

Translation of operating instructions

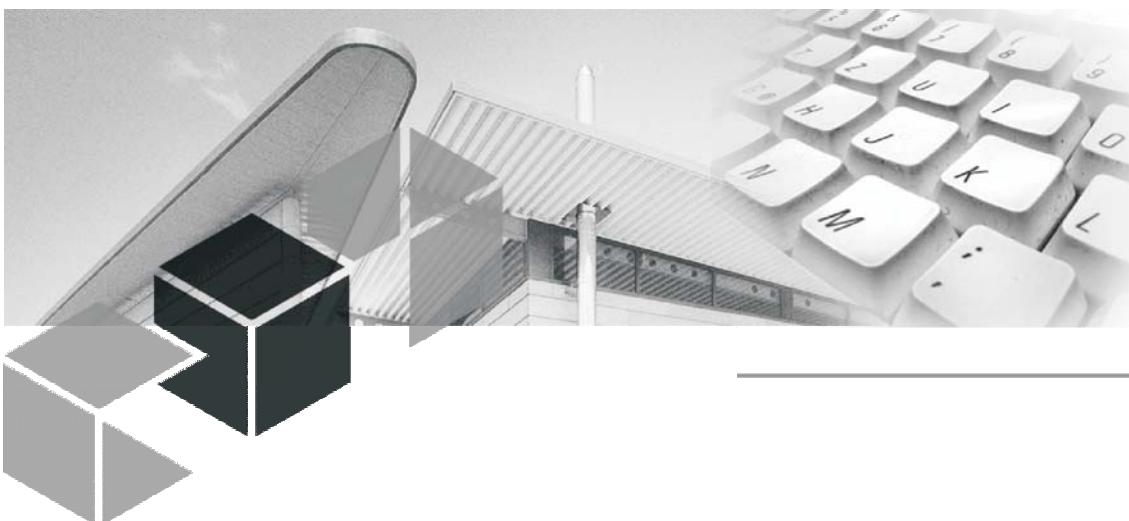


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1 Introduction

1.1 Documentation of PEWO-pack 800

These documents encompass the entire documentation for your machine. In addition to the operating manual, they also include the changeover list, the circuit diagrams, the software and the documentation for components from other manufacturers.

The operation of the machine is only permitted if this operator's manual

- Was read completely;
- Was understood,
- The procedures and safety instructions described in it are complied with!

1.1.1 Target group

This documentation is intended for persons working on the machine:

Qualified personnel

Qualified personnel are considered to be those who, on account of their professional training, knowledge and experience, as well as their knowledge of the relevant statutory provisions, can make a correct assessment of the work assigned to them and identify possible dangers.

Instructed personnel

Instructed personnel is considered to be persons who have been instructed, and if necessary trained, in the work assigned to them and in potential dangers arising from inappropriate conduct, and who have been advised about the required protective devices and protective measures.

Persons that work on the machine must be trained at regular intervals about the dangers in handling and contact with the machine!

1.1.2 Structure of documentation

The folder is subdivided into 7 sections.

Section 1

Operating manual

The operating manual contains information on information on safety, installation, functions, operation, servicing, repairs and disposal of the machine.

Relevant sections can be quickly found via the table of contents and the index.



For your information

Some photographs and illustrations are only meant to serve as examples, to explain the function and/or position of specific components. The details may therefore deviate from your actual machine.

Section 2	Changeover list, parameter list, format overview and collation sketches.
Section 3	Spare parts catalog Brief instructions on the electronic spare parts catalog. The electronic spare parts catalog contains drawings, parts lists and information for the online ordering of spare parts. It can be found on the "Documentation" CD.
Section 4	Circuit diagram and pneumatic diagram This section contains the circuit diagram and the pneumatic diagram for the machine.
Section 5	Certificates This section contains the certificates, e. g. the declaration of conformity, the SGS certificate etc.
Section 6	Installation plan This section contains the installation plans for the machine and, where applicable, the line drawings.
Section 7	This section contains optional special documentation.

CD "Documentation" and CD "Software"

A single copy of each of these CDs is delivered and can be located at the front of the folder with the **Data carrier**  symbol on its spine.

When the CD "Documentation" is inserted, a portal allowing you to access the following information opens automatically:

- Operating manual* in pdf format
- Changeover list* in xls and pdf format
- Format overview and collation sketches in pdf format
- Spare parts catalog* as an electronic catalog and in pdf format
- Circuit diagram and pneumatic diagram* in pdf format
- Certificates
- Installation plan
- Where applicable, special documentation

The CD "Software" contains the programs for the machine's control system and the program documentation.

Version management

The documents listed above and marked with an asterisk (*) are designated as **Version 2.0** in delivery status. Necessary changes to the documentation after the machine has been delivered and commissioned are marked by numbering the version index as follows:

V2.0	V2.1, V2.2, ...
Status on delivery	Changes that influence the machine function and formal adjustments.

The change history lists the changes to the operating manual and the spare parts catalog. The change history is included and delivered with the changed documentation.

Example:



Subsupplier documentation

A copy of the subsupplier documentation is provided in a separate folder or slipcase.
This is the documentation for machine components that are not manufactured by **pester pac automation**.

1.2 Conventions used in this manual

In the operating manual, safety instructions are weighted and labeled with a corresponding symbol.

Symbol	Signal word	Meaning
	Danger!	Imminent danger. Death or serious injuries are the result.
	Warning!	Potentially dangerous situation. Death or serious injuries could be the result.
	Caution!	Potentially dangerous situation. Light or minor injuries as well as damage to machine and materials could be the result.
	Note!	Notes that absolutely have to be followed, in order to guarantee an optimal processing and a secure operation of the machine.

Example Information on dangers is arranged as follows:

Danger:

First, the warning specifies the type of danger one is being alerted to, for example: **Risk of burn injuries!**

Cause and effect:

Here the cause of the danger or damage and their effect is described.

Measures:

Here measures are described that can be taken to prevent any potential danger from arising.

Procedural instructions

Procedural instructions are consecutively numbered to indicate the order in which the individual steps should be carried out.

Operation and control elements

Operation elements, e.g. push buttons and switches, and control elements, e.g. buttons on the operating panel, are shown in **bold** print.

Example:

Press the **START** push button.

1.3 Addresses

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2 Safety instructions

2.1 General safety instructions

pester pac automation attaches particular importance to safety in handling and contact with the machine.
It is a major design consideration and is promoted by the installation of safety devices.

Operating manual and safety instructions

The operating manual must be kept readily available at the location where the machine is used!



For your information

Tasks that are not described in this operator's manual may only be performed after notifying and obtaining the approval of pester pac automation!

The operation of the machine is only permitted if this operator's manual

- Was read completely;
- Was understood,
- The procedures and safety instructions described in it are complied with!

For your own safety and that of others and to prevent damage to products or the machine, all procedures described in it, and in particular the safety instructions, must be complied with!

Above and beyond this, local/national and company safety regulations remain valid.



For your information

Supplemental to the operator's manual, the generally accepted, legal and other binding regulations for the prevention of accidents and environmental protection are to be observed and instructed!

Safety instructions located at the machine

In addition to the safety instructions in the operator's manual, safety information is attached to the machine in the form of stickers etc. These must always be present in their entirety and clearly legible.

For your own safety and that of others and to prevent damage to products or the machine, the commands, prohibitions and instructions they contain must be complied with!

They must always be present in their entirety and must be clearly legible!

Owner The owner must ensure that operating personnel are informed on the following at regular intervals:

- Dangers arising in the course of their work
- Measures to avert these dangers



For your information

The owner must ensure that the relevant employment law for the operating location is observed!

The owner is obliged by law to provide operating personnel with the necessary protective equipment.

The owner must ensure that only authorized and qualified personnel perform work on the machine.

State of the art The machine is based on state-of-the-art technology and meets recognized safety standards.

Operating the machine for any use other than its intended use or operation of the machine by untrained personnel may cause

- Danger to the life and limb of the user or third parties and/or
- Damage to the machine and other equipment.

Tasks that are not described in this operator's manual may only be performed after notifying and obtaining the approval of pester pac automation!

Intended use The operational safety of the machine can only be guaranteed if it is put to the intended use (see Chapter 4 Machine description).

The owner shall assume all liability for use of the machine for anything other than its intended purpose.

Personnel • The PEWO-pack 800 must not be operated by persons under 16 years of age!

- The owner of the overall plant is responsible for ensuring that the machine is only operated by authorized and qualified specialist personnel.

"Authorized specialist personnel" are specialist personnel employed by the owner and who receive instruction and, where appropriate, training from pester pac automation and/or where applicable the service partner on

- The tasks assigned to them and the potential dangers

- Arising from inappropriate conduct,
- And who have been advised about the required protective devices and protective measures.
- Special operations that are also stated as such in the operating manual may only be carried out by qualified personnel. Qualified personnel are considered to be qualified persons whose level of knowledge complies with the requirements for the activity to be performed, e.g. electricians.

Operating personnel are obliged by law to wear the prescribed protective equipment provided by the owner!

Hearing protection We recommend that personnel should wear ear protection when noise emissions exceed 70 dB.

Clothing Operating personnel must wear clothing that does not pose or give rise to the risk of injury!
Injury may result for example from:

- Loose-fitting clothing (e. g. jacket, shirt, necktie)
- Long hair worn open (wear a hair net where necessary)
- Jewelry, chains etc.

The owner is under obligation to monitor compliance with this requirement.

Spare parts Correct operation of the machine can only be guaranteed if original spare parts and accessories approved by pester pac automation are used. If other parts and accessories are used, safety devices may be rendered ineffective, and malfunctions or damage to the machine may result.

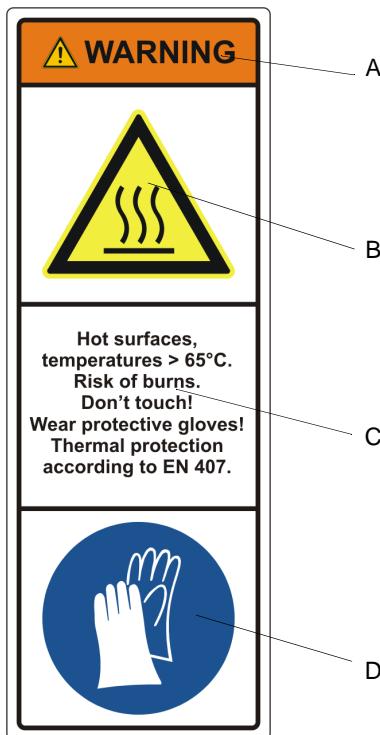
Subsupplier documentation Pay attention to the safety instructions and descriptions in the sub-supplier documentation of the manufacturer!

Safety-related mission time The safety-related mission time (T_M) of the machine is 10 years. On expiry of this period, it is imperative to overhaul and check all safety devices. This applies only to those safety devices for which the service schedule does not prescribe shorter safety intervals.

It is important to distinguish between the safety related mission time (T_M) and the service life of the machine.

2.2 Safety labels

2.2.1 Structure of the safety labels



- A Signal word panel
- B Danger icon
- C Specific nature, consequences and avoidance of the danger
- D Icon indicating how to avoid the danger

Signal word panel

The signal word panel consists of a signal word and a "Safety Alert Symbol," both arranged in the center of a rectangular field. The background color varies depending on the signal word used.

Signal word

The signal word draws attention to safety instructions and indicates the seriousness of the danger.

The following signal words are used:

- Danger!
- Warning!
- Caution!

"Safety Alert Symbol"



The "Safety Alert Symbol" is an equilateral triangle with an exclamation point and marks safety labels warning of the danger of injury to personnel and material damage.

The following signal word panels are used:

- **Danger**

This signal word panel on a red background warns of imminent danger. Death or serious injuries **are** the result.

- **Warning**

This signal word panel on an orange background warns of a potentially dangerous situation. Death or serious injuries **could be** the result.

- **Caution**

This signal word panel on a yellow background warns of a potentially dangerous situation. Such situations could result in minor injuries and/or serious damage to the machine and other equipment.

Danger icon

This icon illustrates the danger in the form of a picture.

Specific nature, consequences and avoidance of the danger

This field describes the following:

- **Specific nature of the danger**

This section describes the consequences and indicates the nature of the danger, e. g. danger of burn injuries or cuts.

- **Cause and effect of the danger**

This section describes the cause of the danger and its effects.

- **Averting the danger**

This section describes how the danger can be averted or avoided, e. g. Wear protective gloves.

Icon indicating how to avoid the danger

This icon takes the form of a picture illustrating how to avoid the danger.

2.2.2 Icons and symbols

The following icons and symbols are used in the documentation and on the machine:

Icon/symbol	Meaning
	Do not reach into this area!

Icon/symbol	Meaning
	Do not step on this surface!
	Do not touch, housing is live!
	Warning of danger!
	Warning of risk of pinching!
	Warning of hot surface!
	Warning: dangerous voltage!
	Use foot protection!
	Use protective gloves!
	Use protective goggles!
	Wear head protection!

2.3 Safety devices



Danger!

Risk of fatal injury!

Bypassed or disabled protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Protective and safety devices must not be bypassed, removed or disabled!



Danger!

Risk of fatal injury!

Defective protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Defective protective and safety devices must be repaired or replaced immediately!

Only use original spare parts and accessory parts authorized by pester pac automation. The use of non-authorized accessory parts and spare parts for protective and safety devices can cause protective and safety devices to malfunction, leading to danger to the life and limb of the personnel working at the machine!

To eliminate danger to the life and limb of personnel, the appropriate areas of the machine are equipped with protective and safety devices, e. g. safety doors, **EMERGENCY STOP** push buttons etc.

- Movable separating safety devices such as e. g. safety doors, hatches, hoods are monitored by safety switches.
- Fixed separating protective covers such as cover plates or safety guards etc. are not monitored. Serious injuries can result if these safety devices are removed.

Personnel must be aware which protective and safety devices are present, where they are located and how they work.

Inspections must be carried out as prescribed in the service schedule (see Chapter Service) to ensure that all protective and safety devices are present and in working order!

EMERGENCY STOP push button

In contrast to a controlled machine stop, hitting an **EMERGENCY STOP** push button brings the machine to an immediate standstill (within 0.5 seconds) or stops the entire line in the case of line operation.

The system becomes depressurized partly. Units that hold the products in position such as holding units, remain pressurized.

Personnel must be familiar with the location and the operation of all **EMERGENCY STOP** push buttons.

Check all **EMERGENCY STOP** push buttons before commencing work!



Caution!

Machine damage!

The **EMERGENCY STOP** push buttons are designed for use only in emergencies, when the machine needs to be stopped immediately. The **EMERGENCY STOP** push button cannot be used to initiate a controlled machine stop. Overuse of the **EMERGENCY STOP** push button leads to machine damage.

Use the **STOP** push button to initiate a controlled machine stop!

Safety labels

Special safety labels marking the danger zones must not be removed. It must be ensured that safety labels are not destroyed as a result of inappropriate cleaning.

2.4 Machine transport



Danger!

Risk of serious injury!

Failure to comply with the safety and accident prevention instructions may lead to serious or even fatal injury during machine transport.

Before beginning machine transport, it is vital that you read and comply with the following instructions!
Furthermore, comply with national and international accident prevention measures!
Secure the control cabinet!



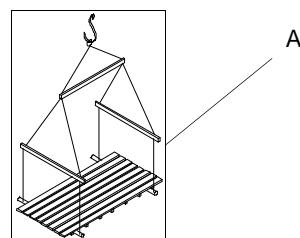
Danger!

Risk of fatal injury - machine damage!

Machines manufactured by pester pac automation are not designed for transport using a crane and could be damaged if a crane is used to transport them. This can result in persons being seriously, or even fatally, injured.

Use suitably dimensioned lifting equipment to unload and transport machines! If a crane is used, the machine must be unloaded and transported using a suitably dimensioned load-bearing harness A!

Warn any persons in the unloading or transport range of the machine and instruct them to leave the danger zone!



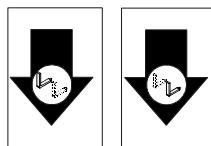
A Load-bearing harness

**Danger!****Risk of fatal injury - machine damage!**

The center of gravity of the machine may be off-center. The machine is equipped with load bearing points for the forks of the fork lift. If these points are ignored, the machine can fall off the lifting equipment and be damaged.

This can result in persons being seriously, or even fatally, injured.

Place the forks only at the marked load bearing points!
Alert persons in the danger zone to the potential danger!



A

A Load bearing points

**Danger!****Danger of tilting!**

During transport, the machine's center of gravity may be changed if the control cabinet or the control cabinet doors are not closed.

Always ensure that the control cabinet and the control cabinet doors are closed and locked during transport.

**Caution!****Danger of tilting - machine damage!**

After setting up the machine, its center of gravity may be changed due to additional equipment or a change in the position of the control cabinet.

Should the machine's location change after set up, the machine can be damaged if the designated load bearing points are not used.

After unloading the pallet, remove the stickers with the *load bearing point* symbol from the machine!

Lifting equipment**Caution!**

The load capacity of the lifting equipment must not be less than the total weight of the machine!

The lifting equipment must be in a technically sound condition and sufficiently dimensioned according to:

- Machine dimensions (see Section 6 **Installation plan**)
- Weight (see Chapter 3 **Installation**)

Protective equipment

Personnel transporting the machine must wear the following personal protective equipment:



Shoes

To protect against pointy and sharp objects such as nails, steel plates etc., safety shoes with puncture-proof soles must be worn.



Hard hat

A hard hat must be worn at all times to protect against head injury from falling objects when loading and unloading the machine and to protect against injury when assembling or disassembling the machine.



Gloves

Gloves absolutely must be worn to protect against injury from unplanned crate boards, wooden shims and sharp-edged components.

Conditions for transport

Temperature for transport: -20 °C to +55 °C

2.5 Startup and operation



Danger!

Risk of fatal injury!

While the machine is in operation, there may be danger of serious or even fatal injury to anyone within the closed-off areas or the danger zones marked with safety labels.

Before commissioning or during operation, ensure that there is no-one inside the closed-off areas or danger zones marked with safety labels!



Danger!

Risk of fatal injury!

We expressly point out that during operation of the machine or parts of the machine and immediately after switching off,

- the protective devices **must not** be opened,
- personnel must not **reach into** these danger zones,
- personnel **must not** lean into these danger zones,
- personnel **must not enter** these danger zones.

Failure to comply with these instructions, in particular removal of protective devices contrary to regulations, there is **risk of fatal injury**.

Never, while the machine or parts of the machine are in operation or immediately after switching off,

- open the protective devices,
- reach into these danger zones,
- lean into these danger zones,
- enter these danger zones.

Never remove protective devices contrary to regulations.



Danger!

Risk of serious injury!

The robot executes a swiveling and rotating motion with its gripping arm. *This motion can be a source of danger during setup work and cause serious injury.

Never step behind the gripping arm when working on the machine! When working on the machine, always ensure that there is no-one in the danger zone!



Danger!

Risk of fatal injury due to electric shock!

Touching live aggregates in the control cabinet can be fatal.

Work on electrical systems may only be performed by qualified electricians!



Danger!

Risk of fatal injury!

After switching off at the main switch, frequency converters remain live for a follow-up time of 180 seconds.

Touching the frequency converters during this follow-up time can cause fatal injury.

Do not touch the frequency converters during the follow-up time!
Work on frequency converters may only be carried out by authorized electricians!



Warning!

Risk of injury!

If the machine is supplied with voltage, injury can result when carrying out work on the machine.

To prevent injury to personnel from a sudden voltage discharge or unintentional switching on, switch off and secure the main switch against being switched back on before carrying out work on the machine!



Warning!

The machine may only be operated by **one** person to ensure the operator's safety and the safety of others!



Warning!

Risk of injury!

Moving parts may cause serious injury.

No one may be located within the danger zone of the machine! Do not reach into the moving parts!



Warning!

Risk of injury!

The rough surfaces of moving belts or conveyors can injure the skin. Moving belts or conveyors can trap and pull in loose-fitting clothing, hair etc.

Never touch the surfaces of moving belts or conveyors!
Observe the rules for appropriate clothing!



Warning!

Risk of injury!

Physical injury may be incurred when lifting packaging materials.

Use suitable lifting equipment!



Warning!

Risk of burn injuries!

Certain components e.g. sealing bar have a temperature of over 60 °C.

There is a risk of burn injuries when coming into contact with the side sealing jaws and the grid.

Switch off the main switch, switch position "0"!

Let the machine cool to below 40 °C!

Wear protective gloves!



Warning!

Risk of burn injuries!

The temperature in the shrink tunnel is greater than 60 °C.

There is a risk of burn injuries from reaching inside the shrink tunnel.

Do not reach inside the shrink tunnel.



Warning!

Risk of injury!

Falling products can cause serious or even fatal injury.

Never depressurize the machine during operation.



Caution!

Machine damage!

Before commissioning, check all screw and clamp connections for tight fit!

***Caution!*****Damage to property caused by fluctuations in the mains voltage!**

Disturbances in the electrical energy supply, e.g. voltage fluctuations, in particular voltage spikes, can cause damage to the machine, products and packaging material.

In the event of disturbances of this type, switch the machine off immediately. The problem can be remedied by installing a ballast to stabilize the mains voltage.

***Caution!*****Machine damage!**

Oil and similar agents destroy the maintenance-free sliding layer in the cylinder.

Do not introduce oiled air into the pneumatic circuit!

Software***Caution!*****Damage to machine!**

Changes made to the programmable control systems can cause machine damage.

Changes may only be made to programmable control systems with the knowledge and approval of pester pac automation or the software manufacturer!

***For your information***

Setup and changeover work may only be performed by trained and authorized technicians.

Loosen screws only when given specific instructions to do so!

Electrical work

Required electrical work may only be carried out by authorized electricians!

Product backup

Avoid product backup by speedily removing finished products.

2.6 Service and repairs



Danger!

Danger to life and limb!

There may be danger to life and limb while performing servicing and maintenance work on the machine.

Such work may only be performed by qualified personnel who have read and understood these instructions before commencing servicing and maintenance work and who carry out the work in accordance with these instructions.



Warning!

Risk of injury or machine damage!

Servicing and repair work on the PEWO-pack 800 which is not described in this operating manual must not be carried out without first obtaining the approval of pester pac automation!



Warning!

Risk of injury!

Releasing screw connections can lead to unexpected movement of parts!

Secure parts before releasing screw connections.



Warning!

Risk of injury!

Releasing pneumatic connections can lead to venting and to unexpected movement of parts!

Before releasing pneumatic connections, secure any parts that may move, switch off the air supply and vent the components.



Warning!

Risk of injury!

During the installation or removal of components that are under pressure, compressed air may be expelled suddenly and result in injury.

Switch off air supply. Vent components.



Warning!

Risk of burn injuries!

Certain components e.g. sealing bar have a temperature of over 60 °C.

There is a risk of burn injuries when coming into contact with the side sealing jaws and the grid.

Switch off the main switch, switch position "0"!

Let the machine cool to below 40 °C!

Wear protective gloves!



Warning!

Risk of burn injuries!

During the installation or removal of components, there is a risk of injury from heated parts.

Switch off the main switch, switch position "0"!

Let the machine cool to below 40 °C!

Wear protective gloves!



Warning!

Risk of burn injuries!

The temperature in the shrink tunnel is greater than 60 °C.

There is a risk of burn injuries from reaching inside the shrink tunnel.

Do not reach inside the shrink tunnel.



Caution!

Machine damage!

Oil and similar agents destroy the maintenance-free sliding layer in the cylinder.

Do not introduce oiled air into the pneumatic circuit!

***Caution!*****Damage to property caused by fluctuations in the mains voltage!**

Disturbances in the energy supply, e.g. voltage fluctuations, in particular voltage spikes, can cause damage to the machine, products and packaging material.

In the event of disturbances of this type, switch the machine off immediately. The problem can be remedied by installing a ballast to stabilize the mains voltage.

Spare parts

Correct operation of the machine can only be guaranteed if original replacement parts and accessories approved by pester pac automation are used.

The use of components of identical design but made by other manufacturers can cause malfunctions and damage to products or the machine.

For details of original spare parts, see the spare parts catalog and the electrical and the pneumatic equipment list.

Inspection and service intervals

The inspection and service intervals specified in this operating manual must be adhered to and the instructions complied with.

Working on the machine

Work on the machine may only be performed by suitably qualified personnel.

Work on the electrical systems may only be performed by qualified electricians.

Changes to the machine

Any changes, extensions or reconstructions, especially such as may impair machine safety, may only be carried out with the written approval of pester pac automation. This also applies to the installation and adjustment of safety devices.

Electrical equipment

Inspect and check the electrical equipment of the machine on a regular basis. Defects such as loose connections or charred cables, etc. must be corrected immediately.

Original fuses

Use only original fuses with the specified protection.

Restarting

Before restarting the machine, make absolutely certain that no one is still standing within the machine's danger zones.

2.7 Changeover work



Caution!

Machine damage as a result of incorrect settings!

Errors in the format changeover can lead to machine damage.

Prior to starting, check whether all changes have been made correctly and in full, in accordance with the changeover list.

Setup and changeover work may only be performed by qualified personnel in accordance with the changeover list.

The changeover list is contained in section 2 of the documentation.

3 Installation

3.1 Transport

3.1.1 Machine packaging

PEWO pac automation ensures that the PEWO-pack 800 is properly packaged for delivery. The machine is delivered in several parts and reassembled on the customer's premises.

Packaging in a container

If transported by sea, the PEWO-pack 800 is packaged in a seaworthy manner.

- The machine or parts are anchored to the floor of the pallet.
- All movable parts are fixed in place.
- The signal tower is moved and fixed in place.
- A desiccant is also supplied.
- The entire machine is wrapped in a vacuum packed hood.
- Air is removed so that the packaging is vacuum sealed.
- The packaged machine is then loaded into a container and fixed in place there.



The machine's center of gravity is labeled on the pallet or on the machine packaging.

Packaging in a crate

If transported by air or over land, the PEWO-pack 800 is properly packaged for air travel.

- The machine or parts are anchored to the floor of the pallet.
- All movable parts are fixed in place.
- The signal towers are moved and fixed in place.
- The entire machine is wrapped in a PE film cover.
- The machine is loaded into a crate.



The machine's center of gravity is labeled on the pallet or on the machine packaging.

3.1.2 Unloading the pallet and unpacking the machine



Danger!

Risk of serious injury!

Failure to comply with the safety instructions may lead to serious or even fatal injury during pallet or machine transport.

Before beginning pallet or machine transport, it is **imperative** that you read and comply with the safety instructions in Chapter 2.



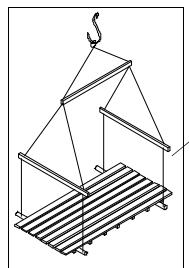
Danger!

Risk of fatal injury - machine damage!

Machines manufactured by pester pac automation are not designed for transport using a crane and could be damaged if a crane is used to transport them. This can result in persons being seriously, or even fatally, injured.

Use suitably dimensioned lifting equipment to unload and transport machines! If a crane is used, the machine must be unloaded and transported using a suitably dimensioned load-bearing harness **A**!

Warn any persons in the unloading or transport range of the machine and instruct them to leave the danger zone!



A Load-bearing harness

**Danger!****Danger of tilting!**

The center of gravity of the pallet may be off-center. This may cause the pallet to fall off of the lifting equipment and result in serious or even fatal injury.

When working with a lift stacker, set the forks as wide apart as possible.

Take additional measures to secure the component being transported.

Alert persons in the danger zone to the potential danger.

Ask unauthorized and unqualified personnel to leave the danger zone.

Protective equipment

Personnel transporting the machine must wear the following personal protective equipment:

**Shoes**

To protect against pointy and sharp objects such as nails, steel plates etc., safety shoes with puncture-proof soles must be worn.

**Hard hat**

A hard hat must be worn at all times to protect against head injury from falling objects when loading and unloading the machine and to protect against injury when assembling or disassembling the machine.

**Gloves**

Gloves absolutely must be worn to protect against injury from unplanned crate boards, wooden shims and sharp-edged components.

**For your information**

Transport and unloading must be performed by qualified personnel.

Lifting equipment**Caution!**

The load capacity of the lifting equipment must not be less than the total weight of the machine!

The lifting equipment must be suitably dimensioned with regard to:

- The machine dimensions (see Section 6 **Installation plan**)
- The weight (See 3.2.4 Weight on page 3-10)

Packaging

The machine may be packaged as follows:

- Film
- Container and film
- Crate and film

Procedure for unloading the pallet depends on the type of packaging used.

Packaging in film

- 1 Open the transport media and prepare the pallet for unloading.
- 2 Use one or if necessary two fork lifts to unload the pallet with the machine, observing the label indicating the machine's center of gravity.
- 3 Carefully puncture the film and cut it open all the way around the machine.
- 4 Remove the film and dispose of it in an environmentally friendly manner.

Packaging in a container

- 1 Open the container.
- 2 Attach a rope to the front of the pallet.
- 3 Pull the machine forward with the rope to the edge of the container.
- 4 Use one or if necessary two fork lifts to lift the pallet with the machine out of the container, observing the label indicating the machine's center of gravity.
- 5 Carefully puncture the film and cut it open all the way around the machine.
- 6 Remove the film and dispose of it in an environmentally friendly manner.

Packaging in a crate

- 1 Open the transport media and prepare the pallet for unloading.
- 2 Use one or if necessary two fork lifts to unload the pallet with the machine, observing the label indicating the machine's center of gravity.
- 3 Unscrew the screws on the crate.
- 4 Remove the crate.
- 5 Carefully puncture the film and cut it open all the way around the machine.
- 6 Remove the film and dispose of it in an environmentally friendly manner.

3.1.3 Unloading the machine from the pallet



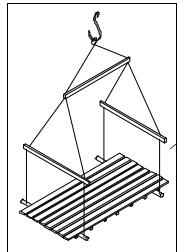
Danger!

Risk of fatal injury - machine damage!

Machines manufactured by pester pac automation are not designed for transport using a crane and could be damaged if a crane is used to transport them. This can result in persons being seriously, or even fatally, injured.

Use suitably dimensioned lifting equipment to unload and transport machines! If a crane is used, the machine must be unloaded and transported using a suitably dimensioned load-bearing harness A!

Warn any persons in the unloading or transport range of the machine and instruct them to leave the danger zone!



A Load-bearing harness



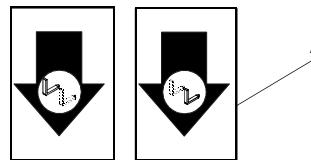
Danger!

Risk of fatal injury - machine damage!

The center of gravity of the machine may be off-center. The machine is equipped with load bearing points for the forks of the fork lift. If these points are ignored, the machine can fall off the lifting equipment and be damaged.

This can result in persons being seriously, or even fatally, injured.

Place the forks only at the marked load bearing points!
Alert persons in the danger zone to the potential danger!



A Load bearing points



Danger!

Danger of tilting - machine damage!

Use the labeled load bearing points only when unloading the machine from the pallet, as the machine's center of gravity may shift when additional units are added after setting up the machine.

Lifting equipment



Caution!

The load capacity of the lifting equipment must not be less than the total weight of the machine!

The lifting equipment must be in a technically sound condition and sufficiently dimensioned according to:

- Machine dimensions (see Section 6 **Installation plan**)
- Weight (See 3.2.4 Weight on page 3-10)

Protective equipment

Personnel transporting the machine must wear the following personal protective equipment:



Shoes

To protect against pointy and sharp objects such as nails, steel plates etc., safety shoes with puncture-proof soles must be worn.



Hard hat

A hard hat must be worn at all times to protect against head injury from falling objects when loading and unloading the machine and to protect against injury when assembling or disassembling the machine.



Gloves

Gloves absolutely must be worn to protect against injury from unplanned crate boards, wooden shims and sharp-edged components.

Unloading the machine**Caution!****Machine damage - Damage to the safety doors!**

When the fork lift has been positioned under the base plate, the forks may protrude beyond the base plate. Contact between the forks and the safety doors may lead to damage to the safety doors when lifting the machine.

Take care to insert the forks of the fork lift parallel to the base plate. Do not slide the forks of the fork lift in beyond the edge of the base plate.

Observe the machine dimensions (see layout)!

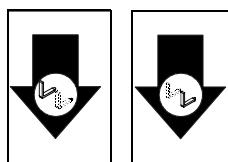
**Caution!****Danger of tilting - machine damage!**

After unloading the machine, the machine's center of gravity may shift when additional units are added.

Should the machine's location change after set up, the machine can be damaged if the designated load bearing points are not used.

After unloading the pallet, remove the stickers with the *load bearing point* symbol from the machine!

- 1** Check if all the requirements for setting up the machine are met (See 3.2.1 Requirements on page 3-9).
- 2** Remove the anchorages from the floor of the pallet.
- 3** Move the forks of the fork lift to the load bearing points indicated by the following symbols.



- 4** Unload the machine from the pallet.
- 5** Transport the machine to its intended location and set it up.
- 6** Do not forget to remove the stickers with the *load bearing point* symbols from the machine!

3.1.4 Checking for completeness and transport damage

The machine may be delivered in several consignments.

Completeness

Check the crates and machine parts for completeness on the basis of the bill of delivery and inspect them for transport damage.

Transport damage

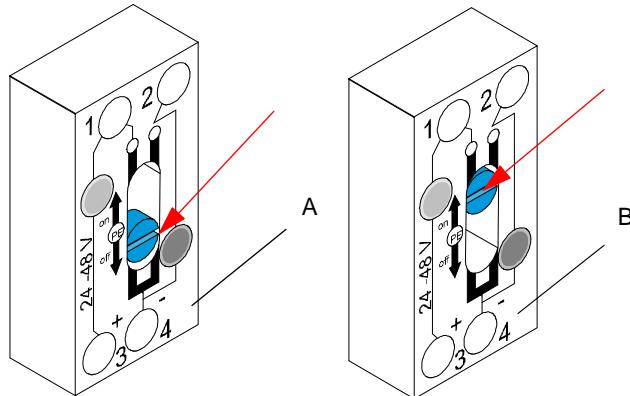
In the event of transport damage, call the service hotline (see Chapter 1 Introduction) **immediately** and report the damage.

If possible, take photos of the damage and send them to the service department.

3.2 Setup

3.2.1 Requirements

<i>Danger zone</i>	The danger zone must be secured during transport by suitable means and it must be ensured that no persons are in the danger zone.
<i>Transport route</i>	The transport routes must be unobstructed and in good condition.
<i>Foundation</i>	The foundation at the installation site must be in good condition and of good quality.
<i>Installation surface</i>	The installation surface must be level and capable of supporting the machine (See 3.2.4 Weight on page 3-10).
<i>Environmental parameters</i>	Environmental parameters (See 3.2.3 Intended operating location on page 3-10).
<i>Electrical work</i>	Electrical work may only be carried out by authorized electricians.
<i>Circuit grounding</i>	<p>The machine is delivered with all Control circuits with single-ended grounding in accordance with EN 60204, Part 1, Section 6.2.2.</p> <p>It is possible to operate the control system ungrounded. The following must be complied with absolutely:</p>



A Ground fault test terminal ungrounded

B Ground fault test terminal grounded

- Turning over the terminal to ungrounded operation may **only** be carried out by qualified electricians.
- Operation with the ground fault test terminal open requires insulation monitoring. In this case, an applicable device must be installed or connected!

3.2.2 Minimum clearances

In the installation location, the minimum clearances listed below must be maintained between the machine and traffic routes on the company premises:

- Maintain at least the distance of a machine door width in the area of the machine doors!
- Observe the national regulations in the area of the workplace/operating devices!

The traffic routes must remain free within the minimum distance!

3.2.3 Intended operating location

Operating location requirements:

- ≤ 2000 m above sea level
- Relative humidity during operation from 30% to 70%
- Operation in dry environment
- Ambient temperature during operation +10 °C to +35 °C.
- Lightning protection measures in accordance with IEC 62305 must be fitted in the on-site electrical installations.

3.2.4 Weight

The machine weighs approximately 6600 kg.

3.2.5 Dimensions

Section 6 **Installation plan** of the documentation shows the machine layout with dimensions.

Infeed width The maximum infeed width based on the product size is 250 mm.

3.3 Technical data

3.3.1 Machine capacity

The machine capacity is shown in the product format overview or specified in the order confirmation.

The product format overview can be found in the Documentation manual (see Section 2 **Changeover list**) and on the documentation CD (see **Changeover list/Formats**).

Depending on the machine type, the following parameters can be read off:

- Capacity infeed film machine
(products per minute)
- Capacity outfeed film machine
Capacity infeed casepacker
(collations per minute)
- Capacity outfeed casepacker
Capacity infeed palletizer
(cases per minute)

Product format overview

			Formatübersicht Produkte					Auftrags-/Angebotsnummer		Erstellt von :		F 107D Revision 1 27.07.07										
Produkt-Nr.	Produktbeschreibung	Einheitsbeschreibung im mm (pxoxn)	Foliemaschine		Kartonmaschine		Palettierer															
			Formatierung im Grunde	Produktion	Gebrauchsmaßnahmen Einf.Lfdt. in mm	Folienstärke in mm	Folienstärke in µ	Leistung Lfdt/min	Gehärtetechn. Nr.	Kartonierung im Karton Lfdt/H	Kartontyp	Kartonmaßnahmen Lfdt/H in mm	Kartondurchmesser Lfdt in mm	Gebinde pro Karton in kg	Leistung Auslast (Kartons pro Minute)	Gehärtetechnung	Palettierung	Leistung Einheit	Kartonierung	Packtechnik	Zertifizierung	Zeichnung u. Pd-Schem
1																						
2																						
3																						
4																						
5																						
6																						
7																						
8																						
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10																						
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16																						
17																						
18																						
19																						
20																						

3.3.2 Airborne sound emission

Airborne sound emission

The airborne sound emission is measured in accordance with 2006/42/EC Appendix I Paragraph. 1.7.4.2.u without the application of harmonized standards.

The A-weighted sound pressure level is < 75 dB (A).

The A-weighted sound pressure level at the installation site may deviate from this as a result of changing working conditions.

3.3.3 Type of protection

The machine is designed to provide protection of type IP54.

3.3.4 Connection values



Caution!

Machine damage!

Making changes to pressure regulators and fuses can lead to machine damage. The warranty does not cover machine damage resulting from such changes.

Never make changes to pressure regulators and fuses.



For your information

The machine is designed for connection to industrial power networks.

Lightning protection measures in accordance with the standards of the IEC 62305 series must be in place in the on-site electrical installations.



For your information

Check the connection values **before** switching on the machine.

Connection voltage	3 x 400V + N + PE 50 Hz
Power consumption	40.1 kW / 58 A
Fuse protection of supply line	63 A
Supply line	5 x 25 mm ²
Operating pressure	5 bar
Pneumatic connection	1/2"
Upstream pressure	Min. 5 bar, max. 10 bar

3.4 Commissioning

3.4.1 Removing transport protection



Caution!

Danger of tilting!

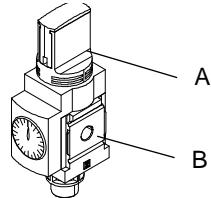
Before removing transport protection, check that the machine is standing firmly and cannot tilt.

Check the machine feet and adjust them as necessary.

All movable parts that could be damaged during transport are secured by cable ties or restraining lines.
Remove these safety devices before commissioning the machine.

3.4.2 Connecting the pneumatic system

*Connecting start valve
to the air supply*



A Rotary knob, start valve

B Compressed-air hose connection

- 1 Check that all supply lines to the start valve are fitted correctly. Replace porous and cracked lines.
- 2 Connect the compressed-air hose to the start valve position **B**.
- 3 Switch on the air supply: On the start valve, turn rotary knob **A** counterclockwise until it locks into place.

Maintenance unit



Caution!

Danger of injury and damage to the machine!

Incorrect setting of the pressure, in particular excessively high pressure settings, at the maintenance unit can lead to injury, cause supply lines to burst and result in mechanical damage to components.

Do not change the pressure setting on the maintenance unit!

The pressure at maintenance unit A has been factory preset and must not be changed.



A Maintenance unit



For your information

If the operating pressure falls below 3.5 bar, the pressure switch switches the machine off.

3.4.3 Electrical connections



Danger!

Risk of fatal injury as a result of live components!

Touching live components while connecting up the machine may lead to fatal injury.

Work on electrical systems may only be performed by qualified electricians!



Danger!

Risk of fatal injury as a result of dangerous contact voltage!

If the cross-section of the grounding conductor connection is not at least 10 mm², dangerous contact voltages may result. The leakage current can exceed 10 mA.

Death or serious injuries could be the result.

The grounding conductor connection must be at least 10 mm². If this is not possible, a second grounding conductor must be installed on-site at the connection provided.



Caution!

Damage to the machine through incorrect mains voltage!

Incorrect mains voltage will destroy the electrical components of the machine.

Before connecting the power supply, check

- that the mains voltage is the same voltage as the required connection voltage!
 - if the current consumption as stated on the rating plate can be provided by the mains supply!
 - if the current carrying capacity of the supply lines is sufficient!
-



Caution!

Damage to the machine through incorrect direction of rotation with three-phase current!

If the machine is operated with three-phase current, the direction of rotation must be checked!

Before connecting the power supply, check the direction of rotation!



For your information

The PEWO-pack 800 does not require any shielded mains supply lines.

- 1 Before putting the machine into operation for the first time, a qualified electrician must perform a visual inspection of the main electrical connection points.
- 2 Check that the mains voltages and currents specified on the rating plate are available.
- 3 Connect the machine to the electrical energy supply.

3.4.4 Creating a line linking



Warning!

Risk of injury!

While the machine is running, there is a risk of body parts being crushed or cut by the machine's linking points.

Never reach into running belts or conveyors!

Never touch the transfer plates while the machine is in operation.

***Caution!***

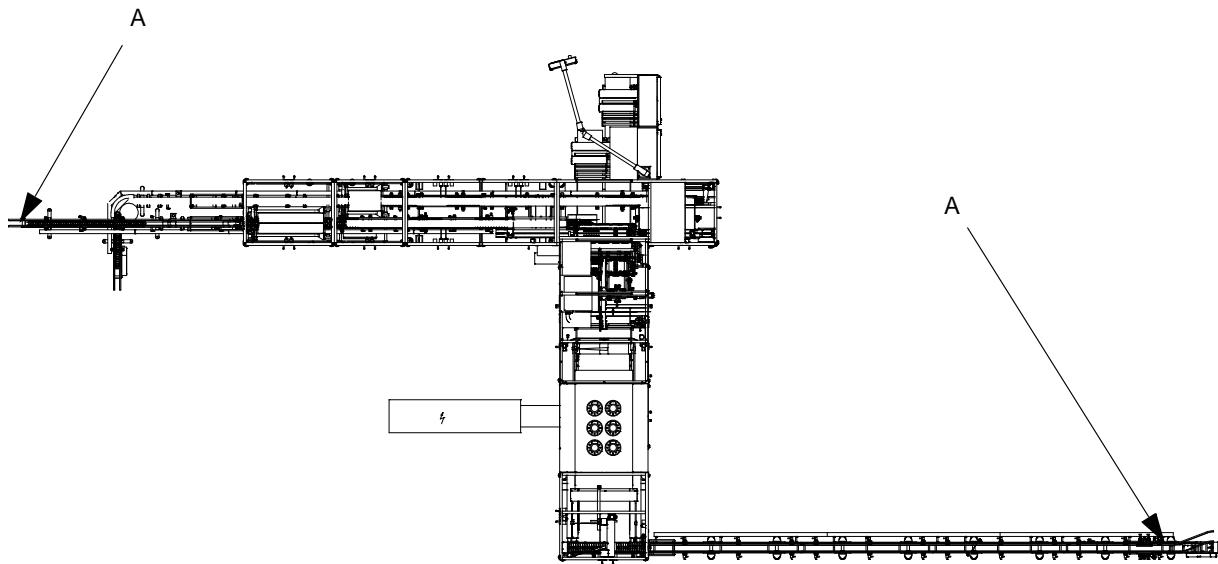
Line linking must be performed by **pester pac automation** and an authorized and qualified electrician!

Preconditions

- The upstream and downstream machine is integrated in the line emergency stop.
- The production line is ready for operation.

Preconditions

- The production line is ready for operation.



A Positions for line linking

- 1 Connect the machines to be linked in a line with corresponding connection lines.
For explanations of line linking, see the electronic circuit diagram, area =X02
- 2 Select the menu **Operation/Machine** on the operating panel.
- 3 Touch the **Off** button in the line **Line linking**.
Line linking is activated.

3.4.5 Loading the packaging material

***Warning!*****Risk of injury!**

Physical injury may be incurred when lifting packaging materials.

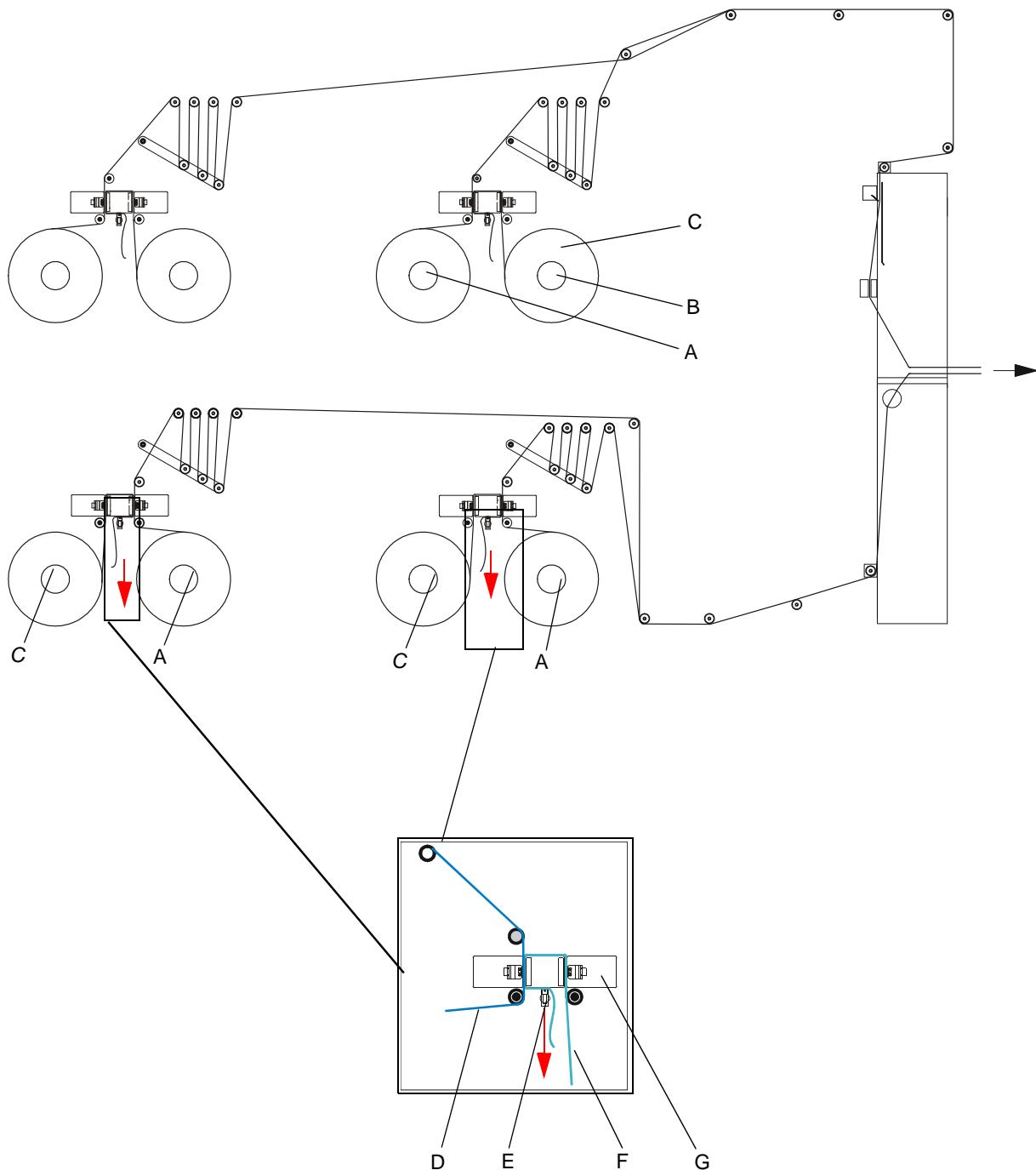
Use suitable lifting equipment!

Preconditions

- The machine has been switched on and is in stop mode.

Loading the film reel*For your information*

The film splicer automatically switches to the other film reel when the film ends. The spare reel becomes the working reel.

Film thread diagram

- A Working reel
- B Clamping mandrel
- C Spare reel
- D Working reel film
- E Clamping device
- F Spare reel film
- G Film splicer

Thread in working reel film



- 1 Slacken clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.
- 2 Slide on working reel **A**.
- 3 Unroll the required film length.
- 4 Thread in film **D** from the working reel as shown in the film thread diagram.
- 5 Tighten clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.

