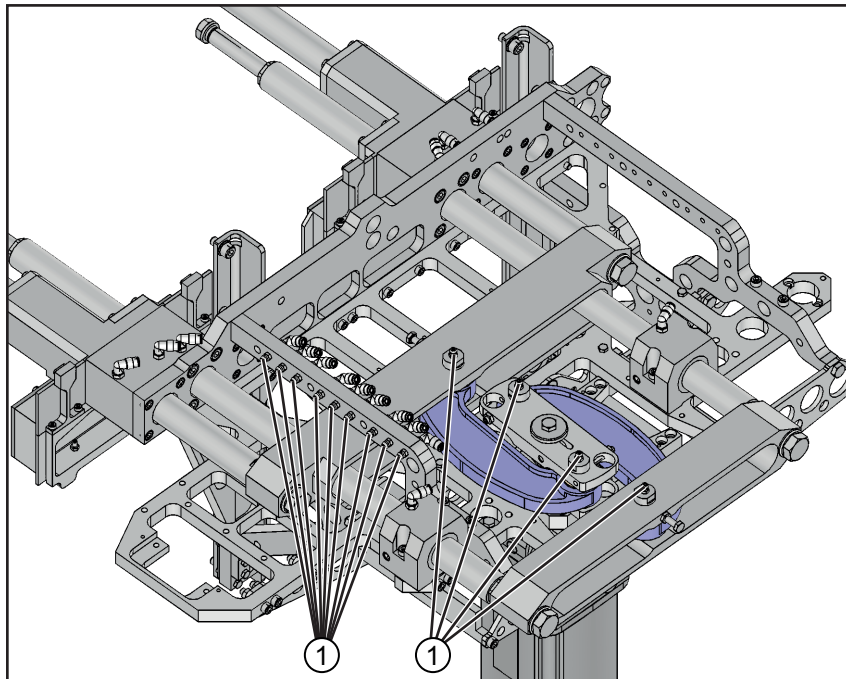


Fig. 4-9 Cross jaw drive

1 Internal lubrication point

Check

- Regularly check the lubrication points of the cross sealing station to ensure that they are adequately lubricated.
- Relubricate as needed.
- Check the lines for damage; defective lines must be replaced.



NOTE!

Only the food-safe lubricant "Berulub FG-H 2 SL" (Rovema order number 07035354) may be used as a lubricant.

See also the technical data sheet of the manufacturer in the appendix of this operating manual.

NOTE!

Danger of machine damage!

When creating additional drill holes in the machine housing, there is the risk that shavings could enter the cross sealing station and thus damage the drive.

- No additional boreholes may be made in the machine housing.

This section lists all maintenance tasks that must be executed semi-annually. The tasks to be executed are divided into individual machine areas.



WARNING!

Danger of injury!

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.
-

4.6.1 General maintenance tasks

4.6.1.1 Gear unit

Work on all gear units of the machine

- Perform maintenance tasks on all gear units in accordance with the manufacturer's instructions.

This section lists all maintenance tasks that must be executed yearly. The tasks to be executed are divided into individual machine areas.



WARNING!

Danger of injury!

Incorrect execution of repair and maintenance tasks can result in risk of injury!

- Repair and maintenance tasks must only be performed by trained or appropriately instructed technicians.

4.7.1 General maintenance tasks

4.7.1.1 Safety devices

Warning signs and information signs on the machine

- Check whether all the warning and information signs attached to the machine are legible. If the text is difficult to read or the picture is difficult to recognize, then the appropriate warning sign must be cleaned or replaced.
- Clean the signs with a cloth, water and neutral cleaners. Do not use any organic solvent or gasoline.
- Damaged and illegible signs or signs that have come off must be replaced immediately with new signs that are in conformance with standards. Replacements for damaged warning notices are available from ROVEMA Spare Parts Service.

4.7.2 Machine area VP

4.7.2.1 Vertical sealing unit



DANGER!

Life-threatening danger due to electric shock!

- Repair and maintenance tasks on energized parts of the machine may only be performed by persons who are qualified through suitable training and who know the dangers associated with handling energized components.



WARNING!

Danger of burns due to hot surfaces!

The vertical sealing station is operated with a vertical jaw, whose surface is very hot under operating conditions. Touching this hot jaw can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heater before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Equipment of the closing tools with 230 volt type heating cartridges

Check

Have the following protective devices checked by a trained specialist in accordance with the valid regulations:

- The function of the residual current circuit breaker (control cabinet)
- The protective conductor system for hot sealing for damage, break, etc.



WARNING!

These tasks must only be performed by trained specialists!

The owner must have a check of all safety devices performed at regular intervals, however at least once a year, by a trained specialist!

4.7.2.2 Cross sealing station



DANGER!

Danger of cutting injuries from the pneumatically-actuated cutting knife in the cross sealing station!

There is a greater risk of injury from the sharp knife blade.

- ▶ Prior to performing work at the station, switch the machine off via the main switch and safeguard the main switch against being switched back on unintentionally
- ▶ Protect yourself from cutting injuries by wearing suitable safety gloves.



DANGER!

Life-threatening danger due to electric shock!

- ▶ Repair and maintenance tasks on energized parts of the machine may only be performed by persons who are qualified through suitable training and who know the dangers associated with handling energized components.

**WARNING!****Danger of burns due to hot surfaces!**

The cross sealing station is operated with cross jaws whose surfaces are very hot under operating conditions. Touching these hot jaws can lead to serious burns.

- ▶ Maintain a sufficient distance from these hot surfaces of the station during machine operation.
- ▶ Switch off the corresponding heaters before working on the station and let the station cool down until it is possible to work safely.
- ▶ When working on the hot station, wear suitable safety gloves to protect against the heat.

Equipment of the closing tools with 230 volt type heating cartridges**Check**

Have the following protective devices checked by a trained specialist in accordance with the valid regulations:

- The function of the residual current circuit breaker (control cabinet)
- The protective conductor system for hot sealing for damage, break, etc.

**WARNING!**

These tasks must only be performed by trained specialists!

The owner must have a check of all safety devices performed at regular intervals, however at least once a year, by a trained specialist!

Faults

Machine operating faults - depending on the cause - trigger either a so-called machine stop or a so-called machine halt. A machine stop is when the machine stops immediately; a machine halt is when the machine is brought to a standstill in a controlled manner, which means that the drives complete their current cycle (work cycle) and come to a standstill in their defined halt position.

Fault messages

Fault messages appear immediately in their own alarm window when faults begin, regardless of the machine's current operating state; at the same time, the "Caution" symbol, shown on the **Alarm memory button**, changes its colour.

info: 5737.29617.0			
Reason			
emergency stop			
function			
control panel			
comes	gone	DID	MA
5:42 PM (1/3/11)	5:42 PM (1/3/11)	12-S1	--
AutoQuit	AutoReset	NoLogging	Reserve
OK	further	help	

Fig. 5-1 Alarm window using an info message as the example



NOTE!

Additional information is provided in section [2.2.9 - The alarm messages, Page 95](#) and [2.2.10 - The alarm memory, Page 96](#).

Alarm code

The headline of the alarm window contains the unique alarm code, consisting of three numbers. This alarm identifier serves as a file number, under which the fault message is listed in the operating manual.

Depending on whether it is an error message or an info message, the headline is displayed red or green and supplemented by the text "error" or "info".

Cause and function

This is the plain text description of the fault that has occurred.

Incoming time

Time and date at which the fault has occurred.

Outgoing time

Time and date at which the fault was rectified. However, this is not the time at which the operator has closed or acknowledged the alarm window by pressing the OK button.

If a displayed alarm is still in the queue, only a wildcard character ("****") is displayed here.

EIS	This abbreviation stands for the Equipment Identifying Symbol. The equipment identifier corresponds to the circuit diagram designation of the assembly this alarm can be assigned to.
MA	This abbreviation stands for the machine area designation. The machine area identifier specifies the machine area this alarm can be assigned to.
"OK" button	Use this button "OK" to close the alarm window. You can acknowledge a fault message only after the error has been repaired by pressing the "Stand-by" button at the outer menu bar. If the error was not yet remedied at the time of the reset, the ERROR indicator stays lit and the error message reappears after a few seconds.
"next" button	Use this button "Next" to also close the window, and Jarvis goes to the alarm memory display. This button is only available if further alarms are in the queue (outgoing time has not yet been entered).
"Help" button	Press the button "Help" to open the online help with the explanation for this error (see also section 2.2.8 - The online help system, Page 94). Not all machine operating faults are detected by the control unit and shown on the display. At the end of this section, you will find explanations of those faults that are not shown on the display.