Thread in spare reel film



- 1 Slacken clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.
- 2 Slide on spare reel **C**.
- 3 Unroll the required film length.
- 4 Open clamping device **E** in the direction of the arrow.
- 5 Thread in film **F** from the spare reel as shown in the film thread diagram.
- 6 Close clamping device **E**.
The film is clamped.
- 7 Tighten clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.



For your information

Change the other film reels in the same manner as described above.

3.4.6 Setting up the product



For your information

For the following description, it is assumed that the PEWO-pack 800 is in automatic mode.

- 1 Press the **STOP** push button.
- 2 Empty the machine.

- 3 Select and load the format to be processed at the operating panel.
- 4 Carry out mechanical setting of the machine for the format to be processed (see setting values, Section 2 **Changeover list**).

Starting the machine

- 1 Close all protective devices.
- 2 Reset any messages with the **RESET** push button.
- 3 Press the **START** push button.

3.5 Changing the machine's location after setup



Danger!

Danger of tilting!

The center of gravity of the machine may be off-center. This may cause the machine to fall off of the lifting equipment and result in serious or even fatal injury.

When working with a lift stacker, set the forks as wide apart as possible.

Take additional measures to safeguard the machine component being transported.

Alert persons in the danger zone to the potential danger.

Ask unauthorized and unqualified personnel to leave the danger zone.



Danger!

Danger of tilting - machine damage!

Use the labeled load bearing points only when unloading the pallet, as the machine's center of gravity may shift when additional units are added after setting up the machine!

Should the machine's location change after setup, place the machine on rollers!

Preparations

Perform or check the following prior to transporting the machine:

- Block off the danger zone by suitable means.
- Ask unauthorized and unqualified personnel to leave the danger zone.
- See the bill of delivery for the weight of the individual machine parts.
- The transport routes must be unobstructed and in good condition.

- The foundation at the installation site must be in good condition and of good quality.
- Check or attach the transport protection.
- Provide resources such as fork lift, scantlings, etc.
- Use only technically sound transportation and load-securing devices with sufficient load capacity.
 - Machine dimensions (see Section 6 **Installation plan**)
 - Weight (see Chapter 3 **Installation**)
- Temperature for transport: -20°C to +55°C

Transporting on rollers

If the machine's location must be changed after setup, proceed as follows:



Warning!

Danger of tilting!

During transport, the machine's center of gravity may be changed if the control cabinet or the control cabinet doors are not closed. This may cause the machine to tilt and result in serious or even fatal injury.

Always ensure that the control cabinet and the control cabinet doors are closed and locked during transport.

- 1 Check if the new location meets all the requirements for setting up the machine (See 3.2.1 Requirements on page 3-9).
- 2 Set down the rollers.
- 3 Place the machine onto the castors.
- 4 Move the rollers.

Protective equipment

Personnel transporting the machine must wear the following personal protective equipment:



Shoes

To protect against pointy and sharp objects such as nails, steel plates, etc., safety shoes with puncture-proof soles must be worn.



Hard hat

A hard hat must be worn at all times to protect against head injury from falling objects when loading and unloading the machine and to protect against injury when assembling or disassembling the machine.



Gloves

Gloves absolutely must be worn to protect against injury from unplanned crate boards, wooden shims and sharp-edged components.

4 Machine description

4.1 Limitations of use

4.1.1 Authorized use

The PEWO-pack 800 consists of the machine components PEWO-pack 800 and PEWO-Therm 800.

PEWO-pack 800 is an electrically and pneumatically powered Stretchbander that places a layer of film around a product or a product group, stretches the ends of the film, hot-seals them below the product and cuts the film.

PEWO-Therm 800 is a shrink tunnel that shrinks the film wrapped around a product or product group as it passes through the heated tunnel, enclosing it tightly in film.

Only the products and packaging materials specified in the order confirmation may be processed.

The machine is designed exclusively for commercial and industrial use.

The PEWO-pack 800 must not be operated by persons under 16 years of age!

4.1.2 Undesignated use

Do not use the PEWO-pack 800 / PEWO-Therm 800 to process flammable liquids and preparations!

Flammable materials are:

Products labeled with the following hazardous material warnings may not be processed:

- **GHS04** (Flammable)
- **GHS03** (Easily flammable)
- **GHS02** (Highly flammable)
- **GHS01** (Explosive)
- **H200 - H280**
- **EUH001 - EUH044**

The PEWO-Therm 800 must not be used to heat food!

4.2 Description of function sequence

4.2.1 Machine functional description

Feeding products

Infeed conveyor 1 starts when the conveyor stop control on the infeed conveyor detects products. The products are transported through turning screw 1, which starts up as soon as a minimum back-up is reached in front of turning screw 1.

Holding unit 1 is closed. The products are transported to a position in front of holding unit 1. As soon as the minimum back-up in front of holding unit 1 is reached, holding unit 1 opens.

The products are transported to the pneumatically controlled sensor plate. Holding unit 1 closes as soon as the switch on the sensor plate is covered.

Crossfeed pusher 1 moves forward and pushes the pucks into the indexing conveyor. The indexing conveyor indexes the pucks to the pick-up position.

Grouping

The pick and place unit receives a signal "Product group ready for pick-up."

The pick and place unit grips the products and removes them from the pucks. The completeness monitor checks that the product group is complete. The pick and place unit deposits the products on infeed conveyor 3.

The PacRob receives a signal "Product group ready for pick-up."

The PacRob grips the product groups. The product controls check that the product group is complete. The PacRob deposits the products in front of the main infeed pusher.

The main infeed pusher pushes the product group in front of the film curtain and through the sealing area.
The product group is wrapped in film.

The main infeed pusher returns to its end position.

Packaging

The hold-down unit holds the product group in position while the closing bar comes down and closes the envelope.
The tightening roller stretches the film.

The sealing and closing bars move together – the film seam is sealed. The perforating device moves out and perforates the film. A collation is formed out of the product group.

After the sealing and cooling time has elapsed, the seal and closing bars move apart and the product is released.

Cycling conveyors 1-3 transport the collations onward and transfer them to the PEWO-therm therm conveyor.

The product controls on the right and left monitor that the products are positioned correctly.

Thermal shrinking

The Therm conveyor guides the product groups through the shrink tunnel. The film is thermally stretched by the thermal effect.

At the end of the PEWO-therm, a product cooling fan cools the collation to prevent the film from sticking to other collations.

The outfeed moves down and pushes the product groups onto the outfeed conveyor. The outfeed then moves up and back to its original position. The outfeed conveyor transfers the products to the downstream machine.

Puck outfeed

The empty pucks on the indexing conveyor are indexed onward to a position in front of the limit stop in front of crossfeed pusher 2. Crossfeed pusher 2 moves forward and pushes the pucks onto infeed conveyor 2. The puck outfeed pusher accelerates the products on infeed conveyor 2, freeing the pusher area for crossfeed pusher 2. The pucks are transported through turning screw 2 and turned through 90°. Turning screw 2 starts up as soon as a minimum back-up is reached in front of turning screw 2. Infeed conveyor 2 transfers the pucks to the downstream machine.

Back-up control

Infeed, products

In the event of a product backup on infeed conveyor 1 for products, a signal is sent to the upstream machine.

Product infeed in front of turning screw 1

In the event of a product back-up in front of turning screw 1, a signal is sent to the upstream machine.

Puck infeed in front of turning screw 2

In the event of a product back-up in front of turning screw 2, crossfeed pusher 2 stops.

Puck infeed after crossfeed pusher 2

In the event of a product back-up on infeed conveyor 2, crossfeed pusher 2 stops.

Puck infeed after turning screw 2

In the event of a product back-up after turning screw 2, turning screw 2 stops.

Therm outfeed

In the event of a product backup on the outfeed of the PEWO-therm, the main infeed pusher is disabled. As soon as the critical back-up time is exceeded, the heater switches off, the ventilation in the PEWO-therm runs on, the machine stops and an error message and a visual signal are issued.

Outfeed conveyor

In the event of a product back-up on the outfeed conveyor, the main infeed pusher is disabled, the therm conveyor indexes the remaining products in the PEWO-therm onto the outfeed conveyor.

Advance warnings and disturbances*Low film warning*

If the film runs low and no spare reel is available, a sensor on the upper or lower roller gives an advance warning.

End of film, film tear

When the film ends or if there is a film tear, the upper and lower rockers fall down. A sensor on the upper or lower rocker triggers the corresponding message and a machine stop.

Indicator lamp column

Green	Machine ready for operation
Yellow	Shortage of packaging material
Red	Disturbance
Signal horn	<ul style="list-style-type: none"> • Signal for shortage of packaging material • Signal for film tear

4.2.2 Functional description Film splicer

The PEWO-pack 800 is equipped with a film splicer that automatically changes the film reels.

<i>Function</i>	<p>The supply film roll and the spare film roll are each monitored by one sensor. The sensor serves as advance warning and sends a signal that the film has almost run out. Initial position is the operation in normal operation, i.e. the products are packaged with the film from the working reel (Fig. 1).</p> <p>If the working reel is depleted, the system automatically switches to the spare reel. To enable this, the film on the spare reel must be inserted in the film splicer and clamped (Fig. 2).</p> <p>When the sensor issues the advance warning signal for "End of film," the film reel performs a fixed number of revolutions.</p> <p>If there is no movement of the clamping mandrel of the working film reel for an open working reel, the film splicer switches to the other film reel. The end of the working reel is fused with the beginning of the film on the spare reel (Fig. 2).</p> <p>The products are now packaged with the film on the spare reel (Fig. 3).</p>
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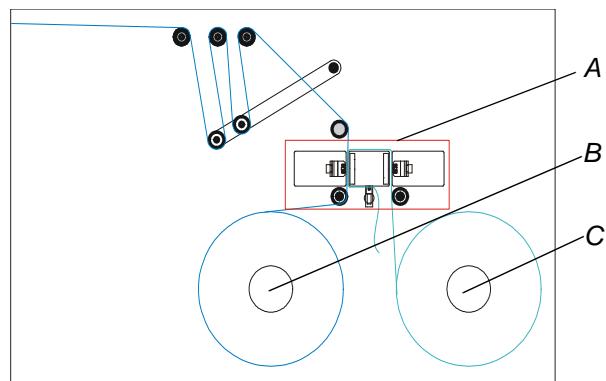


Fig. 1

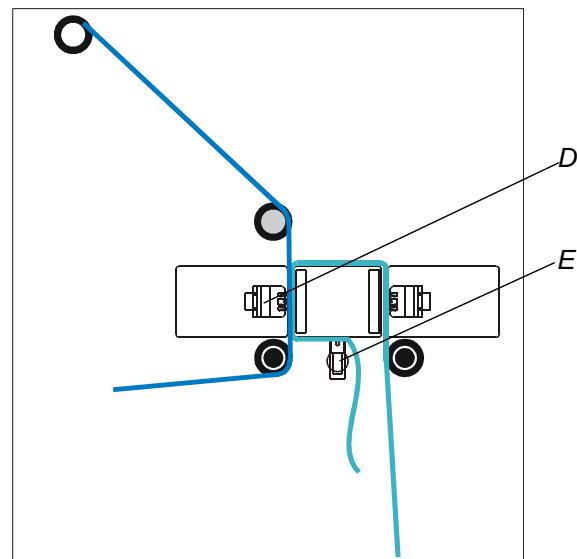


Fig. 2

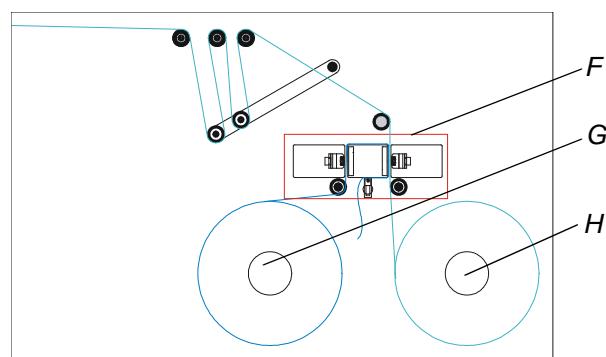


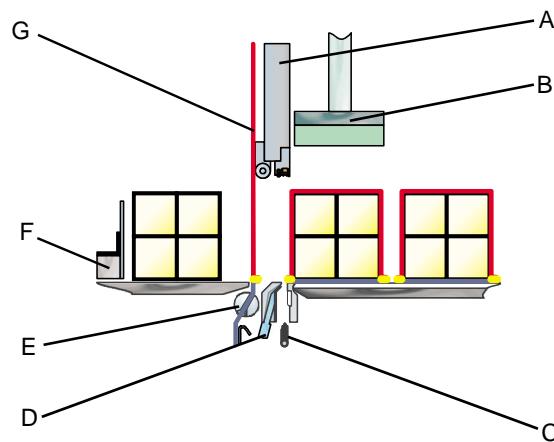
Fig. 3

- A Film splicer
- B Working reel
- C Spare reel
- D Sealing device
- E Clamping device
- F Film splicer
- G Spare reel (changed)
- H Working reel (changed)

4.2.3 Functional description, sealing operation

In 7 steps, the product is wrapped in film and the sealed seam is fused.

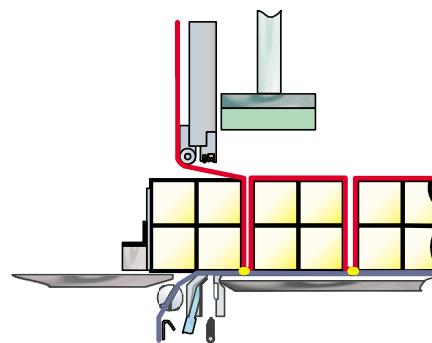
Step 1



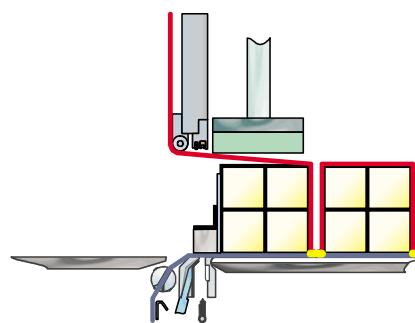
- A Closing bar
- B Hold-down unit
- C Sealing bar
- D Cooling
- E Tightening roller
- F Main infeed pusher
- G Film curtain

The main infeed pusher forwards the products to the film curtain.

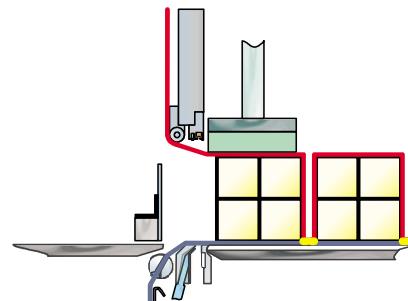
Step 2



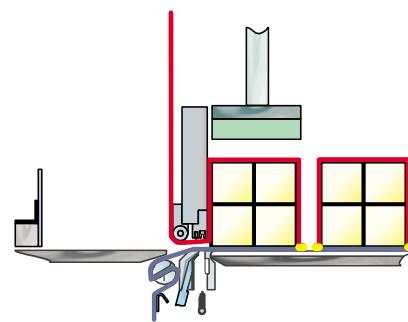
The main infeed pusher pushes the product group against the film curtain so that the film is wrapped around the product group on three sides.

Step 3

The product is pushed beneath the hold-down unit and the hold-down unit moves down.

Step 4

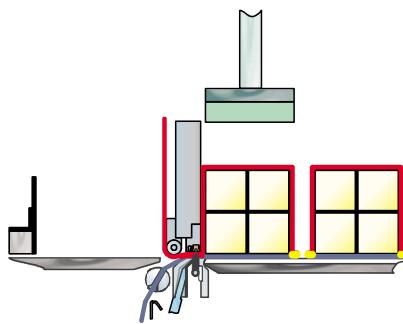
The hold-down unit holds the products and the main infeed pusher moves back.

Step 5

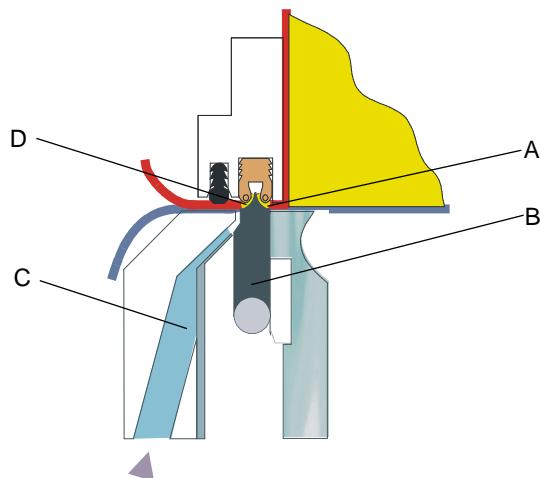
The closing bar lowers, and stops approx. 2 mm before reaching the final position. After expiration of the gap time, it moves farther into the final position.

During the gap time, the lower film is stretched by the tightening roller.

The hold-down unit moves back up before the stretching.

Step 6

The closing bar holds both films in place and the sealing bar moves up, cuts off the film and then fuses it. This creates a sealed seam.

Detailed view

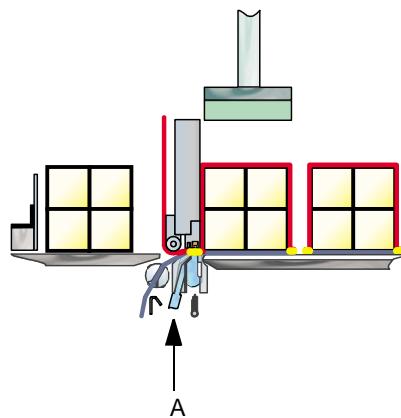
- A Collation seam
- B Sealing bar
- C Air current
- D Curtain seam

The sealing bar comes to a point at the top and is Teflon-coated. The sealing bar is heated.

When the sealing bar moves through the two films, the hot top cuts the films apart. The films are sealed at the lateral sealing surfaces. This creates a sealed seam on both sides:

- **Curtain seam:**
This is created by sealing the upper and lower film. This forms the film curtain for the following products.
- **Collation seam:**
This is formed by the sealing of the film wrapped around the product group.

Step 7



A Air current

After the sealing bar is lowered, the sealed seam is cooled and the closing bar is raised.

4.2.4 Functional description, shrinking process

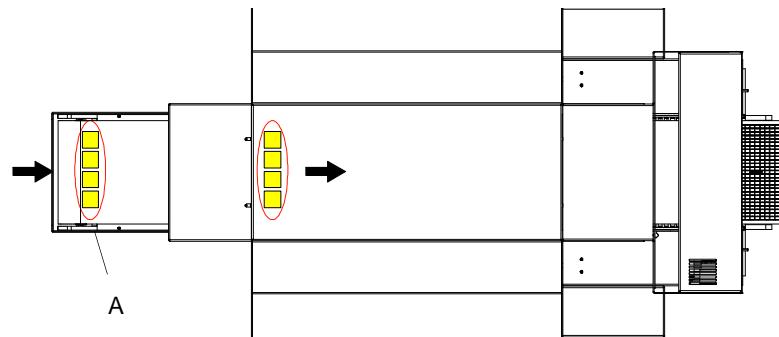
The Therm conveyor receives the stretch banded product row from the upstream machine and guides it through the shrink tunnel.

The film is thermally stretched by the thermal effect.
A compact collation is created from the product row.

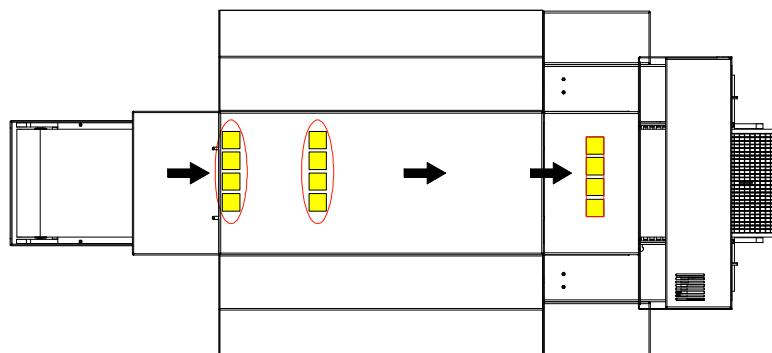
The finished collations are transported to the following machine and are ready for further processing.

Shrinking process

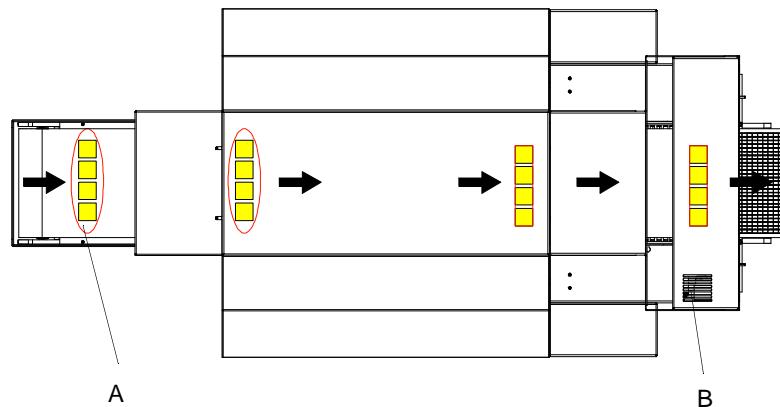
Step 1



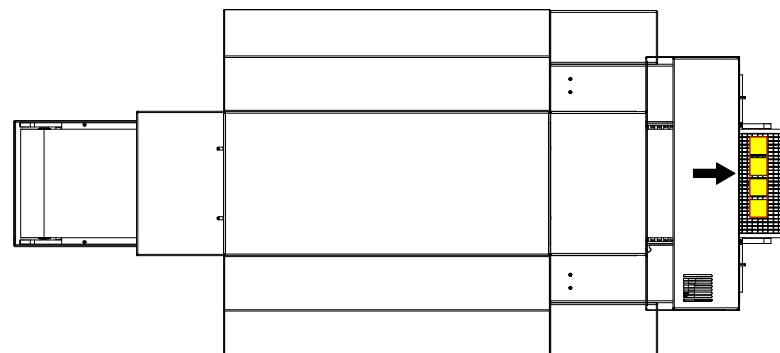
The Therm conveyor picks up products (A) from the upstream machine.

Step 2

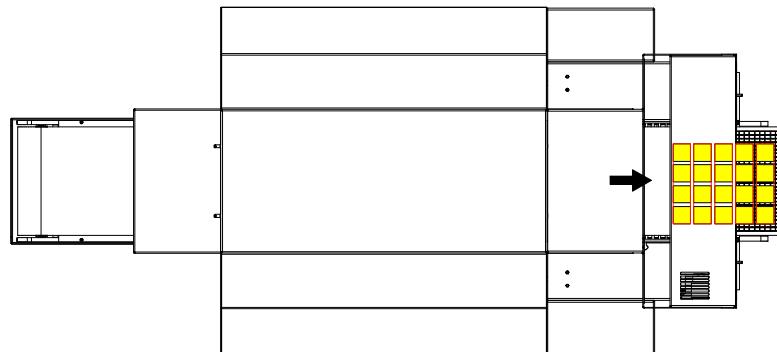
The film is thermally stretched by the thermal effect.
A compact collation is created from the product row.

Step 3

The Therm conveyor picks up new products (A) from the upstream machine. The product cooling ventilator (B) reduces the heat buildup of the collation to be transported.

No products arriving

The heater and the Therm conveyor continue to run if no more products arrive. A temperature limit prevents overheating thereby in the therm.

Back-up at the outfeed

In the event of a back-up at the outfeed of the PEWO-therm, the infeed pusher on the upstream machine is disabled. The PEWO-therm heater is turned off in order to prevent overheating of the products. The therm conveyor and the product cooling ventilator continue to run.

4.3 Film processing



For your information

The film may not be pressure-pretreated, as otherwise a proper sealing of the film cannot be guaranteed.

Films with the following characteristics can be used:

Material	PE
Film width	min. 50 mm - max. 350 mm
Film thickness	Min. 25 µm - max. 100 µm
Reel diameter	Max. 300 mm

5 Operation

5.1 Safety instructions

5.1.1 General safety instructions for operation



Danger!

Failure to comply with the safety notes and instructions during machine operation may lead to extremely serious or even fatal injury.

It is **imperative** that you read and comply with the safety instructions in chapter 2 Safety instructions!



Danger!

Risk of fatal injury!

While the machine is in operation, there may be danger of serious or even fatal injury to anyone within the closed-off areas or the danger zones marked with safety labels.

Before commissioning or during operation, ensure that there is no-one inside the closed-off areas or danger zones marked with safety labels!



Danger!

Risk of fatal injury!

We expressly point out that during operation of the machine or parts of the machine and immediately after switching off,

- the protective devices **must not** be opened,
- personnel must keep hands out **of** these danger zones,
- personnel **must not** lean into these danger zones,
- personnel **must not enter** these danger zones.

Failure to comply with these instructions, in particular removal of protective devices contrary to regulations, there is **risk of fatal injury**.

Never, while the machine or parts of the machine are in operation or immediately after switching off,

- open the protective devices,
- reach into these danger zones,
- lean into these danger zones,
- enter these danger zones.

Never remove protective devices contrary to regulations.



Danger!

Risk of serious injury!

The robot executes a swiveling and rotating motion with its gripping arm. *This motion can be a source of danger during setup work and cause serious injury.

Never step behind the gripping arm when working on the machine! When working on the machine, always ensure that there is no-one in the danger zone!



Danger!

Risk of fatal injury due to electric shock!

Touching live aggregates in the control cabinet can be fatal.

Work on electrical systems may only be performed by qualified electricians!



Danger!

Risk of fatal injury!

After switching off at the main switch, frequency converters remain live for a follow-up time of 180 seconds.

Touching the frequency converters during this follow-up time can cause fatal injury.

Do not touch the frequency converters during the follow-up time!
Work on frequency converters may only be carried out by authorized electricians!



Warning!

Risk of injury!

If the machine is supplied with voltage, injury can result when carrying out work on the machine.

To prevent injury to personnel from a sudden voltage discharge or unintentional switching on, switch off and secure the main switch against being switched back on before carrying out work on the machine!



Warning!

The machine may only be operated by **one** person to ensure the operator's safety and the safety of others!



Warning!

Risk of injury!

Moving parts may cause serious injury.

No one may be located within the danger zone of the machine! Do not reach into the moving parts!



Warning!

Risk of injury!

The rough surfaces of moving belts or conveyors can injure the skin. Moving belts or conveyors can trap and pull in loose-fitting clothing, hair etc.

Never touch the surfaces of moving belts or conveyors!
Observe the rules for appropriate clothing!



Warning!

Risk of injury!

Physical injury may be incurred when lifting packaging materials.

Use suitable lifting equipment!



Warning!

Risk of burn injuries!

Certain components e.g. sealing bar have a temperature of over 60 °C.

There is a risk of burn injuries when coming into contact with the side sealing jaws and the grid.

Switch off the main switch, switch position "0"!

Let the machine cool to below 40 °C!

Wear protective gloves!



Warning!

Risk of burn injuries!

The temperature in the shrink tunnel is greater than 60 °C.

There is a risk of burn injuries from reaching inside the shrink tunnel.

Do not reach inside the shrink tunnel.



Warning!

Risk of injury!

Falling products can cause serious or even fatal injury.

Never depressurize the machine during operation.



Caution!

Machine damage!

Before commissioning, check all screw and clamp connections for tight fit!

***Caution!*****Damage to property caused by fluctuations in the mains voltage!**

Disturbances in the electrical energy supply, e.g. voltage fluctuations, in particular voltage spikes, can cause damage to the machine, products and packaging material.

In the event of disturbances of this type, switch the machine off immediately. The problem can be remedied by installing a ballast to stabilize the mains voltage.

***Caution!*****Machine damage!**

Oil and similar agents destroy the maintenance-free sliding layer in the cylinder.

Do not introduce oiled air into the pneumatic circuit!

Software***Caution!*****Damage to machine!**

Changes made to the programmable control systems can cause machine damage.

Changes may only be made to programmable control systems with the knowledge and approval of pester pac automation or the software manufacturer!

***For your information***

Setup and changeover work may only be performed by trained and authorized technicians.

Loosen screws only when given specific instructions to do so!

Electrical work

Required electrical work may only be carried out by authorized electricians!

Product backup

Avoid product backup by speedily removing finished products.

5.1.2 Safety devices



Danger!

Risk of fatal injury!

Bypassed or disabled protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Protective and safety devices must not be bypassed, removed or disabled!



Danger!

Risk of fatal injury!

Defective protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Defective protective and safety devices must be repaired or replaced immediately!

Only use original spare parts and accessory parts authorized by pester pac automation. The use of non-authorized accessory parts and spare parts for protective and safety devices can cause protective and safety devices to malfunction, leading to danger to the life and limb of the personnel working at the machine!

To eliminate danger to the life and limb of personnel, the appropriate areas of the machine are equipped with protective and safety devices, e. g. safety doors, **EMERGENCY STOP** push buttons etc.

- Movable separating safety devices such as e. g. safety doors, hatches, hoods are monitored by safety switches.
- Fixed separating protective covers such as cover plates or safety guards etc. are not monitored. Serious injuries can result if these safety devices are removed.

Personnel must be aware which protective and safety devices are present, where they are located and how they work.

Inspections must be carried out as prescribed in the service schedule (see Chapter Service) to ensure that all protective and safety devices are present and in working order!

EMERGENCY STOP push button

In contrast to a controlled machine stop, hitting an **EMERGENCY STOP** push button brings the machine to an immediate standstill (within 0.5 seconds) or stops the entire line in the case of line operation.

The system becomes depressurized partly. Units that hold the products in position such as holding units, remain pressurized.

Personnel must be familiar with the location and the operation of all **EMERGENCY STOP** push buttons.

Check all **EMERGENCY STOP** push buttons before commencing work!



Caution!

Machine damage!

The **EMERGENCY STOP** push buttons are designed for use only in emergencies, when the machine needs to be stopped immediately. The **EMERGENCY STOP** push button cannot be used to initiate a controlled machine stop. Overuse of the **EMERGENCY STOP** push button leads to machine damage.

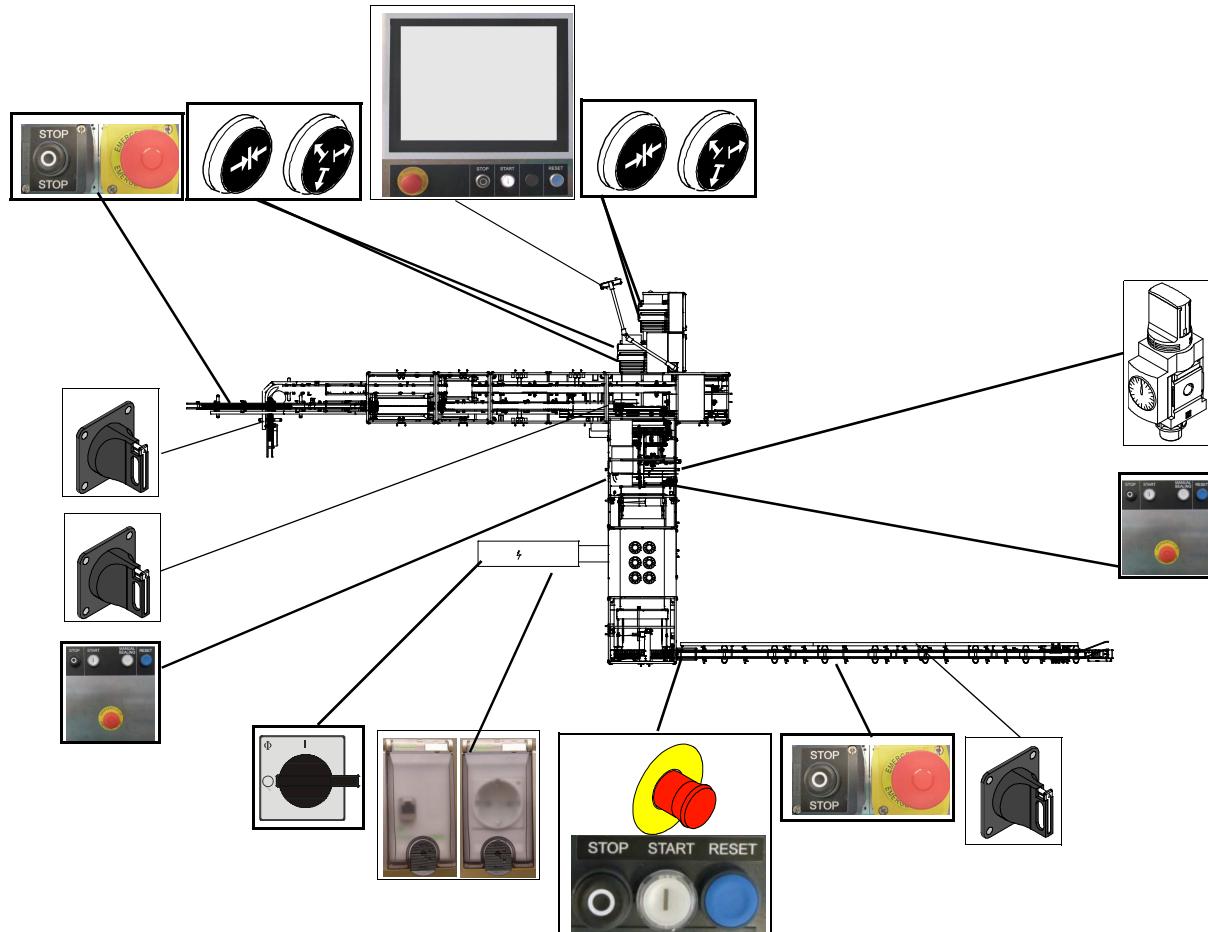
Use the **STOP** push button to initiate a controlled machine stop!

Safety labels

Special safety labels marking the danger zones must not be removed. It must be ensured that safety labels are not destroyed as a result of inappropriate cleaning.

5.2 Control elements

5.2.1 Overview of the control elements



5.2.2 Explanation control elements

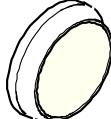
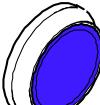
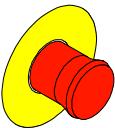
The control elements of the machine PEWO-pack 800 are explained below.

**Pester operating unit**

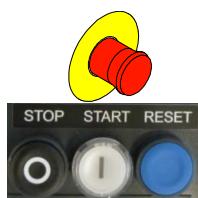
Push button / Switch	Task	Explanation
	Pester operating panel	The machine's control system can be operated via the Pester operating panel.
	START push button	Press this push button to start the machine. Precondition: The machine is ready for operation.
	STOP push button	Press this push button to stop the machine.
	RESET push button	Pressing this push button deletes error messages no longer at issue.
	EMERGENCY STOP push button	Pressing the EMERGENCY STOP push button brings the machine to an immediate halt and partially depressurizes it. The machines connected to the line EMERGENCY STOP function are also brought to a standstill. The line EMERGENCY STOP function also remains effective if this machine or a machine in the line has been turned off with the main switch.

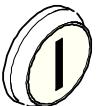
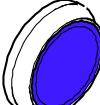
**Operating unit sealing area right/left**

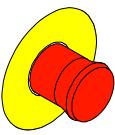
Push button / Switch	Task	Explanation
	START push button	Press this push button to start the machine. Precondition: The machine is ready for operation.

Push button / Switch	Task	Explanation
	STOP push button	Press this push button to stop the machine.
	Manual sealing push button	Pressing this push button selects the manual sealing function.
	RESET push button	Pressing this push button deletes error messages no longer at issue.
	EMERGENCY STOP push button	<p>Pressing the EMERGENCY STOP push button brings the machine to an immediate halt and partially depressurizes it.</p> <p>The machines connected to the line EMERGENCY STOP function are also brought to a standstill.</p> <p>The line EMERGENCY STOP function also remains effective if this machine or a machine in the line has been turned off with the main switch.</p>

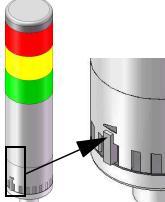
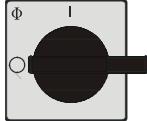
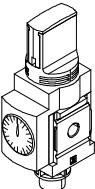
Operating unit outfeed conveyor 1

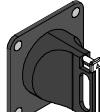
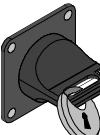


Push button / Switch	Task	Explanation
	START push button	Press this push button to start the machine. Precondition: The machine is ready for operation.
	STOP push button	Press this push button to stop the machine.
	RESET push button	Pressing this push button deletes error messages no longer at issue.

Push button / Switch	Task	Explanation
	EMERGENCY STOP push button	<p>Pressing the EMERGENCY STOP push button brings the machine to an immediate halt and partially depressurizes it.</p> <p>The machines connected to the line EMERGENCY STOP function are also brought to a standstill.</p> <p>The line EMERGENCY STOP function also remains effective if this machine or a machine in the line has been turned off with the main switch.</p>

Other control elements

Push button / Switch	Task	Explanation
	Stack light column with signal horn	The volume of the signal horn is adjusted using the slide on the stack light column.
	Main switch	The machine is switched on or off with the main switch.
	Main switch with lock	The lock prevents an unintentional switching on of the main switch.
	Start valve	The machine is depressurized or supplied with pressure using the start valve.
	Service outlet	Externally accessible power outlet for service work.

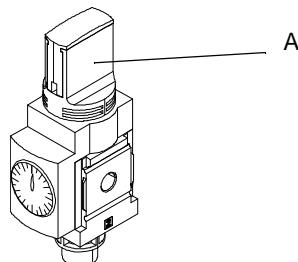
Push button / Switch	Task	Explanation
	Ethernet communication access	External access to the Ethernet communication for programming work.
	Push button for slackening/tightening clamping mandrel	Press this push button to slacken or tighten the clamping mandrel while changing the film reels.
	Splice push button	Press this push button to start the sealing operation manually (See 5.4.6 Manual sealing film splicer on page 5-22).
	Splice push button	<p>Pressing this STOP push button stops the machine.</p> <p>Pressing the EMERGENCY STOP push button brings the machine to an immediate halt and partially depressurizes it.</p> <p>The machines connected to the line EMERGENCY STOP function are also brought to a standstill.</p> <p>The line EMERGENCY STOP function also remains effective if this machine or a machine in the line has been turned off with the main switch.</p>
 	<p>Maintenance switch on infeed conveyor 1 on infeed conveyor 2 on outfeed conveyor 1</p> <p>Maintenance switch with lock</p>	<p>The maintenance switch stops the machine and de-energizes the motor of the respective conveyor. A message on the operating panel indicates that this motor is de-energized.</p> <p>The lock secures the maintenance switch against being switched on unintentionally.</p>

5.3 Beginning and end of production

5.3.1 Beginning

<i>Preconditions</i>	The following preconditions must be met before beginning production:
	<ul style="list-style-type: none"> • Air supply is switched on. • Main switch is switched on. • The machine is empty. • Upstream or downstream machine is ready for operation. • All EMERGENCY STOP push buttons are pulled out. • The heater of the sealing bar was switched on at the Pester operating panel. • The heater of the PEWO-Therm 800 was switched on at the Pester operating panel. • All conveyors were switched on at the Pester operating panel. • The machine has been supplied with sufficient packaging materials.
<i>Setting the machine</i>	<ol style="list-style-type: none"> 1 Select or set the product to be processed at the Pester operating panel. 2 Carry out mechanical setting of the machine for the product to be processed (see Section 2 Changeover list). 3 Close all protective devices.
<i>Starting the machine</i>	<ol style="list-style-type: none"> 1 Reset any messages with the Reset push button. 2 Press the START push button. The machine operates in automatic mode.

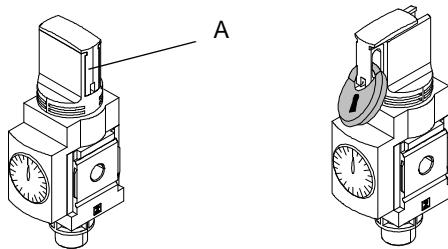
5.3.2 Switching on the air supply



A Rotary knob

- 1 On the start valve, turn rotary knob **A** anti-clockwise until it locks into place.
The air supply is switched on.

5.3.3 Switching off the air supply



A Rotary knob

- 1 On the start valve, turn rotary knob **A** clockwise until it locks into place, and secure it with a lock.
The air supply is switched off.

5.3.4 Interrupting production



Caution!

Do **not** interrupt production with the main switch or the **EMERGENCY STOP** push button.

- 1 Press the **STOP** push button.
The machine finishes the last stroke and stops.
- 2 Resume production with the **START** push button.

5.3.5 End of production

- 1 Press the **STOP** push button.
The machine finishes the last stroke and stops.
- 2 Empty the machine if necessary.
- 3 Switch off the Therm conveyor of the PEWO-Therm 800 at the Pester operating panel.
- 4 Wait until the Therm conveyor has come to a standstill.
- 5 Turn off the main switch and secure with a lock.
- 6 Switch off air supply.

5.3.6 Putting machine out of operation

- 1 Press the **STOP** push button.
The machine finishes the last stroke and stops.
- 2 Switch off the Therm conveyor of the PEWO-therm at the Pester operating panel.
- 3 Wait until the Therm conveyor has come to a standstill.
- 4 Turn off the main switch and secure with a lock.

- 5 Disconnect the plug from the power supply.
- 6 Switch off air supply.

5.3.7 Storage



Warning!

Risk of burn injuries!

The temperature in the shrink tunnel is greater than 60 °C. There is a risk of burn injuries from reaching inside the shrink tunnel.

Do not reach inside the shrink tunnel!
Allow the shrink tunnel to cool down completely before putting it into storage!



Danger!

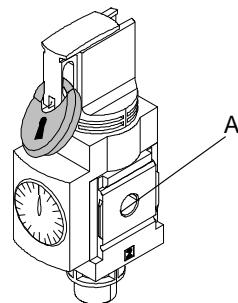
Required electrical work may only be carried out by authorized electricians!



For your information

Place the machine in a dry room for storage. Observe the instructions on machine transport in Chapter 2 Safety instructions and the preconditions for the location of the machine in Chapter 3.2 Setup! If the machine is to be put back into operation, all of its parts must be present. This includes the documentation.

All service work must be performed before putting the machine back into operation.



A Compressed-air hose connection

- 1 Clear out the machine if necessary.
- 2 Switch off the Therm conveyor of the PEWO-therm at the Pester operating panel.
- 3 Wait until the Therm conveyor has come to a standstill.
- 4 Turn off the main switch and secure with a lock.

- 5 Disconnect the mains plug.
- 6 Switch off air supply.
- 7 Remove the compressed-air hose **A** from the start valve.
- 8 Clean the machine.
- 9 Lubricate all lubrication points and move the runner block at least twice.
- 10 Store the machine in a dry and dust-free room.
- 11 Cover the machine.

Storage conditions

- Dry and dust-free environment
- Storage temperature -20 °C to +55 °C
- Maximum air humidity 30-50%

5.4 Working on the machine

5.4.1 Setting up the PEWO-Therm 800

Observe the following during setup:

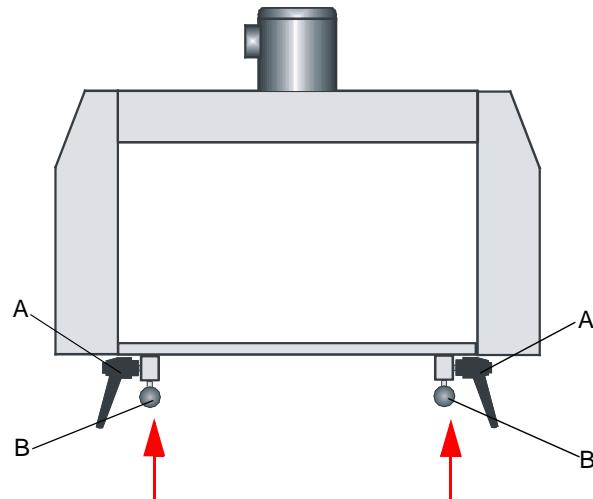
- The shrink temperature must be set in dependence on the following components:
 - Film thickness
 - Collation size
 - Throughput rate
 Setting the shrink temperature: See Chapter Temperature.
- The hot air supply must be adjusted to the shrinking characteristics of the film
The hot air supply is preset by pester pac automation.

Adjusting the hot air supply

The hot air supply can be adjusted to high or low setting.

- The high hot air supply setting is for shrinking the film in normal operation (factory setting).
- The low hot air supply setting is used for correction of the film edges.

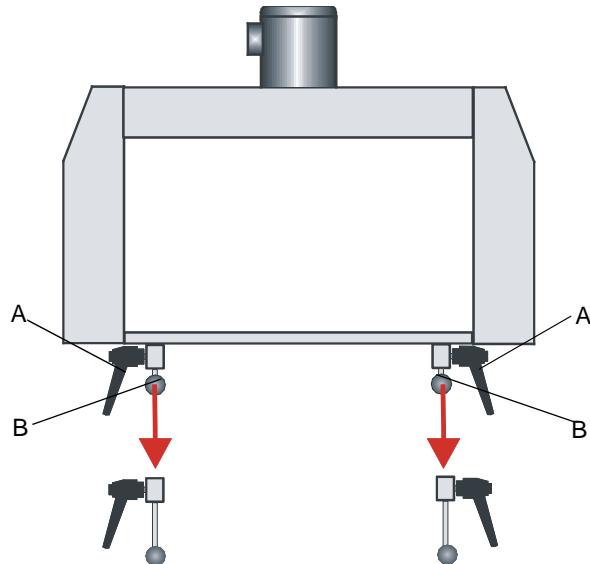
*High hot air supply
(factory setting)*



- A Clamping lever
B Guide handle

- 1 Open clamping lever A.
- 2 Press guide handle B inwards in the direction of the arrow.
- 3 Pull clamping lever A tight again.

Low hot air supply



A Clamping lever
B Guide handle

- 1 Release clamping lever **A**.
- 2 Push guide handle **B** downwards in the direction of the arrow.
- 3 Tighten clamping lever **A**.

5.4.2 Loading the packaging materials



Warning!

Risk of injury!

Physical injury may be incurred when lifting packaging materials.

Use suitable lifting equipment!

Preconditions

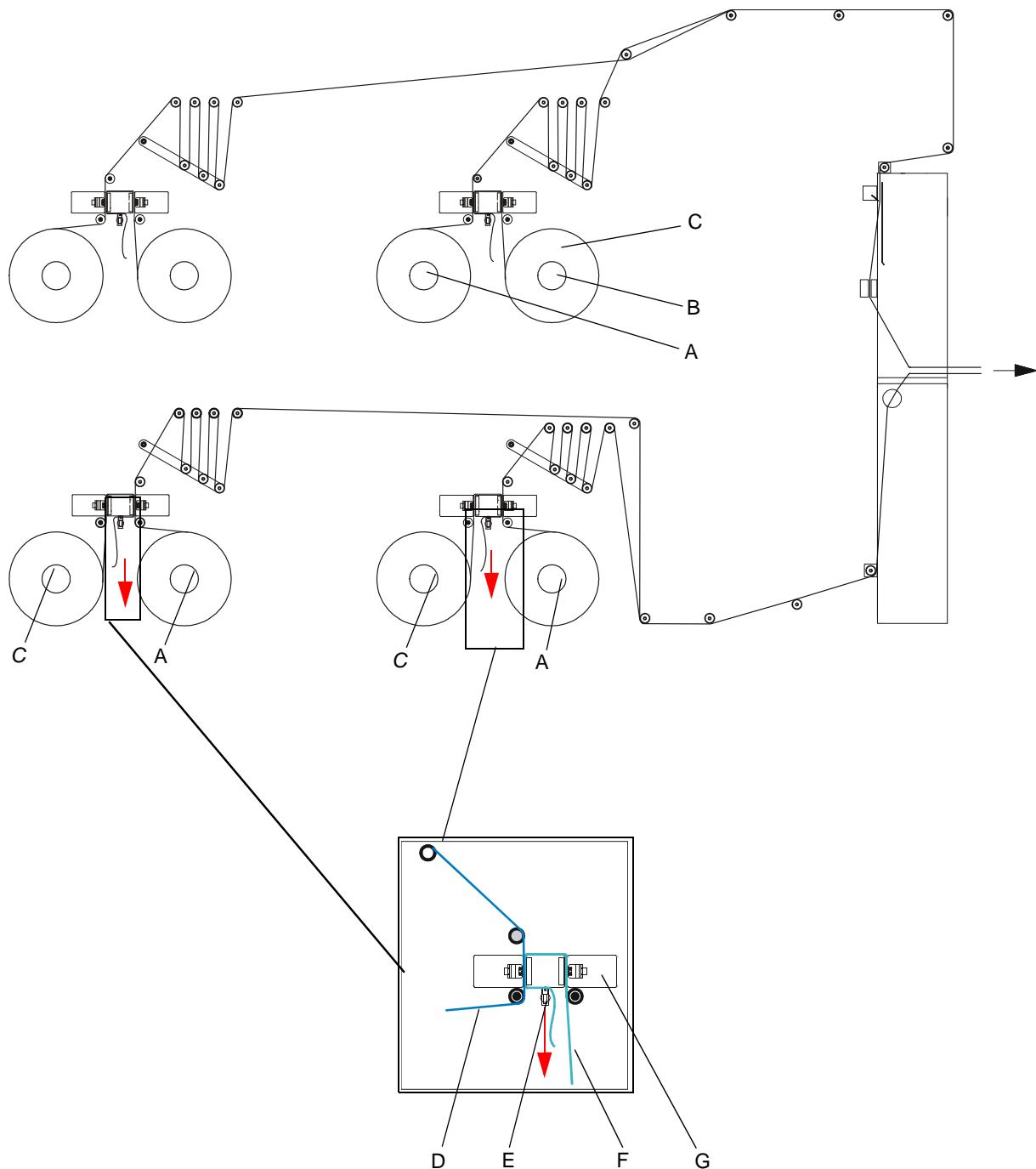
- The machine has been switched on and is in stop mode.