WARNING!

Risk of injury due to safety devices that have been rendered inoperable!

Injuries due to accessible danger zones on the machine.

- ▶ Do not bypass safety devices.
- ▶ Do not render safety devices inoperable.

The colored lights of the light signal lamp indicate machine conditions.



More detailed information about the current machine condition can also be shown on the machine display. A description of the causes of faults and how to eliminate them is provided following this section.

- Warning lights can light up together in certain combinations!
- For more detailed information, note the machine display and take action in accordance with the instructions shown there.
- When machine conditions change, so do the light signals!



NOTE!

The meanings of the individual colored signal lights are described below!

5.1.1 The colors of the light signal lamp



Blue light signal

Flashing light: The blue flashing light indicates that a malfunction is present in an upstream or downstream unit



Red light signal

Flashing light: The red flashing light indicates that a malfunction is present and the machine cannot be used for production.



Yellow light signal

Flashing light: The yellow flashing light indicates that the packaging material supply is running out and must be refilled.

If the packaging material supply drops below the minimum, the red flashing light also flashes.



Green light signal

Continuous light: The green continuous light indicates fault-free operation of the entire machine.

Flashing light: The green flashing light indicates an error in an internal module of the machine, without the machine stopping due to an error.

On the following pages, you will find all error messages triggered by the control unit of the machine as well as the measures you must take to repair the errors. The listed error messages contain the error text shown on the display as well as information on the cause. After that follows the description of the remedy.

If there are several possible causes for a special error, each cause is listed individually and an appropriate remedy described.

Error messages are always an indicator of a machine malfunction! If an error occurs more frequently, please check whether this can be avoided through a different machine setting.

In addition, regular maintenance and cleaning of the machine contributes decisively to avoidance of improper functioning!



WARNING!

Risk of injury due to safety devices that have been rendered inoperable!

Injuries due to accessible danger zones on the machine.

- ▶ Do not bypass safety devices.
- ▶ Do not render safety devices inoperable.

5.2.1 Error: Overtemperature - drive

Excess temperature of the drives

The maximum permissible motor temperature has been exceeded.

The motor is dirty and is no longer adequately ventilated

- Clean motor

The motor is overloaded.

- Check drive unit for binding, worn bearings, mechanically blocked systems

The motor is operated with too low frequency.

- Check frequency of the the respective frequency converter; this should not be below 20 Hertz, if possible.

5.2.2 Error: Safety chain

Safety chain ... (Designation of the assembly)

The safety chain of the machine is interrupted at one location or the safety relay, main contactor or relay for triggering the safety relay is defective.

The safety chain is interrupted; the LED on the safety relay is not illuminated.

- Run through safety chain

The safety chain is not interrupted; the LED on the safety relay is illuminated.

- The relay that triggers the safety relay is defective
- The contacts of the main contactor jam
- The monitoring contact is opened

5.2.3 Error: EMERGENCY STOP

EMERGENCY STOP ... (Designation of the assembly)

The **EMERGENCY STOP** button at the specified position was actuated.

- Unlock **EMERGENCY STOP** button
- Press the "Standby" button
- Start machine with "Machine ON" button.

It is possible that a reference run is started. During this time, the display "Operating system is working - please wait" appears. When the reference run is finished, start the machine again with the "Machine ON" button.

Note:

- In certain cases the situation can occur that product must be removed from the machine.
- If the error message is not reset, check input of the **EMERGENCY STOP** button on the bus modules (run through).

5.2.4 Error: Motor protection

Motor protection ... (Designation of the motor)

The motor-protection switch of the named drive motor has tripped.

The motor is overloaded.

- Check drive unit for binding, worn bearings, mechanically blocked systems

Motor current is not set correctly

- Check motor line for earthing or short circuit
- Set motor current according to the rating plate

5.2.5 Error: Servo amplifier

Servo amplifier...stand-by/mal- function ... (Designation of the assembly)

The displayed servo amplifier is faulty.

Various causes are possible.

- Check the fault display of the servo amplifier in the electrical cabinet
- See the information on fault rectification in the electrical documentation of the frequency converter.

5.2.6 Error: Encoder error

Encoder error ... (Designation of the assembly)

The incremental encoder monitor detects a malfunction in the incremental encoder circuit

Possible causes for this can be:

- The incremental encoder is defective
- Cables in the incremental encoder circuit are defective

- Plug connections in the incremental encoder circuit are loose
- A terminal error is present
- The terminal module is defective
- The encoder supply voltage is missing or is faulty
- The zero track of the incremental encoder is not connected
- The encoder simulation by the servo amplifier is defective
- The IMC card is defective
- Look for the possible cause and rectify the error appropriately.

If the error message appears again (e.g. after installation of a new incremental encoder when resaving of backed-up data), the following causes may still be responsible:

For the incremental encoder:

You have installed an incremental encoder with a different resolution.

- The configuration data of the axis (in the touch screen) does not agree with the data of the encoder
- Check the data of the incremental encoder

When resaving backed-up data, you may have saved old and thus incorrect data for the incremental encoder in the system

- Reconfigure the appropriate data

For encoder simulation by the servo amplifier:

- - The settings of the digital servo amplifier are wrong
- See the information on correct adjustment in the documentation of the servo amplifier

5.2.7 Error: Frequency converter

**Frequency converter...stand-by/fault ...
(Designation of the assembly)**

The displayed converter is faulty.

Various causes are possible.

- Check the fault indicator of the converter in the electrical cabinet.
- See the information on fault rectification in the electrical documentation of the frequency converter.

5.2.8 Error: Position error

**Position error...
(Designation of the assembly)**

The position error limit of the drive has been exceeded.

Causes:

- The drive cannot provide the required power.
- Mechanical blocking of the drive (the drive is jammed).
- Loose or defective cables between the control unit and the encoder or the control unit and the drive.
- An encoder/converter is defective.

Remedy:

If a drive can still be jogged after a position error, it can be assumed that the drive was not able to provide the required power in normal operation.

- In this case, the cycle number (or similar parameters) should be reduced.

If a drive can no longer be jogged after a position error, loose or defective cables/encoders/converters are usually the cause. In this case, you should first:

- check the cable connections,
- check mechanical couplings between encoder and drive.

If the problem is still not resolved, you should check the encoder for correct function.

To do this, the encoder can be removed in most cases (please do not loosen the electrical connection).

If the encoder is now turned slowly by hand, you can see in the service diagnosis menu of the drive how the value changes when "Read-real position" is selected.

If the encoder value does not change (or the value makes big jumps), the encoder or the related cable is presumably defective.



NOTE!

Please do not replace the encoder with the machine switched on, since otherwise the tracks of the encoder can be electrically destroyed.

5.2.9 Error: Final position

Final position... (Designation of the assembly)

The final position sensor on the respective cylinder is not covered.

The sensor is mounted at the wrong position.

Place sensor on the final position of the cylinder and arrest it in place

The sensor is defective

- Check input of the sensor on the bus module

Cylinder is mechanically blocked

- Rectify the reason for the block

The valve is defective

- Replace valve

5.2.10 Error: Protective doors**Protective door(s) ...
(Designation of the
assembly)**

- One of the protective doors at the specified position was opened.
- Close all protective doors and make sure that the safety switches latch.
- Press the "Standby" button
- Start machine with "Machine ON" button.

It is possible that a reference run is started. During this time, the display "Operating system is working - please wait" appears. When the reference run is finished, start the machine again with the "Machine ON" button.

Note:

- In certain cases the situation can occur that product must be removed from the machine.
- If the error message is not reset, check input of the door switch on the bus modules (run through).

5.2.11 Error: Pressure monitor

The compressed air monitor signals insufficient air pressure

- Check the function of the compressed air system

This includes, for example, depending on machine type:

- Compressed air line (possibly a defect in the customer-provided line)
- Maintenance unit
- Compressed air hoses
- Seals and threaded fittings of the compressed air system
- Valves and other pneumatic components

5.2.12 Error: Axis position error**Axis...position error
(designation of the
assembly)**

The axis could not execute the movement profile in the specified time.