Loading the film reel



For your information

The film splicer automatically switches to the other film reel when the film ends. The spare reel becomes the working reel.

Film thread diagram

- A Working reel
- B Clamping mandrel
- C Spare reel
- D Working reel film
- E Clamping device
- F Spare reel film
- G Film splicer

Thread in working reel film



- 1 Slacken clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.
- 2 Slide on working reel **A**.
- 3 Unroll the required film length.
- 4 Thread in film **D** from the working reel as shown in the film thread diagram.
- 5 Tighten clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.

Thread in spare reel film



- 1 Slacken clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.
- 2 Slide on spare reel **C**.
- 3 Unroll the required film length.
- 4 Open clamping device **E** in the direction of the arrow.
- 5 Thread in film **F** from the spare reel as shown in the film thread diagram.
- 6 Close clamping device **E**.
The film is clamped.
- 7 Tighten clamping mandrel **B** by pressing **Tighten/slacken clamping mandrel** push button.



For your information

Change the other film reels in the same manner as described above.

5.4.3 Automatic mode

Preconditions

The following preconditions must be met before beginning production:

- Air supply is switched on.
- Main switch is switched on.
- The machine is empty.
- Upstream or downstream machine is ready for operation.
- All **EMERGENCY STOP** push buttons are pulled out.
- The heater of the sealing bar was switched on at the Pester operating panel.
- The heater of the PEWO-Therm 800 was switched on at the Pester operating panel.
- All conveyors were switched on at the Pester operating panel.
- The machine has been supplied with sufficient packaging materials.

Setting the machine

- 1 Select or set the product to be processed at the Pester operating panel.
- 2 Carry out mechanical setting of the machine for the product to be processed (see Section 2 **Changeover list**).
- 3 Close all protective devices.

Starting the machine

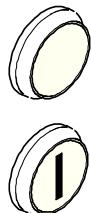
- 1 Reset any messages with the **Reset** push button.
- 2 Press the **START** push button.
The machine operates in automatic mode.

5.4.4 Manual sealing, curtain seam (via operating unit)

During startup or after a film tear, the curtain seam has to be fused by hand.

Preconditions

- The machine has been switched on and is in stop mode.
- The leading edge of the film has been completely threaded in.
- All protective devices are closed.
- The sealing temperature has to be reached.

Manual sealing

- 1 Overlap the ends of the film evenly.
- 2 Press the **Manual sealing** push button.
The machine is now in manual mode.
- 3 Press the **START** push button.
The film is sealed. After sealing operation, the machine switches to Automatic mode.
- 4 Remove any excess film.

5.4.5 Manual sealing curtain seam (via operating panel)

During startup or after a film tear, the curtain seam has to be fused by hand.

Preconditions

- The machine has been switched on and is in stop mode.
- The leading edges of the film are completely threaded.
- All protective devices are closed.
- The sealing temperature has to be reached.

Manual sealing

- 1 Lay the ends of the film evenly on top of each other.
- 2 Select the menu **Operation**.
- 3 Touch the **Off** button in the line **Manual sealing**.
The machine is now in manual mode.
- 4 Press the **START** push button.
The film is sealed. After sealing operation, the machine switches to Automatic mode.

- 5 Remove the surplus film.
The machine is now ready to start.

5.4.6 Manual sealing film splicer

Preconditions

- Main switch is switched on.
- The leading edge of the film has been completely threaded in (See 5.4.2 Loading the packaging materials on page 5-18).

- 1 Activate the sealing operation with the push button



5.4.7 Set thickness of the perforation

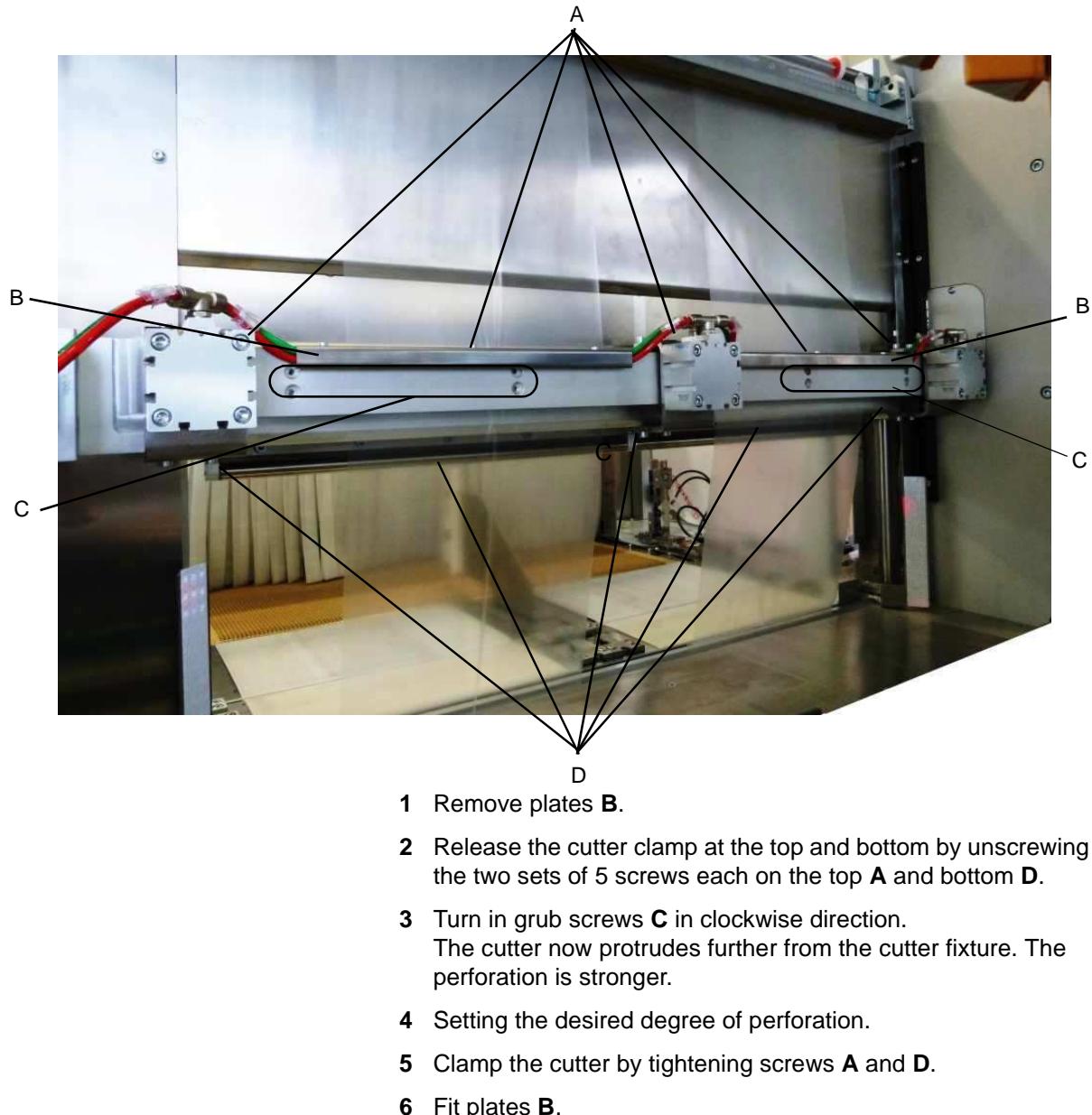
To increase the strength of the perforation, proceed as follows:



Caution!

The cutter must not protrude farther than the clamping profile. If the cutter protrudes too far, it could be damaged by the spatula when the film is threaded in.





5.4.8 Temperature

The heaters for the following have temperature controllers present:

- Sealing bar
- Therm
- Film splicer

The temperature selection depends on the following points and must be set individually:

- Velocity of processing (the faster, the hotter)
- Film thickness

The temperature to be set is listed in the parameter list (see Section 2 **Changeover list**).

An alarm is triggered if the temperatures rise or fall.

- Low temperature alarm: 15 °C below nominal value.
- High temperature alarm: 30 °C above nominal value.

The temperature is entered via the operating panel. The temperature controller is located in the menu

- Sealing bar:
Machine/Processing/Sealing unit/Functions/Line nominal value sealing bar.
- Splicer:
Machine/Infeed/Splicer/Functions/Line Nominal value splicer.
- Therm:
Machine/Outfeed/Therm/Functions/Line nominal value therm.

Changing the temperature
Example: sealing bar

- 1 Touch the menu **Machine/ Processing / Sealing unit / Functions**.
- 2 Touch the value field in the line **Nominal value sealing bar**.
- 3 Enter value and save changes.

5.5 Disturbances

5.5.1 EMERGENCY-STOP



Caution!

Machine damage!

The **EMERGENCY STOP** push buttons are designed for use only in emergencies, when the machine needs to be stopped immediately. The **EMERGENCY STOP** push button cannot be used to initiate a controlled machine stop. Overuse of the **EMERGENCY STOP** push button leads to machine damage.

Use the **STOP** push button to initiate a controlled machine stop!

The machine is equipped with a line EMERGENCY STOP function. Hitting an **EMERGENCY STOP** push button immediately halts the machine in its momentary position and puts it in a partially unpressurized state.

Resuming operation

- 1 Observe any messages on the operating panel and remedy disturbances where necessary.
- 2 Pull out all **EMERGENCY STOP** push buttons.
- 3 Close protective devices.
- 4 Check that there is no-one in the danger zone.
- 5 Where necessary, acknowledge error messages that appear on the Pester operating panel by pressing **RESET**.
- 6 Press the **START** push button.

5.5.2 What to do in the event of media failure

Compressed air

In the event of failure of the compressed air supply, the machine stops immediately, the red light on the signal tower lights up and a corresponding error message is displayed on the Pester operating panel.

Resolving disturbances:

- 1 Restore the air pressure supply.
- 2 Press the **Reset** push button.
- 3 Observe the error message on the Pester operating panel and remedy the disturbance if necessary.

Electrical voltage

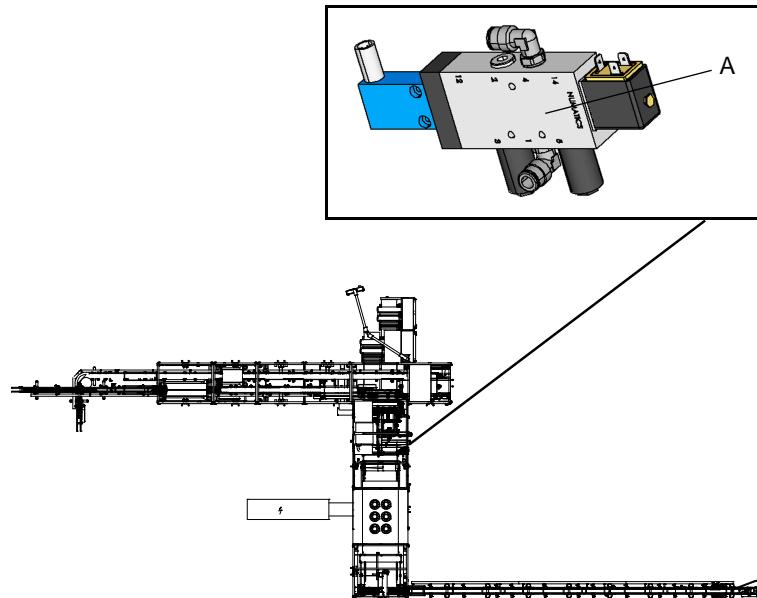
In the event of a voltage supply failure, the machine stops immediately. The machine is completely deenergized, i.e. no message is displayed.

- Resolving disturbances:*
- 1 Restore voltage supply.
 - 2 If necessary, reselect the format at the Pester operating panel.
 - 3 Observe the error message on the Pester operating panel and remedy the disturbance if necessary.

5.5.3 Machine cannot be started

Possible causes are:

- The machine has not been supplied with sufficient packaging materials.
Add packaging material.
- An **EMERGENCY STOP** push button is pressed.
Pull out all **EMERGENCY STOP** push buttons.
- The machine is not in *Automatic mode*.
Touch the operating mode display on the bottom left of the screen. The machine switches to *Automatic mode* and processing can be resumed.
- Not all protective devices are closed.
Close all protective devices.
- Safety valve **A** is defective.
Replace the safety valve.



5.5.4 Deleting message texts

Message texts are displayed on the Pester operating panel. Depending on whether a message leads to an intervention in machine operation, the messages are grouped into three categories:

- Disturbances that bring the machine to an immediate stop.

- Disturbances that lead to a machine stop (currently working assembly group finishes its work cycle).
- Information that does not influence the machine operation.

Deletion of the message texts

After a disturbance has been eliminated, some messages have to be deleted while others are deleted automatically. Distinctions are made between:

- Text messages (informational text) that are displayed as long as the disturbance persists. The corresponding message is automatically cleared as soon as the disturbance is eliminated.
- Error messages that are cleared after the disturbance has been eliminated and acknowledged with the **Reset** push button.

5.5.5 Collision of the pick and place unit tool

Behavior of the machine

- The machine stops.
- An error message is displayed.

Eliminating disturbances

- 1 Open protective device (machine is in emergency stop mode).
- 2 Remove any lost products from the plant.
- 3 If necessary, move the pick and place unit to the desired position in manual mode.
- 4 Close protective devices.
- 5 Acknowledge error message; press **Reset** push button.
- 6 Start the machine.
The work step is repeated.

5.5.6 Product lost, pick and place unit

Behavior of the machine

- Remaining products are placed on infeed conveyor 3.
- The machine stops.
- An error message is displayed.

Eliminating disturbances



For your information

Do **not** place the lost case on the pallet! The robot will place the next case at this position!

- 1 Open protective device (machine is in emergency stop mode).
- 2 Remove lost products and any products on infeed conveyor 3 from the plant.
- 3 Close protective devices.
- 4 Acknowledge error message; press **Reset** push button.
- 5 Start the machine.
The work step is repeated.

5.5.7 Collision of the PacRob tool

Behavior of the machine

- The machine stops.
- An error message is displayed.

Eliminating disturbances

- 1 Open protective device (machine is in emergency stop mode).
- 2 Remove any lost products from the plant.
- 3 Close protective devices.
- 4 Acknowledge error message; press **Reset** push button.
PacRob moves to home position.
- 5 Start the machine.
The work step is repeated.

5.5.8 Product lost, PacRob

Behavior of the machine

- The PacRob moves into its home position.
- The machine stops.
- An error message is displayed.

Eliminating disturbances

- 1 Open protective device (machine is in emergency stop mode).
- 2 Remove lost products and any products remaining in the grippers from the plant.
- 3 Close protective devices.
- 4 Acknowledge error message; press **Reset** push button.
- 5 Start the machine.
The work step is repeated.

5.5.9 Processing error

With the following problems

- Sealing
- problems with height adjustment of the closing bar after changing a format
- jerky lowering of hold-down unit at outfeed

the following must be checked and/or performed:

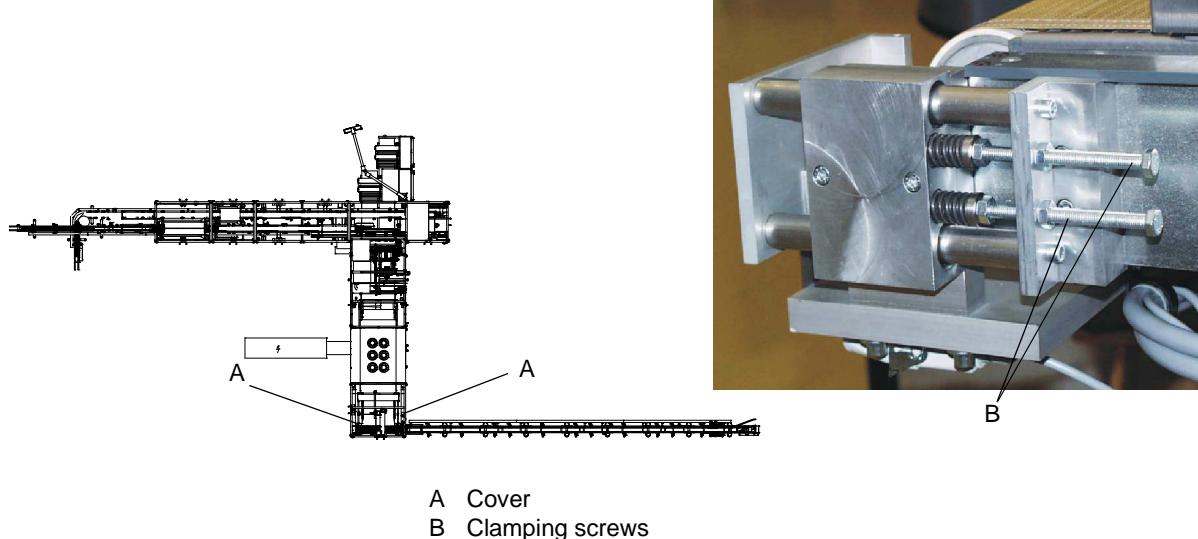
- 1 tension of the spring assembly (See 8.3.2 Adjusting the tension of the spring assembly on page 8-10)
- 2 Adjustment of the closing bar (Chapter 6 Control system, section Drive adjust).

5.5.10 Therm mesh belt conveyor off track

Adjusting the mesh belt conveyor

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.



- 1 Remove cover **A** on both sides.
- 2 Readjust clamping screws **B** on both sides.

5.5.11 Packaging material runs low or runs out

When the packaging material runs low or runs out, an error message is displayed on the Pester operating panel and a visual and acoustic signal is issued.

Eliminating disturbances

- 1 Acknowledge the acoustic signal with the **Reset** push button.
- 2 Add packaging material.
- 3 If necessary, acknowledge the error message with the **Reset** push button.

5.5.12 Emptying out the machine

Folding cartons or collations must be removed from the machine in the following cases: if there is an open collation lying under the hold-down unit, it must be removed.

5.5.13 Safety devices on the PEWO-Therm

After a safety device is triggered, eliminate the disturbance as explained in the table below.

Disturbance	Elimination
Revolution control is defective or detects therm conveyor standstill (e.g. due to stuck bearings in the therm conveyor), Mesh belt conveyor is torn, Therm conveyor drive is defective	<ol style="list-style-type: none"> 1 Eliminate the disturbance, e.g. replace the revolution control. 2 Press the Reset push button. 3 Switch on the motor protection switch.
Excessive temperature, PEWO-Therm	<ul style="list-style-type: none"> • Eliminate the disturbance, then press Reset.
Safety temperature limiter is activated	<ol style="list-style-type: none"> 1 Eliminate the disturbance. 2 Press the Reset push button. 3 Press the Reset push button of the safety temperature limiter (See 5.5.14 Therm safety circuit disturbance on page 5-30).
Fan has a disturbance or is defective	<ul style="list-style-type: none"> • Eliminate the disturbance, then press Reset.
Back-up, light barrier therm conveyor	<ul style="list-style-type: none"> • Eliminate the disturbance, then press Reset.

5.5.14 Therm safety circuit disturbance

Only qualified electricians may eliminate disturbances in the safety circuit of the PEWO-therm!

In the event of a disturbance in the safety circuit, the heater is switched off. The heater must be reactivated with the **Reset Therm** push button.



Danger!

Risk of fatal injury due to electric shock!

Touching live aggregates in the control cabinet can be fatal.

Work on electrical systems may only be performed by qualified electricians!



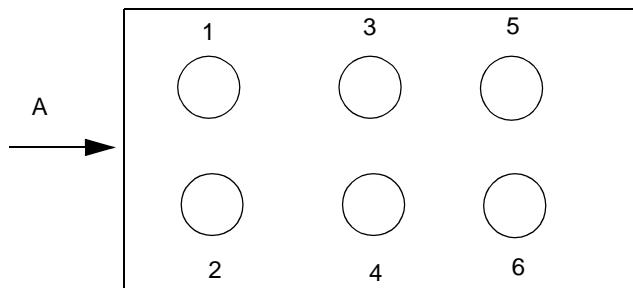
Danger!

Risk of fatal injury!

Contact with live components can cause fatal injury.

Work on the electrical systems must be performed by qualified electricians!

If a safety temperature limiter trips, a message appears on the operating panel with the number of the corresponding safety temperature limiter heater. The heaters in the PEWO-therm are arranged as shown below (the example shows the PEWO-therm 800):



A Direction of running of the products

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.
- The machine has cooled down to below 40°C.

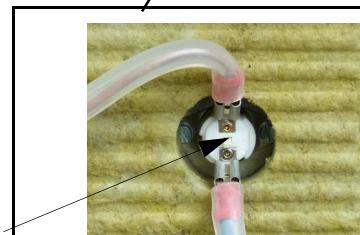
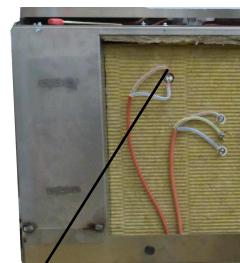
Eliminating disturbances

- 1 Wait until the PEWO-therm has cooled down.
- 2 Remove the side protective hood under which the safety temperature limiter that needs to be reset is located.

- 3 Remove cover plate **A** and take out insulation **B**.
The **Reset Therm** push button is accessible.



- 4 Press the **Reset Therm** push button.
The heater is re-activated.



- 5 Insert the insulation, attach cover plate and protective hood.

5.6 Machine changeover

5.6.1 Safety instructions



Warning!

Risk of serious injury!

The robot executes a swiveling and rotating motion with its gripping arm. *This motion can be a source of danger during setup work and cause serious injury.

Never step behind the gripping arm during setup work on the machine.

When working on the machine, always ensure that there is no-one in the danger zone.



Warning!

Setup and changeover work may only be performed by trained and authorized technicians.

When performing adjustments and changeovers, switch the machine off and secure the main switch.



Caution!

Machine damage!

Unscrewing fittings marked red can lead to machine damage.

Do not unscrew screws marked red!

5.6.2 Basic settings

There are several basic settings that are specific to each product format:

- Format parts
- Pressure setting in bar
- Adjustment positions
- Scale values in mm
- Position indicator

The basic mechanical settings are entered in the changeover list by the pester pac automation and serve as reference values. Certain format-specific basic settings are stored in the control system with the respective format.

5.6.3 Preconditions

Ready for operation The machine is ready for operation.

Empty the machine The machine is empty.

5.6.4 Changeover list

The changeover list contains the changeover values for each product. The values in the changeover list are used to set up the machine for the next format.

The changeover list can be found in Section 2 of the documentation and consists of the following elements:

- Explanation of the changeover list
- Changeover list (per format)

Explanation of the changeover list

The settings and changeover options are explained here:

- Changeover position
- Format part **A** with identification number consisting of changeover position and format number
- Pressure regulator with pressure gauge **B**
- Adjustment position **C**
- Scale **D**
- Position indicator **E**

Changeover list

The changeover positions are compiled into groups. The overview shows the groups of changeover positions. Each of the changeover positions on the machine is marked with a green sticker.

The changeover list contains the changeover values for the individual changeover positions of each format.

5.6.5 Changing the product



For your information

For the following description, it is assumed that the PEWO-pack 800 is in automatic mode.

- 1 Press the **STOP** push button.
- 2 Empty the machine.
- 3 Select the menu **Operation/Basic functions**.
- 4 Touch the **Off** button in the line **PacRob move to tool change position**.

- 5 Press the **START** push button.
The PacRob moves to toolchange position. The machine stops and the message *PacRob in toolchange position* is displayed.
- 6 Carry out mechanical setting of the machine and of the PacRob for the format to be processed (see setting values, Section 2 **Changeover list**).
- 7 Select and load the format to be processed at the operating panel.

Starting the machine

- 1 Close all protective devices.
- 2 Reset any messages with the **RESET** push button.
- 3 Press the **START** push button.

6 Programmable control system

6.1 User management

The principle of user management

User management is realized via user groups and user access rights. Customer-specific user groups are created in the user management system. Specific access rights are assigned to each user group.

The users are assigned to user groups and thus have the corresponding rights of that user group.

Certain functions are possible without access rights and are active as soon as the control system is booted.

The rights of the user groups are managed via the control system software. User group rights are assigned by our service technicians.

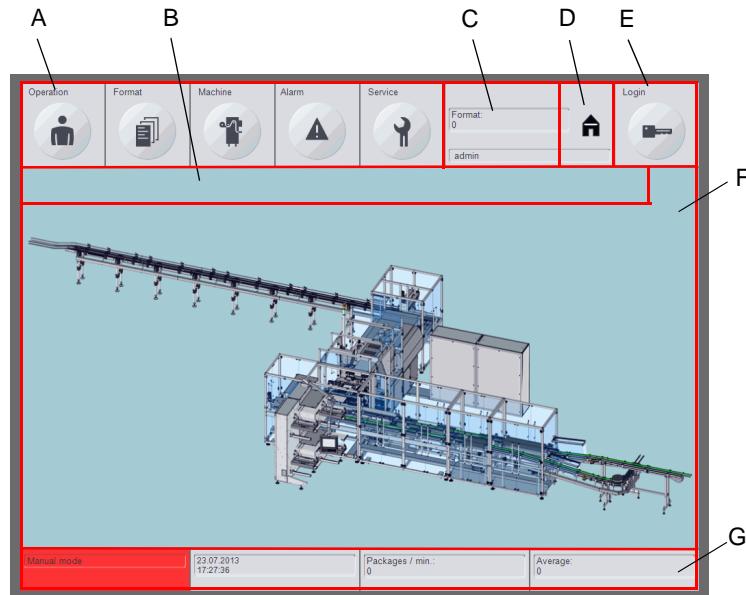
Changes to the user group rights can only be carried out via the control system software. This software is not included in the scope of delivery.

User management is carried out via the menu **Service/Password administration** (See 6.8.1 Password administration tab on page 6-63).

6.2 Control and display elements

6.2.1 Main window

When the machine is booted, the operating panel first shows a map of the world and then the main window.



- A Menu selection
- B Status display
- C Display of format, user and language selection
- D Home button
- E Login button
- F Graphic display and submenus
- G Operating data bar

Menu selection

The following menus are displayed:

- **Operation** (See 6.4 Operation menu on page 6-10)
- **Format** (See 6.5 Format menu on page 6-15)
- **Machine** (See 6.6 Machine menu on page 6-24)
- **Alarm** (See 6.7 Alarm menu on page 6-60)
- **Service** (See 6.8 Service menu on page 6-63)

Status display

The current machine status is displayed in the main screen in this area.

Display of format, user and language selection

Format:

The current format is displayed.

User:

The user currently logged in is displayed.

Language selection:

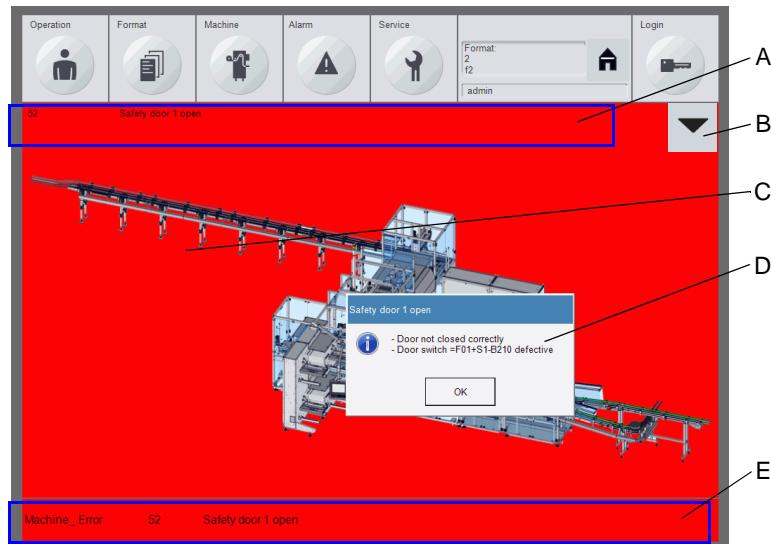
The language for the operating texts can be selected. This display

is optional. It can be activated via the menu **Service**/Tab **Language selection**/Field **Online language changeover**.

<i>Home button</i>	Touching the Home button opens the main screen.
<i>Login button</i>	Touching the Login button opens the login window (See 6.3 LOGIN on page 6-7).
<i>Graphic display and submenus</i>	This area contains graphics, windows and entry prompts.
<i>Operating data bar</i>	The operating mode, the current date and time, the number of products/minute and the cycle time are displayed in this section. Touch the operating mode display to switch from any operating mode to Automatic mode . Possible operating modes: <ul style="list-style-type: none">• Automatic mode (See Automatic mode on page 6-51)• Referencing (See Referencing on page 6-52)• Jogging (See Jogging on page 6-52)• Synchronous Jogging (See Synchronous jogging on page 6-53)• Valves (See 6.6.8 Valves tab on page 6-58)• Manual mode

6.2.2 Main screen with error message

Once the machine has been started up, an error message may be displayed on the start screen.



- A Status display
- B Extension field button
- C Hotspot
- D Status message
- E Status bar

Status display The current machine status is displayed in the main screen in this area.

Extension field button Touch the button to extend the status display.
This button only appears when more than two error messages are issued for the status display.

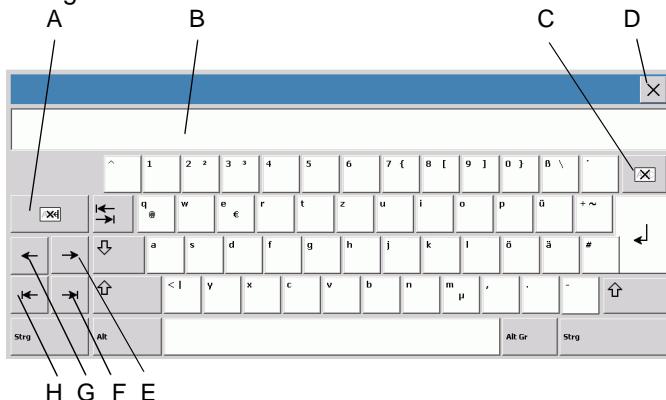
Hotspot The hotspot shows errors.
Touch the hotspot to open the **Assembly group alarm** section for the respective error message.

Status message Touch status bar E to open the status message.
The status message displays options for resolving the error message.

Status bar The current machine status is displayed in this area. The status bar with the error message is displayed in every menu. Once all errors have been corrected, the status bar will return to the format and operating data bar.

6.2.3 Keyboard

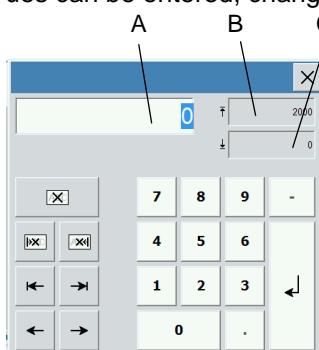
Touch a text field to open the keyboard. Texts can be entered, changed or deleted.



- A Deletes text in front of the cursor
- B Input field
- C Delete the entire text
- D Closes the keyboard
- E Cursor jumps forward one character
- F Cursor jumps to end of text
- G Cursor jumps backward one character
- H Cursor jumps to the beginning of the text

6.2.4 Numeric keypad

Touch a numeric field to open the numeric keypad. Numerical values can be entered, changed or deleted.



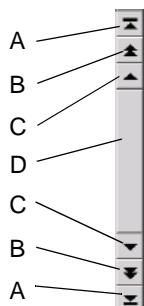
- A Input field
- B Minimum input value
- C Maximum input value



For your information

Input values outside the tolerance limits are highlighted in yellow.

6.2.5 Scroll bar



You can scroll through the pages of multi-page tables using the Scroll bar.

Touch arrow key **A** to display the first or last page of the table.

Touch arrow key **B** to display the previous or next page in the table.

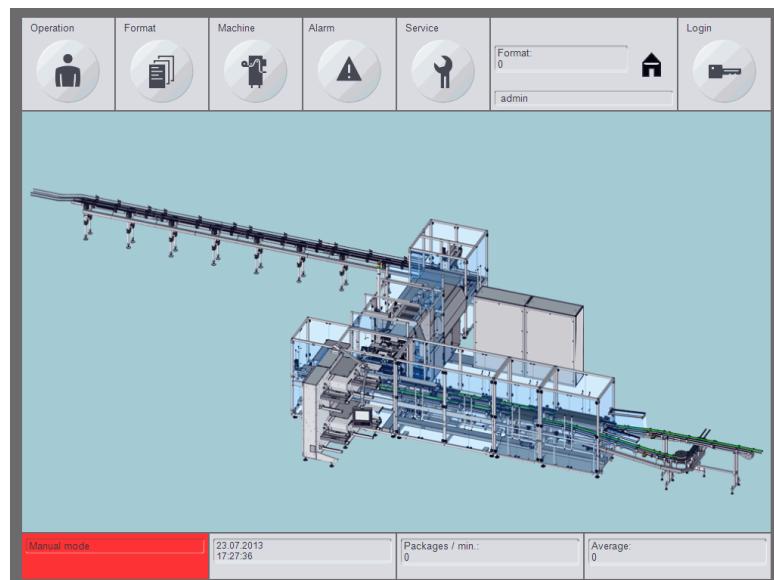
Touch arrow key **C** to move the highlighting one row up or down.

Touching and holding bar **D** moves the table upward or downward as required.

6.3 LOGIN

6.3.1 Information on login

After starting the machine, the control system is loaded. This process can take a few seconds. As soon as this process is completed, the main screen is displayed.



Some of the operating panel functions are password-protected.

Password-protected functions are either not shown on the screen or the corresponding button for switching the function on/off or the entry window for a value are deactivated.

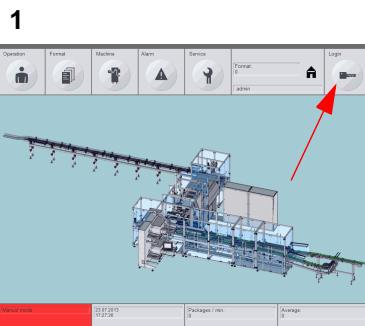
In order to carry out password-protected functions, the user must log in with the corresponding password (See 6.3 LOGIN on page 6-7).



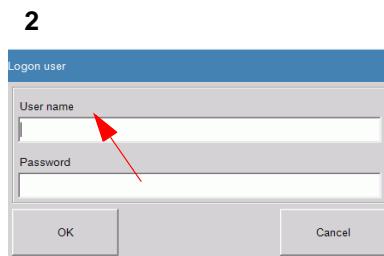
For your information

The passwords are included in the overall machine documentation package. They are in a separate envelope addressed to the customer project manager.

6.3.2 Logging on user



Touch the **Login** button.
The **Log in user** window opens.

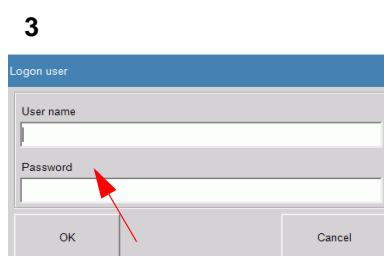


Touch the **Username** input field.
The keyboard opens.

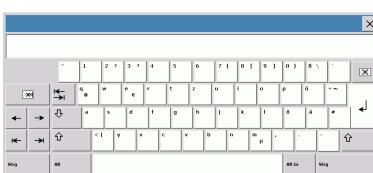


Enter the user name and confirm with .

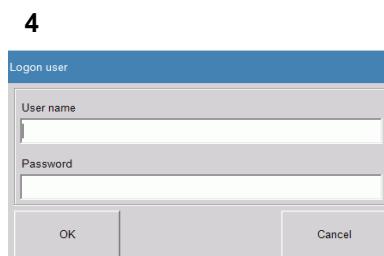
Note:
Switch between upper and lower-case letters with the  button.



Touch the **Password** input field.
The keyboard opens.

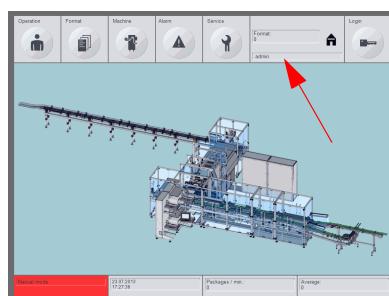


Enter the password and confirm with .



Touch the **OK** button.

Note:
you can use the **Cancel** button to cancel the process.

5

The main screen is displayed after login has been successfully completed. The logged-on user is displayed next to the menu selection.

*For your information*

Touching **Login** after the login process automatically logs the user off. It is then possible to log on again.

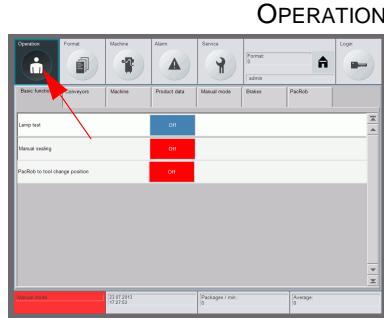
6.4 Operation menu



For your information

Certain functions in this menu are only accessible after logging in with the corresponding password.

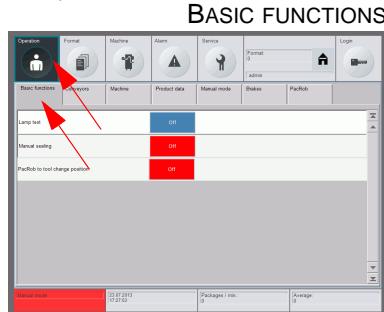
Main screen



Tabs

- Basic functions (See 6.4.1 Basic functions tab on page 6-10)
- Conveyors (See 6.4.2 Conveyor tab on page 6-11)
- Machine (See 6.4.3 Machine tab on page 6-11)
- Product data (See 6.4.4 Product data tab on page 6-13)
- Manual mode (See 6.4.5 Manual mode tab on page 6-13)
- Brakes (See 6.4.6 Brakes tab on page 6-13)
- Robot (See 6.4.7 PacRob tab on page 6-14)

6.4.1 Basic functions tab

Main screen
Operation

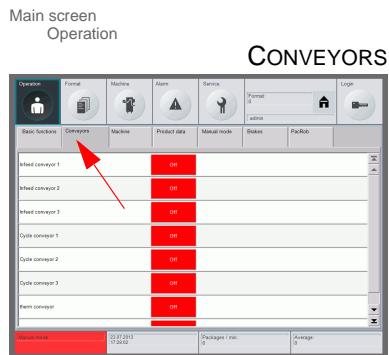
To the menu:

- 1 Touch the **Operation** menu.
- 2 Touch the **Basic functions** tab.

Basic functions:

Designation	Description
Lamp test	All lamps and illuminated buttons are switched on for approx. 10 seconds.
Manual sealing	During startup or after a film tear, the curtain seam has to be fused by hand.
PacRob to tool change position	PacRob moves to tool change position
Pick+place unit to format change position	Pick+place unit moves to format change position

6.4.2 Conveyor tab



Conveyors:

- Infeed conveyor 1
- Infeed conveyor 2
- Infeed conveyor 3
- Cycling conveyor 1
- Cycling conveyor 2
- Cycling conveyor 3
- Therm conveyor
- Outfeed conveyor

To the menu:

- 1 Touch the **Operation** menu.
- 2 Touch the **Conveyor** tab.
- 3 Switch the desired conveyor on or off by touching the **On / Off** button.

6.4.3 Machine tab



For your information

To carry out the functions, touch the corresponding **OFF** or **ON** buttons.



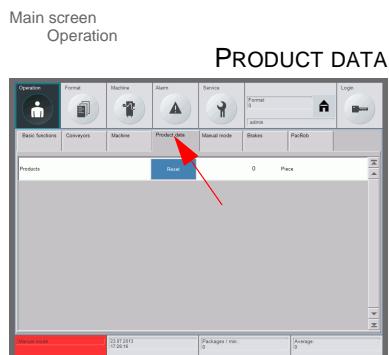
To the menu:

- 1 Touch the **Operation** menu.
- 2 Touch the **Machine** tab.

Functions, **Machine** tab:

Functions	Description
Line linking	The PEWO-pack 800 is designed for integrating a production line. For a line integration, the upstream/downstream machine must be properly connected to the PEWO-pack 800. Then, to activate the signal exchange with the PLC, select the line linking function with the On button. Switch the function off by touching the Off button. To start a machine in the line for test purposes, switch the function on using the On button.
Automatic jog mode	When the START push button is pressed, the machine runs through the entire work cycle in jog mode.
Override	This function is used to decrease or increase the current overall cycle rate of the machine. The value is automatically reset if the machine is re-started. The overall cycle rate is changed permanently with the override function via Machine/Machine/Machine configuration .
Heating - sealer bar	The sealing bar heater is turned on and off using this function.
Raise sealer bar	This function is used to run the sealing bar briefly up for maintenance purposes.
Therm heating	The therm heating is turned on and off using this function.
Film splicer	This function is used to switch the film splicer on and off.
Splicer 1 deflection roller change over	This function is used to switch the film deflection roller over for test purposes.
Splicer 2 deflection roller change over	This function is used to switch the film deflection roller over for test purposes.
Run machine until empty run	After selecting machine empty run, the machine must be started in order to perform the function. The machine runs until no more products are located in the machine.
Bypass mode - run with empty pucks	Empty pucks are processed and re-fed.

6.4.4 Product data tab

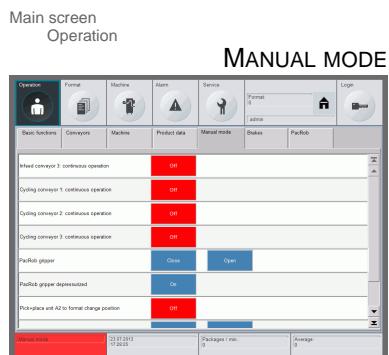


Indicator for the number of products that have been processed. The counter can be reset with the **Reset** button.

To the menu:

- 1 Touch the **Operation** menu.
- 2 Touch the **Product data** tab.

6.4.5 Manual mode tab



To the menu:

- 1 Touch the **Operation** menu.
- 2 Touch the **Manual mode** tab.
- 3 Confirm the control with the **Manual mode** button.
The machine switches to *Manual mode*. The operating mode is displayed on the bottom left of the screen.
- 4 Touch, for example, the **Off** button for the function that is to be carried out in manual mode.
- 5 Press the **START** push button on the Pester operating unit.
- 6 After carrying out the manual mode function, deselect the function with the **On** button.
- 7 Touch the operating mode *Manual mode* on the bottom left of the screen.
The operating mode switches to *Automatic mode*.



For your information

In order to resume processing after carrying out manual mode functions in the **Manual mode** tab, the operating mode *Automatic* must be activated!

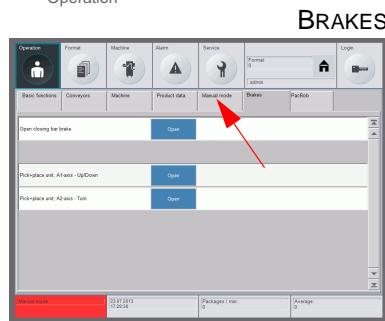
6.4.6 Brakes tab



For your information

Opened brakes close automatically as soon as the **START** push button is pressed.

Main screen
Operation



Braking:

- Closing bar brake
- Pick and place unit A1 axis - Up/Down
- Pick and place unit A2 axis - Turn

To the menu:

- 1 Touch the **Operation** menu.
- 2 Touch the **Brakes** tab.

6.4.7 PacRob tab

Main screen
Operation



To the menu:

- 1 Touch the **Operation** menu.
- 2 Touch the **PacRob** tab.

Functions, **PacRob** tab:

Designation	Description
PacRob: work range monitoring	The work range monitoring is switched on / off.

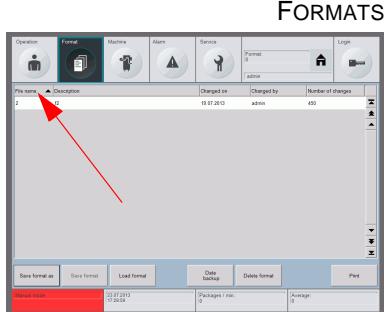
6.5 Format menu



For your information

The functions of this menu are only accessible after logging in with the corresponding password.

Main screen



All formats can be displayed and edited via the **Format** menu.

To the menu:

- 1 Touch the **Format** menu.
All existing formats will be listed.

The following information will be displayed:

Designation	Description
Format number	Number of the formats
Format designation	Designation of the formats
Revision date	Date of last change to format
Revised by	Username of user who carried out the last revision.
Number of revisions	Number of revisions to this format.



For your information

The corresponding information can be sorted numerically by touching the respective column designation.

The following functions are available:

Designation	Description
Save format as	<ul style="list-style-type: none"> • Creating a new format (See 6.5.1 Creating a new format on page 6-16) • Saving changed format (See 6.5.3 Save format as on page 6-18) or • Copying existing format (See 6.5.3 Save format as on page 6-18) • Renaming a format (See 6.5.5 Renaming a format on page 6-20)
Save format	Save changes made to currently loaded format.

Designation	Description
Load format	Load format highlighted in the format list. The description of the loaded format is then displayed in the format and operating data bar (See 6.5.2 Load format on page 6-17).
Deleting a format	Delete a selected format (See 6.5.6 Deleting a format on page 6-21).
Data backup	<ul style="list-style-type: none"> Create a backup copy of the currently loaded formats with Backup. Load the formats saved with Backup with Restore.
Print	Format list for the currently loaded format is printed

6.5.1 Creating a new format



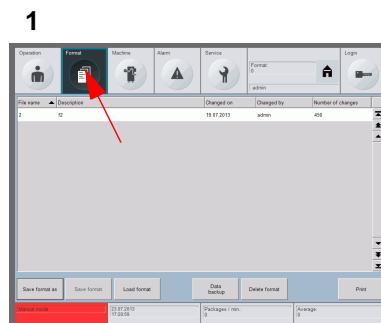
Caution!

Machine damage!

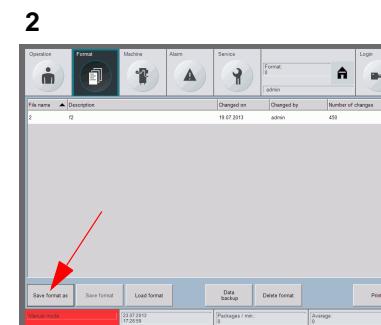
An incorrect parameter entry can lead to machine damage.

Parameters may only be entered or changed by authorized personnel!

Do not arbitrarily change parameters!

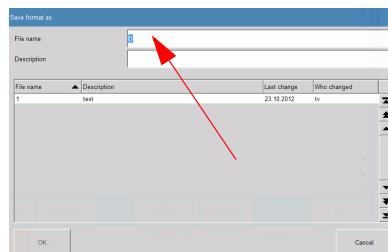


Touch the **Format** menu.

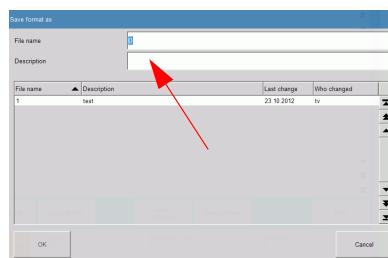


Touch the **Save format as** button.

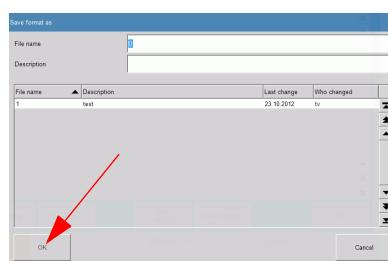
The **Save format as** window opens.

3

Touch the **Format number** input field.
The keyboard opens. Enter the format number and confirm with **Return**.

4

Touch the **Format designation** input field. The keyboard opens. Enter the description and confirm with **Return**.

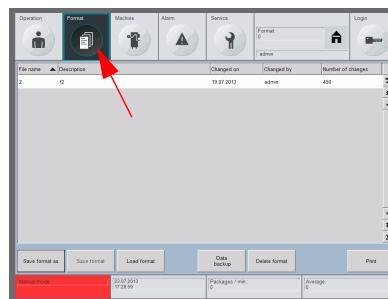
5

Touch the **OK** button.

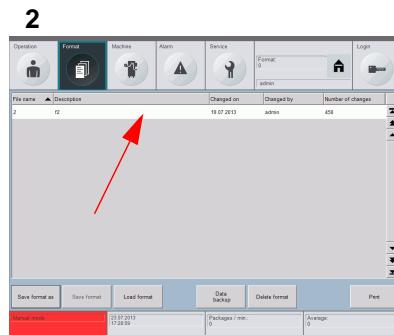
Result:

The new format is displayed in the format list.

6.5.2 Load format

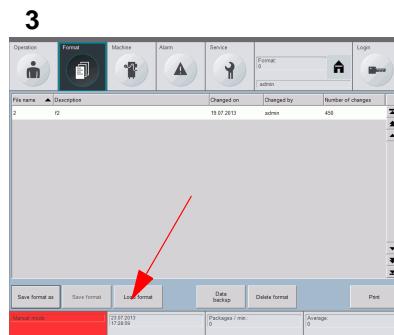
1

Touch the **Format** menu.



Touch the required format in the format list.

Note:
Selected format is highlighted in blue.



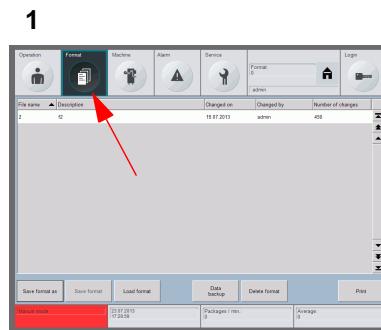
Touch the **Load format** button.

A message is displayed.

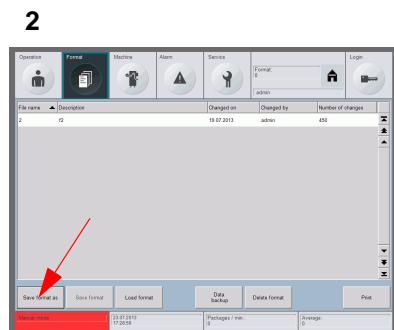
Note:
The loaded format will be displayed in the format and operating data bar.

6.5.3 Save format as

This function can be used to save the currently loaded format under a different format number - copying function.

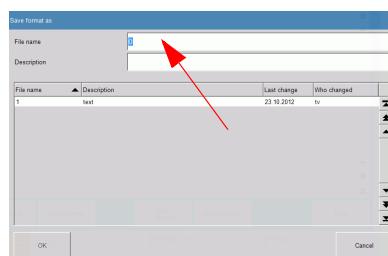


Touch the **Format** menu.

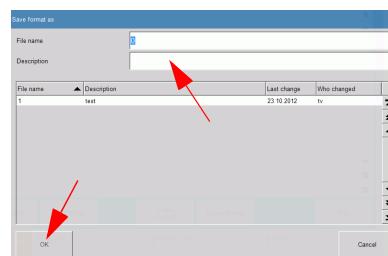


Touch the **Save format as** button.

The **Save format as** window opens.

3

Enter the format number for the new format in the input field **Format number**.

4

Change the existing designation in the input field **Format designation**.

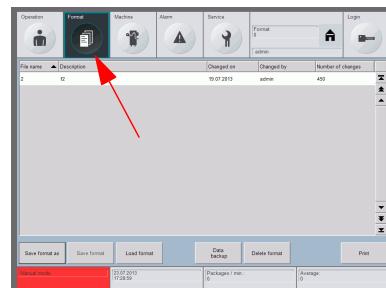
Confirm change with **OK** button

Confirm message with **OK**.

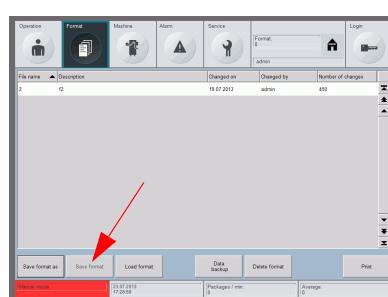
New format is displayed in the list

6.5.4 Saving the format

Save changes to the currently loaded format.

1

Touch the **Format** menu.

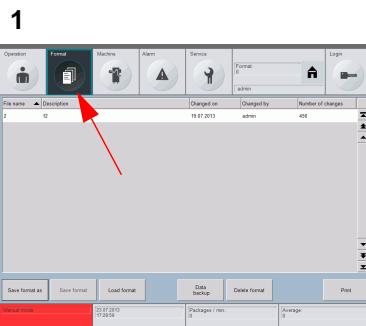
2

Touch the **Save format** button.

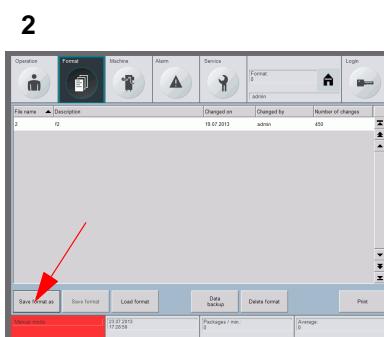
Confirm the security query with **OK**.

A message that the format has been successfully saved is displayed.

6.5.5 Renaming a format

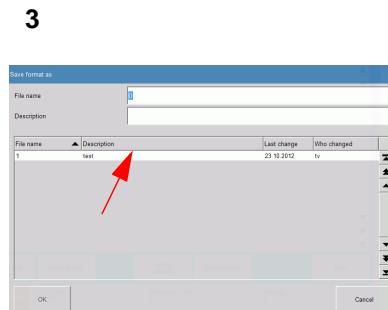


Touch the **Format** menu.



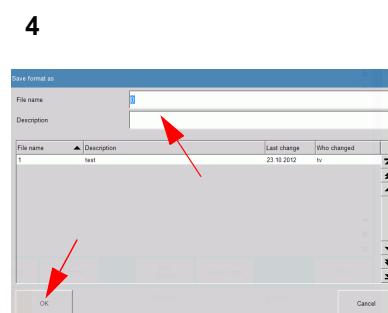
Touch the **Save format as** button.

The **Save format** window opens.



Touch the format to be renamed in the format list.

Note:
Selected format is highlighted in blue.



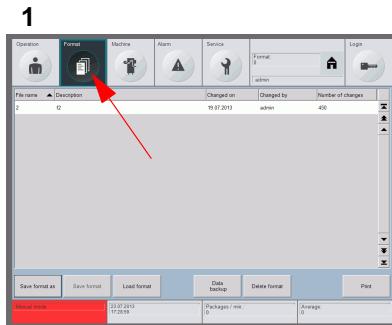
Change the existing designation in the input field **Format designation**.

Confirm change with **OK** button

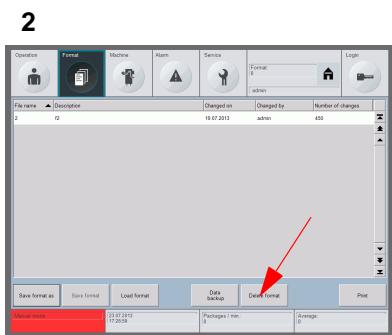
Confirm the security query with **OK**.

Renamed format is displayed in the list

6.5.6 Deleting a format



Touch the **Format** menu.

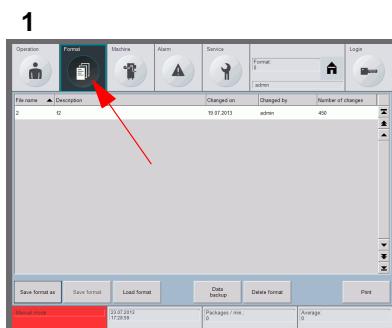


Touch the **Delete format** button.
Confirm the security query with **OK**.

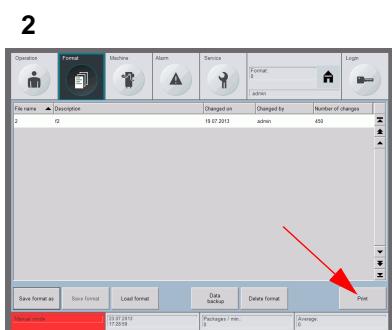
The format is deleted.

6.5.7 Print

This function is used to print out the format list for the currently loaded format as a pdf file.

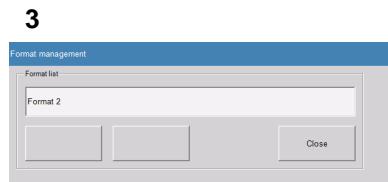


Touch the **Format** menu.



Touch the **Print** button.

The window **Format manager** is displayed. The field **Format list** shows the name of the format list which is to be printed.



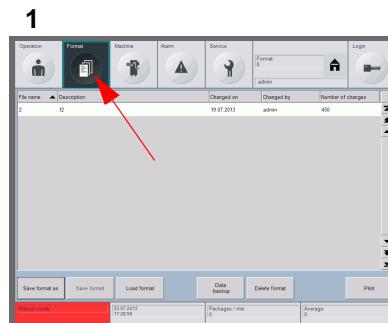
Touch the desired button.

The corresponding format list is printed.

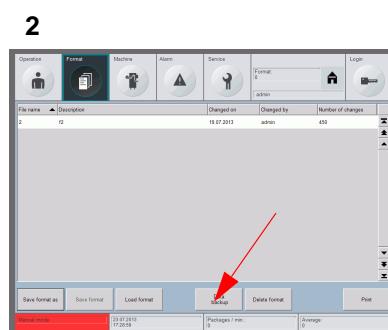
6.5.8 Data backup

A data backup of the loaded formats can be saved to a preset path via the **Backup** button.

A saved backup copy is loaded via the **Restore** button. The existing formats are overwritten.

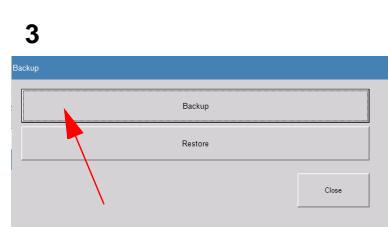


Touch the **Format** menu.

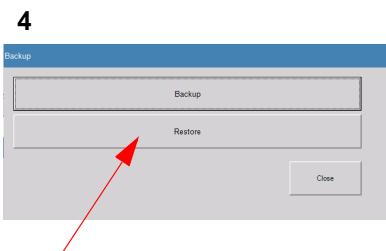


Touch the **Data backup** button.

The **Data backup** window opens.



Touch the **Backup** button.
Backup is created and saved in the preset path.



Touch the **Restore** button.
The formats saved in the pre-set path for backups are loaded. The current formats are overwritten.

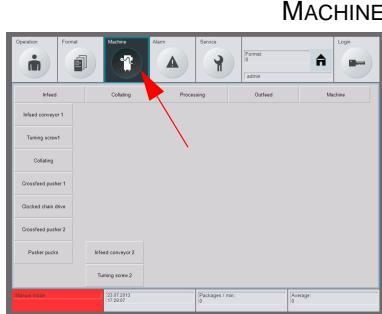
6.6 Machine menu



For your information

Certain functions in this menu are only accessible after logging in with the corresponding password.

Main screen



Individual assembly groups can be displayed and edited via the menu **Machine**. The assembly groups are assigned to function groups.

To the menu:

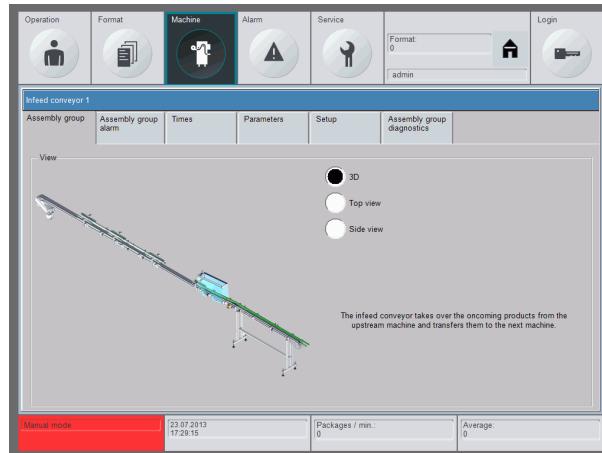
- 1 Touch the **Machine** menu.

The following function groups and assembly groups are available:

Function group	Assembly group
Infeed	<ul style="list-style-type: none"> • Infeed conveyor 1 • Turning screw 1 • Collating • Crossfeed pusher 1 • Indexing conveyor • Crossfeed pusher 2 • Outfeed pusher, pucks • Infeed conveyor 2 • Turning screw 2
Collating	<ul style="list-style-type: none"> • Pick and place unit gripper • Pick and place unit • Infeed conveyor 3 • PacRob gripper • PacRob • Main infeed pusher
Processing	<ul style="list-style-type: none"> • Film splicer • Sealing unit • Cycling conveyor 1 • Cycling conveyor 2 • Cycling conveyor 3
Outfeed	<ul style="list-style-type: none"> • Therm • Outfeed transport • Outfeed conveyor
Machine	<ul style="list-style-type: none"> • Machine configuration

6.6.1 Assembly group screen

Each assembly group is shown in an assembly group screen. This screen contains information on the assembly group, the parameters and the pending errors.



Depending on the assembly group and the operator rights, the following tabs can be displayed:

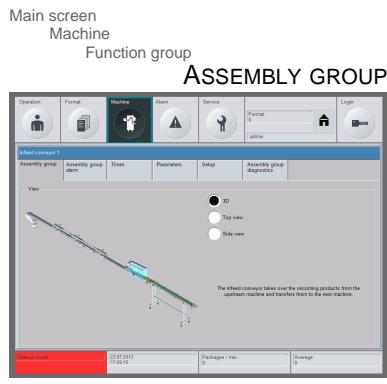
- Assembly group
- Assembly group alarm
- Times
- Counters
- Parameters
- Functions
- Version (software)
- Assembly group diagnostics
- Valves
- Setup



For your information

The assembly groups are called up using these tabs. Here, you can perform settings and display alarms and preventive warnings.

6.6.2 Assembly groups tab

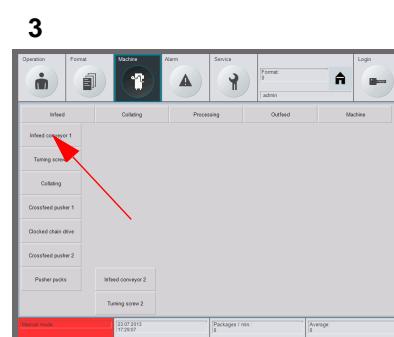
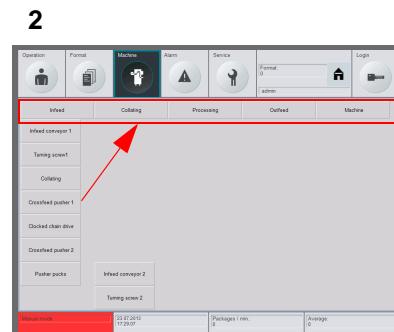
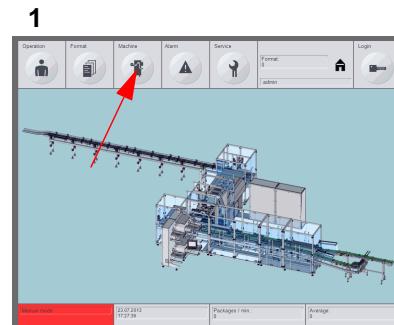


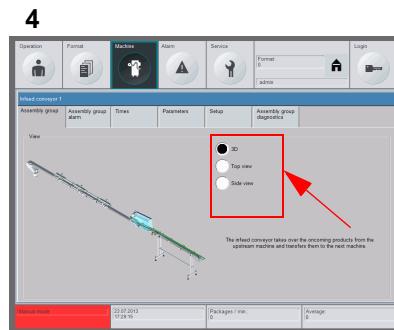
The assembly groups tab can be used to observe the assembly groups in different views.

To the menu:

- 1 Menu **Machine**.
- 2 Touch the desired function group.
- 3 Touch the desired assembly group.
- 4 Touch the **Assembly group** tab.

Changing the Assembly group view

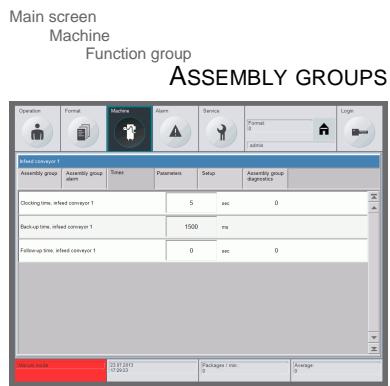




Select the required view.

6.6.3

Tabs Times, Counters, Parameters, Functions, Machine configuration



The parameters for the assembly groups can be edited via these tabs. Depending on the assembly group, only specific tabs are present.

To the menu:

- 1 Touch the **Machine** menu.
- 2 Touch the desired function group.
- 3 Touch the desired assembly group.
- 4 Touch the desired tab.
- 5 Edit the parameters (See [Editing assembly group parameters on page 6-27](#)).

Editing assembly group parameters

Caution!

Machine damage!

An incorrect parameter entry can lead to machine damage.

Parameters may only be entered or changed by authorized personnel!

Do not arbitrarily change parameters!

Caution!

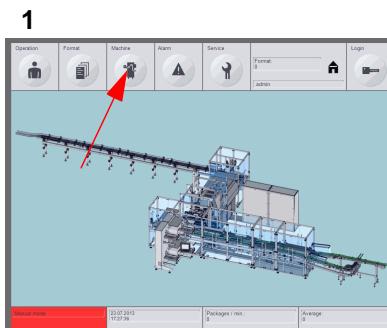
Only modify parameters when the machine is in stop mode!



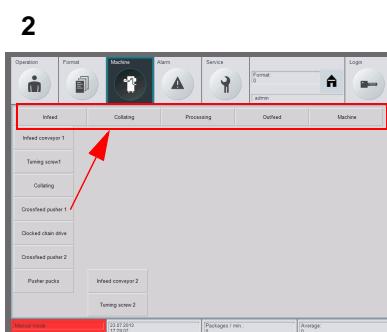
For your information

When the parameters have been entered, the system carries out a plausibility check. Values outside the valid range are not accepted. The system automatically selects the respective maximum or minimum value.

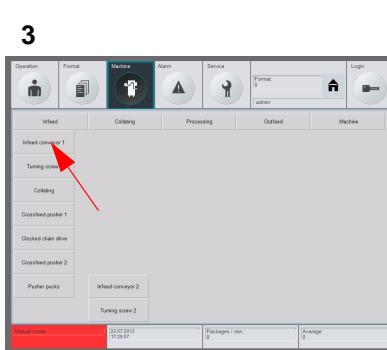
No error message is displayed!



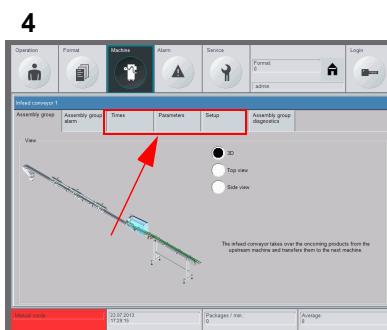
Touch the **Machine** menu.



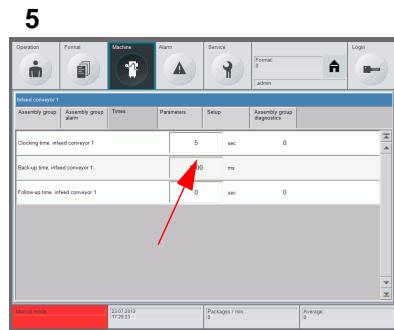
Touch the desired function group.



Touch the desired assembly group.
The assembly group is displayed.



Touch the tab for the desired function.

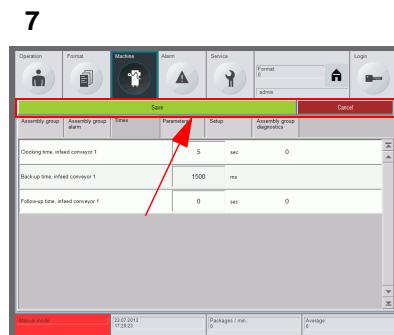


Touch the input field for the format to be changed.
The input window opens.



Enter the desired value and confirm with **Return**.

Save the changed value under the menu **Format**.



Save the change in the currently loaded format with the Save button.
Exit without saving the change by pressing the Cancel button.

Assembly group parameter overview

Machine assembly group parameters

Configurations

The following machine configurations are available

Designation	Description
Override	This function is used to continuously decrease or increase the overall cycle rate of the machine.
Continuous operation	This function is used to switch the machine to continuous operation without products.
Lamp test	This function is used to check that the lamps are working correctly.

Designation	Description
Error reset	This function is used to acknowledge messages and error messages shown on the operating panel. The machine will then be ready to resume operation.
Reset controller	This function resets or restarts ELAU.
Start-up signal tower	Switch signal tower on and off.
Start-up warning	Switch start-up warning on and off.
	.

Product parameters

The following product parameters are available:

Designation	Description
Product - height	Input the height of product currently to be processed.
Product - length	Input the length of product currently to be processed.
Product - width	Input the width of product currently to be processed.
Collation - height	Input the collation height of product currently to be processed.
Collation - length	Input the collation length of product currently to be processed.
Collation - width	Input the collation width of product currently to be processed.
Products per collation row	Input the products per collation row for product currently to be processed.
Puck - length	Enter the puck length of the product currently to be processed.
Puck - width	Enter the puck width of the product currently to be processed.

Function group Infeed**Assembly group parameters, infeed conveyor 1**

The following assembly group parameters are available:

Times

Designation	Description
Infeed conveyor 1 cycle time	The cycle time starts after detection of a product. If the cycle time elapses without new products being fed, the infeed conveyor stops. If a further product is detected before the end of the cycle time, the cycle time starts again.
Back-up time infeed conveyor 1	Time span over which the sensor must at least be covered until a back-up is triggered on infeed conveyor.
Follow-up time infeed conveyor 1	Time during which the infeed conveyor continues to run until total standstill after machine stop.
Delay time: product control at infeed conveyor 1	As soon as the delay time has lapsed, the product control is activated at infeed conveyor 1.

Parameter

Designation	Description
Velocity infeed conveyor 1	Enter the velocity of the infeed conveyor.

Assembly group parameters, turning screw 1

The following assembly group parameters are available:

Times

Designation	Description
Back-up after turning screw 1	Time in ms for back-up sensor after turning screw 1.
Product distance for turning screw 1 Start	Back-up distance of the pucks in mm before turning screw 1 starts up. For better understanding: The program converts the back-up distance into a time, depending on the conveyor velocity

Parameter

Designation	Description
Acceleration turning screw 1	Enter the acceleration value for the turning screw.

Designation	Description
Velocity turning screw 1	Enter the velocity of the turning screw.
Deceleration turning screw 1	Enter the deceleration value for the turning screw.
Current limiting turning screw 1	Input value for current limiting, as over-load protection.
Product distance for turning screw 1 Start	Back-up distance of pucks (in mm) before turning screw 1 starts. For better understanding: the back-up distance is calculated into a time in the program subject to the velocity of the conveyor.

Functions

Designation	Description
Turning screw 1 Puck monitoring	Switching functions on/off

Assembly group parameters, collating

Parameter

Designation	Description
Correction factor for stop plate pressure	When the stop plate is extended, a pressure calculated by the system is applied to it in dependence on the conveyor velocity. This pressure value in bar can be changed (corrected) here with a multiplication factor. Example: Enter 1.1: Calculated pressure is multiplied by 1.1 and thus increased Enter -1.1: Calculated pressure is multiplied by 0.9 and thus decreased.

Functions

Designation	Description
Collating with drop rail	Collating is performed with/without drop rail

Assembly group parameters, crossfeed pusher 1

The following assembly group parameters are available:

Parameter

Designation	Description
Crossfeed pusher 1 front position	Front position of the crossfeed pusher.
Crossfeed pusher 1 velocity forward/backward ratio	Time ratio between the forward movement and the backward movement in %. Example: 50%: 50% of the preset time for forward movement, 50% of the preset time for backward movement. 60%: 60% of the preset time for forward movement, 40% of the preset time for backward movement.
Crossfeed pusher 1 rear	Rear position of the crossfeed pusher.
Current limiting crossfeed pusher 1	Input value for current limiting, as overload protection.

Clocked chain drive assembly group parameters

The following assembly group parameters are available:

Parameter

Designation	Description
Offset clocked chain drive - width	The width of the clocked chain drive is adjusted by the offset value. Tray collating switched on: Offset to Tray length Tray collating switched off: Offset to collation width
Position offset clocked chain drive to centre	Offset to calculated position of the clocked chain drive.
Current limiting clocked chain drive	Input value for current limiting, as overload protection.

Assembly group parameters, crossfeed pusher 2

The following assembly group parameters are available:

Parameter

Designation	Description
Position Crossfeed pusher 2 front	Front position of the crossfeed pusher.
Crossfeed pusher 2 velocity forward/backward ratio	Time ratio between the forward movement and the backward movement in %. Example: 50%: 50% of the preset time for forward movement, 50% of the preset time for backward movement. 60%: 60% of the preset time for forward movement, 40% of the preset time for backward movement.
Position Crossfeed pusher 2 rear	Rear position of the crossfeed pusher.
Current limiting crossfeed pusher 2	Input value for current limiting, as overload protection.

Assembly group parameters, pusher pucks

The following assembly group parameters are available:

Parameter

Designation	Description
Position pusher pucks rear	Rear position of the puck outfeed pusher.
Pusher pucks velocity forward/backward ratio	Time ratio between the forward movement and the backward movement in %. Example: 50%: 50% of the preset time for forward movement, 50% of the preset time for backward movement. 60%: 60% of the preset time for forward movement, 40% of the preset time for backward movement.
Position pusher pucks front	Front position of the pusher pucks.
Current limiting pusher pucks	Input value for current limiting, as overload protection.

Assembly group parameters, infeed conveyor 2

The following assembly group parameters are available:

Times

Designation	Description
Infeed conveyor 2 cycle time	The cycle time starts after detection of a product. If the cycle time elapses without new products being fed, the infeed conveyor stops. If a further product is detected before the end of the cycle time, the cycle time starts again.
Back-up time infeed conveyor 2	Time span over which the sensor must at least be covered until a back-up is triggered on infeed conveyor.
Follow-up time infeed conveyor 2	Time during which the infeed conveyor continues to run until total standstill after machine stop.

Parameter

Designation	Description
Velocity infeed conveyor 2	Enter the velocity of the infeed conveyor.

Assembly group parameters, turning screw 2

The following assembly group parameters are available:

Times

Designation	Description
Back-up after turning screw 2	Time in ms for back-up sensor after turning screw 2.

Parameter

Designation	Description
Turning screw 2 speed	Enter the velocity of the turning screw.
Product distance for turning screw 2 Start	Back-up distance of the pucks in mm before turning screw 2 starts up. For better understanding: The program converts the back-up distance into a time, depending on the conveyor velocity

Function group Collating

Assembly group parameters, pick and place unit gripper

Times

Designation	Description
Pick and place unit: delay time after gripper closed	Time delay after gripper closed before pick and place unit continues
Pick and place unit: delay time after gripper open	Time delay after gripper open before pick and place unit continues
Pick and place unit: Precontrol gripper close	Grippers are activated before the drop-off position is reached, as the pneumatic system reacts with a delay time.

Functions

Designation	Description
Rotating gripper tool fitted	If a rotating gripper tool is fitted, it must also be selected in the HMI as a format value.

Assembly group parameters, pick and place unit

Parameter

Designation	Description
Position pick and place unit A1 axis grip product	Grip product position in A1 direction
Position pick and place unit A2 axis grip product	Grip product position in A2 direction
Position pick and place unit A1 axis set product down	Wait position place product in case in A1 direction
Position pick and place unit A2 axis set product down	Wait position place product in case in A2 direction
Pick and place unit A1 axis vertical distance to grip product	Vertical path to grip product in A1 direction

Designation	Description
Pick and place unit A1 axis vertical distance after gripping product	Vertical path after gripping products in A1 direction
Pick and place unit A1 axis vertical distance to product place	Vertical path to place products in A1 direction
Pick and place unit A1 axis vertical distance after product place	Vertical path after placing products in A1 direction
Pick and place unit A2 axis release infeed conveyor 3 Start	If the current position of the pick and place unit A2 axis in degrees is smaller than this value, the release for infeed conveyor 3 is issued.
Pick and place unit with product: Tiime ration from linaear movement (A1-axis) to ratation movement (A2-axis)	Affects the velocity of the vertical movement when the product is being placed
Pick an place unit: A1-axis: Upper position with product	Position used as turning point of vertical movement when product is being picked and placed.
Pick and place unit without product: Tiime ration from linear movement (A1-axis) to ratation movement (A2-axis)	Affects the velocity of the vertical movement when the next product is being picked up
Pick an place unit: A1-axis: Upper position without product	Position used as turning point of vertical movement when the next product is being picked up
Pick and place unit A1 axis current limiting	Input value for current limiting, as overload protection.
Pick and place unit A2 axis current limiting	Input value for current limiting, as overload protection.

Assembly group parameters, infeed conveyor 3

The following assembly group parameters are available:

Times

Designation	Description
Infeed conveyor 3: delay time product ready	When the delay time has elapsed, the PacRob receives the release "Pick up product."

Parameter

Designation	Description
Path infeed conveyor 3	Distance the infeed conveyor must travel for one cycle.
Acceleration infeed conveyor 3 forward	The servo axis accelerates to the stated velocity with this value.
Velocity infeed con- veyor 3 forward	Enter the velocity of the side belt.
Delay time infeed conveyor 3 forward	Enter the deceleration value for the side belt.

PacRob gripper assembly group parameters*Times*

Designation	Description
Advanced control open gripper	Grippers are activated before the drop-off position is reached, as the pneumatic system reacts with a delay time.
Advanced control close gripper	Grippers are activated before the drop-off position is reached, as the pneumatic system reacts with a delay time.

Functions

Designation	Description
PacRob gripper clos- ing pressure	Pressure in bar at the PacRob gripper when the gripper is closed.
PacRob gripper product detection	Switching functions on/off.
PacRob gripper: cyl- inder control gripper converge	Switching functions on/off.

PacRob assembly group parameters

The following assembly group parameters are available:

Designation	Description
PacRob position, Z-axis: waiting position, grip product	Waiting position where product is picked up in Z direction
PacRob position, X-axis: grip product	Position where product is picked up in X direction
PacRob position, Z-axis: grip product	Position where product is picked up in Z direction
PacRob position, Z-axis: waiting position, place product	Waiting position where product is placed in case in Z direction
PacRob position, X-axis: place product	Position where product is placed in case in X direction
PacRob position, Z-axis: place product	Position where product is placed in case in Z direction
PacRob: acceleration	The value by which the servo axis accelerates to the entered velocity
PacRob: velocity	Velocity of servo axis
PacRob: deceleration	The value by which the servo axis decelerates until it comes to a standstill.
PacRob: smooth	The parameter which affects the change in acceleration – smooth movement of case extractor 0%: no smooth movement 100%: maximum smooth movement
PacRob: maximum acceleration with product	The value by which the servo axis accelerates with the product to the entered velocity
PacRob: maximum acceleration without product	The value by which the servo axis accelerates to the entered velocity without product

Main infeed pusher assembly group parameters

The following assembly group parameters are available:

Times

Designation	Description
Switching time hold-down unit lower	Adjustment of switching time for lowering the hold-down unit.

Parameter

Designation	Description
Velocity main infeed pusher forward	Velocity of the main infeed pusher while moving out.
Position main infeed pusher front	Both the forward end position of the main infeed pusher and changeover position of the main infeed pusher.
Velocity, main infeed pusher backward.	Velocity of the main infeed pusher while moving in.
Position main infeed pusher rear	Rear end position of the main infeed pusher. Main infeed pusher waiting for product.
Position of main infeed pusher lower closing bar	Position of main infeed pusher from which the closing bar is lowered.
Position main infeed pusher close curtain brake	Position of the main infeed pusher from which the curtain brake is closed.
Position main infeed pusher lift film cradle	Main infeed pusher position from which the film cradle is raised pneumatically, making the film curtain softer.
Current limiting main infeed pusher 0 = 100% 1 = 80% 2 = 60% 3 = 40%	In the case of critical products, the current supply to the main infeed pusher can be limited to prevent excessive pressure on the products.

Function group Processing**Film splicer assembly group parameters**

The following assembly group parameters are available:

Times

Designation	Description
Sealing time Film splicer	Adjustment of film splicer sealing time.

Designation	Description
Cooling time film splicer	Adjustment of film splicer cooling time.
Time velocity monitoring Film splicer bottom	Adjustment of rotatory speed monitoring of bottom film splicer.
Time velocity monitoring Film splicer top	Adjustment of rotatory speed monitoring of top film splicer.

Counter

Designation	Description
Revolutions before splicing process splicer 1 top A	Determination of number of revolutions before splice process.
Revolutions before splicing process splicer 1 top B	Determination of number of revolutions before splice process.
Revolutions before splicing process splicer 1 bottom A	Determination of number of revolutions before splice process.
Revolutions before splicing process splicer 1 bottom B	Determination of number of revolutions before splice process.
Revolutions before splicing process splicer 2 top A	Determination of number of revolutions before splice process.
Revolutions before splicing process splicer 2 top B	Determination of number of revolutions before splice process.
Revolutions before splicing process splicer 2 bottom A	Determination of number of revolutions before splice process.
Revolutions before splicing process splicer 2 bottom B	Determination of number of revolutions before splice process.

Functions

Designation	Description
Nominal value film splicer	This parameter determines what temperature the film splicer should have.
Velocity monitoring film splicer	The rotational speed monitoring on the film splicer is turned on and off using this function.

Designation	Description
Main infeed pusher blocked during splicing	During splicing, the main infeed pusher is blocked.
Continuous operation film splicer	The film splicer can be operated continuously for test purposes. For this, the machine must be empty and be in continuous operation mode. When the function continuous operation film splicer is activated, splicing begins after approx. 1 minute.
Autocalibration film splicer 1	This function automatically calibrates the top and the bottom film splicer. The film splicers are calibrated during commissioning of the machine. Auto-calibration of the film splicer must be carried out after the Ropex regulator is changed or after the sealing bar of the film splicer is changed.
Sealing bar splicer 1 top	As soon as the film splicer autocalibration has been switched on, the position at which calibration is being carried out is marked in both rows using a green button.
Sealing bar splicer 1 bottom	As soon as the film splicer autocalibration has been switched on, the position at which calibration is being carried out is marked in both rows using a green button.
Autocalibration film splicer 2	This function automatically calibrates the top and the bottom film splicer. The film splicers are calibrated during commissioning of the machine. Auto-calibration of the film splicer must be carried out after the Ropex regulator is changed or after the sealing bar of the film splicer is changed.
Sealing bar splicer 2 top	As soon as the film splicer autocalibration has been switched on, the position at which calibration is being carried out is marked in both rows using a green button.
Sealing bar splicer 2 bottom	As soon as the film splicer autocalibration has been switched on, the position at which calibration is being carried out is marked in both rows using a green button.

Sealing unit assembly group parameters

The following assembly group parameters are available:

Times

Designation	Description
Clamping time	Sum of sealing time and cooling time.
Sealing time	Time period that the sealing bar is located in its upper final position.
Cooling time	Time period that the cooling is switched on.
Gap time	The closing bar does not initially move down completely. A gap remains between the sealing bar and the closing bar. This gap serves to pull the film tight. The closing bar subsequently moves first into its lower end position. The gap time is the period of time the film is pulled tight as long as the closing bar stays in the position.
Perforating time	Time during which the cutter of the perforating device is extended.

Parameter

Designation	Description
Velocity lower closing bar	Velocity of the servo axis when lowering the closing bar.
Velocity raise closing bar	Velocity of the servo axis when raising the closing bar.
Position closing bar film strecht on	Tightening is switched on when the closing bar has moved down to 2 mm before its end position.
Position closing bar hold-down unit up	Position of the closing bar at which the hold-down unit is raised.
Position closing bar lower film rocker	Position of the closing bar in mm at which the film rocker is supplied with pressure, causing it to be lowered.

Functions

Designation	Description
Stretching pressure left	Input pressure with which the left tightening roller pulls the film.
Stretching pressure right	Input pressure with which the right tightening roller pulls the film.

Designation	Description
Target value, sealing bar	Input of sealing bar temperature.
Perforating device	Switch component on and off.

Cycle conveyor 1 assembly group parameters

The following assembly group parameters are available:

Times

Designation	Description
Delay time Product control	As soon as the delay time has lapsed, the product control is activated

Parameter

Designation	Description
Cycle conveyor 1 path	Input the distance traveled by Cycle conveyor 1 during one cycle.
Cycle conveyor 1 acceleration forward	The servo axis accelerates to the stated velocity with this value.
Cycle conveyor 1 velocity forward	Velocity of the servo axis.
Cycle conveyor 1 delay time forward	With this value, the servo axis decelerates until standstill.

Functions

Designation	Description
Product control	Switch component on/off

Cycling conveyor 2 assembly group parameters

The following assembly group parameters are available:

Times

Designation	Description
Cycle conveyor 2 cycle time	If the cycle time elapses without new products being fed, Cycle conveyor 2 stops.

Parameter

Designation	Description
Velocity Cycle conveyor 2	The velocity of Cycle conveyor 2 is adjusted.

Cycling conveyor 3 assembly group parameters

The following assembly group parameters are available:

Times

Designation	Description
Cycle conveyor 3 cycle time	If the cycle time elapses without new products being fed, Cycle conveyor 3 stops.

Parameter

Designation	Description
Velocity Cycle conveyor 3	The velocity of Cycle conveyor 3 is adjusted.

Function group Outfeed**Assembly group parameters, therm**

The following assembly group parameters are available:

Parameter

Designation	Description
Velocity, therm conveyor	Enter the velocity of the therm conveyor.

Functions

Designation	Description
Nominal value, Therm	Enter the nominal temperature of the therm.
Product cooling	Switch product cooling on the therm outfeed on/off.

Assembly group parameters, outfeed transport

The following assembly group parameters are available:

Times

Designation	Description
Delay time outfeed Start	The signal that the outfeed can push is delayed by this time. Then the collations are pushed off.
Delay time outfeed back	The signal that the outfeed can move back is delayed by this time. The outfeed then travels up and returns to its initial position.

Parameter

Designation	Description
Velocity outfeed forward	Velocity of the servo axis.
Position outfeed front	Front position of the outfeed.
Velocity outfeed transport back	Velocity of the servo axis.
Position outfeed transport rear	Rear position of the outfeed.
Current limiting outfeed	Input value for current limiting, as over-load protection.

Assembly group parameters, outfeed conveyor

The following assembly group parameters are available:

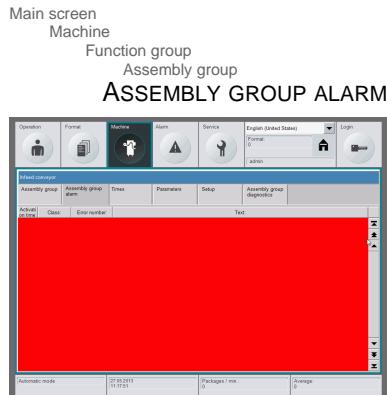
Times

Designation	Description
Cycle time outfeed conveyor	The cycle time starts after detection of a product. If the cycle time elapses without new products being fed, the outfeed conveyor stops. If a further product is detected before the end of the cycle time, the cycle time starts again.
Back-up time outfeed conveyor	Time span over which the sensor must at least be covered until a back-up is triggered on the outfeed conveyor.
Follow-up time outfeed conveyor	Period during which the outfeed conveyor continues to run until total standstill after machine stop.
Follow-up time outfeed conveyor remove back-up	Time elapsing until outfeed conveyor switches back to normal velocity after back-up situation.

Parameter

Designation	Description
Velocity outfeed conveyor	Input the velocity of the outfeed conveyor.
Velocity of outfeed conveyor: Clock out, if following machine not ready	Entry of velocity of outfeed conveyor when cycling off in the event of a fault on the downstream machine
Velocity outfeed conveyor remove back-up	Enter the velocity of the outfeed conveyor after triggering of the sensor in a back-up situation.

6.6.4 Assembly group alarm tab

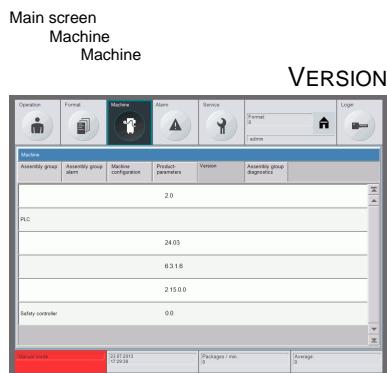


The alarm messages for specific assembly groups can be edited via the **Assembly group alarm** tab.

To the menu:

- 1 **Machine** menu
- 2 Touch the desired function group.
- 3 Touch the desired assembly group.
- 4 Touch the **Assembly group alarm** tab.

6.6.5 Version tab



The software used and the corresponding software version are displayed via the **Version** tab.

To the menu:

- 1 **Machine** menu
- 2 Touch the function group **Machine**.
- 3 Touch the **Version** tab.

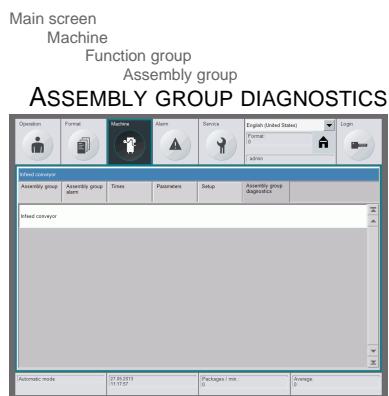
For your information

The version numbers of the user software can be accessed under the function Application Software.



6.6.6 Assembly group diagnostics tab

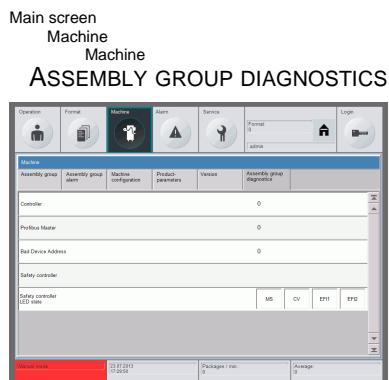
Diagnostics codes of the selected assembly groups. e. g. diagnostics codes of axles or diagnostics codes of servo frequency converters etc. can be viewed via the **Assembly group diagnostics** tab.



To the menu:

- 1 Machine** menu
- 2** Touch the desired function group.
- 3** Touch the desired assembly group.
- 4** Touch the **Assembly group diagnostics** tab.

The master and profibus communication diagnostics codes and the LED statuses of the safety control system are displayed via the tab **Assembly group diagnostics** of the function group **Machine**.



*Safety control system
LED status*

To the menu:

- 1 Machine** menu
- 2** Touch the function group **Machine**.
- 3** Touch the **Assembly group diagnostics** tab.

Explanation of the LED statuses:

- MS: Module status

LED MS	Meaning	Additional information
○	Supply voltage outside range	Switch on supply voltage and check at terminals A1 and A2
Red/green (1 Hz) 	Self-test or system initialization in progress.	Please wait....

LED MS	Meaning	Additional information
Green (1 Hz) 	System in Stop status	To start the application, press the Start button in Flexi Soft Designer.
Green (2 Hz) 	Identify (e. g. for Flexi Link)	
Red (1 Hz) 	Invalid configuration	Check module type and version of main module and extension modules with MS LED flashing red/green. If necessary, adjust the configuration with the Flexi Soft Designer. Use Flexi Soft Designer for more precise diagnostic information.
Red (2 Hz) 	Critical error in system, probably in this module. The application was stopped. All outputs are switched off.	Switch supply voltage off and on. Replace this module if this fault persists despite repeating this procedure several times. For more precise diagnosis, see Flexi Soft Designer diagnostics function.
Red 	Critical error in system, probably in another module. The application was stopped. All outputs are switched off.	Switch supply voltage off and on. If the fault persists despite repeating this procedure several times, replace the module displaying  -red (2 Hz). If this is not the case, use the diagnostics function in Flexi Soft Designer to pinpoint which module is affected.

- CV: Program verified, not verified

LED MS	Meaning	Additional information
	Configuration in progress.	

LED MS	Meaning	Additional information
Yellow (2 Hz) 	Configuration data being stored in the non-volatile memory.	The supply voltage must not be interrupted until the storage process is completed.
Yellow (1 Hz) 	Non-verified configuration	Verify the configuration with Flexi Soft Designer software.
yellow 	Verified configuration	

- EFI1: EFI bus channel 1 error

LED MS	Meaning	Additional information
○	OK	
Red 	Waiting for integration of EFI-compatible devices or Flexi-Link station after Power up.	
Red (1 Hz) 	Error, e. g.: <ul style="list-style-type: none"> • Expected EFI-compatible device or Flexi-Link station not found within 3 minutes. • Integration check failed. • Communication interrupted. • EFI device address conflict. • Flexi-Link ID conflict 	Check cabling. Later integration is possible.
Red (2 Hz, alternating) 	Identify (e. g. for Flexi Link).	

- EFI2: EFI bus channel 2 error. Statuses, see EFI1.

6.6.7 Setup tab

Depending on the selected assembly group, the **Setup** tab may contain the following operating modes, adjustment and setup functions:

Operating modes

- Automatic mode (See [Automatic mode on page 6-51](#))
- Jogging (See [Jogging on page 6-52](#))
- Referencing (See [Referencing on page 6-52](#))
- Synchronous Jogging (See [Synchronous jogging on page 6-53](#))
- Manual mode
- Valves (See [6.6.8 Valves tab on page 6-58](#))

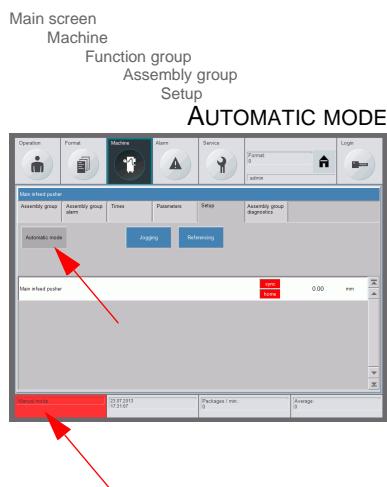
Adjustment and setup functions

- Drive adjust (See [Drive adjust on page 6-53](#))
- Conveyor scaling (See [Conveyor scaling on page 6-58](#))

To the menu:

- 1 **Machine** menu
- 2 Touch the desired function group.
- 3 Touch the desired assembly group.
- 4 Touch the **Setup** tab.

Automatic mode



Precondition:

The machine is ready for operation and is in stop mode.

To the menu:

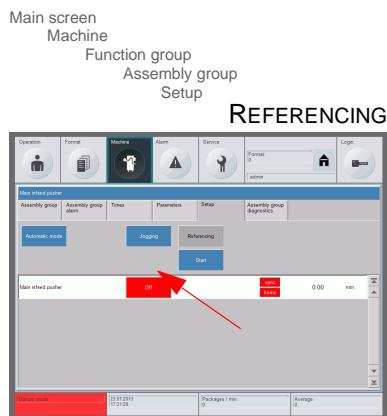
- 1 Touch the **Automatic mode** button.
The display shows the axis position and whether the axis is referenced and synchronous.

For your information

This menu or the operating mode display in the bottom left corner must be touched in order to switch back from operating mode *Referencing*, *Jogging*, *Synchronous jogging*, *Valves* or *Manual* to automatic mode. Production can only be continued in *Automatic mode*.

Referencing

This menu displays the axes which can be referenced.



Precondition:

The machine is ready for operation and is in stop mode.

To the menu:

- 1 Touch the **Referencing** button.
- 2 Touch the **OFF** button for the axis to be referenced.
- 3 Press the **START** push button on the Pester operating unit.
- 4 Touch the **Start** button.
The axis is referenced.
- 5 Deselect the function after the reference run by touching the **On** button.

Carry out the reference run for the other axes in the same way.



For your information

The current operating mode is displayed on the bottom left of the screen.

To then continue processing, operating mode *Automatic* must be activated by

- touching the tab **Setup/button Automatic** for the corresponding assembly group or
- touching the operating mode display on the bottom left of the screen.

Jogging



Precondition:

The machine is ready for operation and is in stop mode.

To the menu:

- 1 Touch the **Jogging** button.
- 2 In the field **Velocity jogging**, enter the velocity for jog mode in percent. The maximum velocity is taken as the base value.
- 3 Touch the **Off** button for the components that are to be moved.
- 4 Press the **START** push button on the Pester operating unit.
- 5 Touch the **positive** or **negative** button.
- 6 Deselect the function by touching the **On** button.



For your information

The current operating mode is displayed on the bottom left of the screen.

To then continue processing, operating mode *Automatic* must be activated by

- touching the tab **Setup/button Automatic** for the corresponding assembly group or
- touching the operating mode display on the bottom left of the screen.

Synchronous jogging



Precondition:

The machine is ready for operation and is in stop mode.

To the menu:

- 1 Touch the **Synchronous jogging** button.
- 2 In the field **SyncOverride**, enter the velocity of the master axle in percent. The cycle rate saved in the format is taken as the base value.
- 3 Touch the **Off** buttons for the components that are to be moved.
- 4 Press the **START** push button on the Pester operating unit.
- 5 Touch the **positive** or **negative** button.
- 6 Deselect the function by touching the **On** button.