The axis was blocked by product or other objects.

- Remove objects and restart machine

The axis could not follow the set profile.

- Increase the run time or acceleration ramps
- Increase position error limit

5.2.13 Error: Axis no reference**Axis...no reference
(designation of the
assembly)**

The axis does not find its reference position after a time that can be set.

The reference initiator is defective; the axis does not switch to the initiator.

- Check input signal of the initiator; red LED on the input module for the axis
- Replace initiator if necessary

The zero track of the incremental encoder no longer switches (only for rotating axes without reference initiator).

- Replace incremental encoder

Axis does not switch direction of rotation when it runs to the final position.

- Check settings with Iniwork

5.2.14 Error: Axis General error**Axis...general error (designation of the assembly)**

The axis has a general error, which is not specified more precisely.

Calculation error due to incorrectly entered parameters.

- Check the last changes of the parameters
- With the monitor program, determine the exact axis error

5.2.15 Error: Vacuum monitoring

Vacuum monitoring reports insufficient vacuum.

- Check the function of the vacuum system

This includes, for example, depending on machine type:

- Vacuum pump
- Vacuum hoses
- Seals and threaded fittings of the vacuum system
- Vacuum suction device on extraction devices#
- Vacuum suction device on lift stations
- Vacuum suction device on stamp devices

In addition, incorrect settings in the display may possibly result in vacuum not being sufficiently built up in time to fulfil the function.

- Check all settings related to the vacuum.

The following contains a description of the error messages that are shown on the display and the actions you can take to eliminate the errors.

The structure of the descriptions contain the following information for each error:

- Error number
- Error text shown on the display
- Error source(s) that have caused the error to occur
- Corrective measure(s) to eliminate the error

When eliminating errors, please note the following:

If an error occurs repeatedly or at brief intervals, the following points should also be checked:

- Have the mechanical settings for the machine been made correctly?
 - Check values according to Format table!
- Are the values set in the menus of the program correct?
 - Check values for plausibility!
- Are the correct format parts installed?
 - Check installed format parts according to format table!
- Have the characteristics of the packaging material changed?
 - Check packaging materials against the specification, e.g. dimensions, moisture content, printing, etc.
- Have the maintenance tasks been executed properly?
 - Check maintenance tasks (e.g. cleaning of the sensors!)

169.0.0

Axis has not reached trapezium position

The axis has not reached the assigned trapezium position.

- Find out what the causes are and eliminate any errors.

188.8798.0

Overtemperature - drive discharge conveyor

The permissible temperature of the drive has been exceeded. 1 Overload due to sluggish mechanics (caused by dirt, for example). 2 Overload due to unfavorable display settings.

- Clean workstation. Check drive (motor, drive belt, frequency converter, clutch, connections, wiring, etc.) for proper functionality. Remove product / foreign objects.

456.6316.0

Learning phase active product scanning

The message "Learning phase active" is displayed when Teach mode has been activated. The message is displayed until Teach mode is terminated. Then it disappears automatically.

- Wait until Teach mode is terminated and switch off the Teach mode

- 1008.0.0** **Too much slippage on foil drive**
- The bag length measured between two photo cell marks deviates from the set bag length by more than the tolerance (settable in the display).
- Adjust the bag length properly. Correct the setting of the draw-down belts on the filling tube.
- 1688.0.0** **Maximum numbers of tables exceeded (status 18).**
- This is a memory problem on the Flash card.
- Please contact Rovema to eliminate this error.
- 2208.0.0** **Servo overload**
- There is a fault on the indicated servo amplifier.
- Check the servo amplifier fault display in the switch cabinet. The servo amplifier documentation will be useful in eliminating the error.
- 2247.0.0** **Problem in communication with scale**
- The scale slave mode, the scale must deliver product on request. If it does this (product is present), it will generate confirmation within a certain time. If this confirmation message comes too late, there is a communication problem between the VP and the scale. The problem could also be that the VP is set to slave mode, but for some reason related to physical characteristics (for example the drop time) it is not even able to run in Slave mode.
- Enter the correct values for communication of the scale and VP.
- 2801.9286.0** **Failure of analog output module. analog module**
- The analog output module is faulty.
- Replace the module.
- 2915.0.0** **calculation module VP**
- The calculation module (of the VP) could not complete the calculation correctly due to an error.
- Check last changed value and correct if necessary
- 3880.16455.0** **start reference run calibration**
- A reference movement must be performed.
- Start the reference movement on the display.
- 3880.0.0** **start reference run**
- A reference movement must be performed.
- Start the reference movement on the display.
- 4143.0.0** **Loading not possible, table faulty (status 7).**
- This is an internal system error.
- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

4326.15629.0

fault temperature modul

There is a production problem at the indicated location.

- Find out what is causing the malfunction and eliminate it.

4326.7796.0

fault scale

There is a production problem at the indicated location.

- Find out what is causing the malfunction and eliminate it.

4712.0.0

no standby servo

The servo amplifier that is displayed is malfunctioning.

- Check the fault display of the servo amplifier in the switch cabinet. Refer to the electrical documentation for the frequency converter for information on how to eliminate the malfunction.

5932.0.29246

pressure control machine

The compressed air supply is low or has been interrupted.

- Turn on the compressed air supply and check the air connections.

6619.0.0

dynamic problem axis

Program was unable to perform trapezium calculation because the set values are out of bounds. Limit value calculation is turned off for this error and the limits are set to their static values (which were defined in RDE).

- As soon as values are set that make it possible to perform the calculation, the calculated limits will be generated and the user will not be able to make any more incorrect settings.

6784.9286.0

voltage analogue-output unacceptable analog module

The voltage on the Interbus Inline analog module is faulty (hardware problem).

- This is a very rare system error. If this error appears on the display, start the machine again with the main switch. If the error occurs again after that, please contact Rovema.

7460.9286.0

limits for analog output channel 1 analog module

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

7466.0.0

Number of trapezium generators insufficient.

Unable to perform calculation.

- Check whether the error can be eliminated by restarting.

7509.6316.0

Invalid position data product scanning

You are attempting to enter an invalid value.

- Please enter a valid value.

- 7525.0.0** **search path for reference drive exceeded**
- The search path for the reference movement was exceeded. The cause may be a reference initiator that is out of adjustment or an incorrectly set value for the reference movement.
- Check the value that was entered for the reference movement. If this value is correct, check the position of the reference initiator and make certain it is correctly installed and is operating properly. Check the wiring as well.
- 7758.0.0** **Unable to delete tables, no server connection (status 12).**
- This is an internal system error.
- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.
- 7794.0.0** **No machine areas turned on**
- No machine area is turned on.
- Turn on the machine area.
- 8156.0.0** **encoder error zero pulse**
- The incremental encoder monitoring system is detecting improper functionality in the incremental encoder circuit.
- Check the functionality of the incremental encoder.
- 8653.0.0** **Unable to determine external cycle number.**
- Unable to determine the cycle number of the machine in question. It may be that no constant cycle number was reached from which a value could be calculated.
- To determine the external cycle number, this machine must reach a constant cycle number for a specific period of time. Make certain nothing interferes with the system during this time that could prevent the cycle number from being reached.
- 8816.17650.0** **Control loop interrupted or heater output too low vertical jaw**
- In the control zone referred to heating was carried out with 100% heater output but the actual temperature has not changed.
- Check supply voltage of the solid-state relays, setpoint may not be achievable or heater output (heating cartridge) too weak and/or defective.
- 8816.19522.0** **Control loop interrupted or heater output too low rear sealing jaw**
- In the control zone referred to heating was carried out with 100% heater output but the actual temperature has not changed.
- Check supply voltage of the solid-state relays, setpoint may not be achievable or heater output (heating cartridge) too weak and/or defective.
- 8816.31339.0** **Control loop interrupted or heater output too low front sealing jaw**
- In the control zone referred to heating was carried out with 100% heater output but the actual temperature has not changed.

- Check supply voltage of the solid-state relays, setpoint may not be achievable or heater output (heating cartridge) too weak and/or defective.

8914.17948.0

final position sealing jaw drive horizontal

The sensor for detecting the end position was not covered.