For your information

The current operating mode is displayed on the bottom left of the screen.

To then continue processing, operating mode *Automatic* must be activated by

- touching the tab **Setup/button Automatic** for the corresponding assembly group or
- touching the operating mode display on the bottom left of the screen.

Drive adjust

The function drive unit adjust or axis adjust must be carried out if

- The motor is disconnected from the gearbox or
- The gearbox was disconnected from the unit.

This applies to the following assembly groups:

- Indexing conveyor (See Adjusting the indexing conveyor on page 6-54)
- PacRob (See Adjusting the PacRobot robot arm on page 6-55)
- Closing bar (See Adjusting the closing bar drive unit on page 6-56)

To the menu:

- 1 Machine** menu
- 2 Touch the desired function group.
- 3 Touch the desired assembly group.
- 4 Touch the **Setup** tab.

Adjusting the indexing conveyor

- 1 In the menu **Machine/Infeed/Indexing conveyor/Setup**, touch the **Drive adjust** button.
- 2 Touch the **Off** button for indexing conveyor 1 and indexing conveyor 2.
- 3 Push the drivers of indexing conveyors 1 and 2 together and position them in front of adjusting point **A**



- 4 Press the **START** push button on the Pester operating unit.
- 5 Touch the **Start** button.
The axis is adjusted.
- 6 Deselect the function after adjustment by touching the corresponding **On** buttons.

Adjusting the PacRobot robot arm



For your information

When the two top pivot points of a robot arm lie in a horizontal line, this corresponds to the mechanical zero point of the axis. The axis is adjusted in this position.

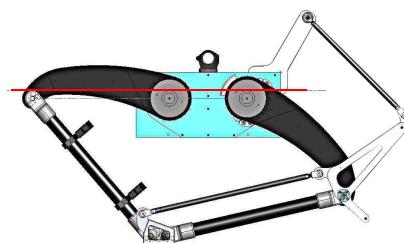
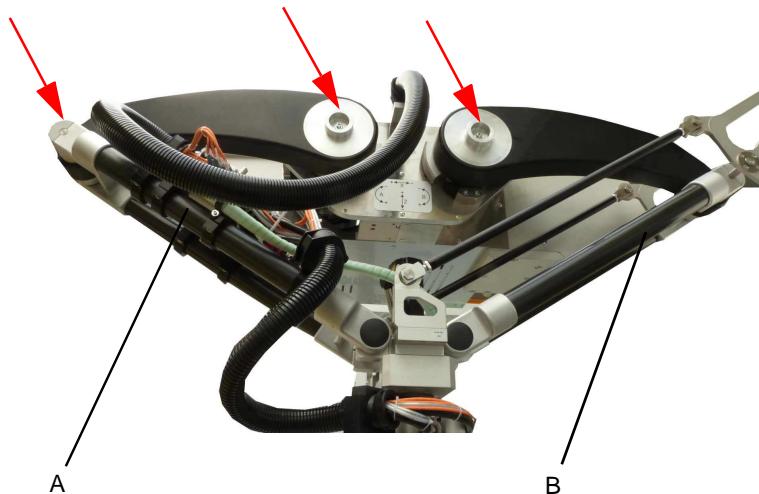
Preconditions

The machine is ready for operation and is in stop mode.

Adjusting the A-axis

1 Open protective device.

2 Place bar on the three points (red arrows).



A A axis
B B axis

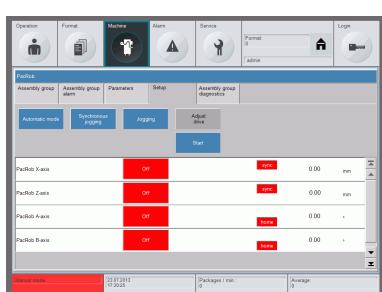
3 Touch the **Jogging** button in the menu **Machine/Collating/PacRob/Setup**.

4 Touch the **OFF** button for the axis to be referenced.

5 Enter velocity, recommended value approx. 10-15%.

6 Press the **START** push button on the Pester operating unit.

7 Tap the **Positive** or **Negative** button until the bar lies on the three points. This corresponds to the mechanical zero point of the axis.



- 8 Press the **STOP** push button on the Pester operating unit.
- 9 Touch the **Drive adjust** button.
- 10 Touch the **OFF** button for the axis to be referenced.
- 11 Press the **START** push button on the Pester operating unit.
- 12 Touch the **Start** button.
The axis is adjusted.
- 13 Deselect the function after adjustment by touching the corresponding **On** button.
- 14 Check whether the actual value display of the axis position shows 0°.

Carry out adjustment for the other axis in the same way.



For your information

As soon as the menu **Jogging** or **Drive adjust** is selected, the operating mode changes. The current operating mode is displayed on the bottom left of the screen.

To then continue processing, operating mode *Automatic* must be activated by

- touching the tab **Setup/button Automatic** for the corresponding assembly group or
- touching the operating mode display on the bottom left of the screen.

Adjusting the closing bar drive unit

The closing bar drive unit has to be adjusted if the message "Closing bar in undefined position" is displayed.



Danger!

Risk of injury!

Only qualified personnel may adjust the drive unit of the closing bar!

Preconditions:

- If possible, messages have been acknowledged with the **RESET** push button.
- The machine is in Stop mode.

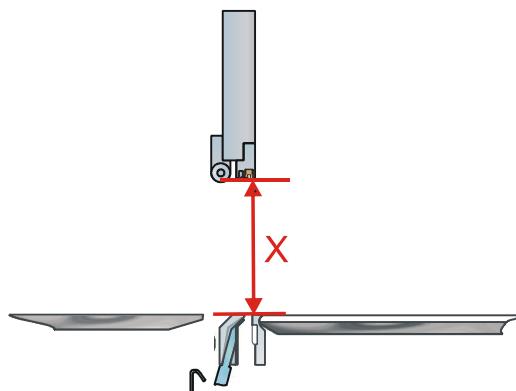
Setting the distance between closing bar and clamping bar:

***Caution!******Damage to the closing bar!***

Never release the closing bar brake when the protective device is open. If the closing bar falls downwards due to the loss of voltage, the closing bar may be damaged.

Close the protective device before releasing the closing bar brake!

- 1 Touch the **Open** button in the menu **Operation/Brakes/Closing bar open brake**.
The closing bar brake is open.
- 2 Open protective device.
- 3 Ensure that the distance between the closing bar and clamping bar is at the ideal measurement of 150 mm and maintain this position by hand or by using a spacer such as a plastic block.



- 4 Touch the **Open** button in the menu **Operation/Brakes/Closing bar open brake**.
The closing bar brake is closed.
- 5 Measure the exact distance **X** between the closing bar and clamping bar.

Adjusting the closing bar drive unit:

- 1 Select the menu **Machine/Processing/Sealing unit/Setup** button **Drive adjust**.
- 2 Touch the **Off** button in the line **Closing bar**.
- 3 Enter the previously measured distance **X**.
- 4 Touch the **Start** button.
Drive unit is adjusted.
The message "Closing bar in undefined position" disappears.
- 5 Touch the **On** button in the **Closing bar** line.
- 6 If necessary, remove spacer block between the closing bar and the clamping bar.
- 7 Close the protective device.



Conveyor scaling



Precondition:

The machine is ready for operation and is in stop mode.

To the menu:

- 1 Touch the **Setup** tab.
- 2 Tap the **Off** button for the conveyor to be scaled.
Machine switches to *Manual mode*.
- 3 Press the **START** push button on the Pester operating unit.
Conveyor is scaled.
- 4 Switch to *Automatic mode*.



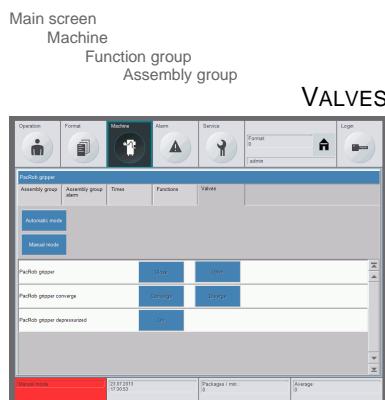
For your information

The current operating mode is displayed on the bottom left of the screen.

To then continue processing, the operating mode *Automatic* must be activated by

- touching the **Automatic** button in the tab **Setup** or
- touching the operating mode display on the bottom left of the screen.

6.6.8 Valves tab



Precondition:

The machine is ready for operation and is in stop mode.

To the menu:

- 1 Touch the **Valves** tab.
- 2 Tap the **Manual mode** button.
- 3 Press the **START** push button on the Pester operating unit.
- 4 Trigger the desired pneumatic unit (valve) by touching the corresponding button, e. g. **Open** or **Close**.
- 5 Switch to *Automatic mode*.



For your information

The current operating mode is displayed on the bottom left of the screen.

To then continue processing, the operating mode *Automatic* must be activated by

- touching the **Automatic** button in the tab **Valves** or
 - touching the operating mode display on the bottom left of the screen.
-

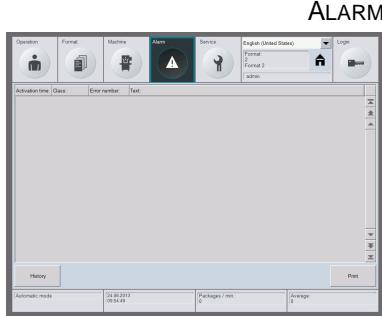
6.7 Alarm menu



For your information

The functions of this menu are only accessible after logging in with the corresponding password.

Main screen



Alarm messages are displayed and edited using the **Alarm** menu.

To the menu:

- 1 Touch the **Alarm** menu.

The following functions are available:

Designation	Description
History	This function is used to filter the alarm messages. The History screen opens.
Print	This function is used to print the displayed alarm messages.

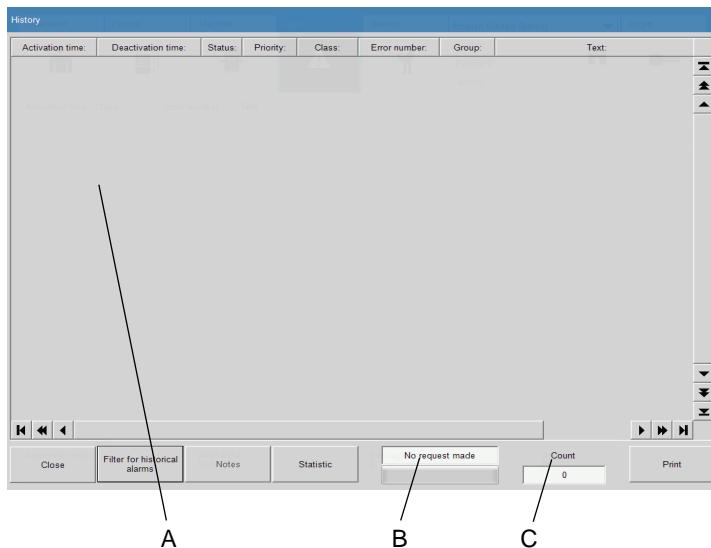
History screen

The **History** screen displays the history list. The history list contains all machine errors that occurred.

When the memory is full, old error messages are overwritten.

To access the screen:

- 1 Touch the **Alarm** menu.
- 2 Touch the **History** button.
The **History** screen opens.



- A Display list
- B Status message
- C Alarm counter

Display list A list of all machine errors is displayed.

Status message Displays the status.

Alarm counter Counts the alarm messages.

The following functions are available:

Designation	Description
Close	Closes the History screen.
Filter for alarms in the History	<p>Used for investigating a specific machine error.</p> <p>The following filters are available:</p> <ul style="list-style-type: none"> • Duration • Conditions • Classes • Groups
Notes	Used to compile notes relating to a specific alarm message.

Designation	Description
Statistics	All errors are displayed with their frequency, date, time etc. Click on a column header to sort the list of errors in ascending or descending order. This sorting function is available for every column.
Print	Prints the alarm list - history with the columns Time deactivation time, Status and Text

6.8 Service menu



For your information

Certain functions in this menu are only accessible after logging in with the corresponding password.

Main screen



The following tabs are available:

- Password administration
(See 6.8.1 Password administration tab on page 6-63).
- Design (See 6.8.2 Design tab on page 6-69).
- Language selection (See 6.8.3 Language selection tab on page 6-73).
- Administration (See 6.8.4 Administration tab on page 6-74).

6.8.1

Password administration tab



For your information

This menu can only be accessed with the administrator password. The passwords accompany the complete machine documentation package in a special envelope addressed to the customer project manager with delivery of the machine.



Caution!

To prevent misuse and for safety reasons, you should change the passwords after first commissioning of the machine (See Changing a password on page 6-67)!

Service



To the menu:

- 1 Touch the **Service** menu.
- 2 Touch the **Password administration** tab.

The following functions are available:

Designation	Description
Overview of rights 1	Display of rights and the assigned user groups
Overview of rights 2	Display of rights for the assigned users, op, tec and admin.

Designation	Description
Add rights	Manage rights
Add user	Manage users
Add user groups	Manage user groups
Change rights	Change main navigation rights

Manage rights

The following functions are available via **Add rights**:

Designation	Description
Display rights	Display existing rights.
Add rights	Add new rights.
Allocate right to user groups	Allocate the highlighted right to certain user groups.
Change allocated user group	Change allocation of user groups for the selected right.
Activate right	Activate highlighted right.
Deactivate right	Deactivate highlighted right.
Remove right	Delete highlighted right.
Print screen	Prints the screen view.

Display rights

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add rights**/button **Open....**
The **Rights overview** screen opens. All existing rights are displayed.
- 3 Click in the column **Active** to activate or deactivate rights.

Add rights

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add rights**/button **Open....**
The **Rights overview** screen opens.
- 3 Touch the **Add...** button.
The **Add right** screen opens.
- 4 Enter the name of the right in the field **Full name**.
- 5 Add an explanatory text for the right in the Comment field.
- 6 The right can be activated or deactivated via the field **Active**.
- 7 Allocate this right via the user groups table.
- 8 Confirm using **OK**.

Allocate right to user groups

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add rights**/button **Open....**
The **Rights overview** screen opens.
- 3 Highlight right.
- 4 Touch the **Change...** button.
The **Change rights** window opens.
- 5 Change allocation of the user groups.
- 6 Confirm using **OK**.

Activate right

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add rights**/button **Open....**
The **Rights overview** screen opens.
- 3 Highlight right.
- 4 Touch the **Activate** button.
A checkmark appears in the column **Active**. The right is active.

Deactivate right

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add rights**/button **Open....**
The **Rights overview** screen opens.
- 3 Highlight right.
- 4 Touch the **Deactivate** button.
The checkmark in the column **Active** is deleted. The right is deactivated.

Remove right

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add rights**/button **Open....**
The **Rights overview** screen opens.
- 3 Highlight right.
- 4 Touch the **Delete** button.
- 5 Confirm the security query with **Yes**.



For your information

Changes only become effective after logging on again.

Manage users

The following functions are available via **Add user**:

Designation	Description
Add user	Add new users.

Designation	Description
Change user	Change user data.
Activate user	Activate an existing, deactivated user
Deactivate user	Deactivate an existing, activated user
Delete user	Delete an existing user
Change password	Change the password of an existing user.

- Add user*
- 1 Select the **Service/Password administration** menu.
 - 2 Touch the line **Add user**/button **Open....**
The **User overview** screen opens.
 - 3 Touch the **Add** button.
The **Add user** window opens.
 - 4 Enter the user data.
 - 5 Select the user group.
 - 6 Enter the password.
 - 7 Select status.
 - 8 Where necessary, limit authorization period in the Deactivation block.
 - 9 Confirm using **OK**.
- Change user*
- 1 Select the **Service/Password administration** menu.
 - 2 Touch the line **Add user**/button **Open....**
The **User overview** screen opens.
 - 3 Select user group and highlight the user to be changed.
 - 4 Touch the **Change** button.
The **Change user** window opens.
 - 5 Change user data.
 - 6 Confirm using **OK**.
- Activate user*
- 1 Select the **Service/Password administration** menu.
 - 2 Touch the line **Add user**/button **Open....**
The **User overview** screen opens.
 - 3 Select user group and highlight the user to be activated.
 - 4 Touch the **Activate** button.
Status changes to *Activated*.
 - 5 Confirm using **OK**.

- Deactivate user*
- 1 Select the **Service/Password administration** menu.
 - 2 Touch the line **Add user**/button **Open....**
The **User overview** screen opens.
 - 3 Select user group and highlight the user to be deactivated.
 - 4 Touch the **Deactivate** button.
Status changes to *Deactivated*.
 - 5 Confirm using **OK**.
- Delete user*
- 1 Select the **Service/Password administration** menu.
 - 2 Touch the line **Add user**/button **Open....**
The **User overview** screen opens.
 - 3 Select user group and highlight the user to be deleted.
 - 4 Touch the **Delete** button.
 - 5 Confirm the security query with **Yes**.
User is deleted from the system.
- Changing a password*
- 1 Select the **Service/Password administration** menu.
 - 2 Touch the line **Add user**/button **Open....**
The **User overview** screen opens.
 - 3 Select user group and highlight the user to be changed.
 - 4 Touch the **Change** button.
The **Change user** window opens.
 - 5 Activate the **Change password** checkbox.
 - 6 Enter the password in the field **Password** and in the field **Repeat password**.
 - 7 Confirm using **OK**.

Manage user groups

The following functions are available via **Add user group**:

Designation	Description
Add user group	Add new user group.
Change user group	Change existing user group.
Delete user group	Delete existing user group.
Change logout time	Define after what period of time or at what time the user is logged out.

- Add User group*
- 1 Select the **Service/Password administration** menu.
 - 2 Touch the line **Add user group**/button **Open....**
The **User group overview** screen opens.

- 3 Touch the **Add...** button.
The **Add user group**window opens.
- 4 Enter data and settings for the user groups.
- 5 Allocate rights to the user group.
- 6 Confirm using **OK**.

Change user group

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add user group**/button **Open....**
The **User group overview** screen opens.
- 3 Tap the user group.
- 4 Touch the **Change...** button.
The **Change user group**window opens.
- 5 Change data, settings and rights for the user groups.
- 6 Confirm using **OK**.

Delete user group

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add user group**/button **Open....**
The **User group overview** screen opens.
- 3 Touch the **Delete** button.
- 4 Confirm the security query with **Yes**.

Changing logout time

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Add user group**/button **Open....**
The **User group overview** screen opens.
- 3 Tap the user group.
- 4 Touch the **Change...** button.
The **Change user group**window opens.
- 5 Change the value in the field Time to automatic logout.
- 6 Confirm using **OK**.

Change rights

This function changes rights to motion time. This function must be used with the utmost caution, as it cannot be reversed. These changes cannot be reset even by rebooting the system.

The following functions are available via Change rights:

Designation	Description
Change rights	<p>Allocate rights to the main navigation control elements. Example: It should only be possible to operate menu Function with right XY.</p> <p>This function changes rights to runtime. This function must be used with the utmost caution, as it cannot be reversed. These changes cannot be reset even by rebooting the system.</p>

Change rights



For your information

Use this function only with due care and attention!

- 1 Select the **Service/Password administration** menu.
- 2 Touch the line **Change rights**/button **Open....**.
The **Change rights** window opens.
- 3 Touch the **Change rights** button.
The color of the button changes to green.
- 4 Touch the **Close** button.
- 5 Select menu to which a new right is to be assigned.
The Rights overview screen is displayed.
- 6 Highlight right.
- 7 Touch the **OK** button.
New right was assigned to the menu.
- 8 Select the **Service/Password administration** menu.
- 9 Touch the line **Change rights**/button **Open....**.
The **Change rights** window opens.
- 10 Touch the **Change rights** button.
The color of the button changes to red.
- 11 Touch the **Close** button.

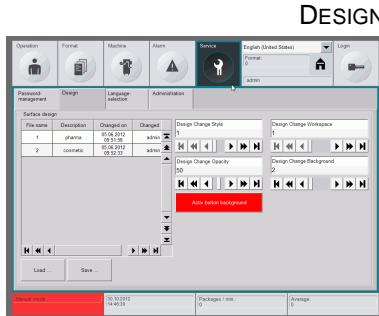
6.8.2 Design tab



For your information

The functions of this menu are only accessible after logging in with the corresponding password.

Main screen
Service



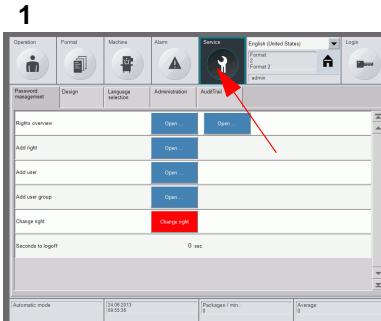
To the menu:

- 1 Touch the **Service** menu.
- 2 Touch the **Design** tab.
- 3 Carry out the changes required.

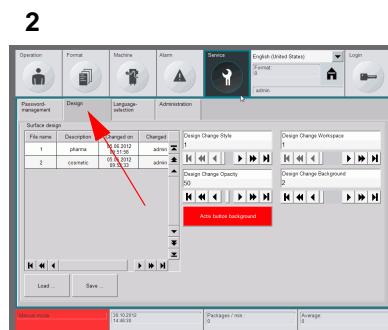
The following functions are available:

Designation	Description
Save format	This function is used to save a design which has been created.
Load format	This function is used to load an existing design.
Deleting a format	This function is used to delete an existing design.

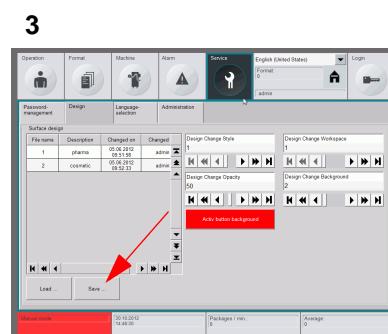
Design/Save format



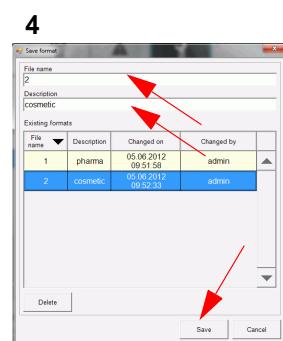
Touch the **Service** menu.



Touch the **Design** tab.

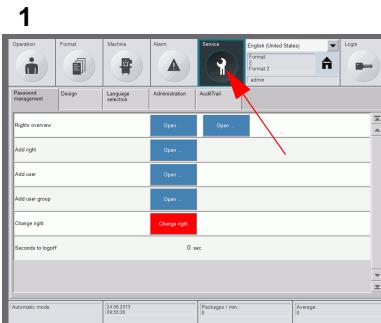


Touch the **Save** button.

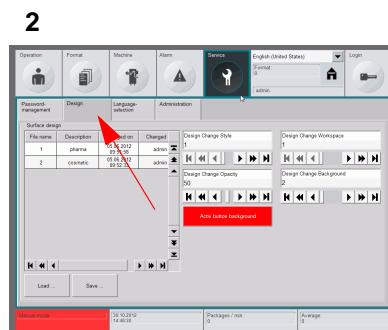


Enter the file name and description and confirm with **Save**.

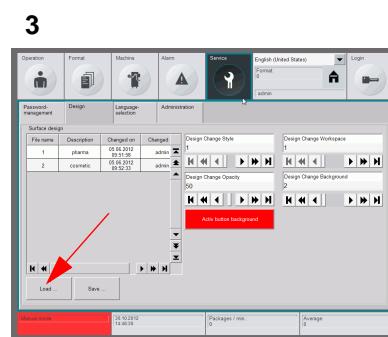
Design/Load format



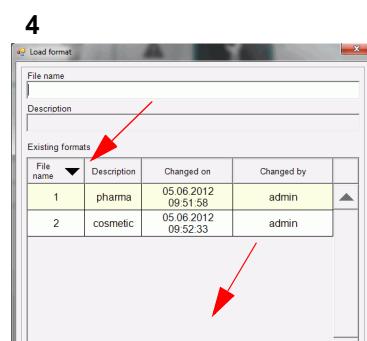
Touch the **Service** menu.



Touch the **Design** tab.

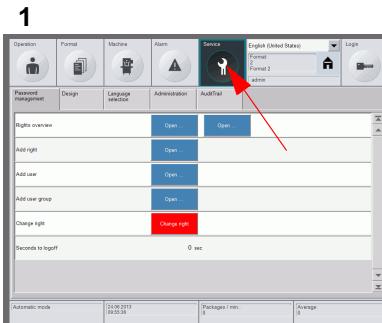


Touch the **Load** button.

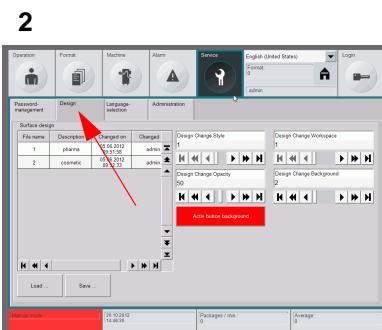


Highlight the format to be loaded and confirm with **Load**.

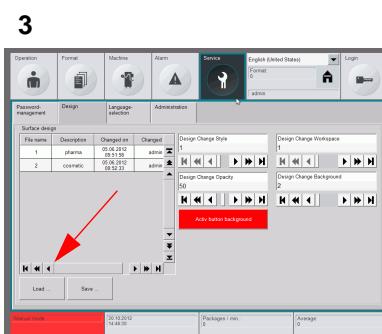
Design/Delete format



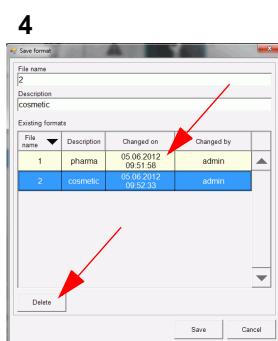
Touch the **Service** menu.



Touch the **Design** tab.



Touch the **Save** button.



Highlight the format to be deleted and confirm with **Delete**.

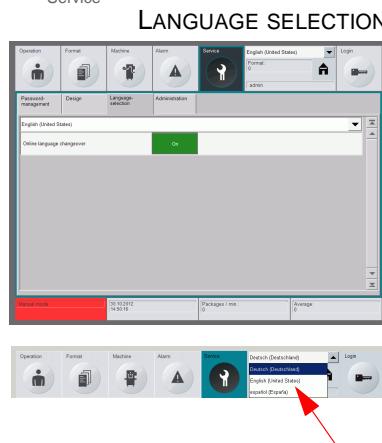
6.8.3 Language selection tab



For your information

The functions of this menu are only accessible after logging in with the corresponding password.

Main screen
Service



To the menu:

- 1 Touch the **Service** menu.
- 2 Touch the **Language selection** tab.

In this tab, you can

- Select the language for the operating texts via the pop-up box.
- Display a field for language selection next to the menu selection, via the field **Online language changeover**. The language for the operating texts can now be changed without entering a password.

6.8.4 Administration tab



For your information

The administration tab is only accessible after logging in with the corresponding password.

Main screen
Service



This tab can be used to carry out a range of functions.

To the menu:

- 1 Touch the **Service** menu.
- 2 Touch the **Administration** tab.
- 3 Select the required function.

The following functions are available:

Designation	Description
Mouse pointer	
On	Mouse pointer is displayed on the touchscreen, for example in order to use an external keyboard with mouse.
Off	Mouse pointer is hidden on the touchscreen.
Terminate HMI	
End	This function is used to exit the visualization.
Shutdown	This function is used to shut down the control system.

Designation	Description
Reboot	This function is used to restart the control system.
Operating system	
Command Prompt	Opens the entry prompt.
Task Manager	Opens the Windows Task Manager.
SYSTEM CONTROL	Opens the Windows Control Panel.
Network	Opens the Windows network connections.
Time / Date	Opens a window to change time and date.
Printer	Opens a window to select a printer.

Audit Trail tab

This tab can be used to carry out a range of functions.

To the menu:

- 1 Touch the **Service** menu.
- 2 Touch the **Audit Trail** tab.
- 3 Select the required function.

The following functions are available:

Designation	Description
Audit Trail	Opens a window to display the process flow.

6.8.5 Logout

After expiry of the preset logout time (See Change logout time on page 6-67), the logged in user is automatically logged off.

Touching the **Login** menu logs off the logged in user. The login window opens. The user can log in again via the login window.

6.9 Creating backup of HMI and ELAU

6.9.1 Creating backup of HMI

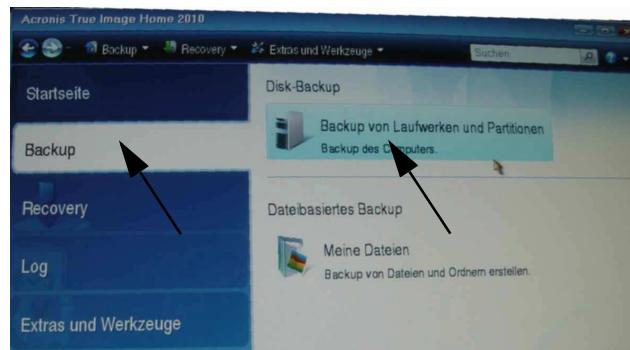
The following description shows how to create a backup of the HMI.



For your information

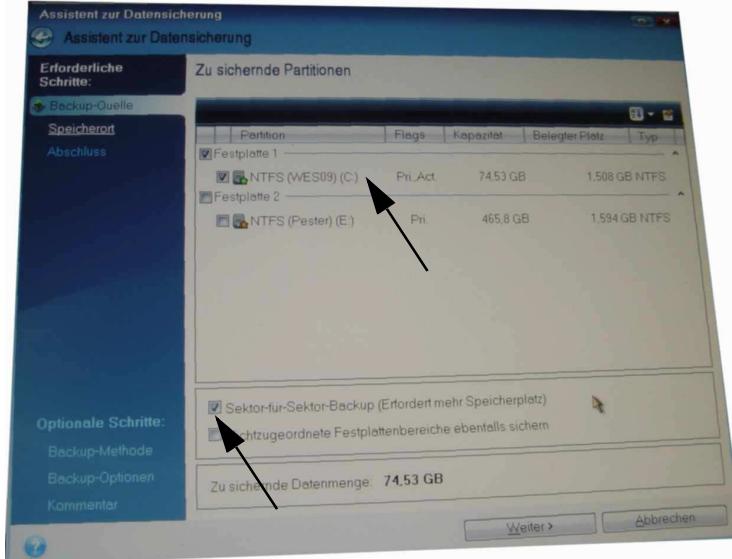
In the following description, Acronis True Image software is used. This software from Acronis is not included in the scope of delivery.

- 1 Connect USB stick or external hard drive to which the backup copy is to be saved and switch on.
This step must be performed before starting Acronis True Image!
- 2 Connect further USB DVD drive, switch on and load Acronis True Image software.
- 3 Re-start the system.
- 4 Interrupt the start sequence with F10 and boot Acronis-True-Image from the USB DVD drive.
- 5 After autostart of Acronis True Image, select **Acronis True Image** on the operating panel.
- 6 Select the menu **Backup**.



- 7 Click on **Disk backup/backup optical drives and partitions**.
- 8 **Continue** button.

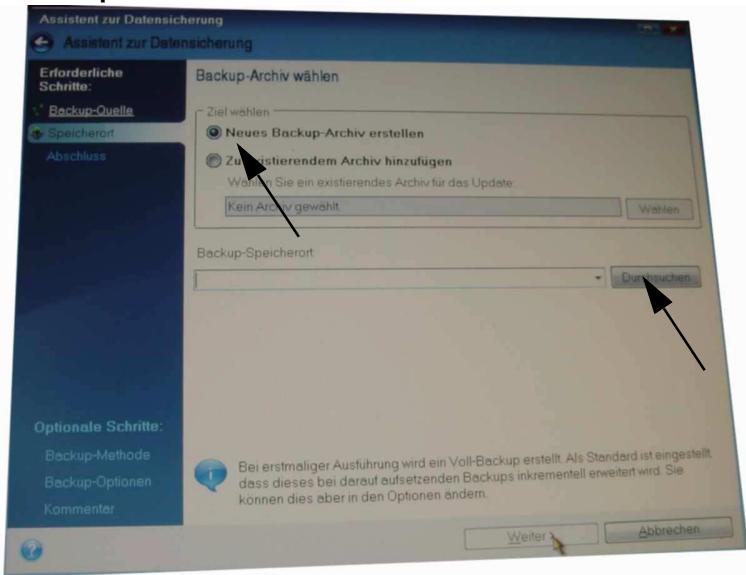
- 9 Select the partition to be saved, i.e. click on the hard drive which corresponds to drive C::



10 Activate the checkbox **Sector-by-sector backup**.

11 **Continue** button.

12 In the block **Select target**, select the option **Create new backup archive**.

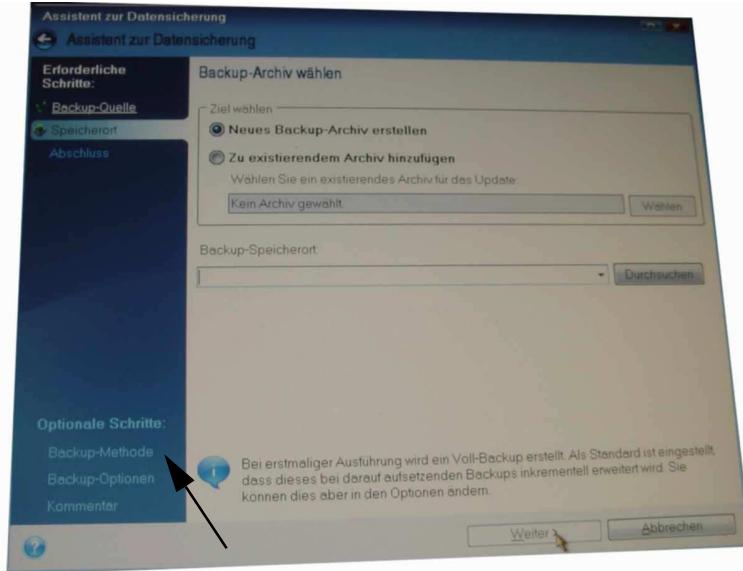


13 Click the **Browse** button, select the backup storage location (external hard drive) and assign an easily identifiable name to the backup.

14 **Continue** button.

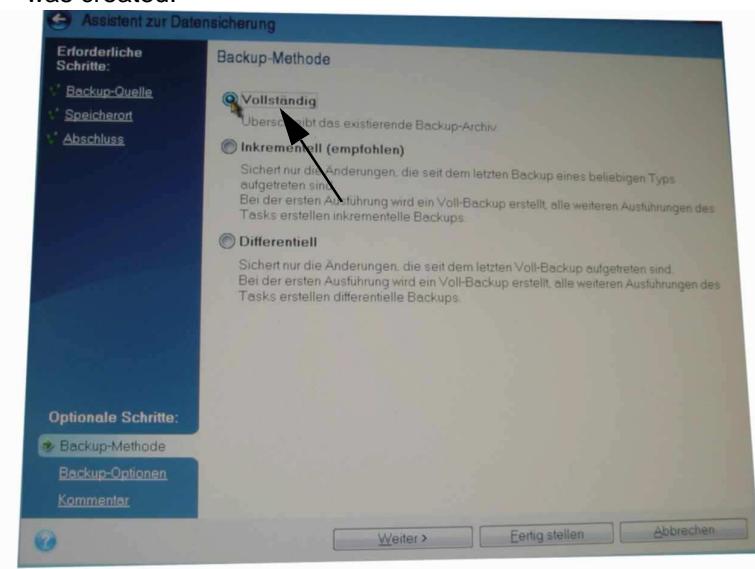
A summary of the settings is displayed.

15 Under Optional steps, click on the function Backup method.



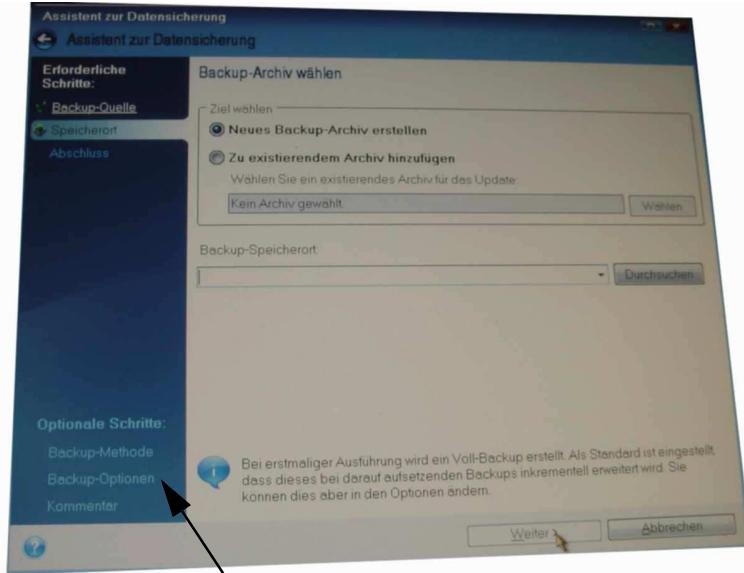
16 Select the option Complete.

The backup copy contains all data available when the backup was created.

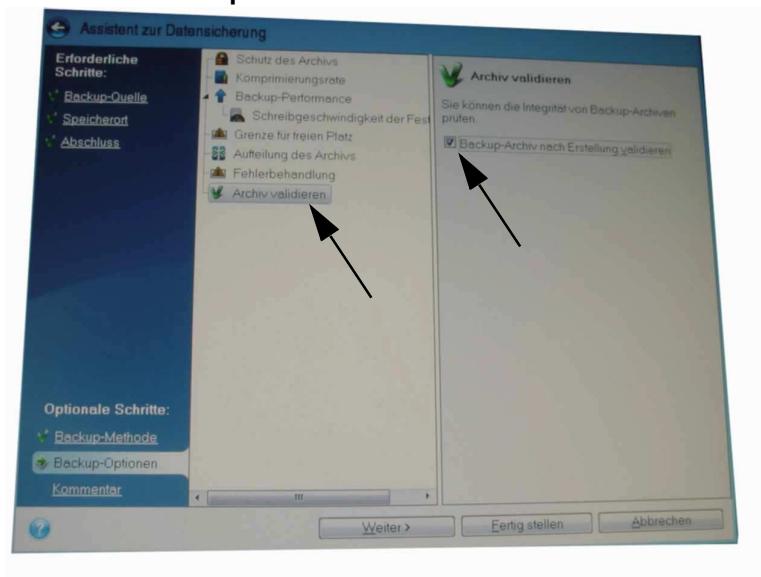


17 Continue button.

18 Under Optional steps, click on the function Backup options.



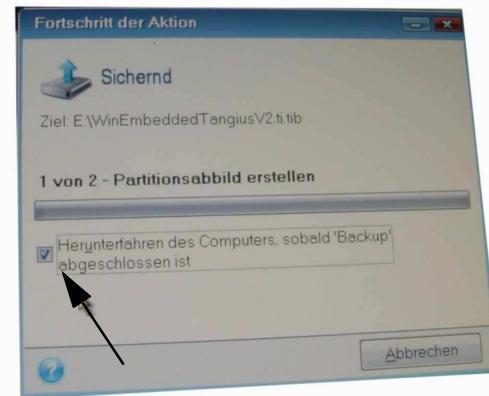
19 Click on the line Validate archive and activate the checkbox Validate backup archive after creation.



20 Finish button.

Backup is created. The progress bar is displayed.

- 21 Activate the checkbox **Shut down computer as soon as backup is completed.****



The computer will be shut down once backup has been completed. Backup has been performed.

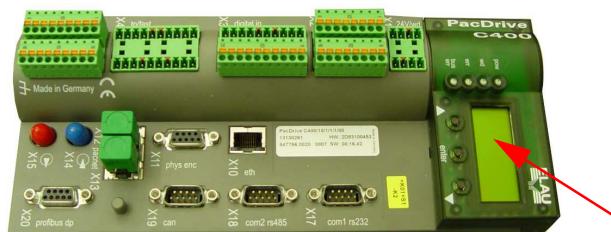
6.9.2 Creating backup of ELAU

There are two ways to create backup copies of the ELAU data:

- Creating backup copy of the data on the ELAU Controller memory card (See [Creating a backup copy of the data from the ELAU Controller memory card on page 6-80](#)).
- Create a backup copy of the ELAU Controller data via Ethernet connection.

Creating a backup copy of the data from the ELAU Controller memory card

- 1 Switch off the main switch.
- 2 Open the control cabinet.
- 3 Fold up the operation and display unit.



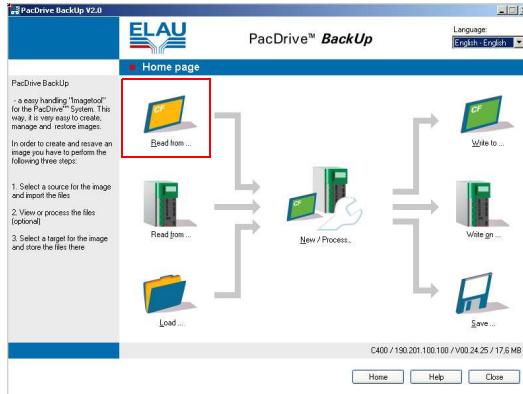
- 4 Remove the memory card and insert a new memory card.



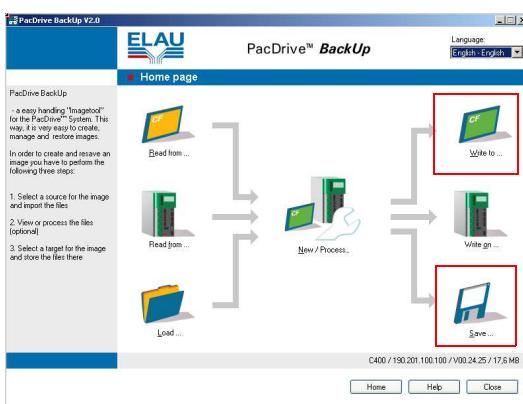
- 5 Insert the memory card into the PC's card reader.

6 Start PacDrive Backup program.

7 Select **Read from... on the Start page of PacDrive BackUp.**



8 Select **Write to ... or **Save...** on the Start page of PacDrive BackUp and save the backup copy to a directory or to an external storage medium, e. g. USB stick.**



9 Start data transfer.

10 Follow the program's instructions.

The data from the ELAU Controller are transferred to the previously selected storage medium. Backup is created.

11 Reinsert the memory card in the operation and display unit.

12 Close the operation and display unit.

13 Switch on the main switch.

Creating a backup copy of the ELAU Controller data via Ethernet connection

Requirements



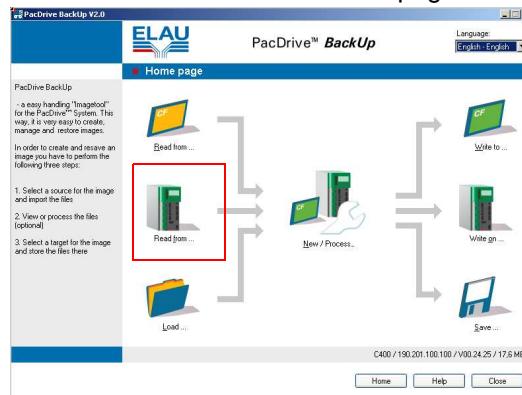
For your information

To restore the contents of the memory card, you need the program PacDrive BackUp. It is on the ELAU PacDrive Service CD.

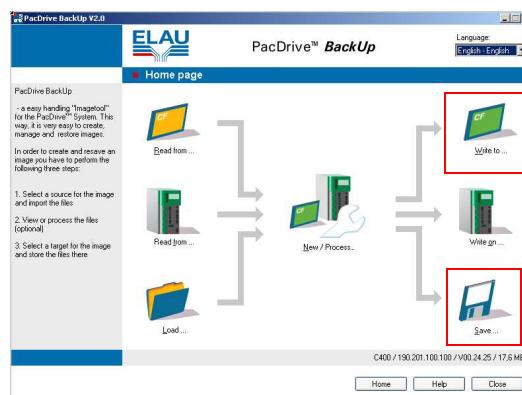
The following conditions must be fulfilled in order to create a backup copy of the ELAU data:

- The PacDrive backup program must be installed and started,
- The connection between PC and ELAU Controller was established.

- 1 Install PacDrive BackUp on the PC.
- 2 Using a crossed Ethernet cable, establish the connection between PC and ELAU Controller, or use the Ethernet port on the front of the control cabinet.
- 3 Start PacDrive Backup program.
- 4 Select **Read from ...** on the Start page of PacDrive BackUp.



- 5 Set the IP address of the ELAU Controller (delivery status IP address Pester):
e. g.: 192.168.61
- 6 Click on the **Read** button.
- 7 Select **Write to ...** or **Save...** on the Start page of PacDrive BackUp and save the backup copy to a directory or to an external storage medium, e. g. USB stick.



- 8 Start data transfer.
- 9 Follow the program's instructions.
The data from the ELAU Controller are transferred to the previously selected storage medium. Backup is created.

6.10 Restoring HMI and ELAU

6.10.1 Restoring HMI

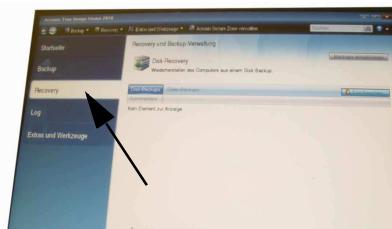
The following description explains how to restore the HMI after a fault in the hard disk.



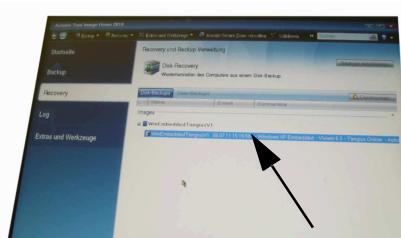
For your information

In the following description, Acronis True Image software is used. This software from Acronis is not included in the scope of delivery.

- 1 Connect USB DVD drive or USB stick with image file.
- 2 Connect further USB DVD drive, switch on and load Acronis True Image software.
- 3 Re-start the system.
- 4 Interrupt the start sequence with F10 and boot Acronis-True-Image from the USB DVD drive.
- 5 After autostart of Acronis True Image, select **Acronis True Image** on the operating panel.
- 6 Select the menu **Recovery**.

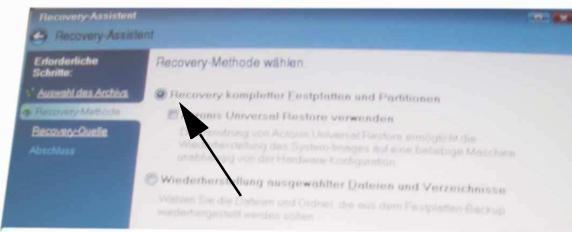


- 7 Select image file (.tib) via **Browse**.
Image file is displayed.



- 8 Right-click on the image file.
- 9 In the context menu, select **Recovery**.
The Recovery Assistant opens.

- 10** Select recovery method with the option **Recovery of complete hard drives and partitions**.



- 11 Continue** button.

- 12** Define target location to which the image is to be copied. Here, select the hard drive (IDE Primary Master), not one of the optical drives connected via USB.

- 13 Continue** button.

- 14** Confirm the security query with **OK**.

- 15** Button **Finish**.

Progress bar is displayed.

- 16** Activate the checkbox **Shut down PC after successful recovery**, which is located beneath the progress bar.
The computer will be shut down after recovery.

- 17** Disconnect all optical drives connected to the operating panel via USB.

- 18** Reboot the computer.

6.10.2 Restoring Elau

Requirements



For your information

To restore the contents of the memory card, you need the program PacDrive BackUp. It is on the ELAU PacDrive Service CD.

There are two ways to restore the memory card contents.

- Write the image file directly on the memory card (See [Write the image file directly on the memory card on page 6-84](#)).
- Write the image file on the memory card in the ELAU Controller via Ethernet connection (See [Writing the image file on the memory card in the ELAU Controller via Ethernet connection on page 6-86](#)).

Write the image file directly on the memory card

The following are preconditions for restoring ELAU:

- The PacDrive backup program must be installed and started,

- The memory card must be restored and
- Then the memory card in the Elau Controller must be replaced.

Starting the PacDrive program

1 Install PacDrive BackUp on the PC.

2 Insert recovery CD into PC.

Restore memory card

1 Start PacDrive Backup.

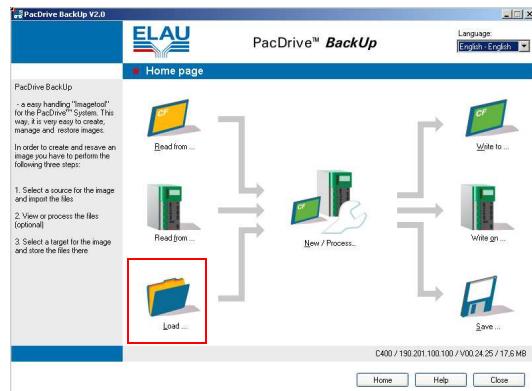
2 Insert the memory card of the ELAU Controller into the PC card reader.