- Position the sensor at the end position of the cylinder and lock it in place. Check the input of the sensor on the bus module. Eliminate the reason for the blockage and replace the valve.

9006.5932.29246

Forced venting fault pressure control machine

The forced venting is a device that causes the compressed air to escape from the machine. The monitoring of this forced venting (a pressure monitor) has determined that pressure is still present in the pneumatic system.

- Check the valve and the pressure monitor of the forced venting and exchange faulty parts immediately!

9014.0.0

number of negative revolutions axis to high

The axis was requested to run at a speed that is below its maximum possible speed.

- Reduce the output of the machine or place the settings of the axis in a more favorable range.

9957.0.0

Coupling not possible, slave axis has no reference.

System error

- This is a very rare system error. If this error appears on the display, start the machine again with the main switch. If the error occurs again after that, please contact Rovema.

10622.0.0

no axis reference

The axis cannot find its reference position after a set amount of time.

- Check the input signal of the initiator, the red LED on the input module for the axis. Replace faulty initiator, replace faulty incremental encoder.

10813.10137.0

No valid photoelectric signal detected. film drive

No print registration mark was detected 3 times in a row. The photocell may be incorrectly positioned (see also Chapter 2.3. and following in the operating instructions).

- Check whether the print registration mark on the packaging material is suitable for detection and free of errors. Check the setting of the photocell as well (if necessary, look up options for correcting the problem in the instructions for the photocell).

11256.0.0

position error

The position error limit of the drive has been exceeded. The drive is unable to provide the required output. The drive is mechanically blocked (the drive is jammed). Loose or faulty wiring between the control unit and the encoder or between the control unit and the drive. An encoder/ converter is defective.

- If a drive can still be inched after a position error, you can assume that the drive is unable to provide the required output in normal operation. In that case you should reduce the cycle number (or similar parameters). If a drive cannot be inched any more after a position error, the cause is usually loose or faulty wiring, encoder or converter. In this case you should first check the wire connections and mechanical connections between the encoder and the drive. If the problem is still not eliminated after that, you should check whether the encoder is working properly. To do this, the encoder must be dismantled in most cases (please do not loosen the electrical connection). Then if you turn the encoder slowly in your hand, you can see how the value in the service diagnostics menu for the drive changes when you select "Read-Real-Position". If the encoder value does not change (or if the value changes by large increments), the encoder itself or its wiring are probably faulty.

12386.0.21157**Check temperature of electrical cabinet, please. VP 1**

The temperature in the switch cabinet is increasing.

- Check whether the switch cabinet venting and exhaust are working. The temperature in the switch cabinet should not exceed 45 °C! Please note that a heavy accumulation of dirt in the filter mats for switch cabinet ventilation will prevent air from circulating. They must be replaced!

12478.9286.0**limits for analog output channel 2 analog module**

System error

- This is a very rare system error. If this error appears on the display, start the machine again with the main switch. If the error occurs again after that, please contact Rovema.

12509.29652.0**pre-warning end of film**

This is a warning message before the machine stops due to an error. The material used in this module is running short.

- To shorten the time the machine spends at a standstill, prepare the material in advance for the replacement.

13196.0.0**Loading of tables not possible, no server connection (status 16).**

System error

- This is a very rare system error. If this error appears on the display, start the machine again with the main switch. If the error occurs again after that, please contact Rovema.

14658.0.0**fatal error Axis-Task**

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

15674.0.0**Attention, mainswitch heating off!**

The main switch of the heater for the sealing tools is turned off. No sealing can be performed without the heater.

- Turn on the heater for the sealing tools in the menu!

15827.0.0**Drop time setting is too high.**

You have attempted to activate a drop time with too high a value.

- Reduce the value for the drop time.

16713.0.0**Unable to delete tables, table does not exist (status 8).**

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

17190.0.0**Loading of table not possible, error while opening file (status 17).**

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

17331.0.21157**Overtemperature – electric cabinet VP 1**

The temperature in the switch cabinet is too high.

- Check whether the switch cabinet venting and exhaust are working. The temperature in the switch cabinet should not exceed 45 °C! Please note that a heavy accumulation of dirt in the filter mats for switch cabinet ventilation will prevent air from circulating. They must be replaced!

17515.17650.0**Error during automatic optimization vertical jaw**

Automatic optimization of the control section was not successful.

- Allow the control section to cool down to room temperature and restart automatic optimization.

17515.19522.0**Error during automatic optimization rear sealing jaw**

Automatic optimization of the control section was not successful.

- Allow the control section to cool down to room temperature and restart automatic optimization.

17515.31339.0**Error during automatic optimization front sealing jaw**

Automatic optimization of the control section was not successful.

- Allow the control section to cool down to room temperature and restart automatic optimization.

17920.0.0**fatal error Asynchron-Task**

This is an internal system error

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

18064.0.0	number of positive revolutions axis to high The axis was requested to run at a speed that is above its maximum possible speed. • Reduce the output of the machine or place the settings of the axis in a more favorable range.
19031.17650.0	HI alarm vertical jaw The temperature exceeded the upper limit value of 400 °C. Possible causes: The temperature has risen above the setpoint; there is a problem with the temperature sensor in the zone for which the error is reported. • Change the control parameters in the configuration menu of the indicated zone. If the temperature sensor is defective, replace it.
19031.19522.0	HI alarm rear sealing jaw The temperature exceeded the upper limit value of 400 °C. Possible causes: The temperature has risen above the setpoint; there is a problem with the temperature sensor in the zone for which the error is reported. • Change the control parameters in the configuration menu of the indicated zone. If the temperature sensor is defective, replace it.
19031.31339.0	HI alarm front sealing jaw The temperature exceeded the upper limit value of 400 °C. Possible causes: The temperature has risen above the setpoint; there is a problem with the temperature sensor in the zone for which the error is reported. • Change the control parameters in the configuration menu of the indicated zone. If the temperature sensor is defective, replace it.
19040.0.0	Information about bag length for axis drive is missing. Information about the length of the bag (required to start the axis movement) is missing. • Enter the bag length in the menu.
21165.17650.0	Automatic optimization active vertical jaw Automatic optimization of the control section is running. • Wait until automatic optimization is complete.
21165.19522.0	Automatic optimization active rear sealing jaw Automatic optimization of the control section is running. • Wait until automatic optimization is complete.
21165.31339.0	Automatic optimization active front sealing jaw Automatic optimization of the control section is running. • Wait until automatic optimization is complete.
25125.0.0	encoder error in number of increments The incremental encoder monitoring system is detecting improper functionality in the incremental encoder circuit.

- Check the functionality of the incremental encoder.

25489.0.0

Table test not possible, no server connection (status 14).

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

25570.0.0

Loading of tables not possible, not enough storage capacity in IMC (status 9).

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

25842.0.0

Reference switch not found.

The reference initiator is faulty. The axis is not switching to the initiator.

- Check the input signal of the initiator, the red LED on the input module for the axis. Replace the initiator if necessary

26290.0.0

Coupling not possible, master axis has no reference.

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

27418.0.0

transport belts lifted

The draw-down belts of the draw-down device are lifted from the filling tube (not in the working position).

- Switch on "Transport belts" in the switch menu.

27666.17650.0

low temperature vertical jaw

The actual tolerance value of the indicated zone has fallen below the lower limit. a) The machine was just turned on and the temperature zone is currently heating up. b) The target temperature was increased and the temperature is currently heating up. c) The temperature tolerance of the indicated zone was set to low. d) The temperature has fallen below the tolerance range while the machine was stopped.

- Wait for a moment and then check the actual temperature display in the indicated zone. In the temperature menu, increase the temperature tolerance in the indicated zone. Change the control parameters in the configuration menu of the indicated zone.

27666.19522.0

low temperature rear sealing jaw

The actual tolerance value of the indicated zone has fallen below the lower limit. a) The machine was just turned on and the temperature zone is currently heating up. b) The target temperature was increased and the temperature is

currently heating up. c) The temperature tolerance of the indicated zone was set to low. d) The temperature has fallen below the tolerance range while the machine was stopped.

- Wait for a moment and then check the actual temperature display in the indicated zone. In the temperature menu, increase the temperature tolerance in the indicated zone. Change the control parameters in the configuration menu of the indicated zone.

27666.31339.0**low temperature front sealing jaw**

The actual tolerance value of the indicated zone has fallen below the lower limit. a) The machine was just turned on and the temperature zone is currently heating up. b) The target temperature was increased and the temperature is currently heating up. c) The temperature tolerance of the indicated zone was set to low. d) The temperature has fallen below the tolerance range while the machine was stopped.

- Wait for a moment and then check the actual temperature display in the indicated zone. In the temperature menu, increase the temperature tolerance in the indicated zone. Change the control parameters in the configuration menu of the indicated zone.

28647.9286.0**no parameterization analog module**

There are no parameters for the drive that is displayed.

- This is a very rare system error. Please contact Rovema.

28922.0.0**Axis has no cam table to load.**

No curve tables have been loaded.

- Check whether the error can be eliminated by restarting.

29652.0.0**end of film**

The packaging material roller is used up or the packaging material film is torn.

- Insert a new roller and feed in the new packaging material roller. If the message appears again even though there is no error in the film, check the position of the proximity switch for the signal before the end of packaging material.

29895.0.0**External synchronous pulses not present**

The CMK generates pulses for synchronization between VP and CMK at the correct time. Each pulse represents one VP cycle. In this case, although the machine is ready and turned on, the pulses are not present. The cause could be incorrect wiring or a software error.

- Check the wiring of the machine. If there is no problem with the wiring, check the software.

29989.2881.0**sensor fault film check**

There is a fault on the temperature sensor of the control section.

- Check the temperature sensor and its electrical connection for a possible mechanical defect. Replace damaged parts immediately.

30060.5876.0

pre-fuse heating

The fuse (generally the motor protection switch) has been tripped. This fuse is always included if the power supply of the attachment unit runs through the Rovema main switch.

- Reset the fuse in the switch box. If the fuse is tripped several times, check the power consumption against the set nominal current of the fuse.

30070.0.0

External cycle number outside of dynamic limits

The assigned cycle number of a downstream machine is above the maximum or below the minimum calculated limit.

- This is a system error. Please contact Rovema.

30524.0.0

frequency converter

There is a problem with the indicated converter. Various causes are possible.

- Check the converter fault display in the switch cabinet. For information on eliminating the fault, please see the electronics documentation for the frequency converter.

30675.0.0

batch number reached

Production has been interrupted because the number set for the current batch (the batch number in the MDC menu) has been reached.

- Enter a new value for a new batch and begin production again.

30907.0.0

Loading not possible, table set empty (status 6).

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

31571.10137.0

Gear not defined film drive

There is no value for the gear transmission ratio in the configuration menu.

- Enter the appropriate transmission ratio for this gear in the configuration menu.

31661.0.0

excess temperature

The permissible temperature for the drive has been exceeded. 1 Overload caused by sluggish mechanics (because of dirt, for example). 2 Overload caused by unfavorable display settings.

- Clean working station. Check drive (motor, drive belt, frequency converter, clutch, connections, wiring etc.) for proper functionality. Remove product / foreign objects.

31661.17650.0

excess temperature vertical jaw

The permissible temperature for the drive has been exceeded. 1 Overload caused by sluggish mechanics (because of dirt, for example). 2 Overload caused by unfavorable display settings.

- Clean working station. Check drive (motor, drive belt, frequency converter, clutch, connections, wiring etc.) for proper functionality. Remove product / foreign objects.

31661.19522.0**excess temperature rear sealing jaw**

The permissible temperature for the drive has been exceeded. 1 Overload caused by sluggish mechanics (because of dirt, for example). 2 Overload caused by unfavorable display settings.

- Clean working station. Check drive (motor, drive belt, frequency converter, clutch, connections, wiring etc.) for proper functionality. Remove product / foreign objects.

31661.31339.0**excess temperature front sealing jaw**

The permissible temperature for the drive has been exceeded. 1 Overload caused by sluggish mechanics (because of dirt, for example). 2 Overload caused by unfavorable display settings.

- Clean working station. Check drive (motor, drive belt, frequency converter, clutch, connections, wiring etc.) for proper functionality. Remove product / foreign objects.

32170.0.0**fatal error PMC-Task**

This is an internal system error.

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

32278.6316.0**Product between jaws product scanning**

Product detection has detected product between the cross jaws. The machine remains at a stop with the cross jaws open. One possible cause is that the drop time for the product is set too short in the "Dosing" menu.

- Find out the reason why product or a foreign object is able to get between the cross jaws. Remove any foreign objects. Adjust the drop time in the "Dosing" menu so that the entire amount of product to be added goes into the bag with the cross jaws closed.

32281.0.0**Loading not possible, table is still in use (status 10).**

This is an internal system error

- Try to eliminate the error by turning off the machine with the main switch and then restarting. If the error is still displayed after that, please contact Rovema.

31263.8798.0**Fault frequency converter discharge conveyor**

The displayed converter is malfunctioning, various causes are possible.

- Check the converter concerned on the electrical cabinet. Note the error message on the converter display. To rectify the error, take note of the converter's documentation.

- 1209.0.0** **Battery empty**
- The battery of a hardware component of the control system is empty.
- To correct this error, please contact Rovema.
- 9931.0.0** **Start/Stop externally**
- The machine is ready for production, but there is a fault in the downstream machine.
- Check the function of the downstream machine. Determine the cause of the fault (for elimination information, refer to the technical documentation of the appropriate machine). This machine remains in standby. After fault elimination, this machine receives the start signal from the downstream machine and starts automatically.
- 26870.10137.0** **Multiple-signal photocell or set bag length is incorrect film drive**
- There is more than one photo cell per bag length.
- Check the mechanical settings of the photo cell, the parameters of the print register mark width and the set bag length.
- 20402.0.0** **safety Logic modul (LPSDO) error**
- An error occurred on the LPSDO safety logic module.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 25065.7377.21157** **safety input modul error safety flap VP 1**
- An error has occurred in the safety module.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 25065.8936.21157** **safety input modul error safety guard side top VP 1**
- An error has occurred in the safety module.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 25065.6639.21157** **safety input modul error Emergency-stop control panel VP 1**
- An error has occurred in the safety module.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 25065.5011.21157** **safety input modul error safety switch spare VP 1**
- An error has occurred in the safety module.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

25065.30444.21157 safety input modul error Funnel open dosing auger VP 1

An error has occurred in the safety module.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

25065.23799.21157 safety input modul error safety guard machine housing VP 1

An error has occurred in the safety module.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

25065.14218.21157 safety input modul error Discharge conveyor is not in position VP 1

An error has occurred in the safety module.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

25065.19241.21157 safety input modul error Safety guard side front VP 1

An error has occurred in the safety module.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

25065.18252.21157 safety input modul error safety guard front VP 1

An error has occurred in the safety module.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

25065.30970.21157 safety input modul error Safety guard side rear VP 1

An error has occurred in the safety module.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

28778.0.0 safety modul different Logic

This message appears when the logic specified by the PLC does not match the active logic. All outputs are blocked. The following causes are possible: 1. The output module was replaced. 2. The safety logic was changed. 3. Initial commissioning of the logic module.

- In these cases, the "Activate different Logic" switch must be activated in the "Diagnostic SafetyBridge" menu. Afterwards the data in the project and the "SBT" must be the same. The timestamp refers to London Time (-2 hours) in relation to the value shown in the Safeconf documentation.

6089.30444.21157

Safety symmetry error Funnel open dosing auger VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.8936.21157

Safety symmetry error safety guard side top VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.7377.21157

Safety symmetry error safety flap VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.6639.21157

Safety symmetry error Emergency-stop control panel VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.30970.21157

Safety symmetry error Safety guard side rear VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.23799.21157

Safety symmetry error safety guard machine housing VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.5011.21157

Safety symmetry error safety switch spare VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.18252.21157

Safety symmetry error safety guard front VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.14218.21157

Safety symmetry error Discharge conveyor is not in position VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6089.19241.21157

Safety symmetry error Safety guard side front VP 1

This error is shown when both of the safety switch's contacts do not switch together within a set time. This can happen especially with magnetic door switches.

- The safety element shown is to be opened so that both contacts again assume a single switching state. Once the safety element is closed again, the error should be rectified. If this is not the case, the safety element must be tested. Set magnetic switches according to the manufacturer's instructions.