For your information

A message may appear informing you that the memory card must be formatted. Confirm this message with OK!
The memory card is formatted.

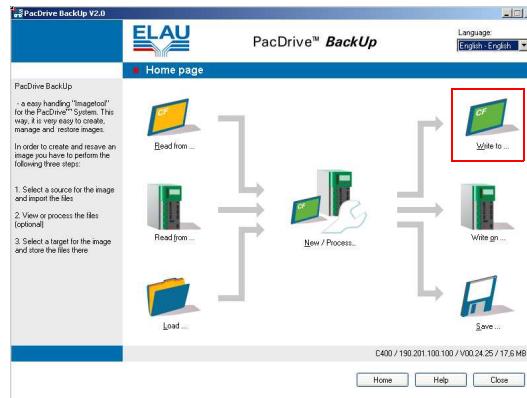
3 Select **Load** on the Start page of PacDrive Backup.



4 Open the directory **Images/PLC_Images** on the CD Software in the search window.

5 Select the file ***.BPD**.

6 Select Write to ... in PacDrive BackUp.



7 Follow the program's instructions.

The image is transferred to the memory card of the ELAU Controller.

Replace Elau Controller memory card

1 Switch off the main switch.

2 Fold up the operation and display unit.



3 Remove the memory card and insert a new memory card.



4 Close the operation and display unit.

5 Switch on the main switch.

The ELAU Controller boots with the image saved before the machine was delivered.

Writing the image file on the memory card in the ELAU Controller via Ethernet connection

The following are preconditions for restoring ELAU:

- The PacDrive backup program must be installed and started,
- The connection between PC and ELAU Controller must be established and
- the image file written to the memory card in the ELAU Controller.



For your information

Standard IP address of the ELAU Controller (delivery status IP address Pester):
e. g.: 192.168.62

Starting the PacDrive program

1 Install PacDrive BackUp on the PC.

2 Insert recovery CD into PC.

Establishing the connection between PC and ELAU Controller

- 1** Connect PC and ELAU Controller using crossed Ethernet cable, or use the Ethernet port on the front of the control cabinet.
- 2** Set IP address of the PC:
e. g.: 192.168.65



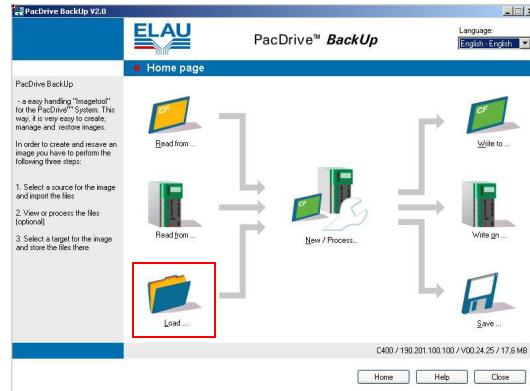
For your information

The last 3 digits of the PC's IP address must differ from those of the IP address of the ELAU Controller.

Writing image file into the ELAU Controller

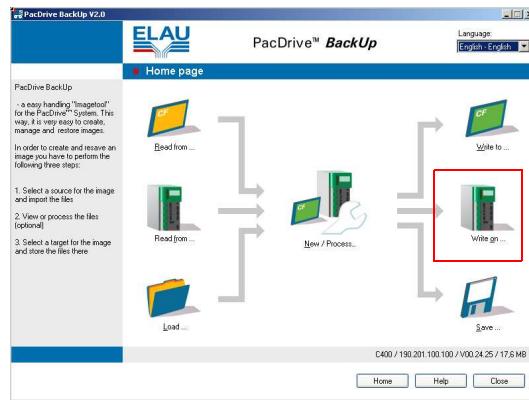
1 Start PacDrive Backup.

2 Select **Load** on the Start page of PacDrive Backup.
The search window appears.



- 3** Open the directory **Images/PLC_Images** on the CD Software in the search window.
- 4** Select the file ***.BPD**.

- 5 Select Write to ... in PacDrive BackUp.**
The search window opens.



- 6 Start data transfer.**



- 7 Follow the program's instructions.**
The image is transferred to the memory card in the ELAU Controller.

7 Service

7.1 Prior to servicing the equipment

7.1.1 General safety instructions for servicing



Danger!

Danger to life and limb!

Serious and even fatal injury can result from failing to comply with safety notices and instructions while carrying out maintenance work.

It is imperative that you read and follow the safety instructions in Chapter 2 Safety instructions!



Danger!

Danger to life and limb!

There may be danger to life and limb while performing servicing and maintenance work on the machine.

Such work may only be performed by qualified personnel who have read and understood these instructions prior to commencing work and who carry out the work in accordance with these instructions.



Warning!

Risk of injury or machine damage!

Servicing and repair work on the PEWO-pack 800 which is not described in this operating manual must not be carried out without first obtaining the approval of pester pac automation!



Warning!

Risk of injury!

Releasing screw connections can lead to unexpected movement of parts!

Secure parts before releasing screw connections.



Warning!

Risk of injury!

Releasing pneumatic connections can lead to venting and to unexpected movement of parts!

Before releasing pneumatic connections, secure any parts that may move, switch off the air supply and vent the components.



Warning!

Risk of injury!

During the installation or removal of components that are under pressure, compressed air may be expelled suddenly and result in injury.

Switch off air supply. Vent components.



Warning!

Risk of burn injuries!

Certain components e.g. sealing bar have a temperature of over 60 °C.

There is a risk of burn injuries when coming into contact with the side sealing jaws and the grid.

Switch off the main switch, switch position "0"!
Let the machine cool to below 40 °C!
Wear protective gloves!



Warning!

Risk of burn injuries!

During the installation or removal of components, there is a risk of injury from heated parts.

Switch off the main switch, switch position "0"!
Let the machine cool to below 40 °C!
Wear protective gloves!



Warning!

Risk of burn injuries!

The temperature in the shrink tunnel is greater than 60 °C.
There is a risk of burn injuries from reaching inside the shrink tunnel.

Do not reach inside the shrink tunnel.



Caution!

Machine damage!

Oil and similar agents destroy the maintenance-free sliding layer in the cylinder.

Do not introduce oiled air into the pneumatic circuit!



Caution!

Damage to property caused by fluctuations in the mains voltage!

Disturbances in the energy supply, e.g. voltage fluctuations, in particular voltage spikes, can cause damage to the machine, products and packaging material.

In the event of disturbances of this type, switch the machine off immediately. The problem can be remedied by installing a ballast to stabilize the mains voltage.

Spare parts

Correct operation of the machine can only be guaranteed if original replacement parts and accessories approved by pester pac automation are used.

The use of components of identical design but made by other manufacturers can cause malfunctions and damage to products or the machine.

For details of original spare parts, see the spare parts catalog and the electrical and the pneumatic equipment list.

Inspection and service intervals

The inspection and service intervals specified in this operating manual must be adhered to and the instructions complied with.

Working on the machine

Work on the machine may only be performed by suitably qualified personnel.

Work on the electrical systems may only be performed by qualified electricians.

Changes to the machine

Any changes, extensions or reconstructions, especially such as may impair machine safety, may only be carried out with the written approval of pester pac automation. This also applies to the installation and adjustment of safety devices.

Electrical equipment

Inspect and check the electrical equipment of the machine on a regular basis. Defects such as loose connections or charred cables, etc. must be corrected immediately.

Original fuses

Use only original fuses with the specified protection.

Restarting

Before restarting the machine, make absolutely certain that no one is still standing within the machine's danger zones.

7.1.2 Safety devices



Danger!

Risk of fatal injury!

Bypassed or disabled protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Protective and safety devices must not be bypassed, removed or disabled!



Danger!

Risk of fatal injury!

Defective protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Defective protective and safety devices must be repaired or replaced immediately!

Only use original spare parts and accessory parts authorized by pester pac automation. The use of non-authorized accessory parts and spare parts for protective and safety devices can cause protective and safety devices to malfunction, leading to danger to the life and limb of the personnel working at the machine!

To eliminate danger to the life and limb of personnel, the appropriate areas of the machine are equipped with protective and safety devices, e. g. safety doors, **EMERGENCY STOP** push buttons etc.

- Movable separating safety devices such as e. g. safety doors, hatches, hoods are monitored by safety switches.
- Fixed separating protective covers such as cover plates or safety guards etc. are not monitored. Serious injuries can result if these safety devices are removed.

Personnel must be aware which protective and safety devices are present, where they are located and how they work.

Inspections must be carried out as prescribed in the service schedule (see Chapter Service) to ensure that all protective and safety devices are present and in working order!

EMERGENCY STOP push button

In contrast to a controlled machine stop, hitting an **EMERGENCY STOP** push button brings the machine to an immediate standstill (within 0.5 seconds) or stops the entire line in the case of line operation.

The system becomes depressurized partly. Units that hold the products in position such as holding units, remain pressurized.

Personnel must be familiar with the location and the operation of all **EMERGENCY STOP** push buttons.

Check all **EMERGENCY STOP** push buttons before commencing work!



Caution!

Machine damage!

The **EMERGENCY STOP** push buttons are designed for use only in emergencies, when the machine needs to be stopped immediately. The **EMERGENCY STOP** push button cannot be used to initiate a controlled machine stop. Overuse of the **EMERGENCY STOP** push button leads to machine damage.

Use the **STOP** push button to initiate a controlled machine stop!

Safety labels

Special safety labels marking the danger zones must not be removed. It must be ensured that safety labels are not destroyed as a result of inappropriate cleaning.

7.1.3

Guide shafts

All guide shafts are maintenance-free due to their permanent lubrication. They should not be cleaned with thin or grease-dissolving substances as these will impair the permanent lubrication of the bearings.

7.1.4

Pneumatic components

Do not lubricate the pneumatic components. This also applies to the piston rods of the cylinder.



Warning!

Risk of injury!

When performing work on the pneumatic system, compressed air may be expelled and cause injury.

Before performing work on the pneumatic system, switch off the air supply and vent the pneumatic system.



Caution!

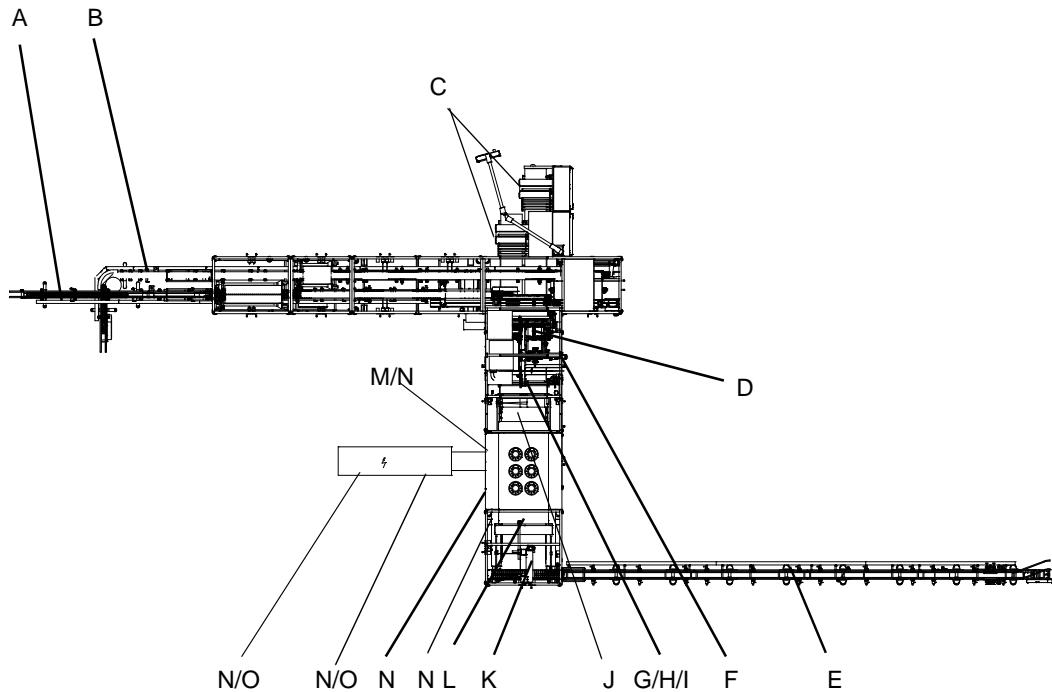
Machine damage!

Oil and similar agents destroy the maintenance-free sliding layer in the cylinder.

Do not introduce oiled air into the pneumatic circuit!

7.2 Service schedule

7.2.1 Service locations



- A Infeed conveyor 1
- B Infeed conveyor 2
- C Seal and clamping profile film splicer
- D Infeed conveyor 3
- E Outfeed conveyor
- F Maintenance unit
- G Sealing bar
- H Deflection roller-closing bar
- I Seal and clamping profile
- J Cycling conveyors 1-3
- K Cycling conveyor 4
- L Therm conveyor
- M Product cooling
- N Filter
- O Ventilator

Details of the positions of the other service locations can be found on the pages describing servicing for the respective components.

7.2.2 Service intervals

The following assumptions were made in calculating the operating hours specified in the table below:

Single-shift operation / 8 hours a day / 7 days a week

The operating hours counter starts counting continuously as soon as the main switch is switched on.

Standstill times while the machine is switched on are not taken into account.

Interval (for servicing)	Pos. no.	Task	Page
Before each shift		Check the safety devices	7-9
Daily service	H	Clean the machine Check orderly state of the machine name plates (instruction, warning, prohibition, and safety signs) and inform pester pac automation if necessary Check the closing bar deflection roller for true running	7-11 7-12
Weekly (every 56 operating hours)	A,B,D E,J, K L G	Clean the light sensors Check the belts for damage Check therm conveyor Clean the sealing bar Carry out a visual inspection for porous lines and chafing points	7-14 7-15 7-15 7-14
Monthly (every 240 operating hours)	I	Check safety devices Check sealing unit sealing and clamping profile Visual inspection perforation Check seal and clamping profile film splicer Lubricate the machine in 3-shift operation	7-18 7-20 7-20 7-21
Quarterly (every 720 operating hours)		Lubricate the machine in 1-shift operation Check the shock absorbers	7-26 7-26
Semiannually (every 1440 operating hours)	F O M	Clean the maintenance unit filter Check the ventilator function Check the protective grid Check ventilator of product cooling Check the fan motor Check the toothed belt	7-28 7-29 7-29 7-30 7-31 7-31
Annual service (every 2880 operating hours)	N	Have the protective devices checked Check the drive chains for wear and change them, if necessary Lubricate the drive chain Clean the filter pad	7-33 7-33 7-35 7-37
Every 10 years (every 28800 operating hours)		Overhaul safety devices	7-38

Interval (Contd.) (for servicing)	Pos. no.	Task (Contd.)	Page (Contd)
Subsupplier components		For servicing the components of other manufacturers, see additional descriptions provided by the supplier, which are supplied separately.	

7.3 Before each shift

7.3.1 Checking the safety devices



Danger!

Risk of fatal injury!

Bypassed or disabled protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Protective and safety devices must not be bypassed, removed or disabled!



Danger!

Risk of fatal injury!

Defective protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Defective protective and safety devices must be repaired or replaced immediately!

Only use original spare parts and accessory parts authorized by pester pac automation. The use of non-authorized accessory parts and spare parts for protective and safety devices can cause protective and safety devices to malfunction, leading to danger to the life and limb of the personnel working at the machine!

The safety devices must be completely and correctly attached.

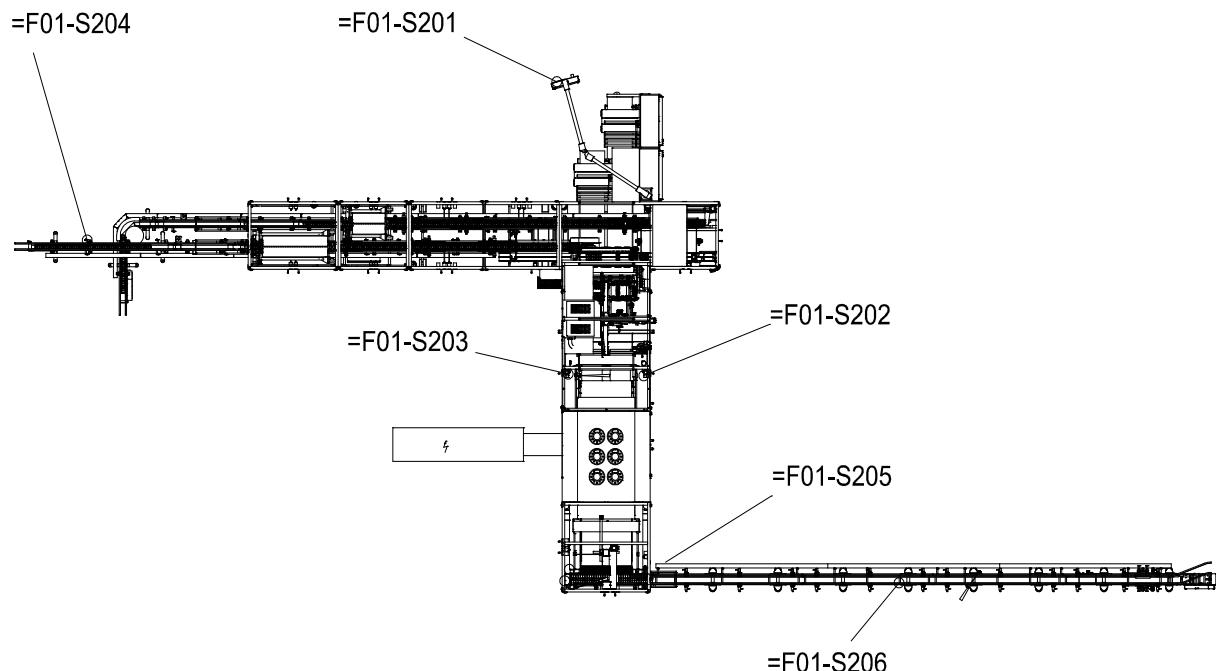
Check the operation of the protective devices:

Preconditions

- The machine is empty.
- All protective devices are closed.
- The machine is ready for operation.

Checking the EMERGENCY STOP push buttons

The **EMERGENCY STOP** push buttons must be fully and properly installed.



Test 1 1 Start the machine by pressing the **START** push button.

2 Press an **EMERGENCY STOP** push button.
The machine must stop immediately.

3 Check all other **EMERGENCY STOP** push buttons in the same way.

Test 2: 1 Stop the machine by pressing the **STOP** push button.

2 Press an **EMERGENCY STOP** push button.

3 Press the **START** push button.
Machine will not start!

4 Test all other **EMERGENCY STOP** push buttons in the same way.

7.4 Daily service

7.4.1 Cleaning the machine



Caution!

Machine damage!

Detergents and cleaning devices must not damage the electrical and mechanical machine equipment.

- Do not use any sharp objects!
- Do not use any steam ejectors!
- Do not use corrosive detergents!



Caution!

Material damage to safety guards!

Incorrect use of detergents and incorrect cleaning causes damage to the material of plastic safety guards.

- Do not use detergents containing alcohol!
- Do not use window-cleaning agent!
- Never dry-rub the guards!
- For cleaning, use only antistatic plastic cleaning agents or clear water!



Caution!

Danger of injury and damage to the machine!

Should safety-related information on the machine become illegible, there is an increased danger of injury to personnel and damage to the machine.

Ensure that all safety-related information on the machine is clearly legible!



For your information

Opening/actuating the protective devices depressurizes all units. This does not apply to those units that hold the product in position, e. g. holding units.

Detergents

- For plastic safety guards, use only antistatic detergents or clear water.
- Use a mild household cleaner and commercial paint care product for painted machine parts.
- Use a stainless-steel detergent for machine parts made of high-grade steel.

pester pac automation recommends a high-grade steel polishing spray.

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.

Cleaning the machine

- 1 Clean the machine with a mild detergent.
- 2 Never dry-rub plastic safety guards.
- 3 Remove any soiling or product remnants, especially grease and oil deposits.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the air supply.
- 3 Switch on the main switch.

7.4.2 Checking the deflection roller-closing bar



Warning!

Risk of burn injuries!

There is a risk of burn injuries in the sealing area.

When performing work in the sealing area
- switch off the main switch.
- Let the machine cool to below 40°C.
- Wear protective gloves.

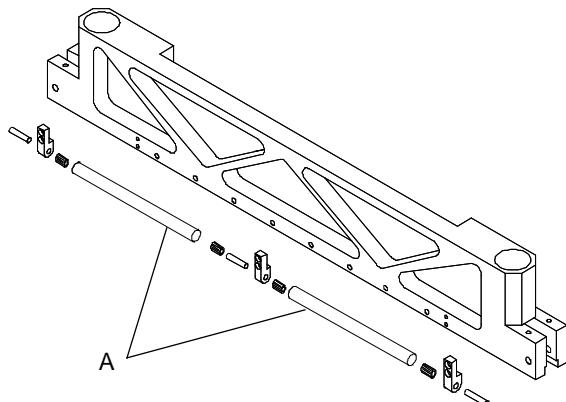


For your information

Deviations > 1 mm from the concentricity of the deflection roller negatively influence the film deflection.
The film runs off track and poor packaging quality results.

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.

Check true running

- A Deflection roller
(Diagram shows deflection roller in deconstructed state.)

1 Check deflection roller **A** for concentricity by turning by hand.

Replacing deflection roller

1 Replacing out of round deflection roller.

Starting the machine

- 1** Close all protective devices.
2 Switch on the air supply.
3 Switch on the main switch.

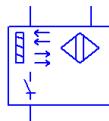
7.5 Weekly

7.5.1 Cleaning the light sensors

Preconditions

- The main switch is switched off and secured with a lock.
- Have a position plan showing the location of the light sensors to hand. The light sensors can be found in the electronic circuit diagram in area A08, section Position plans.

Symbol for light sensor



Cleaning the light sensors



- 1 Open protective device.

- 2 Using a damp cloth without detergent, clean the lenses of the light sensors which are labeled as light sensors on the position plan. In the case of light sensors with reflectors, also clean the reflector.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.
- 3 Start the machine.

7.5.2 Cleaning the sealing bar



Warning!

Risk of burn injuries!

Contact with the hot surfaces of the sealing bar may cause burn injuries.

Wear protective gloves when cleaning the equipment!



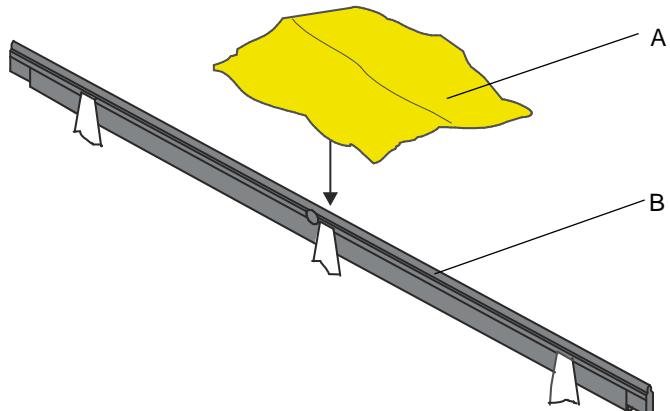
For your information

The Teflon coating can become damaged if cleaned with unsuitable cleaning products.

Therefore always use a soft cloth.

Preconditions

- The machine is empty.
- The machine is ready for operation.
- Sealing bar is heated to the sealing temperature.



A Cleaning cloth
B Sealing bar

Cleaning

- 1 Touch the **Operation/ Machine** push button.
- 2 Press the **Off** push button for the function **Raise sealing bar**.
- 3 Press the **Start** push button on the Pester operating panel.
Sealing bar moves out.
After approx. 20 seconds, the machine switches to Stop mode.
Protective devices are unlocked.
- 4 Open protective device.
- 5 Clean sealing bar **B** with a soft cloth **A**.
After approx. 20 seconds, the sealing bar returns to its end position.
- 6 Close the protective device.

7.5.3 Checking belts



Warning!

Risk of injury!

The rough surfaces of moving belts or conveyors can injure the skin. Moving belts or conveyors can trap and pull in loose-fitting clothing, hair etc.

Never touch the surfaces of moving belts or conveyors!
Observe the rules for appropriate clothing!

Check the belts of the conveyors.

- 1 Check that they are functioning properly.
- 2 Check the belt for damage and replace if necessary.

7.6 Monthly

7.6.1 Checking the protective devices



Danger!

Risk of fatal injury!

Bypassed or disabled protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Protective and safety devices must not be bypassed, removed or disabled!



Danger!

Risk of fatal injury!

Defective protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Defective protective and safety devices must be repaired or replaced immediately!

Only use original spare parts and accessory parts authorized by pester pac automation. The use of non-authorized accessory parts and spare parts for protective and safety devices can cause protective and safety devices to malfunction, leading to danger to the life and limb of the personnel working at the machine!

Opening/actuating the protective devices depressurizes all units. This does not apply to those units that hold the product in position (holding units, etc.).

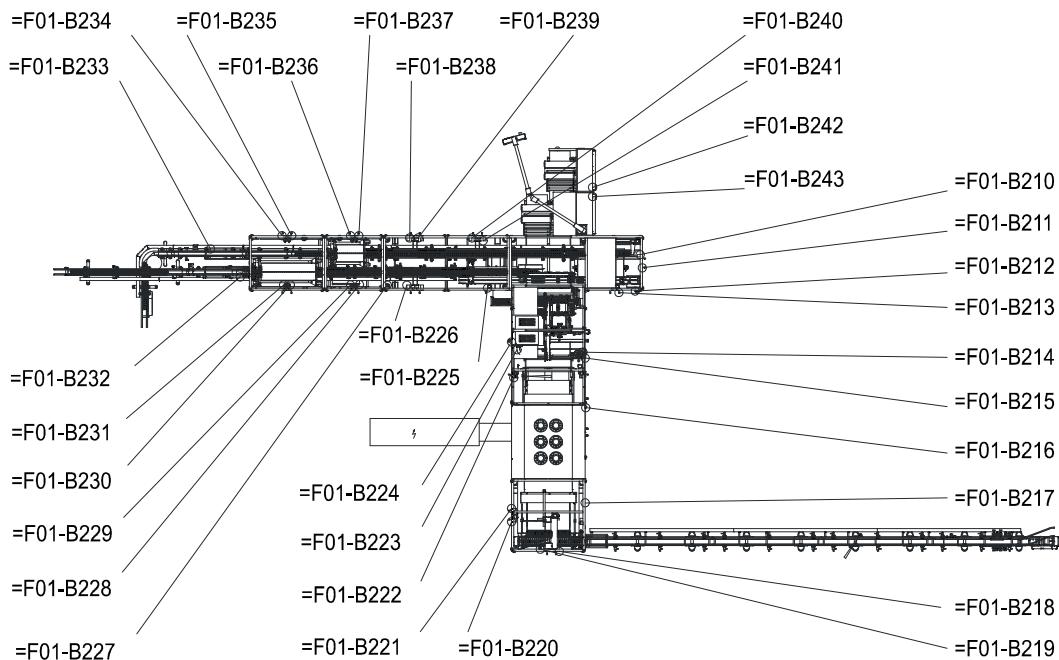
The safety devices must be completely and correctly attached.

Check the operation of the protective devices:

Preconditions

- The machine is empty.
- All protective devices are closed.
- The machine is ready for operation.

Checking the protective devices



Test 1

- 1 Start the machine.
- 2 Open the first protective device.
Protective device cannot be opened.
- 3 Open the next protective device.
Protective device cannot be opened.
- 4 Test all protective devices in the same way.

Test 2:

- 1 Stop the machine.
- 2 Open the first protective device.
- 3 Start the machine.
The machine cannot be started.
- 4 Open the second protective device.
- 5 Start the machine.
The machine cannot be started.
- 6 Test all protective devices in the same way.



For your information

If a safety switch is intact, an LED lights up green on the cable feed of the safety switch, indicating that the switch is ready for operation.

If a protective device is open, the LED changes from green to red. If a safety switch is defective, the message "Safety door X open" is shown on the display even when the protective device is correctly closed. The LED on the cable feed of the safety switch will then flash red.

The procedure for replacing defective safety switches is described in Chapter 8 Maintenance.

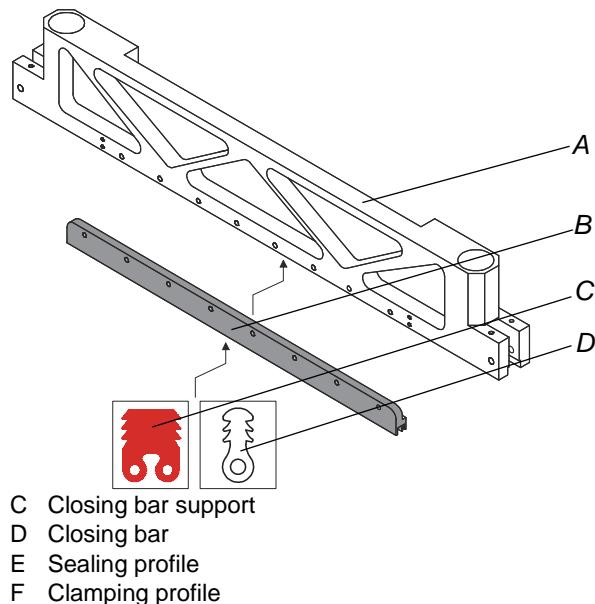
LED color code, safety switch

LED color code	Function
Lights up green	Protective device closed.
Lights up red	Protective device open.
Flashing green or red	Disturbance. Read the product information supplied by the manufacturer!

7.6.2 Check closing bar sealing and clamping profile

Preconditions

- All protective devices are closed.
- The machine is ready for operation.



Check profiles

- 1 Touch the menu **Machine/Processing/Sealing unit/Setup/Jogging**.
- 2 Touch the **Off** button in the line **Closing bar**.
- 3 Drive the closing bar with jog mode all the way to the top.
- 4 Open protective device.
The machine is in EMERGENCY STOP mode.
- 5 Check sealing profile **C** and clamping profile **D** for defects.
Replace if necessary (See 8.6.1 Replacing the sealing and clamping profile on page 8-22).
- 6 Touch the menu **Machine/Processing/Sealing unit/Setup/Jogging**.
- 7 Touch the **On** button in the line **Closing bar**.
Closing bar moves to its position.

Starting the machine

- 1 Close the protective device.
The machine is now ready to start.

7.6.3 Visual inspection perforation

Take the result of the perforation to a visually inspect.

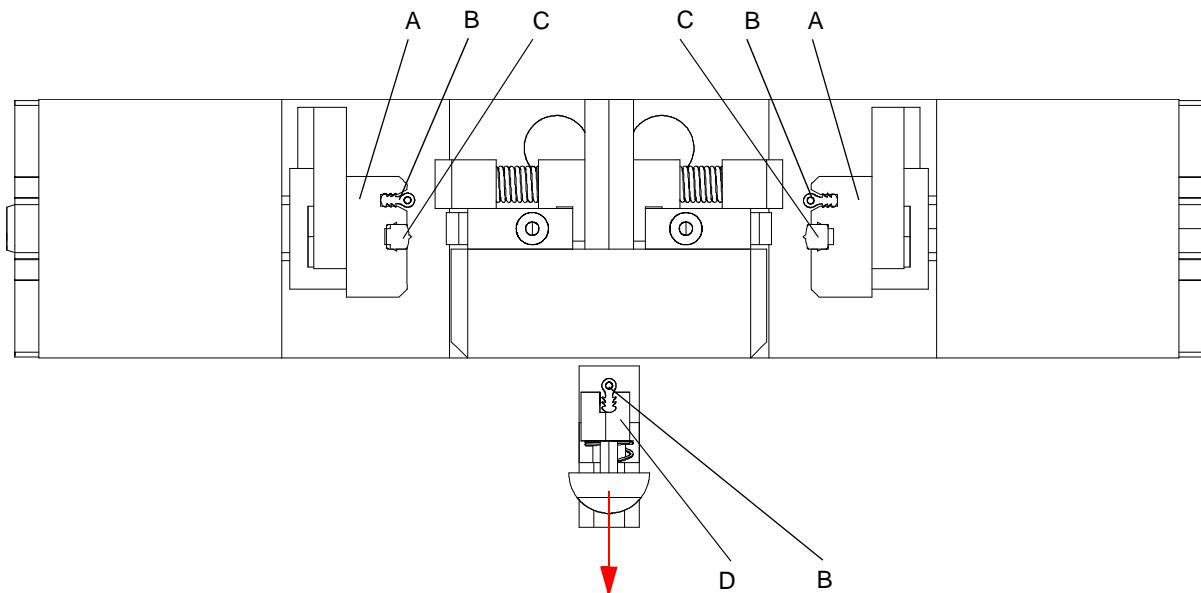
If the result is not satisfactory, increase the strength of the perforation (See 5.4.7 Set thickness of the perforation on page 5-22).

If the result is still not satisfactory, replace the cutter of the perforating unit (See 8.7 Changing the cutter on the perforating unit on page 8-24).

7.6.4 Checking the film splicer profile

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.



- | | |
|---|---------------------------------|
| A | Closing bar |
| B | Clamping profile (white) |
| C | Sealing profile (natural color) |
| D | Clamping rail |

- 1 Remove plate covers.
- 2 Check sealing profiles **C** and clamping profiles **B** for wear.
If necessary, change the profile.
- 3 Open clamping rail **D** in the direction of the arrow and check clamping profile **B** for wear.
- 4 Screw on plate covers.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.

3 Switch on the air supply.

7.6.5 Lubricating the machine



For your information

All lubrication points on the machine are labeled with a sticker.



Fill each of the lubricating nipples with grease for lubricating the guide rails.

Lubricant pester pac automation recommends long-term grease

- Klübersynth UH1 14-151 (see Section 5 **Certificates**)

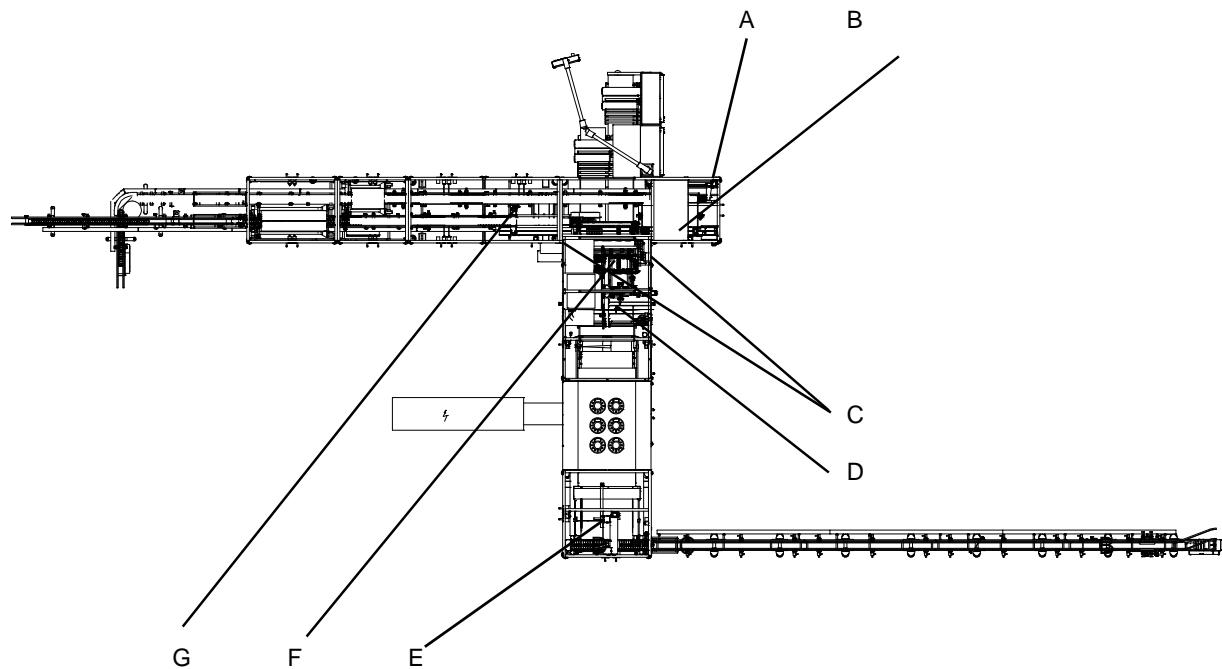
This long-term grease meets the requirements of the FDA (Food and Drug Administration) 178.3570 and the NSF-H1 (International nonfood compounds registration program).

Lubricant quantity When operating the grease gun:

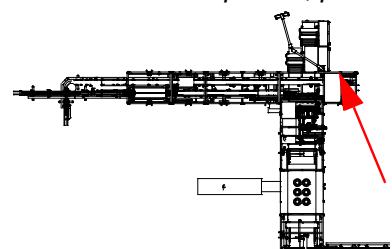
1 stroke = 0.5 cm³

Lubrication schedule

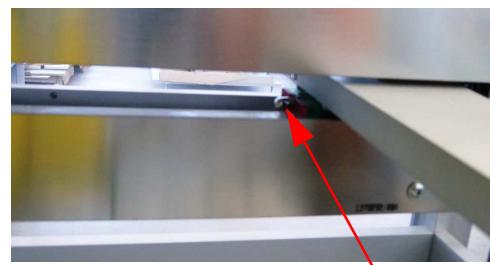
- Monthly if operating on 3 shifts
- Quarterly if operating on 1 shift

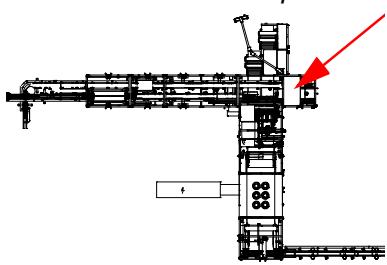
Overview of lubrication points

- A Outfeed pusher, pucks
- B Crossfeed pusher 2
- C Pick and place unit up/down
- D Main infeed pusher
- E Outfeed transport
- F Gripper
- G Crossfeed pusher 1

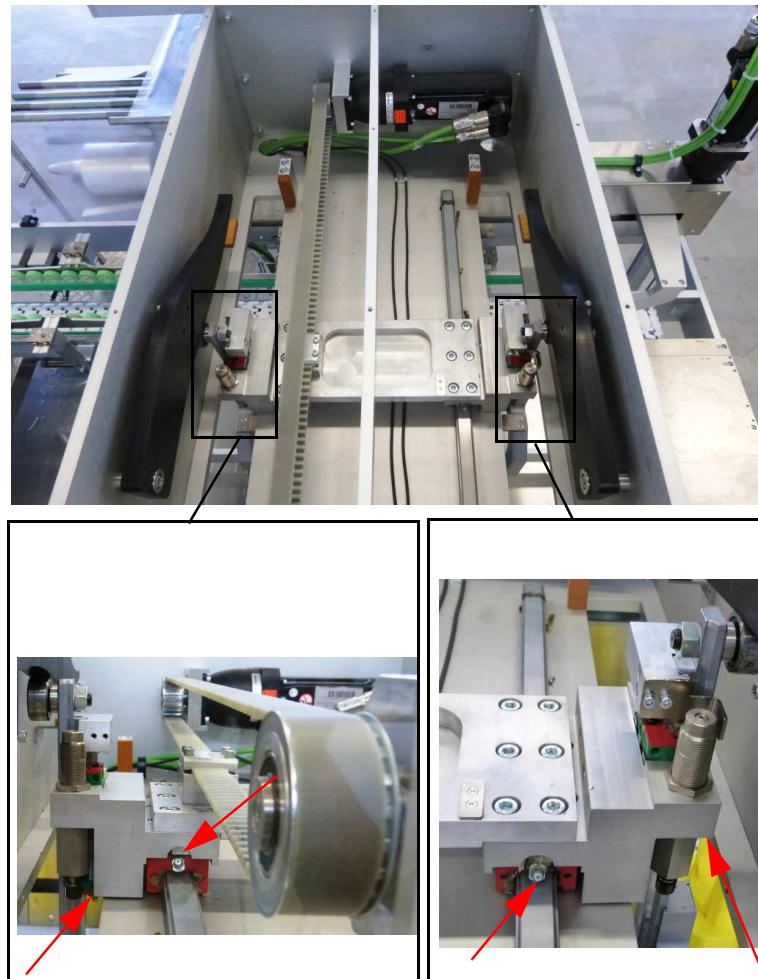
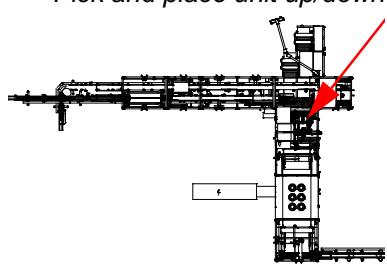
Outfeed pusher, pucks

- 1 Position the lubricating nipple so that it is accessible.
- 2 Fill lubricating nipple by slowly pressing the grease gun, approx. 1-2 strokes.

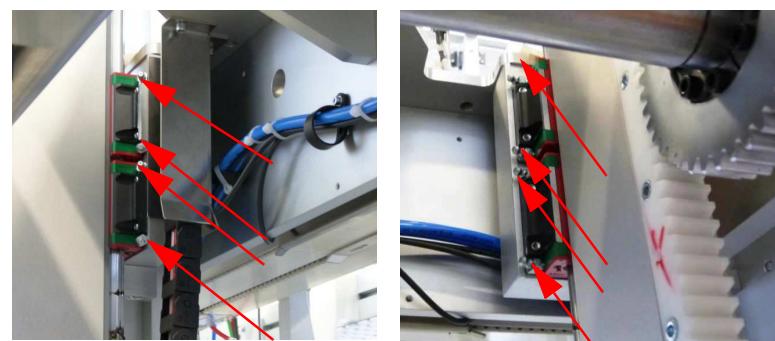


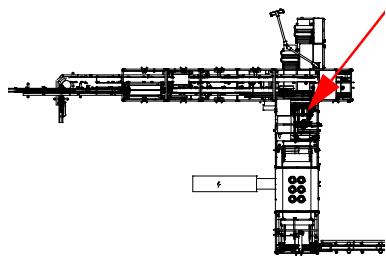
Crossfeed pusher 2

- 1** Position the lubricating nipple so that it is accessible.
- 2** Fill lubricating nipple by slowly pressing the grease gun, approx. 1-2 strokes.

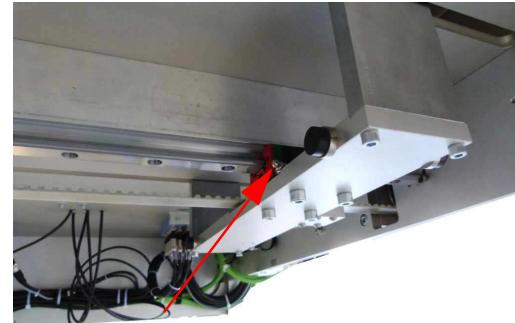
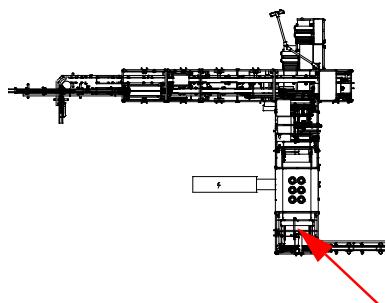
*Pick and place unit up/down*

- 1** Open protective device.
- 2** Fill lubricating nipple by slowly pressing the grease gun, approx. 1-2 strokes.

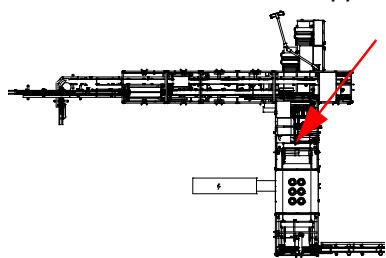


Main infeed pusher

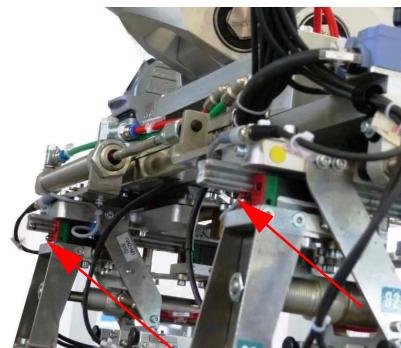
- 1 Open protective device.
- 2 Fill lubricating nipple by slowly pressing the grease gun, approx. 1-2 strokes.

*Outfeed transport*

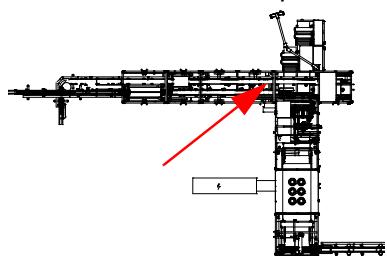
- 1 Position lubricating nipple in front of the opening.
- 2 Fill lubricating nipple by slowly pressing the grease gun, approx. 1-2 strokes.

*Gripper*

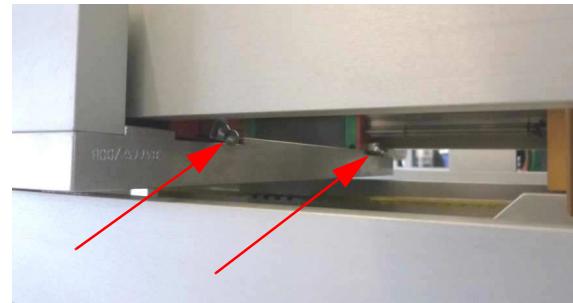
- 1 Open protective device.
- 2 Fill lubricating nipple by slowly pressing the grease gun, approx. 1-2 strokes.



Crossfeed pusher 1



- 1 Position lubricating nipple in front of the opening.
- 2 Fill lubricating nipple by slowly pressing the grease gun, approx. 1-2 strokes.



7.7 Quarterly

7.7.1 Lubricating the machine

(See 7.6.5 Lubricating the machine on page 7-21)

7.7.2 Checking the shock absorbers



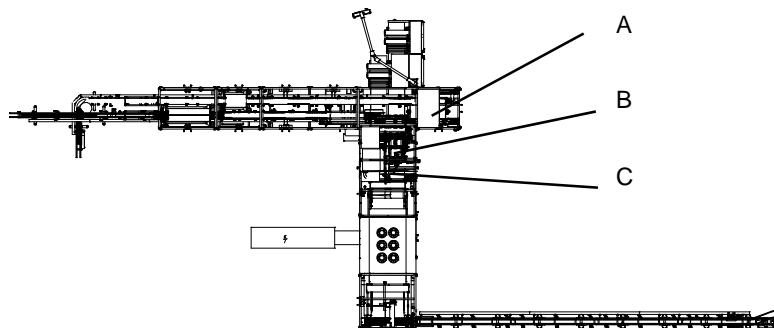
Caution!

The shock absorber can suffer irreparable damage!

When the shock absorber is moved in completely, there must be an air gap between the shock absorber collar and the shock absorber cylinder of at least 1.0 mm. The shock absorber can otherwise be damaged and its function impaired.

Set minimum air gap of at least 1.0 mm.

Overview of shock absorbers



- A Crossfeed pusher 2
- B Pick and place unit
- C Gripper

Defective shock absorbers can cause damage to the machine.

Signs of a defective shock absorber:

- Shock absorber does not extend fully.
- Shock absorber leaks oil.
- Shock absorber offers no resistance.
- High machine noise level during operation.

Checking the shock absorber

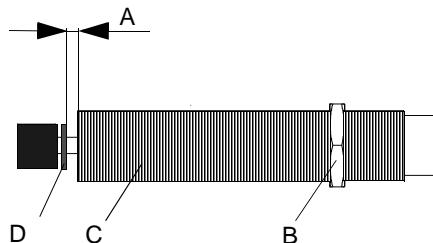
The minimum air gap between the shock absorber collar and the shock absorber body is at least 1 mm.

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.

Check shock absorber

Type 1

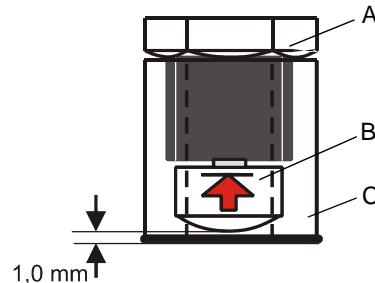


- A Minimum air gap 1-2 mm
 B Counter nut of the shock absorber
 C Shock absorber body
 D Shock absorber collar

- 1 Check whether or not the shock absorber is defective.
 Replace the shock absorber if necessary.
- 2 Check whether the shock absorber has the minimum air gap **A** of at least 1 mm between the shock absorber collar **D** and the shock absorber body **C**.
 If not, adjust the shock absorber
 (See 8.8 Adjusting the shock absorbers on page 8-26).

Checking shock absorber

Type 2



- A Counter nut of the stop sleeve
 B Shock absorber head
 C Stop sleeve

- 1 Check whether or not the shock absorber is defective.
 Replace the shock absorber if necessary.
- 2 Check whether the shock absorber body **A** can be lowered at least 1 mm into the stop sleeve.
 If not, adjust the shock absorber
 (See 8.8 Adjusting the shock absorbers on page 8-26).

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the air supply.
- 3 Switch on the main switch.