6149.5737.0

Return contact safety contactor emergency stop

Monitoring of the return contact of a safety contactor (relay). The single-gap break contact element must exhibit a 0-Signal when switched on and a 1-Signal again after a specified time when switched off. If this is not the case the error message will be shown.

- Check the power contacts of the contactor for sticking.

6149.31738.0

Return contact safety contactor safety guards

Monitoring of the return contact of a safety contactor (relay). The single-gap break contact element must exhibit a 0-Signal when switched on and a 1-Signal again after a specified time when switched off. If this is not the case the error message will be shown.

- Check the power contacts of the contactor for sticking.

330.0.0

Drive controller - controller error

The drive regulator on the bus reports - controller error on the connected drive.

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

847.0.0

Drive controller - under-voltage error

The drive regulator on the bus reports - undervoltage error on the regulator.

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

1488.0.0

Drive controller - overload

The drive regulator on the bus reports - overload (the set overload limit was exceeded).

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

2729.0.0

Drive controller - target position is outside limit values.

The drive regulator on the bus reports - target position is outside the limit values (check position).

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

2986.0.0

Drive controller - phase error in supply to output power

The drive regulator on the bus reports - phase error in supply to output power (usually missing phase).

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

9389.0.0

Drive controller - excessive control deviation

The drive regulator on the bus reports - excessive control deviation.

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

10471.0.0	Drive controller - amplifier overtemperature The drive regulator on the bus reports excessive temperature in the amplifier (regulator). For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.
14207.0.0	Drive controller - over-current error The drive regulator on the bus reports - overvoltage error. For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation. Details on how to rectify the fault can be found in the manufacturer's documentation.
16418.0.0	Drive controller - motor overtemperature The drive regulator on the bus reports - excessive temperature in the connected drive (motor). For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.
16459.0.0	Drive controller - communication error The drive regulator on the bus reports - regulator communication error. For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.
16884.0.0	Drive controller - commutation error The drive regulator on the bus reports - commutation error. For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.
22308.0.0	Drive controller - reserve message The drive regulator on the bus reports - error message still not defined. For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.
24593.0.0	Drive controller - over-voltage error The drive regulator on the bus reports - overvoltage in the regulator. For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.
26649.0.0	Drive controller - control voltage error The drive regulator on the bus reports - control voltage error on the regulator. For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.
28351.0.0	Drive controller - error The drive regulator on the bus reports - error

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

28495.0.0**Drive controller - cooling error**

The drive regulator on the bus reports - cooling error (of the regulator).

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

29017.0.0**Drive controller - positioning speed] maximum speed**

The drive regulator on the bus reports - the positioning speed is greater than the maximum speed.

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

30283.0.0**Drive controller - position limit value is exceeded**

The drive regulator on the bus reports - position limit value is exceeded.

- For more fault diagnostics, check the displays on this device. Details on how to rectify the fault can be found in the manufacturer's documentation.

1623.18252.21157**Safety, cross-circuit safety guard front VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.8936.21157**Safety, cross-circuit safety guard side top VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.14218.21157**Safety, cross-circuit Discharge conveyor is not in position VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.7377.21157**Safety, cross-circuit safety flap VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.5011.21157**Safety, cross-circuit safety switch spare VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.6639.21157**Safety, cross-circuit Emergency-stop control panel VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.19241.21157**Safety, cross-circuit Safety guard side front VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.23799.21157**Safety, cross-circuit safety guard machine housing VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.30444.21157**Safety, cross-circuit Funnel open dosing auger VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

1623.30970.21157**Safety, cross-circuit Safety guard side rear VP 1**

Safety input has a cross connection to another input or a clock output.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

11609.14218.21157**Safety, short-circuit or overload Discharge conveyor is not in position VP 1**

Safety input has a short circuit or an overload.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

11609.7377.21157**Safety, short-circuit or overload safety flap VP 1**

Safety input has a short circuit or an overload.

- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

- 11609.6639.21157 Safety, short-circuit or overload Emergency-stop control panel VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 11609.8936.21157 Safety, short-circuit or overload safety guard side top VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 11609.5011.21157 Safety, short-circuit or overload safety switch spare VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 11609.30970.21157 Safety, short-circuit or overload Safety guard side rear VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 11609.30444.21157 Safety, short-circuit or overload Funnel open dosing auger VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 11609.23799.21157 Safety, short-circuit or overload safety guard machine housing VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 11609.19241.21157 Safety, short-circuit or overload Safety guard side front VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 11609.18252.21157 Safety, short-circuit or overload safety guard front VP 1**
- Safety input has a short circuit or an overload.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

- 15982.6639.21157 Safety, signal change error Emergency-stop control panel VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.14218.21157 Safety, signal change error Discharge conveyor is not in position VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.18252.21157 Safety, signal change error safety guard front VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.19241.21157 Safety, signal change error Safety guard side front VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.23799.21157 Safety, signal change error safety guard machine housing VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.30444.21157 Safety, signal change error Funnel open dosing auger VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.5011.21157 Safety, signal change error safety switch spare VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.7377.21157 Safety, signal change error safety flap VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

- 15982.8936.21157** **Safety, signal change error safety guard side top VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 15982.30970.21157** **Safety, signal change error Safety guard side rear VP 1**
- Safety input has an implausible signal change.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.30444.21157** **Safety, hardware error Funnel open dosing auger VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.8936.21157** **Safety, hardware error safety guard side top VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.7377.21157** **Safety, hardware error safety flap VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.6639.21157** **Safety, hardware error Emergency-stop control panel VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.30970.21157** **Safety, hardware error Safety guard side rear VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.23799.21157** **Safety, hardware error safety guard machine housing VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.

- 20465.19241.21157 Safety, hardware error Safety guard side front VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.18252.21157 Safety, hardware error safety guard front VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.14218.21157 Safety, hardware error Discharge conveyor is not in position VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 20465.5011.21157 Safety, hardware error safety switch spare VP 1**
- Safety input has hardware errors.
- Check the error code that is displayed in the "Safety Diagnostics" menu in the display. The explanation of an error code as well as details on how to rectify the fault can be found in the manufacturer's documentation.
- 3095.4305.0 limit right film carriage**
- This module can be moved using a transverse adjuster. The mechanical stop on the right-hand side of this adjuster was approached.
- Move the module in the opposite direction. Should the module not be located at the mechanical stop when this message appears, check the switch position on the transverse adjuster.
- 11104.4305.0 limit left film carriage**
- This module can be moved using a transverse adjuster. The mechanical stop on the left-hand side of this adjuster was approached.
- Move the module in the opposite direction. Should the module not be located at the mechanical stop when this message appears, check the switch position on the transverse adjuster.
- 12973.10137.0 The encoder on the fill pipe does not move or does not move correctly film drive**
- The metering wheel of the encoder at the filling tube of the tubular bag machine should actually rotate continuously. The wheel is not moving here or not continuously. The metering wheel does not lie against the filling tube. The metering wheel is pressed with insufficient pressure against the filling tube.
- Loosen the clamp, push the metering wheel against the filling tube with sufficient force and refasten the clamp. The following applies for guidance on the pressure setting: When a filling tube lies against the metering wheel, the piston rod should be half pushed in to the pneumatic spring.

This section describes faults that do not appear on the display, but may still occur.

Fault

Possible cause(s) and remedy.

The machine stops without any error messages after the production of 2-3 bags

The photo cell is incorrectly adjusted. Example: Dark print register mark on the packaging material, but the photo cell is set for a light print register mark.

- Readjust the photo cell

The machine regularly switches off with the "end of film" error message, even when there is a sufficient supply of packaging material

The proximity switch for the end of the packaging material is activated before the rocker reaches its lower limit.

- Adjust the proximity switch so that it is still activated, even when the rocker is at the bottom.

The proximity switch for rocker monitoring on the left inner side of the packaging material support is set too far down or is defective.

- Correct the limit switch-off of the unwinder: Adjust the proximity switch for the packaging material unwinder, so that there is a path of approx. 30 mm for the rocker, when it activates the proximity switch during its downward movement.

Potentiometer is defective.

- With standby switched on, raise and lower the packaging material unwinder manually. The belt speed increases on raising and is slower on lowering.



NOTE!

Faults are always an indicator that the machine is not functioning properly.

If an error occurs more frequently, please check whether this can be avoided through a different machine setting.

In addition, regular maintenance and cleaning of the machine contributes decisively to avoidance of improper functioning!



WARNING!

Risk of injury due to safety devices that have been rendered inoperable!

Injuries due to accessible danger zones on the machine.

- ▶ Do not bypass safety devices.
 - ▶ Do not render safety devices inoperable.
-

This section describes faults that do not appear on the display, but may still occur.



NOTE!

Faults are always an indicator that the machine is not functioning properly.

If an error occurs more frequently, please check whether this can be avoided through a different machine setting.

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Fault

Possible cause(s) and remedy.

Draw-off belts slip, irregular packaging material transport

- Check belt pressure and parallelity
- Check the parallelity of the filling tube setting and the draw-off belt support surface
- Check the draw-off belt and forming shoulder for residues of the packaging material powder
- Compare the sliding properties of the outer side of the packaging material with those of the inner side - can the packaging material be drawn off easily by hand?
- Can printing ink residues be seen on the forming shoulder or on the draw-off belt?

Packaging material runs to the forming shoulder on one side

- Check the alignment of the packaging material roll on the support shaft
- Check the parallelity and smooth running of the packaging material steering rollers
- Check the packaging material web tension
- Check the function of the compensation rocker
- Check the packaging material roller for an uneven winding tension
- Check the packaging material infeed angle
- Check the forming shoulder adjustment
- Check the draw-off belt settings
- Change the contact pressure of the draw-off belts
- Check the draw-off vacuum (only for systems with vacuum draw-off)
- Check the packaging material draw-off without vertical seals/welding

- If the packaging material runs to the left on one side, move the packaging material support to the right
- If the packaging material runs to the right on one side, move the packaging material support to the left

The packaging material support cannot be adjusted, lock is switched on

- Check the packaging material support limiter on the left / right
- Check the PTC resistance



NOTE!

Caution! If the packaging material support limiter is defective or adjusted incorrectly, then this can destroy the adjusting mechanics.



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Injuries due to accessible danger zones on the machine.

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-

This section describes faults that do not appear on the display, but may still occur.

Fault

Possible cause(s) and remedy.

Vertical seal is not in the centre of the bag

- Check the position of the forming shoulder (and turning lug of the forming shoulder) relative to the vertical sealing surface of the filling tube and adjust as necessary
- Check the centered effect of the vertical sealing unit
- Check the packaging material, turning or overlap zone according to the format drawing
- Is the packaging material sufficiently wide? - With very elastic and very thin packaging materials or a tendency for the packaging material to roll, the planned overlap width may vanish. A roller, which is 5 mm wider, would be necessary here

Vertical seal is bowed

Air, expelled during the filling operation, can burst the vertical seal.

- An internal air suction pipe is required here.

Vertical seal moves in the vertical seal area or forms wrinkles

- Check the adjustment of the vertical sealing unit (parallelity to filling tube)

Vertical seal shrinks

- Reduce the temperature of the vertical sealing unit (for hot sealing and hot air welding)
- Reduce the pulse duration/strength for vertical sealing (for pulse welding)
- Check the holding time (= pivot time of the vertical sealing unit toward the packaging material) (for hot air welding)

Some of the vertical seal is not closed exactly

Packaging material is excessively temperature-sensitive.

- Reduce the power
- Compare the target and actual values of the vertical seal and hot air welding temperature

- Check the pulse duration/strength for vertical welding
Vertical seal or hot air welding temperature is too low
- Increase the temperature
Pulse duration/strength for vertical welding is too low
- Increase the pulse duration/strength
Holding time is too short
- Check the holding time (= pivot time of the vertical sealing unit toward the packaging material) (for hot air welding)



NOTE!

Faults are always an indicator that the machine is not functioning properly.

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In addition, regular maintenance and cleaning of the machine contributes decisively to avoidance of improper functioning!



WARNING!

Risk of injury due to safety devices that have been rendered inoperable!

Injuries due to accessible danger zones on the machine.

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-

This section describes faults that do not appear on the display, but may still occur.

Fault

Possible cause(s) and remedy.

Seam profile has differing strengths (only for hot sealing)

- Check the cross seam adjustment
- Increasing the sealing pressure
- Are the sealing temperatures of the cross jaws uniform? - Unsuitable cross jaw profile for this packaging material thickness - If necessary, use a different packaging material or use suitable cross jaws.

Unsatisfactory bag seam resistance

- Set the sealing temperature and pressure setting according to the jaw pressure measurement results (for hot sealing)
- Set the pulse duration/strength and welding pressure according to the jaw pressure measurement results (for pulse welding)

The cross seams are fully closed on empty bags, but open on filled ones

Product caught in the cross seal.

- Check the dosing time - select the ideal time for the product to arrive in the bags after the jaws close and the dosing operation to have been completed before the jaws end. Otherwise gravity may affect the still plastic bottom seal

Packaging material with insufficient hot tack

- Cross seam air cooling (optional) required
- Check the cross seams for any product residues

Compressed air may press on the bottom seam when the cross jaws close.

- Apply an air expeller

The product shrinks or sticks to the cross seals

- The chosen sealing temperature is too high (for hot sealing)
- The chosen pulse duration/strength is too high (for pulse welding)
- Chosen sealing/welding pressure is too high
- Packaging material outer coating is unsuitable

The top and bottom are sealed / welded differently

- Check the parallelity of the cross jaws (carbon paper test)
- Check the sealing temperature deviation of both jaws (for hot sealing)
- Check the pulse duration/strength deviation of both jaws (for pulse welding)
- Packaging material tears slightly in the seam transition, strong contusions occur
- The resistance of the packaging material is insufficient for the quantity of product
- Sealing/welding pressure is too high.
- If these faults can only be detected on the bottom seal, then the product may be the cause - in such cases, the bag catching devices should be used with the cross jaws
- The piercing knife does not cut the packaging material cleanly
- Check the knife sharpness
- Check the knife pressure
- Check the knife stroke
- Correct the cutting time (the cutting time must be within the sealing phase or before the start of the welding operation - see "On position" and "Off position" in the Sealing Jaw Drive menu of the display)

Product parts in the bottom seal

- Select a later dosing time (dropping)

Product parts in the top seal

- Select an earlier dosing time

Product parts in both seals

The filling time is too long, relative to the machine output.

- Reduce machine output

Product contains suspended matter and dust.

- The internal suction pipe (option) must be used or the output reduced

Product dropping subject to electrostatic charging - product parts stick to it.



NOTE!

Faults are always an indicator that the machine is not functioning properly.

If an error occurs more frequently, please check whether this can be avoided through a different machine setting.

In addition, regular maintenance and cleaning of the machine contributes decisively to avoidance of improper functioning!

**WARNING!**

Risk of injury due to safety devices that have been rendered inoperable!

Injuries due to accessible danger zones on the machine.

- ▶ Do not bypass safety devices.
 - ▶ Do not render safety devices inoperable.
-

This section describes faults that do not appear on the display, but may still occur.

Fault

Possible cause(s) and remedy.

Print image is unstable

- The photo cell is incorrectly adjusted

Bag length deviations

Slip influences

- Increase the contact pressure of the draw-off belts

Bag cut is slanting

- The format spreader must be at a vertical right angle to the centre of the jaw.

Bag shape is twisted

Check the packaging material hose creator and draw-off run

- Check the forming shoulder position (setting)
- Check the draw-off belt setting
- Check the vertical seal or weld



NOTE!

Faults are always an indicator that the machine is not functioning properly.

If an error occurs more frequently, please check whether this can be avoided through a different machine setting.

In addition, regular maintenance and cleaning of the machine contributes decisively to avoidance of improper functioning!



WARNING!

Risk of injury due to safety devices that have been rendered inoperable!

Injuries due to accessible danger zones on the machine.

- ▶ Do not bypass safety devices.
- ▶ Do not render safety devices inoperable.

This concluding part offers information, which due to its extent, cannot be provided in the previous sections without completely changing the structure of this operating manual. For the most part this is supplier documentation.

Test methods for packaging seal quality and leak-tightness

This sheet describes test methods that have been proven in laboratories and industry and research institutes, as well as in ROVEMA's testing practice.