7.8 Semiannually

7.8.1 Cleaning the maintenance unit filter



Warning!

Risk of injury!

During the installation or removal of components that are under pressure, compressed air may be expelled suddenly and result in injury.

Depressurize and vent the machine first!



For your information

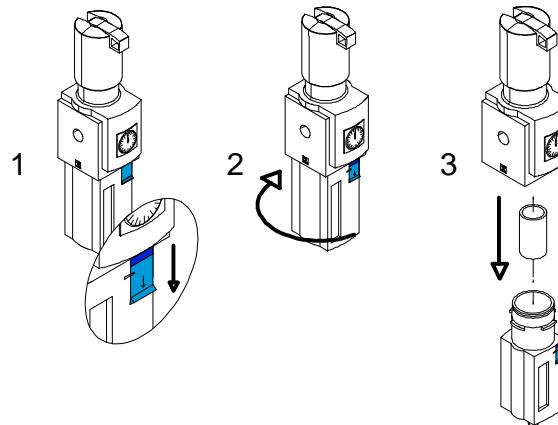
The degree of filter soiling is not visible. Cleaning can never be as effective as replacing the filter.

Preconditions

- Air supply is switched off.

Cleaning the filter

- 1 Push blue locking downwards and hold.
- 2 Turn the filter housing in the direction of the arrow as far as the limit stop.
- 3 Pull filter housing off in downward direction.



- 4 Remove the filter.
- 5 Rinse the filter with hot soapy water.
- 6 Use compressed air to blow out from inwards to outwards.
- 7 Insert the filter in the filter housing.
- 8 Reinstall the filter case.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the air supply.

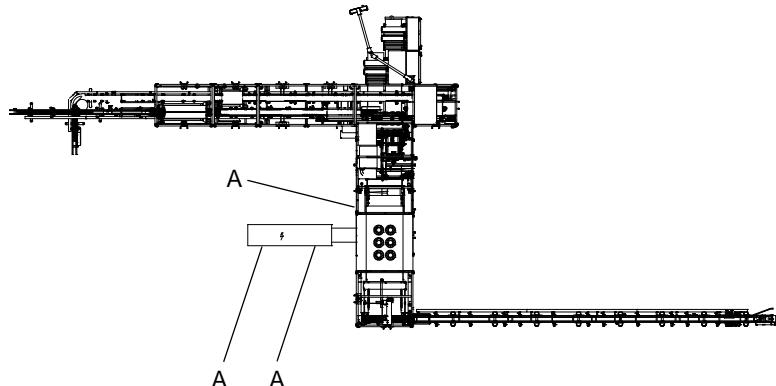
7.8.2 Check ventilator function

Preconditions

- The machine is now ready to start.

Check function

- 1 Check the function of the ventilator in the control cabinet.
Note on ventilator function:
 - Operation sound of the ventilator is audible.
 - Air intake in front of the ventilator can be felt.
- 2 Replace a defective ventilator immediately!



A Control cabinet ventilator

7.8.3 Checking the protective grid



Warning!

Risk of injury!

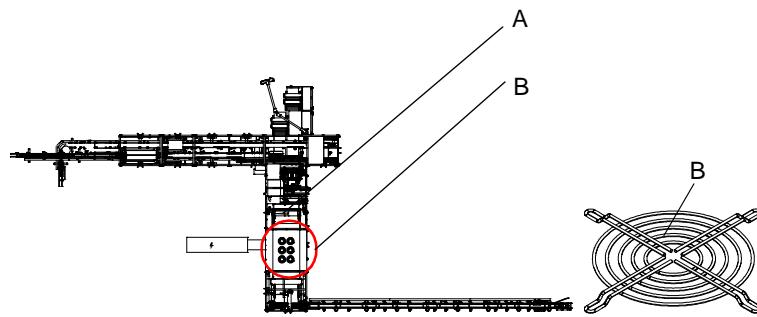
When using tools to clean the machine, there is a danger of the tool slipping and causing injury.

Wear protective gloves when cleaning the equipment!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.
- The machine has cooled down.

Checking the protective grid



A Teflon curtain
B Protective grid

As air is sucked in inside the shrink tunnel, parts of the film may also be sucked up and stick on the protective grid. This may result in poor performance of the shrink tunnel.

To prevent this, the protective grid must be checked regularly for soiling.

- 1 Move the Teflon curtain **A** aside.
- 2 Check protective grid **B** for soiling.
- 3 If necessary, clean the protective grid (See Cleaning the protective grid on page 7-30) or replace it (See 8.9.6 Replacing the protective grid on page 8-36).

Cleaning the protective grid

- 1 Remove the protective grid (See Remove the protective grid on page 8-37).
- 2 Carefully clean protective grid **B** using a suitable tool, for example a screwdriver.
- 3 Install the protective grid (See Installing the protective grid on page 8-37).

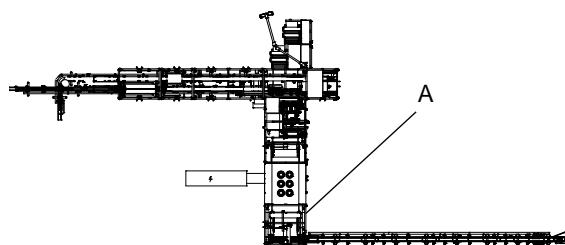
Starting the machine

- 1 Close all protective devices.
- 2 Switch on the air supply.
- 3 Switch on the main switch.

7.8.4 Checking the product cooling ventilator

Preconditions

- The machine is in start mode.

Check function

A Ventilator of product cooling

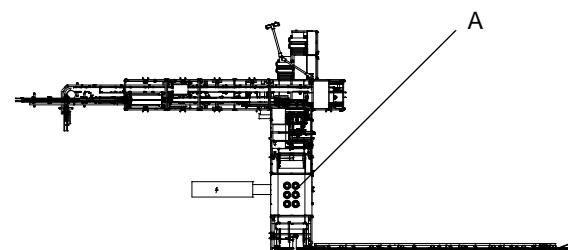
- 1** Check that the product cooling ventilator is working.
Note on ventilator function:

- Operation sound of the ventilator is audible.
- A current of air can be felt at the fan.

- 2** Replace a defective product cooling ventilator immediately!

7.8.5 Checking the fan motor*Preconditions*

- The machine is in start mode.

Check function

A Fan motor

- 1** Check the functioning of the fan motor.
Note on fan motor function:

- The running sound of the fan motor is audible.

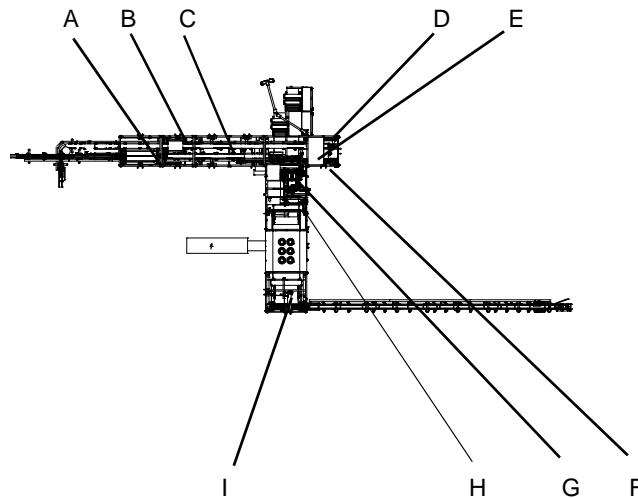
- 2** Replace a defective fan motor immediately!

7.8.6 Checking the toothed belts*For your information*

pester pac automation recommends always keeping new toothed belts in stock.

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.

Overview of toothed belts

- A Turning screw 1
 B Turning screw 2
 C Crossfeed pusher 1
 D Outfeed pusher, pucks
 E Crossfeed pusher 2
 F Indexing conveyor (2x)
 G Main infeed pusher
 H Servo closing unit
 I Outfeed transport

Checking the toothed belt*For your information*

The pretensioning of the toothed belts must be properly adjusted. Otherwise, the operating characteristics and service life of the gear will be impaired.

- 1 Measure the tension with a belt tension measuring device and adjust if necessary.
- 2 Check the toothed belt for:
 - Cracks and damage
 - Missing teeth
 - Soiling

If the toothed belt is damaged, it must be replaced and readjusted (see Chapter 8 Maintenance).

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the air supply.
- 3 Switch on the main switch.

7.9 Annual service

7.9.1 Checking the protective devices

Have the safety devices checked by a safety inspector at least once a year.

pester pac automation offers an annual inspection service for the PEWO-pack 800.

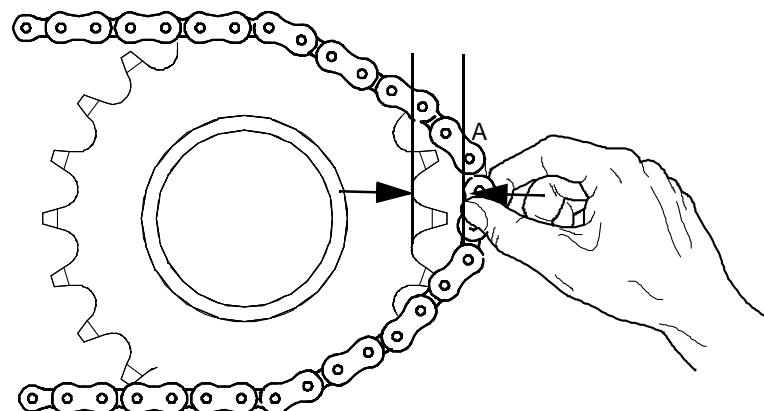
7.9.2 Checking drive chains/chain wheels for wear

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.

Checking the drive chain for wear

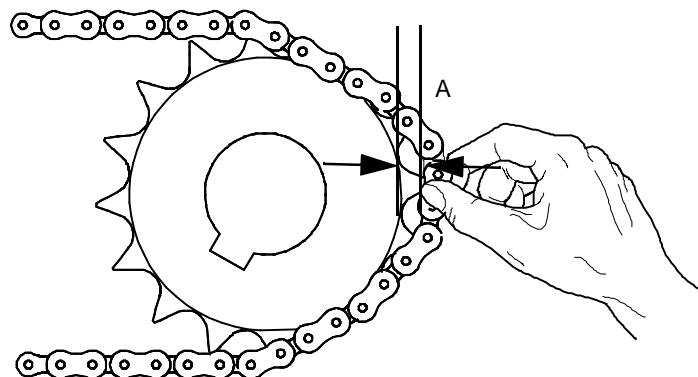
Chain wheels with more than 16 teeth



1 Check the drive chain for wear.

If the drive chain can be lifted **more than the height of tooth flanks A**, replace the drive chain with a new one (See Replacing the drive chain on page 7-34).

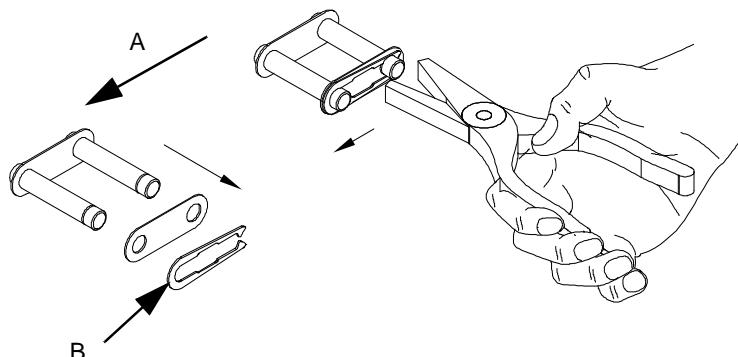
*Chain wheels with
16 teeth or less*



1 Check the drive chain for wear.

If the drive chain can be lifted up to **half** the height of tooth flanks **A**, replace the drive chain with a new one (See Replacing the drive chain on page 7-34).

Replacing the drive chain



A Direction of running - drive chain

B Closing clasp - chain link

1 Open the chain link by pressing off the closing clasp **B of the chain link with flat pliers.**

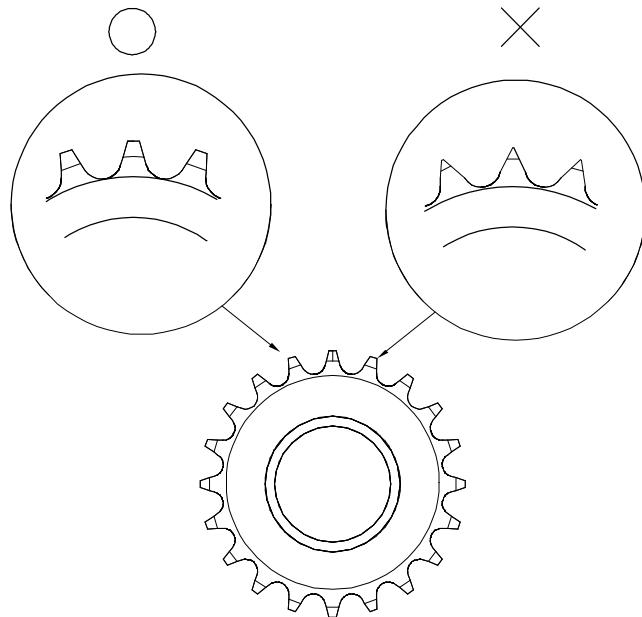
2 Replace the drive chain.

For your information

When the chain link is fitted, the closed end of the closing clasp **B** must point in the direction of running **A**.

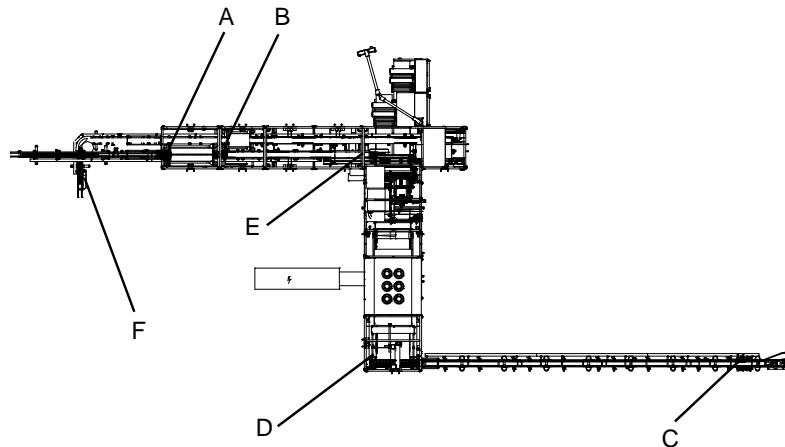
3 Fit closing clasp **B.**



Checking the chain wheel for wear**1 Inspect chain wheel visually.****O = Tooth flanks OK.****X = Tooth flanks worn. Replace chain wheel and drive chain.***Starting the machine***1 Reattach all safety mechanisms!****Restore the machine to its original operating condition!****2 Switch on the air supply.****3 Switch on the main switch.****7.9.3 Lubricating the drive chains***Preconditions*

- The main switch is switched off and secured with a lock.

- Air supply is switched off.

Overview of drive chains

- A Turning screw 1
- B Turning screw 2
- C Infeed conveyor 1
- D Outfeed conveyor 1
- E Therm conveyor
- F Infeed conveyor 2

Lubricant

pester pac automation recommends long-term grease

- Klübersynth UH1 14-151 (see Section 5 **Certificates**)

This long-term grease meets the requirements of the FDA (Food and Drug Administration) 178.3570 and the NSF-H1 (International nonfood compounds registration program).

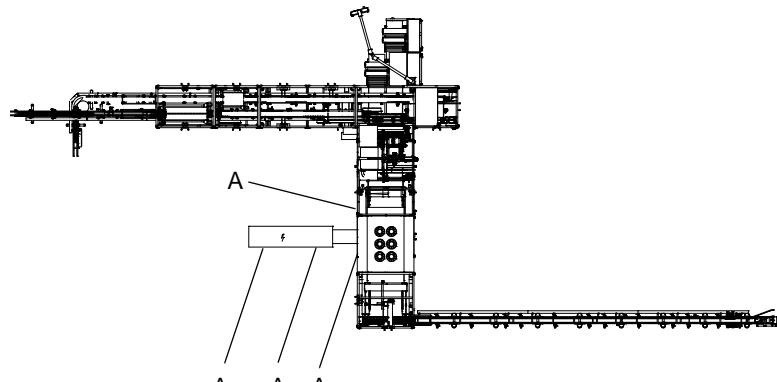
Lubricate the drive chain

- 1 If necessary, remove cover.
The chain is now accessible.
- 2 Lubricate the chain.
- 3 Attach the cover.

Starting the machine

- 1 Switch on the air supply.
- 2 Switch on the main switch.

7.9.4 Cleaning the filter pad



A Filter pad

Clean the filter pad

- 1 Grip the top of the protective grid on the control cabinet and open it.



- 2 Remove the filter pad and clean with compressed air.
Replace the filter pad if necessary.
(Order number, see CD Documentation: Electronic **spare parts catalog**)
- 3 Reinsert the filter pad.
- 4 Close the protective grid again.

7.10 Every 10 years

7.10.1 Checking safety devices

The safety-related mission time (T_M) of the machine is 10 years. On expiry of this period, it is imperative to overhaul and check all safety devices.

This applies only to those safety devices for which the service schedule does not prescribe shorter safety intervals.

It is important to distinguish between the safety related mission time (T_M) and the service life of the machine.

8 Maintenance

8.1 Safety instructions

8.1.1 General safety instructions for repair work



Danger!

Danger to life and limb!

Serious and even fatal injury can result from failing to comply with safety notices and instructions while carrying out repair work.

It is imperative that you read and follow the safety instructions in Chapter 2 Safety instructions!



Danger!

Danger to life and limb!

There may be danger to life and limb while performing servicing and maintenance work on the machine.

Such work may only be performed by qualified personnel who have read and understood these instructions prior to commencing work and who carry out the work in accordance with these instructions.



Warning!

Risk of injury or machine damage!

Servicing and repair work on the PEWO-pack 800 which is not described in this operating manual must not be carried out without first obtaining the approval of pester pac automation!



Warning!

Risk of injury!

Releasing screw connections can lead to unexpected movement of parts!

Secure parts before releasing screw connections.



Warning!

Risk of injury!

Releasing pneumatic connections can lead to venting and to unexpected movement of parts!

Before releasing pneumatic connections, secure any parts that may move, switch off the air supply and vent the components.

Only UVP with hot-melt glue



Warning!

Risk of injury!

During the installation or removal of components that are under pressure, compressed air may be expelled suddenly and result in injury.

Switch off air supply. Vent components.



Warning!

Risk of burn injuries!

Certain components e.g. sealing bar have a temperature of over 60 °C.

There is a risk of burn injuries when coming into contact with the side sealing jaws and the grid.

Switch off the main switch, switch position "0"!

Let the machine cool to below 40 °C!

Wear protective gloves!



Warning!

Risk of burn injuries!

During the installation or removal of components, there is a risk of injury from heated parts.

Switch off the main switch, switch position "0"!

Let the machine cool to below 40 °C!

Wear protective gloves!



Warning!

Risk of burn injuries!

The temperature in the shrink tunnel is greater than 60 °C. There is a risk of burn injuries from reaching inside the shrink tunnel.

Do not reach inside the shrink tunnel.



Caution!

Machine damage!

Oil and similar agents destroy the maintenance-free sliding layer in the cylinder.

Do not introduce oiled air into the pneumatic circuit!



Caution!

Damage to property caused by fluctuations in the mains voltage!

Disturbances in the energy supply, e.g. voltage fluctuations, in particular voltage spikes, can cause damage to the machine, products and packaging material.

In the event of disturbances of this type, switch the machine off immediately. The problem can be remedied by installing a ballast to stabilize the mains voltage.

Spare parts

Correct operation of the machine can only be guaranteed if original replacement parts and accessories approved by pester pac automation are used.

The use of components of identical design but made by other manufacturers can cause malfunctions and damage to products or the machine.

For details of original spare parts, see the spare parts catalog and the electrical and the pneumatic equipment list.

Inspection and service intervals

The inspection and service intervals specified in this operating manual must be adhered to and the instructions complied with.

Working on the machine

Work on the machine may only be performed by suitably qualified personnel.

Work on the electrical systems may only be performed by qualified electricians.

Changes to the machine

Any changes, extensions or reconstructions, especially such as may impair machine safety, may only be carried out with the written approval of pester pac automation. This also applies to the installation and adjustment of safety devices.

<i>Electrical equipment</i>	Inspect and check the electrical equipment of the machine on a regular basis. Defects such as loose connections or charred cables, etc. must be corrected immediately.
<i>Original fuses</i>	Use only original fuses with the specified protection.
<i>Restarting</i>	Before restarting the machine, make absolutely certain that no one is still standing within the machine's danger zones.

8.1.2 Safety devices



Danger!

Risk of fatal injury!

Bypassed or disabled protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Protective and safety devices must not be bypassed, removed or disabled!



Danger!

Risk of fatal injury!

Defective protective and safety devices can cause danger to the life and limb of personnel working at the machine.

Defective protective and safety devices must be repaired or replaced immediately!

Only use original spare parts and accessory parts authorized by pester pac automation. The use of non-authorized accessory parts and spare parts for protective and safety devices can cause protective and safety devices to malfunction, leading to danger to the life and limb of the personnel working at the machine!

To eliminate danger to the life and limb of personnel, the appropriate areas of the machine are equipped with protective and safety devices, e. g. safety doors, **EMERGENCY STOP** push buttons etc.

- Movable separating safety devices such as e. g. safety doors, hatches, hoods are monitored by safety switches.
- Fixed separating protective covers such as cover plates or safety guards etc. are not monitored. Serious injuries can result if these safety devices are removed.

Personnel must be aware which protective and safety devices are present, where they are located and how they work.

Inspections must be carried out as prescribed in the service schedule (see Chapter Service) to ensure that all protective and safety devices are present and in working order!

EMERGENCY STOP push button

In contrast to a controlled machine stop, hitting an **EMERGENCY STOP** push button brings the machine to an immediate standstill (within 0.5 seconds) or stops the entire line in the case of line operation.

The system becomes depressurized partly. Units that hold the products in position such as holding units, remain pressurized.

Personnel must be familiar with the location and the operation of all **EMERGENCY STOP** push buttons.

Check all **EMERGENCY STOP** push buttons before commencing work!



Caution!

Machine damage!

The **EMERGENCY STOP** push buttons are designed for use only in emergencies, when the machine needs to be stopped immediately. The **EMERGENCY STOP** push button cannot be used to initiate a controlled machine stop. Overuse of the **EMERGENCY STOP** push button leads to machine damage.

Use the **STOP** push button to initiate a controlled machine stop!

Safety labels

Special safety labels marking the danger zones must not be removed. It must be ensured that safety labels are not destroyed as a result of inappropriate cleaning.

8.2 Replacing safety switches

To replace contact-free safety switches, you will need a *special screwdriver for one-way securing screws in protective devices*. This special tool is not included in the scope of delivery of the machine.

Replacement safety switches and special tools can be ordered from the service department (See Service hotline on page 1-5). Order numbers, see Documentation CD **Spare parts catalog**.



Warning!

Danger of serious injury!

Access to areas of the machine where dangerous movements are performed and dangerous devices are located may be possible if protective devices are not correctly adjusted.

Replace safety switches as prescribed in the manufacturer's instructions!

Observe the manufacturer's safety instructions!

Observe the information on the spare parts package for safety switches!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.

Special tools

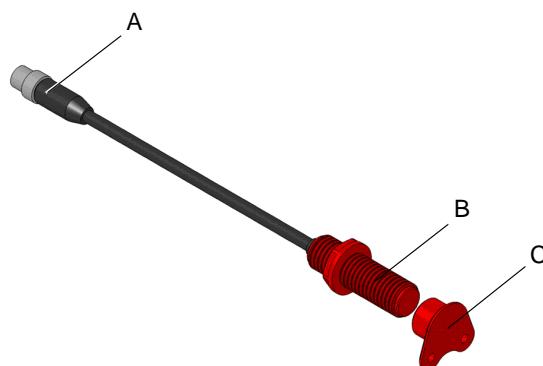
Special screwdriver **A** for one-way securing screws **B** in protective devices



Dismantling safety switches

- 1 Remove screws **B** of the safety switch, actuator and where applicable protective cover using special screwdriver **A**.
- 2 Release the switch connector.

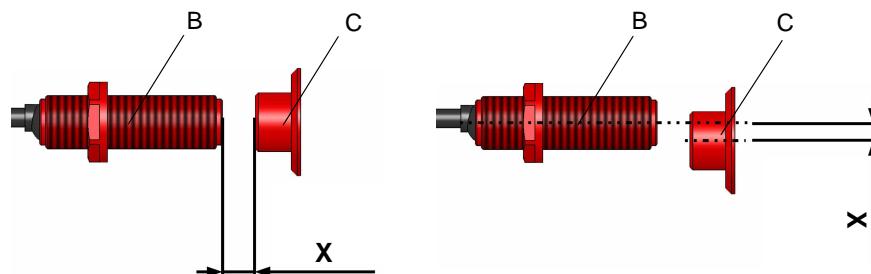
Fitting new safety switch



- 1 Screw actuator **C** tight in the correct position.
- 2 Fit safety switch **B** in the correct position.
It must be possible to adjust safety switch **B**!
- 3 Plug connector **A** into safety switch **B**.

Adjusting safety switches

The following clearances between safety switch **B** and actuator **C** must be adhered to in order to ensure that the switch is reliably actuated or locked.



Position	Clearance X
Distance between safety switch B and actuator C	10-12 mm
Lateral offset	Max. 4 mm

Check position of switch

- 1 Switch on the air supply.
- 2 Switch on the main switch.
- 3 Activate the protective device.
Check the switch position.
- 4 When the switch has been successfully checked, tighten the screws on safety switch **B**.

Adjust the switch position*For your information*

Any gap larger than 4 mm may allow access to the danger zone protected by the safety switch and is therefore not permissible. If the gap is larger than 4 mm, the safety switch must be adjusted.

- 1 Switch the main switch and the air supply off again.
- 2 Increase the distance between safety switch **B** and actuator **C** by a maximum of 3 mm to 15 mm.
- 3 Switch on the air supply.
- 4 Switch on the main switch.
- 5 Activate the protective device.
Check the switch position.
- 6 When the switch has been successfully checked, tighten the screws on the safety switch.

Check the switch function

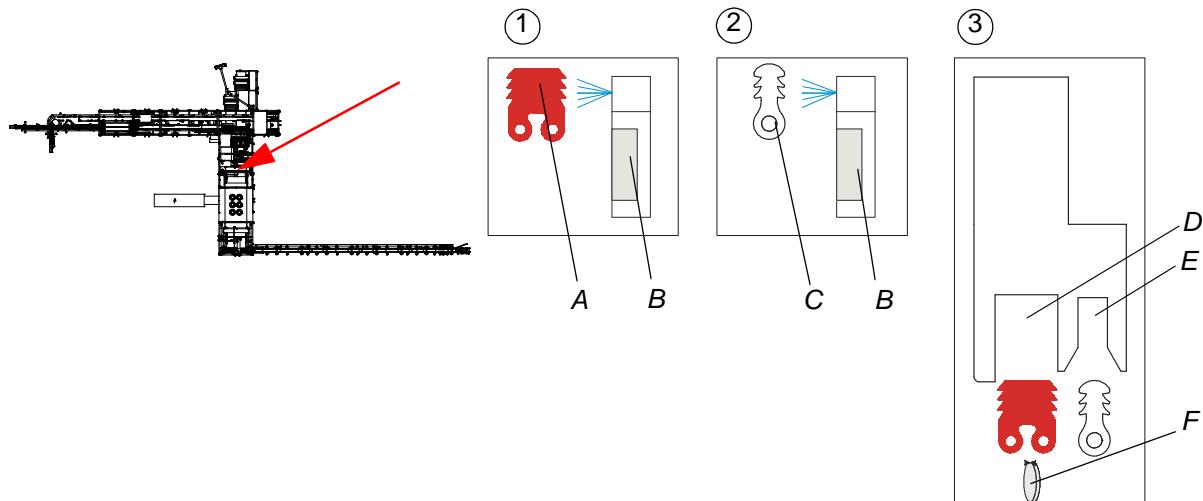
(See 7.6.1 Checking the protective devices on page 7-16)

8.3 Sealing system

8.3.1 Replacing the sealing and clamping profile (servo closing bar)

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.



For your information

If assembly is difficult, spray the profiles on both sides with a silicone separating agent **B**.

Replacing the profile

- Select the menu **Machines function/Setup/Jogging**.
- Touch the **Off** button in the line **Closing bar**.
- Drive the closing bar with jog mode all the way to the top.
- Pull out sealing profile **A** and clamping profile **C**.
- Press new sealing profile **A** into the groove on the closing bar **D** without stretching it (using, for example, a coin **F**).
- Press new clamping profile **C** into the groove on the closing bar **E**.
- Menu **Machine function/Setup/Jogging**, touch the **On** button in the line Closing bar. The closing bar moves to its position.
- Close the protective device.
The machine is now ready to start.

Starting the machine

- Close protective devices.
- Switch on the main switch.
- Switch on the air supply.



For your information

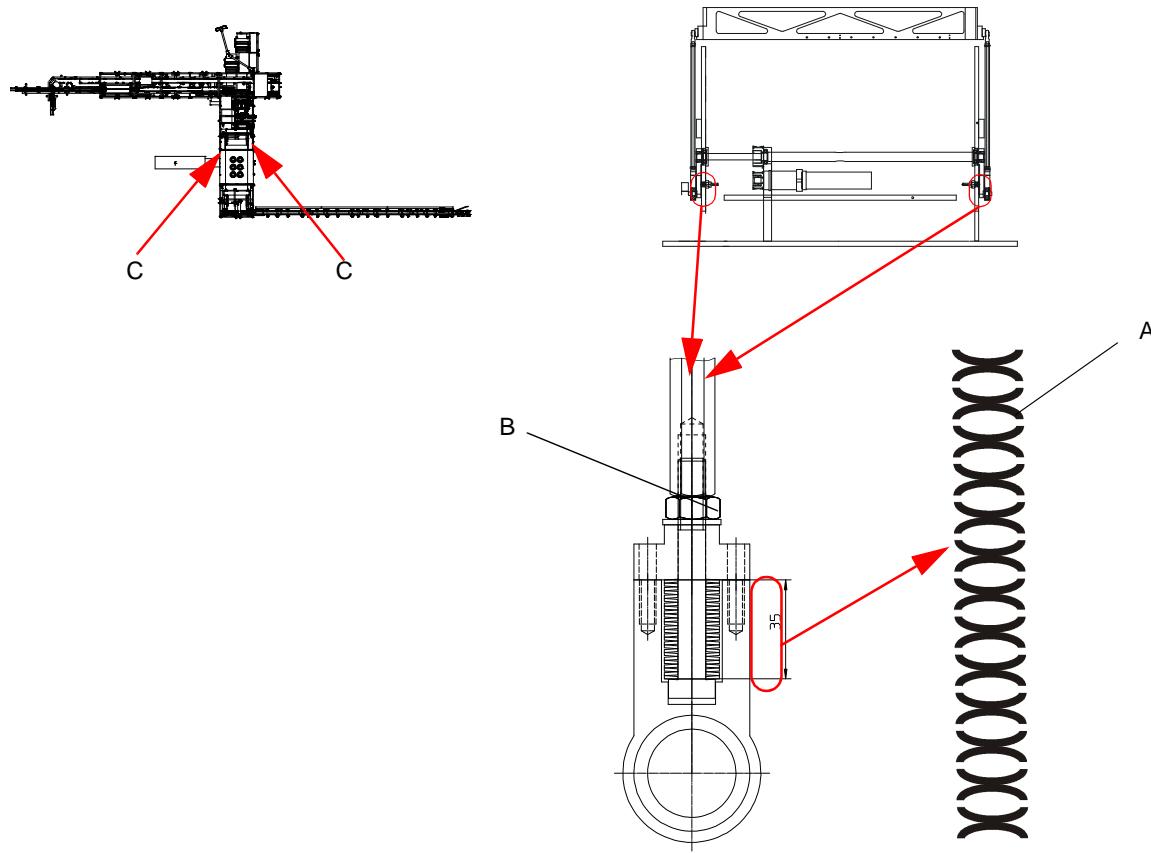
If the seaming quality is poor, either replace both profiles or rotate the sealing profile lengthwise and reinsert it.

8.3.2 Adjusting the tension of the spring assembly

The tension of the spring assembly must be adjusted, if the spring assembly or several springs have been replaced.

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.



A Spring washer
B Nut
C Plate cover

- 1 Remove plate cover **C** on both sides.
- 1 Check the number or status of spring washers **A**. Each spring retainer must have 26 spring washers.
- 2 Replace defective spring washers. Stack the spring washers **A** facing in opposite directions (see illustration).

3 Tighten the spring washer assembly using nut **B** to a measurement of 35 mm.

4 Lock the nut and rod.

5 Reattach plate cover **A** on both sides.

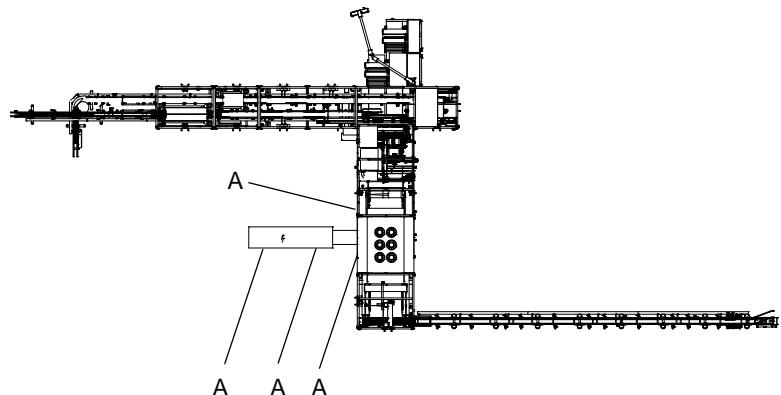
Starting the machine

1 Close the protective covers.

2 Switch on the main switch.

3 Switch on the air supply.

8.4 Replacing the filter pad



A Filter pad

Replacing the filter pad

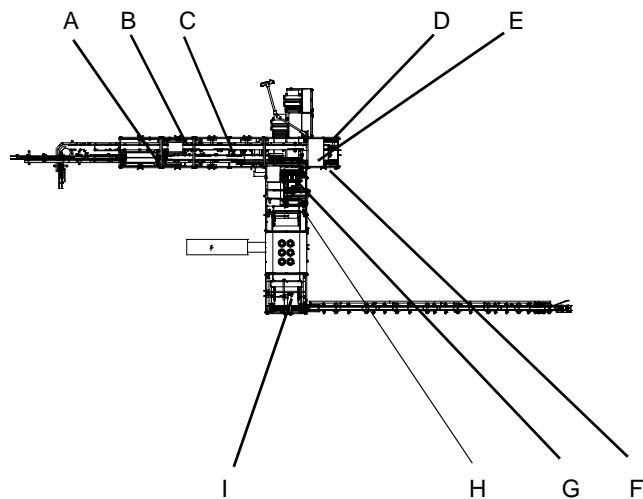
- 1 Grip the top of the protective grid on the control cabinet and open it.



- 2 Take out and replace the filter pad.
(Order number, see CD Documentation: Electronic **spare parts catalog**)
- 3 Close the protective grid.

8.5 Toothed belts

Overview of toothed belts



- A Turning screw 1
- B Turning screw 2
- C Crossfeed pusher 1
- D Outfeed pusher, pucks
- E Crossfeed pusher 2
- F Indexing conveyor (2x)
- G Main infeed pusher
- H Servo closing unit
- I Outfeed transport

8.5.1 Adjusting the toothed belt

The pretension of the toothed belt must be correctly set. If it is not, this could negatively influence the operating characteristics and service life of the gearing.

With a test force of 20 N, it should be possible to push through in the toothed belt approx. 12 mm.

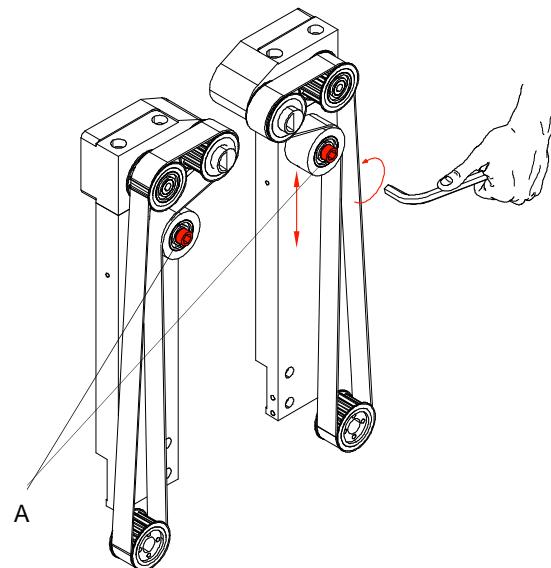
pester pac automation recommends always keeping new toothed belts in stock.

8.5.2 Changing the toothed belt

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.

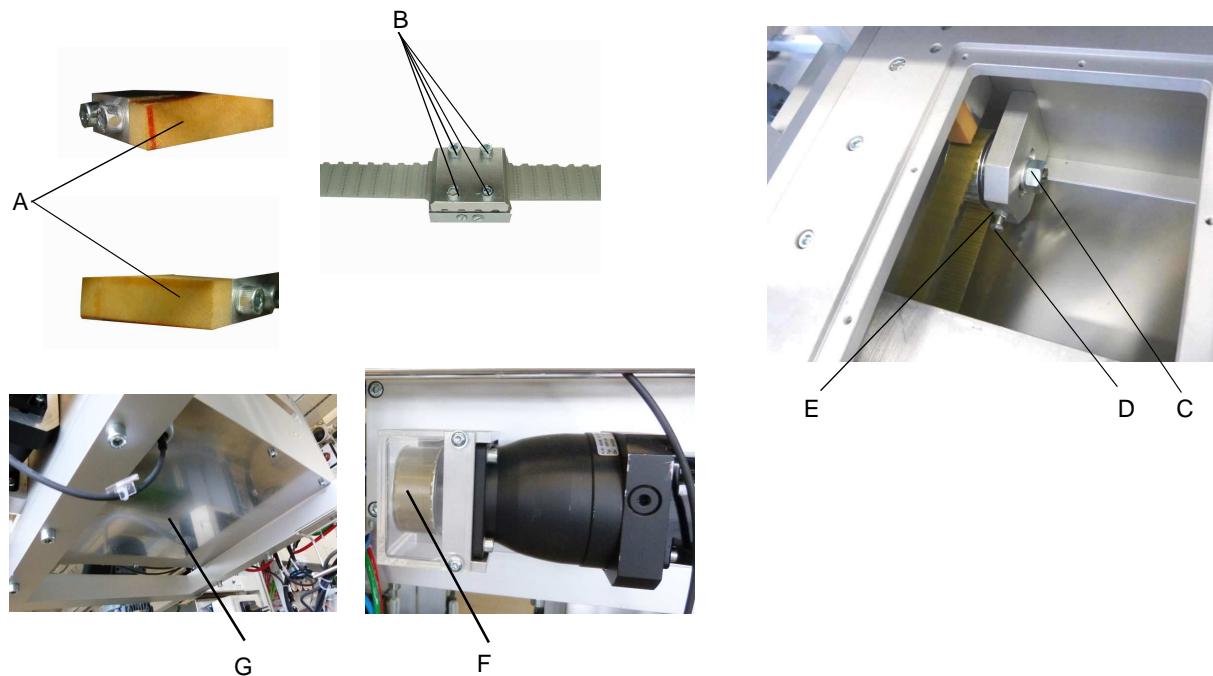
Toothed belt, turning screw 1 and 2



A Deflection roller

- 1 Open protective device.
- 2 Remove deflection roller A
- 3 Detach the toothed belt and replace it.
- 4 Fit deflection roller A.
- 5 Close the protective device.

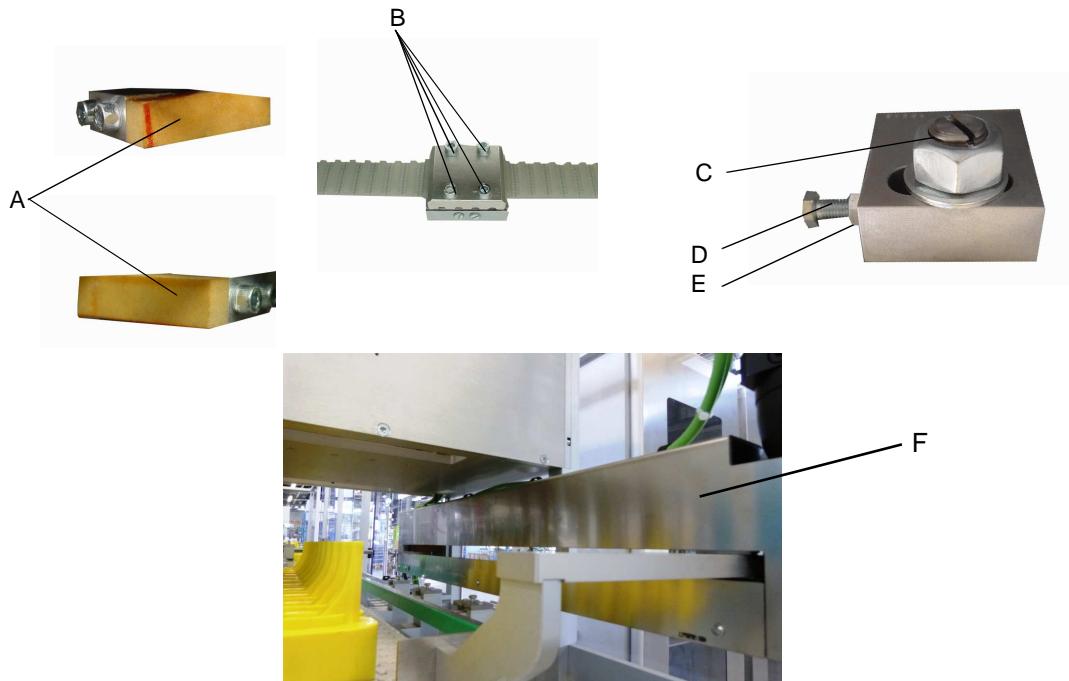
Toothed belt, crossfeed pusher 1



- A Stop buffer
- B Screws
- C Set screw
- D Clamping screw
- E Counter nut
- F Side cover
- G Lower cover

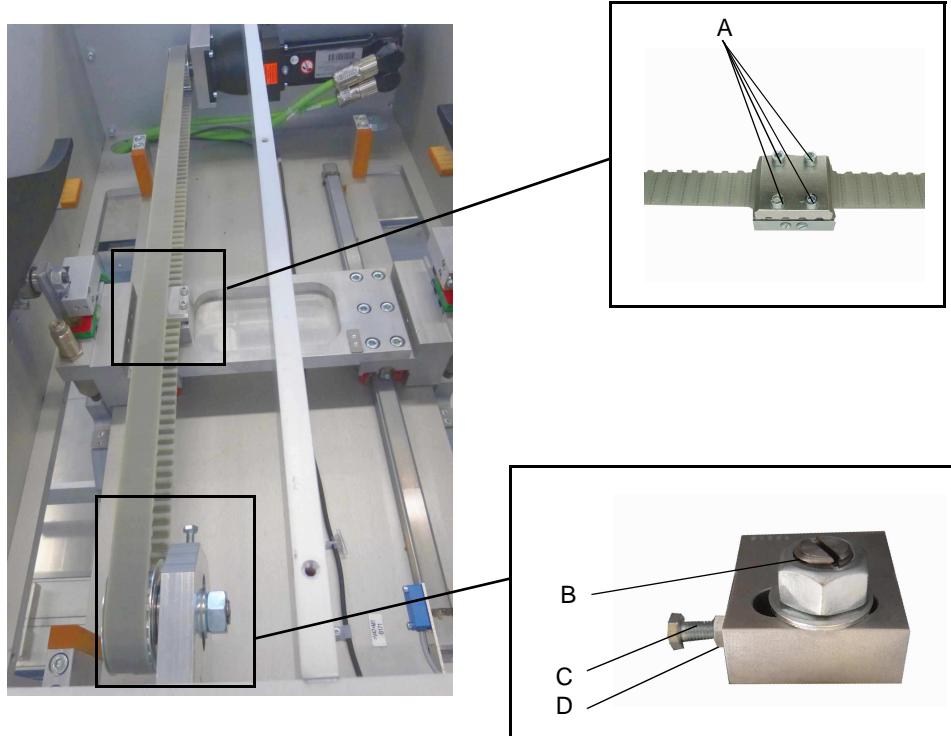
- 1 Remove upper, lower and side covers.
- 2 Remove the stop buffer **A**.
- 3 Remove the four locking screws **B** on the carriage.
- 4 Release counter nut **E** and clamping screw **D**.
- 5 Remove fixing screw **C**.
- 6 Take the toothed belt down and install a new one.
- 7 Tighten toothed belt with clamping screw **D**.
- 8 Secure clamping screw **D** with counter nut **E**.
- 9 Tighten fixing screw **C**.
- 10 Tighten locking screws **B** on the carriage.
- 11 Attach the stop buffer **A**.
- 12 Fit upper, lower and side covers.

Toothed belt, puck outfeed pusher



- A Stop buffer
- B Screws
- C Set screw
- D Clamping screw
- E Counter nut
- F Cover

- 1 Remove the cover.
- 2 Remove the stop buffer A.
- 3 Remove the four locking screws B on the carriage.
- 4 Release counter nut E and clamping screw D.
- 5 Remove fixing screw C.
- 6 Take the toothed belt down and install a new one.
- 7 Tighten toothed belt with clamping screw D.
- 8 Secure clamping screw D with counter nut E.
- 9 Tighten fixing screw C.
- 10 Tighten locking screws B on the carriage.
- 11 Attach the stop buffer A.
- 12 Attach the cover.

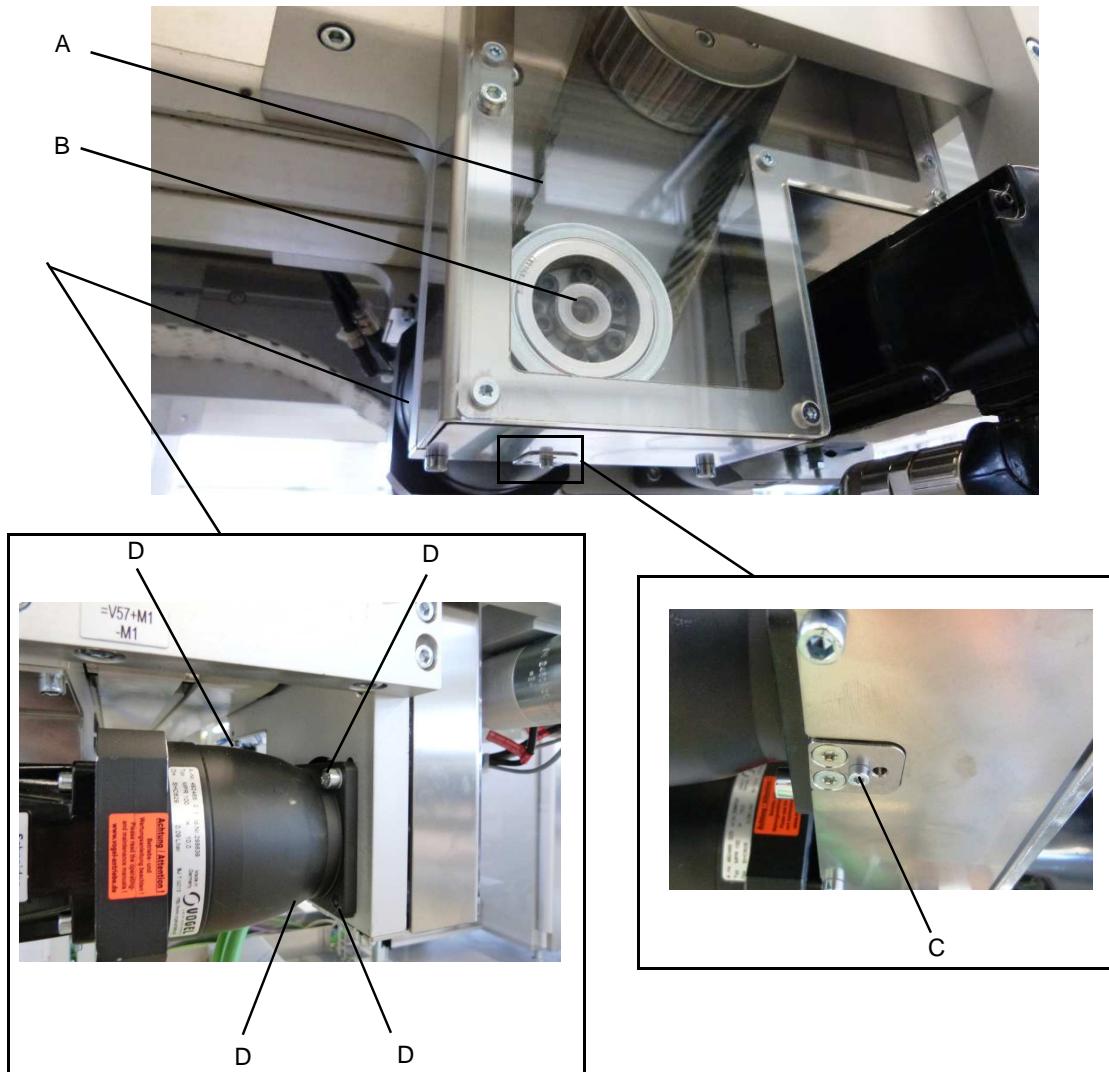
Toothed belt, crossfeed pusher 2

- A Screws
- B Set screw
- C Clamping screw
- D Counter nut

- 1 Remove the cover.
- 2 Remove the four locking screws **A** from the carriage.
- 3 Release counter nut **D** and clamping screw **E**.
- 4 Remove securing screw **B**.
- 5 Take the toothed belt down and install a new one.
- 6 Tighten the toothed belt with clamping screw **C**.
- 7 Secure clamping screw **E** with counter nut **D**.
- 8 Tighten securing screw **B**.
- 9 Tighten clamp bolts **A** on the carriage.
- 10 Attach the cover.