Samples

should be taken at the start of daily production, as well as several times per shift at specific time intervals, in order to monitor the seal image of the packaging and the seal station of the packaging machine. Reduced seal quality or seal leaks that always occur at the same place on the seal seam, are usually indications that the sealing tools have been set incorrectly.

Strength testing

In accordance with film industry testing procedures, sample strips 15 mm wide are taken from the entire packaging seam width.

To determine the tension/load limits, these sample strips are tensioned in a tensioning device and stretched till they tear.

The values determined here (Newton/per 15 mm) are transferred into a diagram that shows to what extent there is an even seam strength (seal) over the entire bag seam width. Optimizations may be made on the sealing station of the packaging machine depending on the strength values. This is done through changes in the seal pressure (+/-) or the seal temperature at a constant number of machine cycles (seal time).

Examples

- Sample strips peel apart without the seal coating of the film having an inner connection.

Note: sealing temperature and / or sealing pressure is insufficient here.

- Sample strip tears at low load in the seam transition.

Note: the sealing pressure is too high or the sealing profile of the sealing tools is too sharp-edged.

- Sample strip delaminated at low load.

Note: the seal temperature is too high or the film adhesion is unsuitable for this application.

Hot tack film

Hot tack is the name of the seal seam thermal resistance. These measurements can only be specified in a laboratory. The hot tack of the film is insufficient when the bottom seal seam slightly presses up or peels during the packaging process because of the packaging weight of the product, although the previously tested empty packages were perfectly sealed.

Note: The hot tack properties of a film may be insufficient. Bottom seal air cooling is missing, the time of the product discharge is incorrect, the machine power needs to be reduced for this application.

Leak test

The purpose of the leak test is to establish whether the seal seams or side gusset corners have problem points through which liquids, gases or organisms could penetrate. In this regard, we distinguish between the following methods: Leak test with ink dye solution (tear test resource).

Inflation of packages in a transparent vacuum chamber and searching for leaks through effervescence of gas bubbles under water.

Pumping up packages and searching for leaks under water based on effervescing gas bubbles.

Immersion of the package to a specific water depth and searching for leaks based on effervescing gas bubbles.

Method 1

Ink dye solution of low viscosity and low surface tension such as rhodamine (0.5% - solution in propyl alcohol) or "Fox Check" is injected into an empty, clean package and allowed to take effect for 15 minutes. The ink dye solution penetrates into the finest capillaries of the seal seams and marks the leaks or breach points.

Advantage of this method

The test samples with ink dye solution can be left to dry and the capillary depths, sizes and positions can be easily defined with the peeling of the seal seams.

Disadvantage of this method

"Cold-welded" points cannot be verified with this procedure.

Method 2

Inflating packages in a transparent vacuum chamber and searching for leaks under water. This method is used to check packages for parts that are not sealed. The package is not damaged mechanically and, if the search for leaks under water does not damage the wrapping material, it can be re-used.

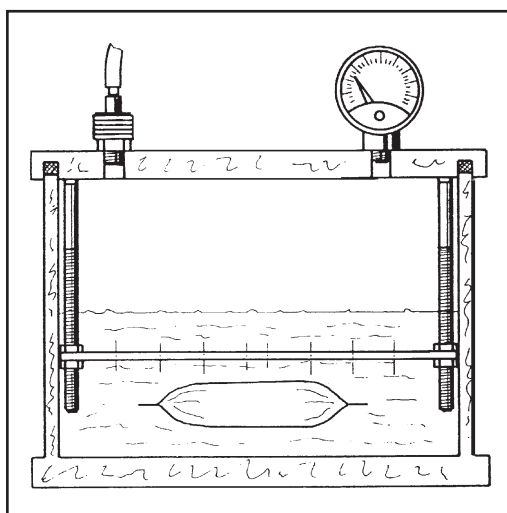


Fig. 6-1 Vacuum chamber

Auxiliary materials

Transparent vacuum chamber with pressure gauge, vacuum connection with hand valve and a vacuum pump.

Test procedure

The vacuum chamber is one-third filled with boiled (air-free) water and the package inserted. Then the chamber cover with the perforated plate on it is placed on, which presses the package under the water. The chamber is now evacuated through the vacuum connection in the cover. The negative pressure in the chamber can now be read on the pressure gauge and regulated with the hand valve.

The test pressure is based on the type and size of the packaging; it should be between 200 and 400 millibars. Ensure that the packages are not destroyed (burst) because of an excessively strong vacuum. The test is over as soon as leaks (gas bubbles regularly forming at the same seal seam points) have been reliably recognised, at the most after 5 minutes however.

Method 3

Pumping up the package and searching for leaks under water.

Auxiliary materials

Injection needle with rubber bellows or connection to reduced compressed air and a water-filled container.

Test procedure

The package is pierced with the injection needle and blown up to firmness with the rubber bellows. The needle penetration is pushed in with the thumbs and the package held under water by hand, the seal seams are checked for effervescing gas bubbles.

The test pressure is dependent on the shape and size of the packaging as well as the packaging material used. In any case this should be determined through prior tests.

Method 4

This test method is primarily used in the snack packaging industry. It is characterized by even immersion of the packaging in a specific water depth. In this respect, it is mostly films with a very thin seal layer (approx. 1 µm) that are used and thus they do not meet the conditions for absolutely tight seals. This method therefore only allows larger capillaries and leaks in the seal seams to be checked.

Test procedure

With an aid (perforated plate or grating) the packages are immersed in a water-filled container at least 3 cm below the water surface. Effervescing gas bubbles give information about leak points in the seal seams. By defining specific immersion depths, gradations of permitted and unpermitted seam tightnesses are established.

Supplier certificate

Rhodamine - item number 7599; company E. Merck, Darmstadt
Foxcheck; company Hahn und Kolb, Postfach 333, Stuttgart

After you have looked at this page, you should keep it separate from this manual in a secure location.

Access level	Password at delivery	Password changed	Password changed
1	4091		
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3	409386		

Passion for packaging



ROVEMA GmbH · Industriestrasse 1 · 35463 Fernwald (Germany)
Tel. ++49-641 4090 · Fax ++49-641 409212 · Email: info@rovema.de · <http://www.rovema.de>

ROVEMA Benelux B.V.
NL- 4902 TT Oosterhout
Tel. ++31-162 576464
Fax ++31-162 576465
E-Mail: sales@rovema.nl

ROVEMA Packaging Machines Limited
GB, Aylesbury, Bucks
Tel. ++44-1296 310490
Fax ++44-1296 483440
E-Mail: sales@rovema.co.uk

ROVEMA Sp. Z o.o.
PL - 02-606 Warszawa
Tel.: ++48-22 8447748
Fax: ++48-22 8540446
E-Mail: postmaster@rovema.atomnet.pl

ROVEMA Italia s.r.l.
I - 20026 Novate Milanese
Tel. ++39-02 48011785
Fax ++39-02 48008259
E-Mail: info@rovema-italia.it

ROVEMA Spain and Portugal S.L.
E - 08208 Sabadell (Barcelona)
Tel. ++34-93 7 154603
Fax ++34-93 7154638
E-Mail: rovema@rovema.es

OOO ROVEMA
Leninskiy pr.160
RU - 196247 Sankt Petersburg
Tel.: +7-812 3097607
E-Mail: info@rovema.ru

ROVEMA Asia Pacific Corporation
Unit 501 Emilia Building
1299 Batangas St. San Isidro
PH 1234 Makati City
Tel.: +63 2 949 3055
E-Mail: richard.carls@rovema.de

ROVEMA Latinoamérica S.A.
Ph. Plaza Balboa, 4to piso, Local
418 Avenida Balboa
PA Panamá City
Tel.: +507 394 3245
E-Mail: ramon.delfin@rovema.com

ROVEMA Makine San. Ve Tic. A.Ş.
Esentepe Mah. Milangaz Cad.
No:77 Dumankaya Vizyon A2 Blok
Kat:24 Daire171
TR 34870 Kartal/Istanbul
Tel.: +90 216 688 70 88
Fax: +90 216 688 88 60
E-Mail: info@rovema.com.tr

ROVEMA North America Inc.
4366 Shackleford Road, Suite A
GA 30093 Norcross
Tel.: +1 404 640 5310
E-Mail: info@rovema-na.com

...and over 60 representatives worldwide