Toothed belt, indexing conveyor

The indexing conveyor is equipped with two toothed belts on opposite sides. The procedure for replacing the toothed belts is identical for both.

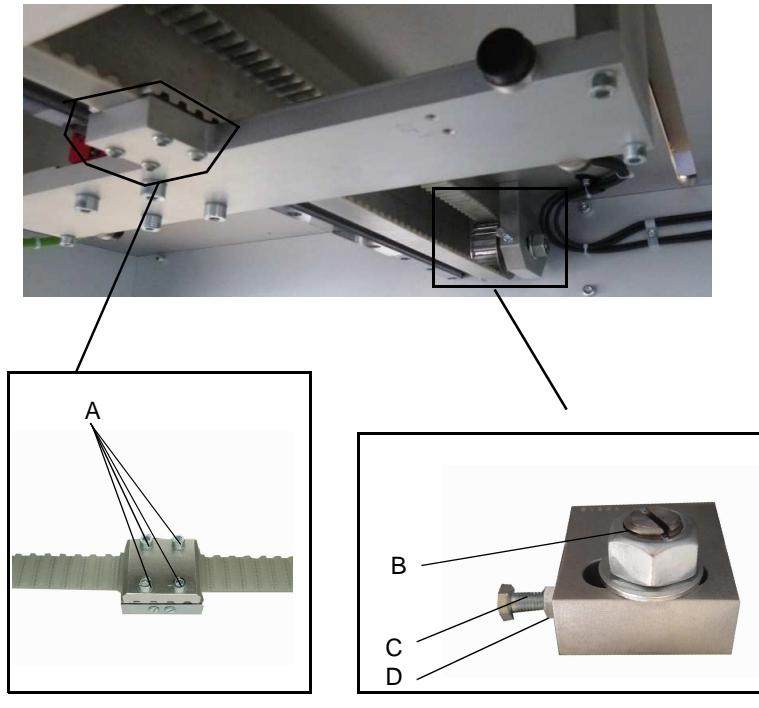


- A Cover
- B Toothed wheel
- C Clamping screw
- D Retaining screws servo motor

- 1 Remove cover **A**.
- 2 Release the servo motor retaining screws **D**.
- 3 Loosen clamping screw **C**.
- 4 Press toothed wheel **B** upward.
- 5 Detach the toothed belt and replace it.
- 6 Press toothed wheel **B** downward.
- 7 Tighten the toothed belt with clamping screw **C**.

- 8 Tighten servo motor retaining screws **D**.
- 9 Mount cover **A**.

Toothed belt main infeed pusher

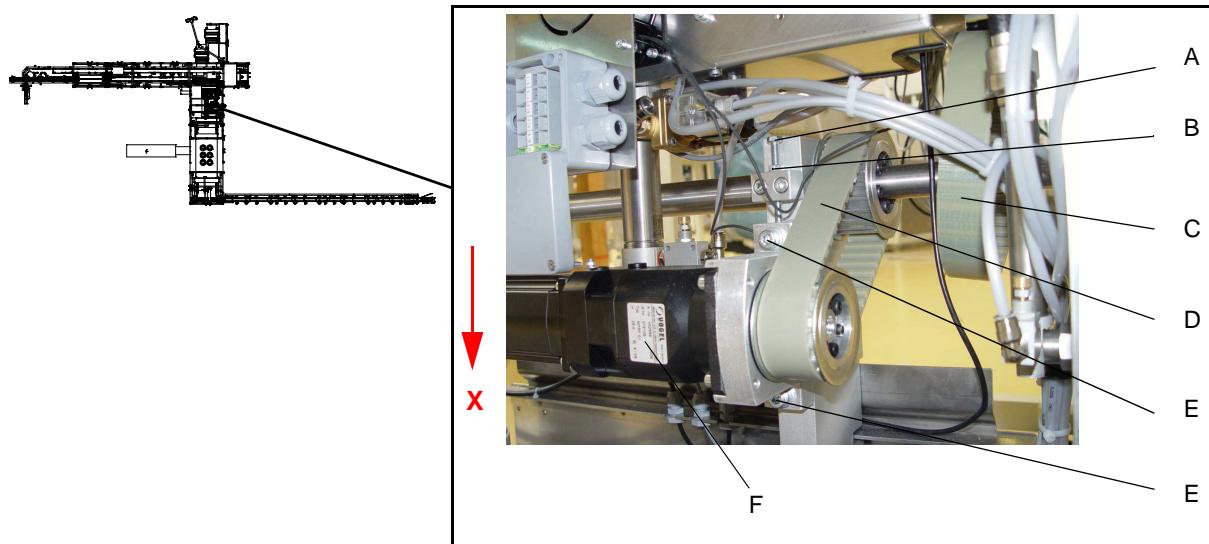


- A Screws
- B Set screw
- C Clamping screw
- D Counter nut

The toothed belt is located under the machine table.

- 1 Open protective device.
- 2 Remove the four locking screws **A** from the carriage.
- 3 Release counter nut **D** and clamping screw **C**.
- 4 Remove securing screw **B**.
- 5 Take the toothed belt down and install a new one.
- 6 Tighten toothed belt with clamping screw **D**.
- 7 Lock clamping screw **C** with counter nut **D**.
- 8 Tighten securing screw **B**.
- 9 Tighten clamp bolts **A** on the carriage.

Toothed belt, servo closing unit



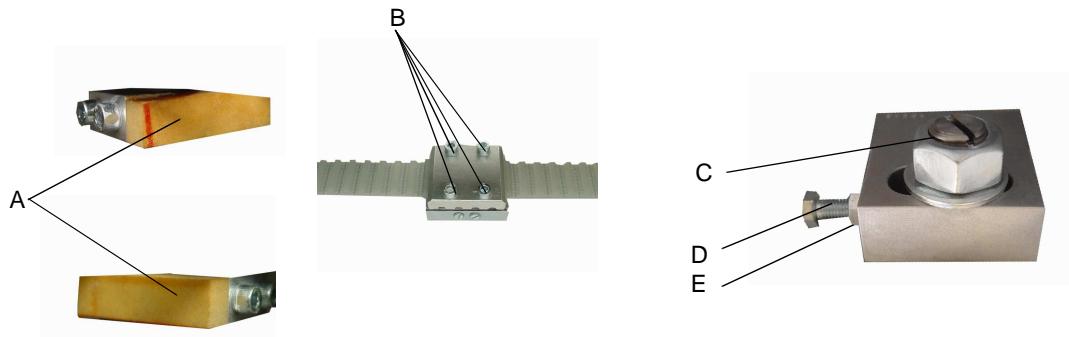
- 1 Open protective device.
- 2 Remove plate cover below the machine table.
- 3 Release counter nut **B** and clamping screw **A**.
- 4 Release screws **E**.
Toothed belt is slackened.
- 5 Cut and remove toothed belt **D**.
- 6 Pull on new toothed belt **C**.
- 7 Press motor **F** in the direction of the arrow **X** and fix screws **E**.
- 8 Tighten the toothed belt with clamping screw **A**.
- 9 Lock clamping screw **A** with counter nut **B**.
- 10 Tighten screws **E**.
- 11 Screw on plate cover.
- 12 Close protective device.



For your information

Only specialist
pester pac automation technicians may replace the toothed belt
again.
Call service hotline (See Service hotline on page 1-5)!

Toothed belt outfeed transport



- A Stop buffer
- B Screws
- C Set screw
- D Clamping screw
- E Counter nut

- 1 Open protective device.
- 2 Remove the cover.
- 3 Remove the stop buffer **A**.
- 4 Remove the four locking screws **B** on the carriage.
- 5 Release counter nut **E** and clamping screw **D**.
- 6 Remove fixing screw **C**.
- 7 Take the toothed belt down and install a new one.
- 8 Tighten toothed belt with clamping screw **D**.
- 9 Secure clamping screw **D** with counter nut **E**.
- 10 Tighten fixing screw **C**.
- 11 Tighten locking screws **B** on the carriage.
- 12 Attach the stop buffer **A**.
- 13 Attach the cover.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the air supply.
- 3 Switch on the main switch.

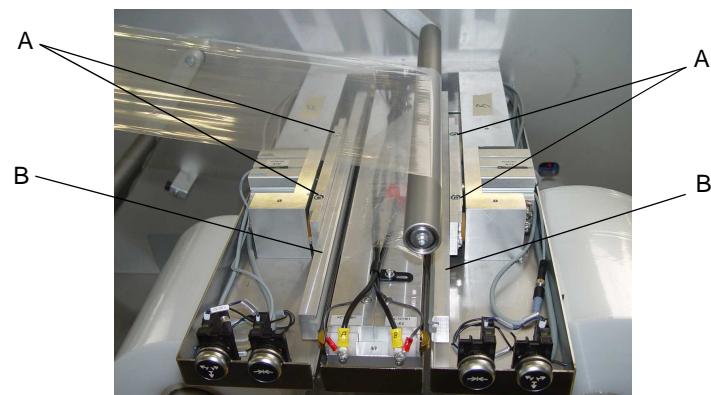
8.6 Film splicer

8.6.1 Replacing the sealing and clamping profile

Preconditions

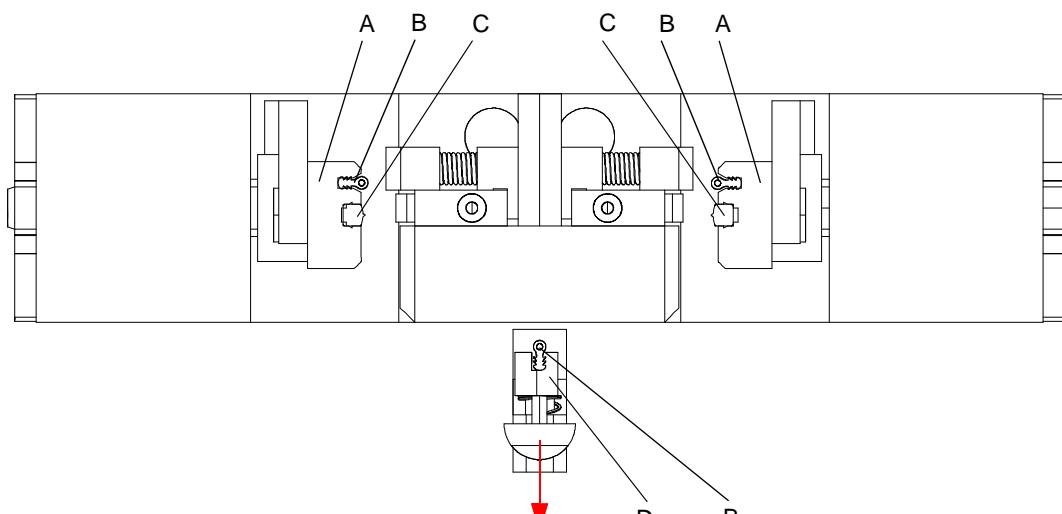
- The main switch is switched off and secured with a lock.
- Air supply is switched off.

Removing the closing bar



- 1 Remove the top plate cover.
- 2 Unscrew and store retaining screws **A**.
- 3 Remove closing bar **B**.

Replacing profiles.



- | | |
|---|---------------------------------|
| A | Closing bar |
| B | Clamping profile (white) |
| C | Sealing profile (natural color) |
| D | Clamping rail |

- 1 Pull clamping and sealing profiles **B/C** out of closing bar **A**.
- 2 Open clamping rail **D** in the direction of the arrow and pull out clamping profile **B**.
- 3 Press clamping and sealing profiles **B/C** into the corresponding closing bar groove.
- 4 Press clamping profile **B** into clamping rail **D**.
Close clamping rail **D**.



For your information

If assembly is difficult, spray the profiles on both sides with a silicone separating agent.

Fitting the closing bar



- 1 Insert closing bar **B** again.
- 2 Screw in retaining screws **A**.
- 3 Attach the top plate covers.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.
- 3 Switch on the air supply.

8.7 Changing the cutter on the perforating unit



Warning!

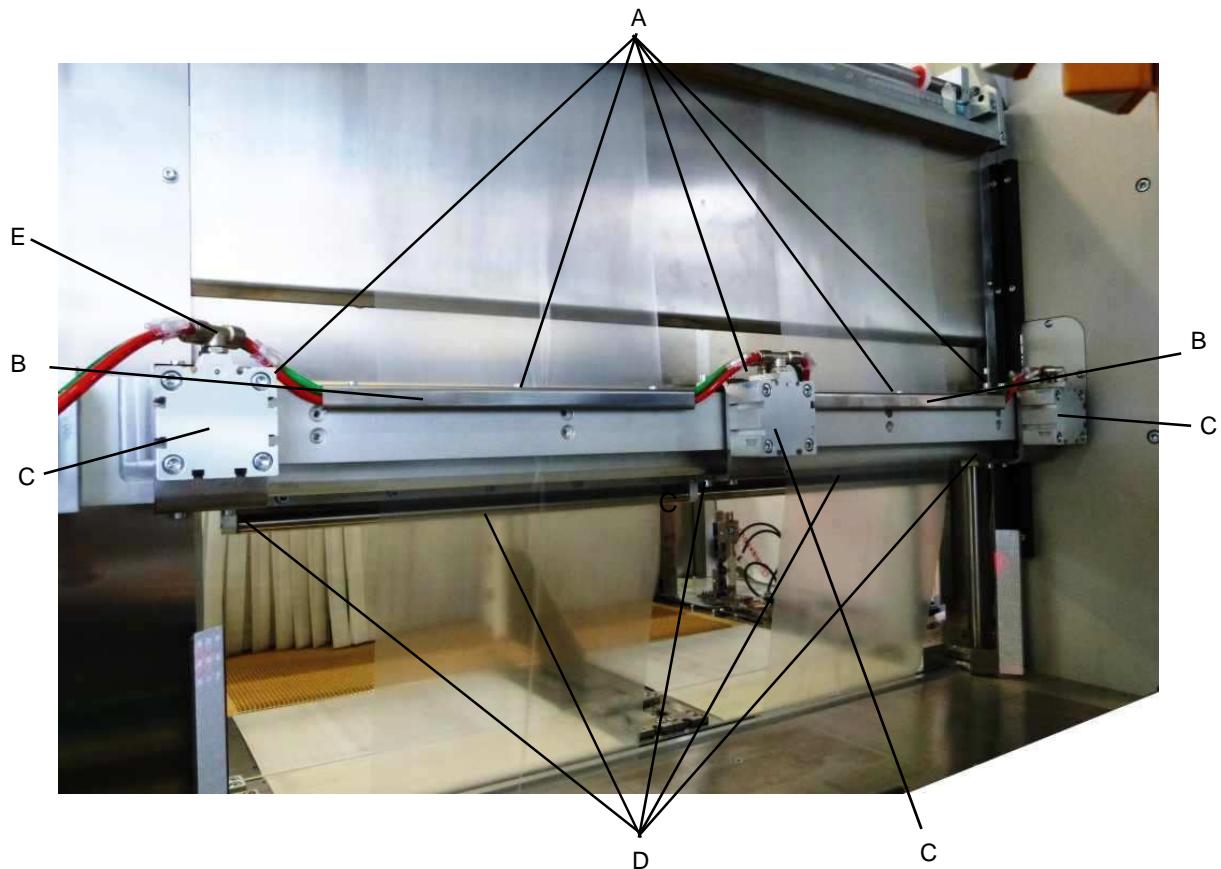
Danger of cuts caused by the cutter!

The cutter is toothed and very sharp. There is a danger of cutting and tearing the skin if the cutter is touched.

Never touch the teeth of the cutter!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.



- | | |
|---|----------------------|
| A | Screws, cutter clamp |
| B | Cover plate |
| C | Block |
| D | Screws, cutter clamp |
| E | Pneumatic connection |

- 1 Unplug pneumatic connection **E**.
- 2 Remove blocks **C**.

- 3** Remove cover plates **B**.
- 4** Release the cutter clamp at the top and bottom by unscrewing the two sets of 5 screws each on the top **A** and bottom **D**.
- 5** Remove the bar.
- 6** Replace the cutter.
- 7** Clamp the cutter by tightening screws **A** and **D**.
- 8** Fit cover plates **B**.
- 9** Fit blocks **C**.
- 10** Plug in pneumatic connection **E**.

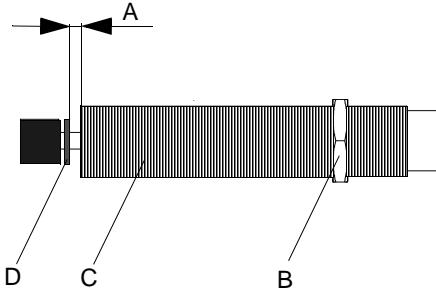
Starting the machine

- 1** Close all protective devices.
- 2** Switch on the main switch.
- 3** Switch on the air supply.

8.8 Adjusting the shock absorbers

The minimum air gap **A** between shock absorber collar **D** and shock absorber body **C** is 1 mm.

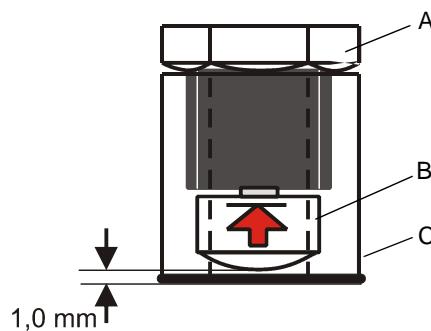
Set minimum air gap
Variant 1



- A Minimum air gap 1-2 mm
- B Counter nut of the shock absorber
- C Shock absorber body
- D Shock absorber collar

- 1 Loosen counter nut **B** of the shock absorber.
- 2 Move the shock absorber all the way in.
- 3 Set a minimum air gap **A** of 1 mm between shock absorber collar **D** and shock absorber body **C**.
- 4 Secure shock absorber with counter nut **B**.

Set minimum air gap
Variant 2



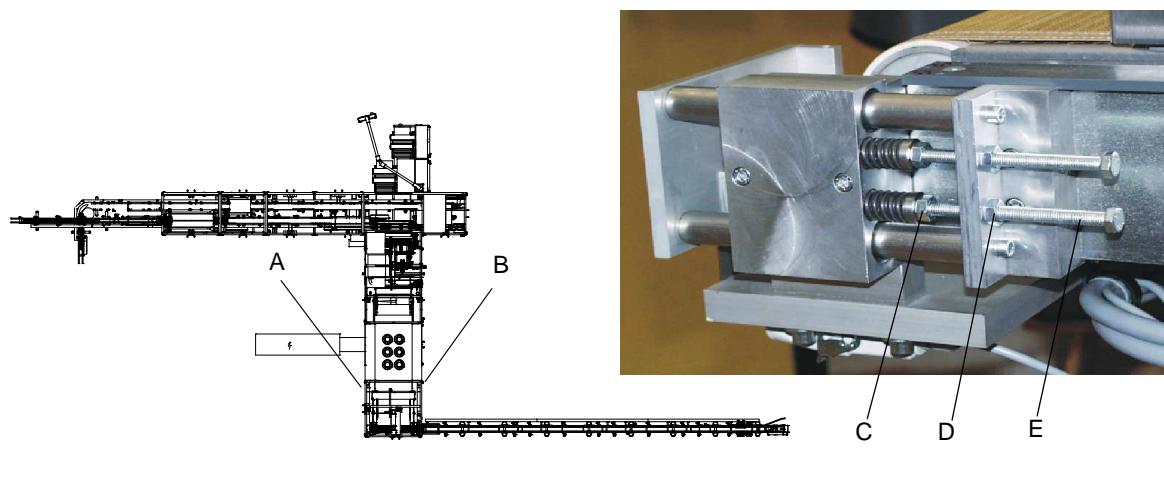
- A Counter nut of the stop sleeve
- B Shock absorber head
- C Stop sleeve

- 1 Release the counter nut of stop sleeve **A**.
- 2 Set the minimum air gap between shock absorber head **B** and stop sleeve **C** by twisting the stop sleeve until shock absorber head **A** can be depressed by at least 1 mm.
- 3 Secure stop sleeve **C** with the counter nut of stop sleeve **B**.

8.9 PEWO-Therm 800

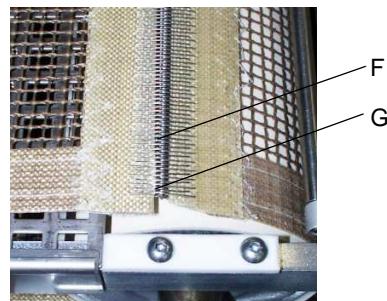
8.9.1 Replacing the therm conveyor

Figure 1



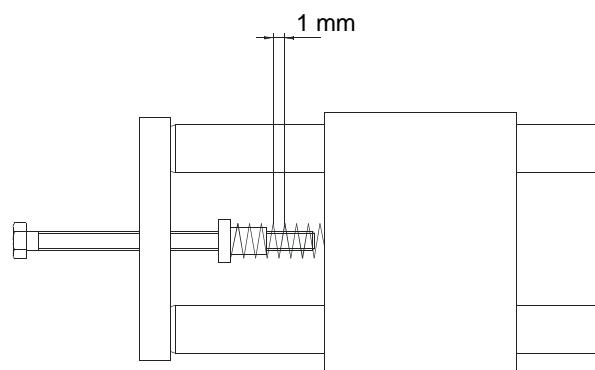
- A Cover
- B Cover
- C Counter nut
- D Counter nut
- E Clamping screw

Figure 2



- F Closure wire
- G Hook fastener

Figure 3



Preconditions

- The machine is in start mode.

- Heater PEWO-Therm 800 is switched off.
- PEWO-Therm 800 is cooled down.

Removing the therm conveyor

- 1 As soon as hook fastener **F** is in an easily accessible position between the curtain and the drive shaft, stop the Therm conveyor via the menu **Operation/Conveyors**.
- 2 Secure the main switch with a lock.
- 3 Remove covers **A** and **B**.
- 4 Loosen counter nuts **D** on both sides.
- 5 Release counter nuts **C** on both sides.
The tensioning device is slackened.
- 6 Open the hook fastener **F** (Fig. 2) and pull out the closure wire (Fig. 2).
- 7 Pull out the therm conveyor.

Fitting the new therm conveyor

- 1 Insert the new therm conveyor.
- 2 Guide in the closure wire (Fig. 2).
- 3 Bend the hook fastener (Fig. 2).
The therm conveyor is now closed.
- 4 Tighten clamping screws **E** on both sides until there is a distance of approx. 1 mm between the spring windings (Fig. 3).
- 5 Tighten counter nuts **C** on both sides.
- 6 Tighten counter nuts **D** on both sides.
- 7 Attach covers **A** and **B**.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.
- 3 Switch on the Therm conveyor.
- 4 Switch on the heater.
- 5 Check the run of the therm conveyor and adjust if necessary.

8.9.2 Replacing the heater



Danger!

Risk of fatal injury due to electric shock!

Touching live aggregates in the control cabinet can be fatal.

Work on electrical systems may only be performed by qualified electricians!



Warning!

Risk of injury!

When replacing the heater, breathing problems and burns can occur due to vapors.

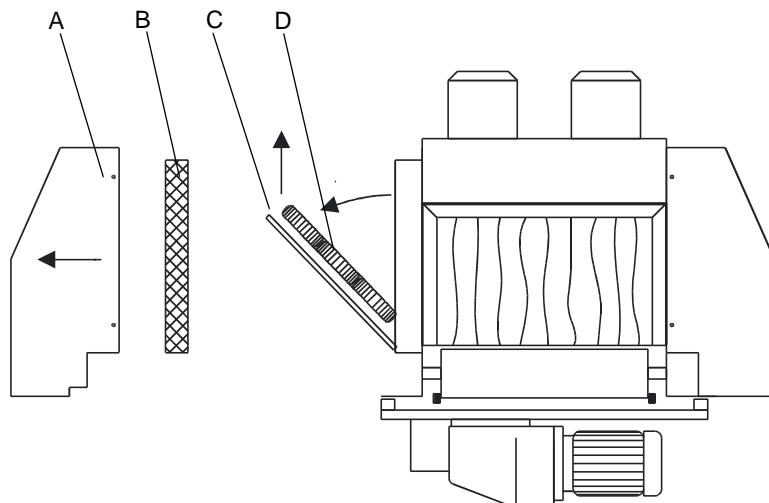
Wear protective gloves!

Wear a face mask!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.
- The machine has cooled down to 40 °C.

Removing the heater



- A Protective cover
 B Heat insulation
 C Heater unit support
 D Heater

- 1 Undo the retaining screws of protective cover **A**.
- 2 Remove protective cover **A**.
- 3 Carefully remove thermal insulation **B**.
- 4 Loosen the top screws.
- 5 Take out the heater unit holder **C** by tilting and lifting.
- 6 Disconnect the connections and remove heater **D**.

Installing the heater

- 1 Insert a new heater.
- 2 Reconnect the connections.
- 3 Insert heater unit holder **C**.
- 4 Secure heater unit holder **C** with screws.

5 Carefully insert thermal insulation **B**.

6 Replace protective hood **A**.

Starting the machine

1 Close all protective devices.

2 Switch on the main switch.

3 Switch on the air supply.

4 Switch on therm conveyor if necessary, press **Conveyor** push button.

5 Switch on heater if necessary, press **Heater on** push button.

8.9.3 Replacing the temperature probe



Danger!

Risk of fatal injury!

Touching live components can be fatal.

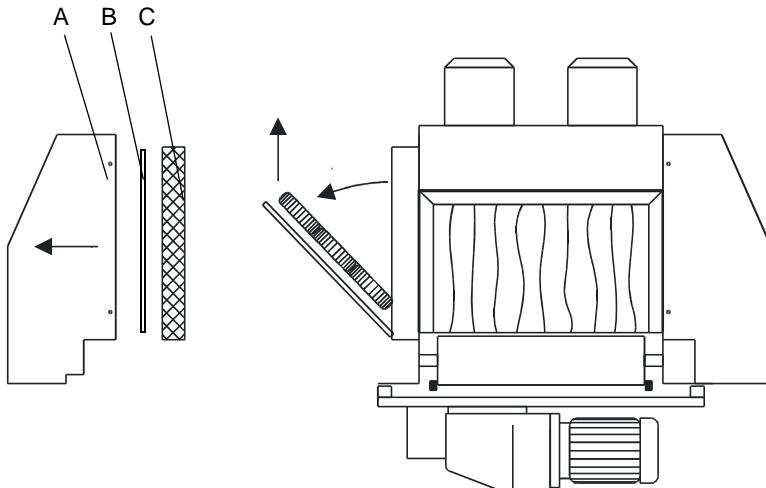
Work on electrical components may only be performed by qualified electricians!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.
- The machine has cooled down to below 40 °C.

The PEWO-Therm 800 has two temperature probes, one each on the right and left in the area of the heater.

Removing the temperature probe

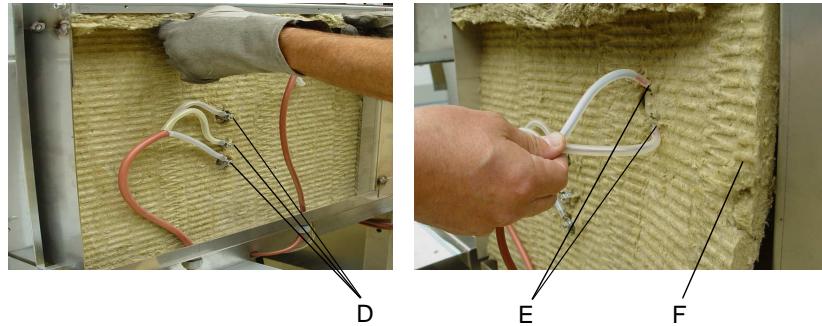


A Housing

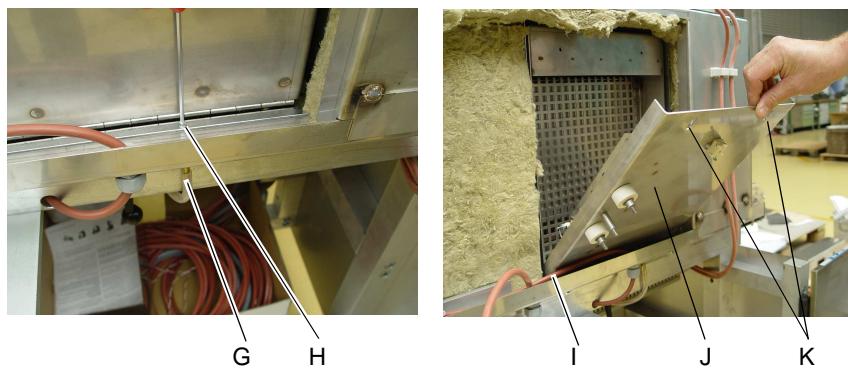
B Protective cover

C Heat insulation

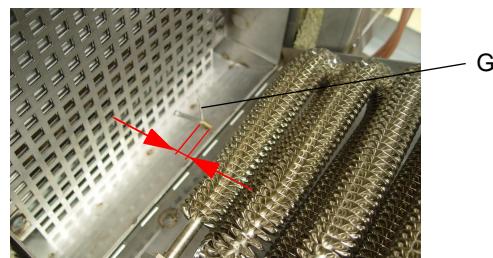
- 1 Release screws from housing **A** and remove housing **A**.
- 2 Release the screws of protective cover **B** and remove protective cover **B**.
- 3 Put on protective gloves and carefully remove heat insulation **C**.



- 4 Release cable **D** from the heater by unscrewing the nuts.
- 5 Pull power connector **E** out of the temperature limiter.
- 6 Put on protective gloves and carefully remove heat insulation **F**.



- 7 Temperature probe **G** is fixed in position by screw **H**. Release screw **H**.
- 8 Release screws **K**.
- 9 Tilt heater bracket **J**.
Ensure that cable **I** is not pinched.
Press cable **I** into the cable duct.



- 10 Replace temperature probe **G**.



For your information

Ensure that temperature probe **G** does not touch any part of the housing.

If it is allowed to touch the housing, the temperature measurement will not be correct.

Fitting the temperature probe

- 1 Fix temperature probe **G** in position with screw **H**.
Check that it is correctly positioned!
- 2 Fold heater bracket **J** shut and secure with screws **K**.
- 3 Carefully insert heat insulation **F**.
- 4 Attach connections **D** and **E**.
- 5 Carefully insert heat insulation **C**.
- 6 Attach protective cover **B**.
- 7 Replace protective hood **A**.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.
- 3 Switch on the air supply.

8.9.4 Replacing the fan wheel



*Danger!***Risk of fatal injury due to electric shock!**

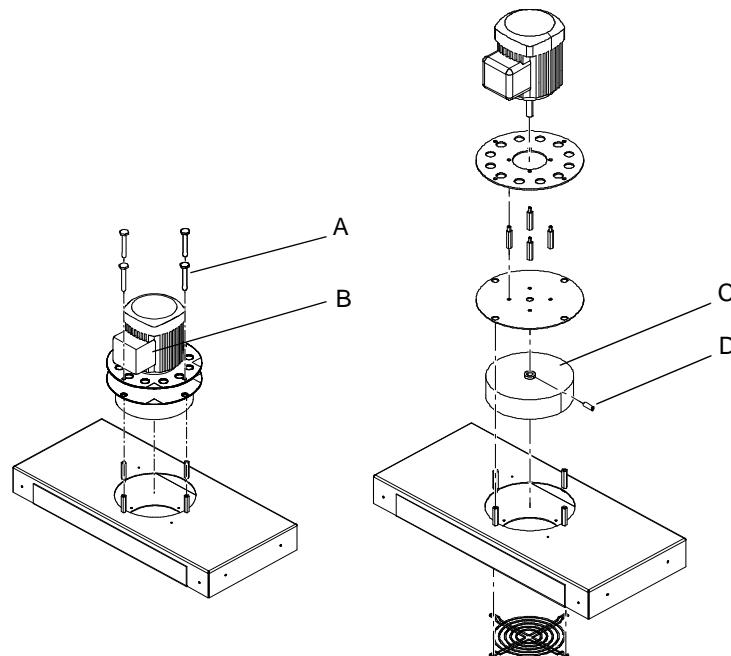
Touching live aggregates in the control cabinet can be fatal.

Work on electrical systems may only be performed by qualified electricians!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.
- The machine has cooled down to 40 °C.

Removing the fan wheel



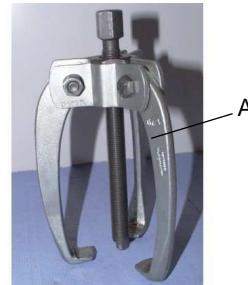
- A Screws
- B Fan motor, complete
- C Fan wheel
- D Threaded pin

- 1 Undo screws **A**.
- 2 Remove the complete fan motor assembly **B**.
- 3 Release threaded pin **D**.
- 4 Pull fan wheel **C** off the motor shaft.



For your information

If it proves difficult or even impossible to pull the fan wheel off the motor shaft, an extractor **A** can be used as an aid. The extractor is not included in the scope of delivery of the machine.



Installing the fan wheel

- 1 Place new fan wheel **C** on the motor shaft.
- 2 Tighten threaded pin **D**.

- 3 Fit the complete fan motor assembly **B** into the PEWO-Therm 800.
- 4 Screw in and tighten screws **A**.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.
- 3 Switch on the air supply.

8.9.5 Replacing the fan motor



Danger!

Risk of fatal injury due to electric shock!

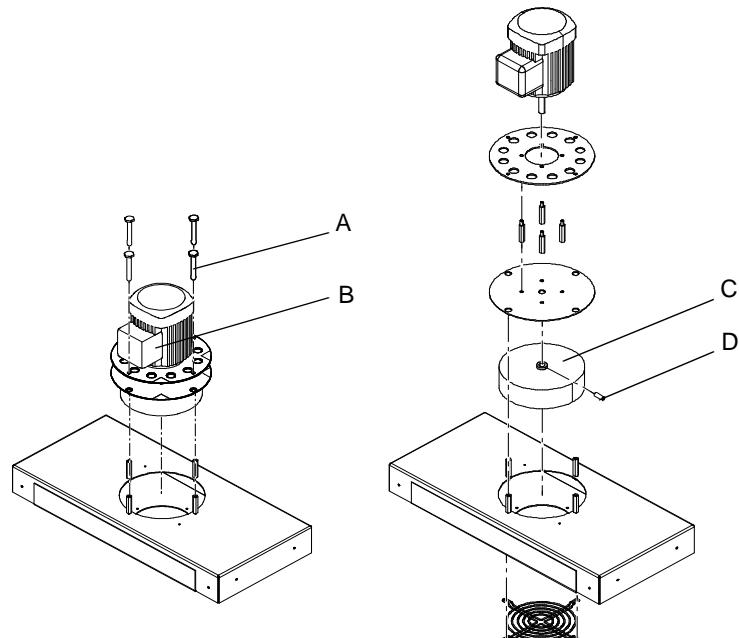
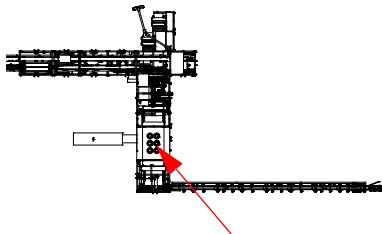
Touching live aggregates in the control cabinet can be fatal.

Work on electrical systems may only be performed by qualified electricians!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.
- The machine has cooled down to 40 °C.

Removing the fan motor



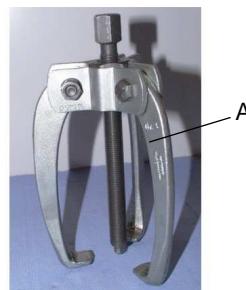
- A Screws
 B Fan motor, complete
 C Fan wheel
 D Threaded pin

- 1 Remove electrical connections from the motor.
- 2 Undo screws **A**.
- 3 Remove the complete fan motor assembly **B**.
- 4 Release threaded pin **D**.
- 5 Pull fan wheel **C** off the motor shaft.



For your information

If it proves difficult or even impossible to pull the fan wheel off the motor shaft, an extractor **A** can be used as an aid.
The extractor is not included in the scope of delivery of the machine.



Installing the fan motor

- 1 Fit the fan wheel **C** onto the motor shaft of the new motor.
- 2 Tighten threaded pin **D**.
- 3 Fit the complete fan motor **B** into the PEWO-Therm 800.
- 4 Screw in and tighten screws **A**.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.
- 3 Switch on the air supply.

8.9.6 Replacing the protective grid



Danger!

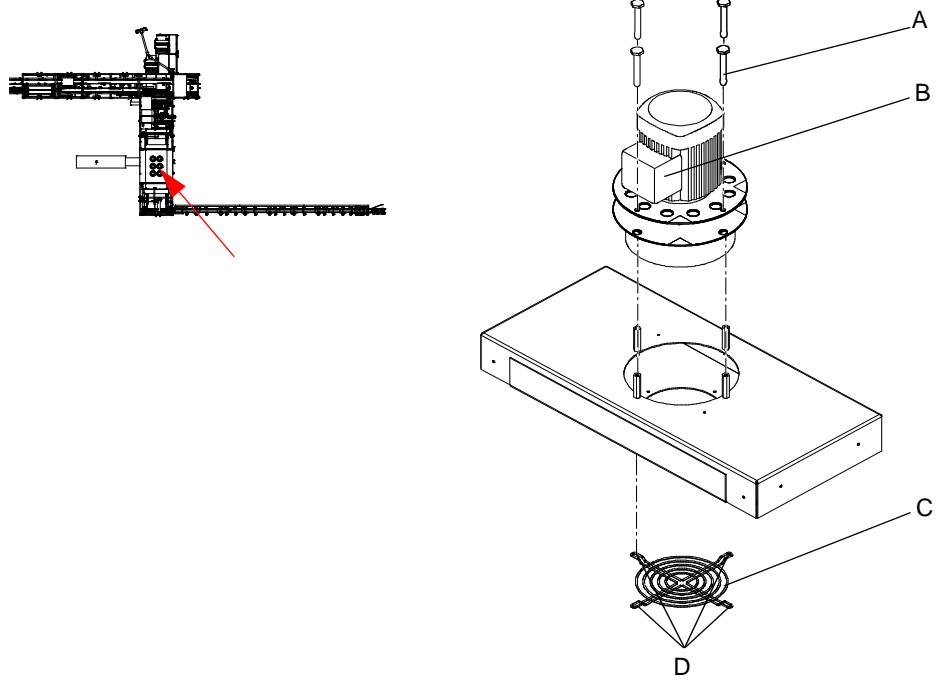
Risk of fatal injury due to electric shock!

Touching live aggregates in the control cabinet can be fatal.

Work on electrical systems may only be performed by qualified electricians!

Preconditions

- The main switch is switched off and secured with a lock.
- Air supply is switched off.
- The machine has cooled down to 40 °C.

Remove the protective grid

- A Screws
- B Fan motor, complete
- C Protective grid
- D Screws

- 1 Undo screws A.
- 2 Remove the complete fan motor assembly B.
- 3 Remove the protective grid C by unscrewing screws D.

Installing the protective grid

- 1 Attach new protective grid C using screws D.
- 2 Fit the complete fan motor B into the PEWO-Therm 800.
- 3 Screw in and tighten screws A.

Starting the machine

- 1 Close all protective devices.
- 2 Switch on the main switch.
- 3 Switch on the air supply.

8.9.7 Replace ventilator of product cooling



Warning!

Risk of injury!

If the machine is supplied with voltage, injury can result when carrying out work on the machine.

To prevent injury to personnel from a sudden voltage discharge or unintentional switching on, switch off and secure the main switch against being switched back on before carrying out work on the machine!



Warning!

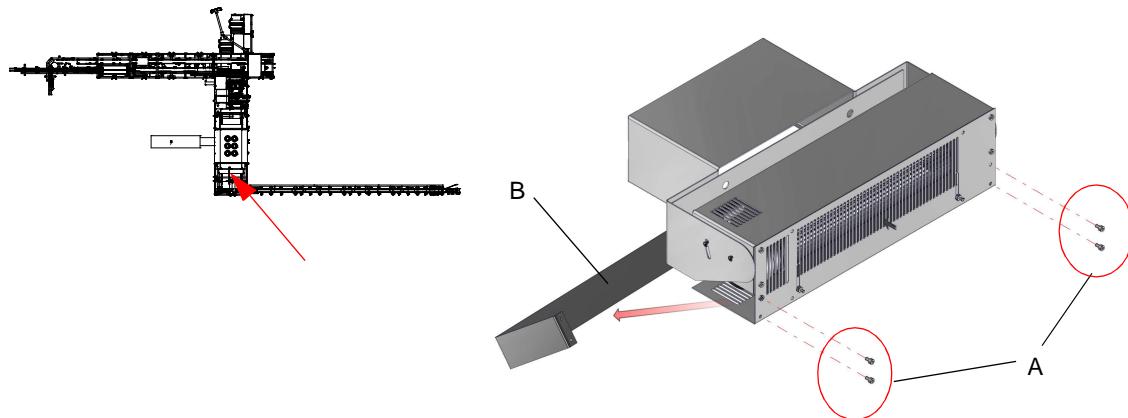
Risk of burn injuries!

The temperature in the shrink tunnel is greater than 60 °C. There is a risk of burn injuries from reaching inside the shrink tunnel.

Do not reach inside the shrink tunnel.

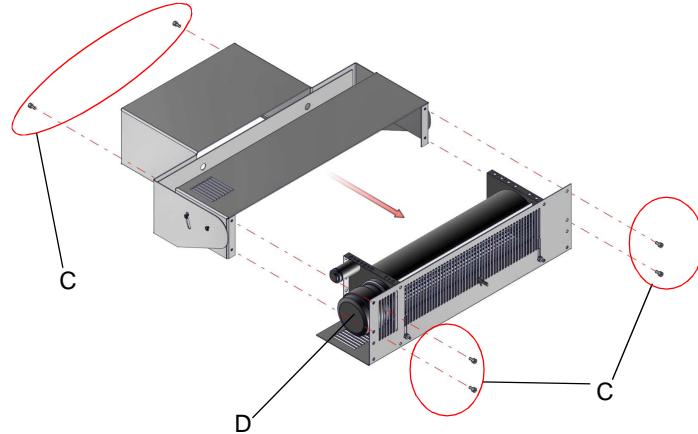
Preconditions

- The main switch is switched off and secured with a lock.
- PEWO-therm 800 has cooled off.



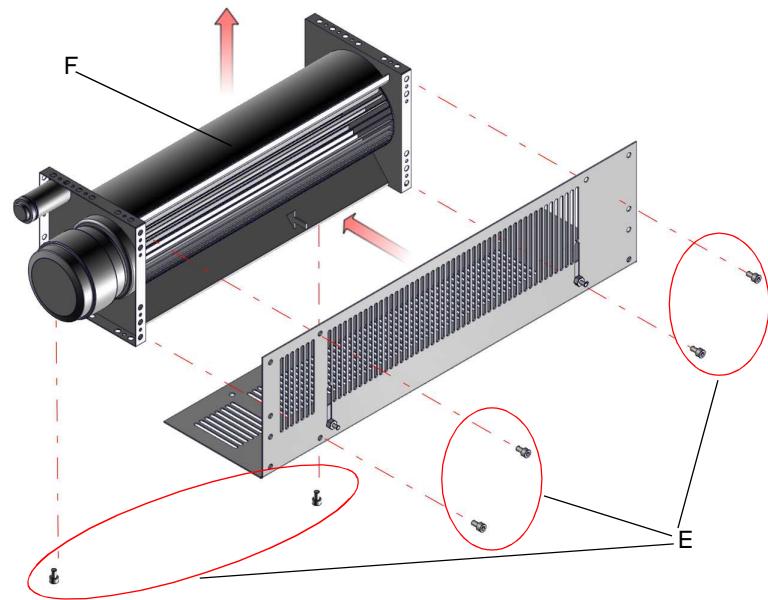
A Screws
B Plate

- 1 Release screws **A** and remove plate **B** in the direction of the arrow.
The connecting terminal of the product cooling ventilator is accessible.
- 2 Disconnect power supply to the product cooling ventilator.



C Screws
D Housing with product cooling ventilator

- 3** Release screws **C** and remove housing with product cooling ventilator **D**.



E Screws
F Ventilator of product cooling

- 4** Release screws **E** on the front and underside of the housing.
5 Replace the product cooling ventilator **F**.
6 Install the new product cooling ventilator in the reverse sequence.

7 Connect the power supply:

blue	N
brown	L
yellow/ green	PE

Starting the machine

Switch on the main switch.

8.10 ELAU Controller – replacing the battery

Preconditions

If the message **Battery empty** appears on the Pester operating panel, replace the battery within 3 days. Refer to the subsupplier documentation for the ELAU Controller to find the battery type (Chapter Control and display elements, Battery compartment).

The battery can be replaced with the equipment switched on or off. No data will be lost if the battery is replaced while the Controller is switched on. With the Controller switched off, the data buffering period without battery is approx. 5 minutes.



Warning!

Danger of injury caused by electric shocks!

There is a danger of injury due to electric shocks if a tool with conductive material at the points of contact is used when replacing batteries.

Use insulated pliers when replacing the battery! Never use tools with conductive materials at the points of contact.

- 1 Switch off the main switch.
- 2 Open the control cabinet.
- 3 Fold up the operation and display unit A.



- 4 Using insulated pliers, pull lightly on battery B to remove it from the battery compartment.



- 5 Insert new battery B into the battery compartment using insulated pliers.
- 6 Close the operation and display unit.
- 7 Close control cabinet.
- 8 Switch on the main switch.

9 Disposal

9.1 Safety instructions



Danger!

Risk of fatal injury!

When the **EMERGENCY STOP** push button is pressed or the main switch is switched off, several components in the control cabinet have voltage.

Work on the control cabinet should only be carried out by qualified electricians!



Warning!

Risk of injury!

There is a risk of injury when dismantling the machine.

Please note the following information!

Injury can result from:

- Residual pressure in lines and actuating elements
- Live components
- Heavy components which may fall when released
- Sharp edges



Caution!

The machine may only be dismantled by authorized technicians who must be aware of the dangers involved.

Technical personnel

Technical personnel must comply with the following:

- The safety instructions provided in the operating manual.
- Suitable protective clothing must be worn (hard hat, protective gloves, safety shoes, goggles, etc.).
- The lifting equipment must be suitable and sufficiently dimensioned.
- The means of transport must be suitable and the transport routes must be kept clear.

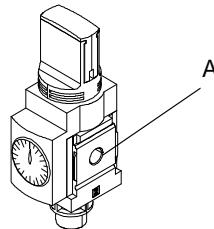
- The energy supplies must be disconnected (electrical, pneumatic system) and secured against being switched on again according to the relevant accident prevention regulations.
- Energy storage media such as springs, pressure accumulators and electrical components (e.g. capacitors) must be discharged.
- Other persons must be kept out of the danger zone.
- Regulations and laws regarding the disposal of environmentally damaging substances must be complied with.

9.2 Dismantling the machine



For your information

When dismantling the machine, consult the spare parts lists, the circuit diagrams and the pneumatic diagrams. These show how several of the components are assembled and the order in which the individual assembly groups are assembled.



A Compressed-air hose connection

Dismantle the machine in the following order:

- 1 Clear out the machine if necessary.
- 2 Turn off the main switch and secure with a lock.
- 3 Remove the power cable.
- 4 Switch off air supply.
- 5 Remove the compressed-air hose A from the start valve.
- 6 Dismantle the machine in assembly groups with the appropriate tool:
from the outside top to the inside bottom.
- 7 Disassemble the dismantled assembly groups into their component parts.

9.3 Disposal

Dispose of the components in an environmentally sound and suitable manner, observing any legal and company regulations for:

- Metals
- Plastics
- Cables
- Packaging
- Packaging materials
- Oils
- Batteries
- Electronic components
- Transport media (pallets, etc.)

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