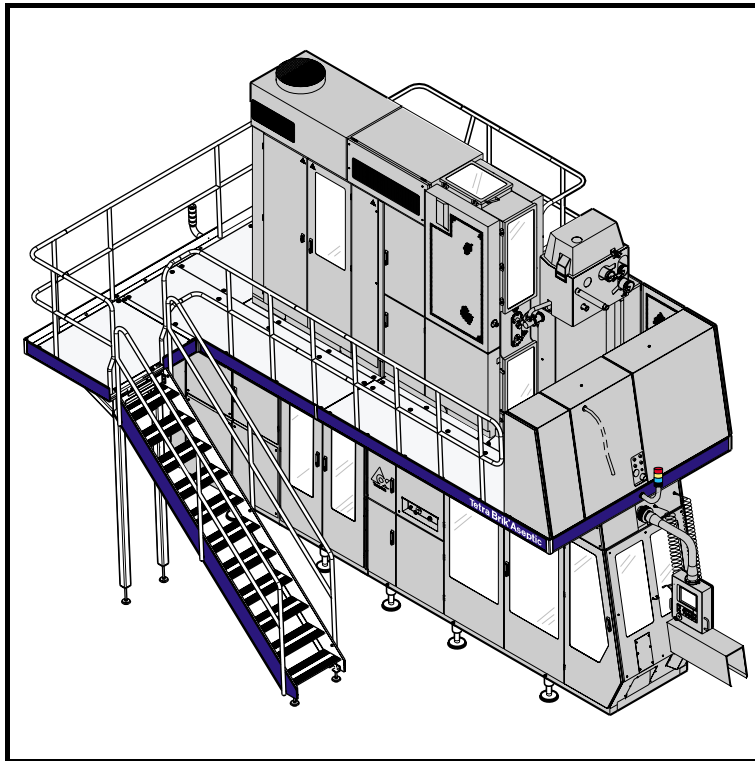


# OM

## Operation Manual

TBA/21 050V  
PT21 050V



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This document is valid for:

Series No/ Machine No

Sign.

# OM

## Operation Manual

Tetra Brik Aseptic  
TBA/21 050V  
648570-0500

**Valid for machine series No.:**

### **Equipment included:**

PullTab unit PT21  
648508-0500

Doc No. OM-81525-0104

Issue 2001-07

Tetra Pak  
**Tetra Brik Packaging Systems**

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# Introduction

To ensure maximum safety, always read the section *Safety precautions* before doing any work on the equipment or making any adjustments.

## Equipment information

### Purpose

The purpose of this Tetra Pak equipment is to pack pumpable food products.

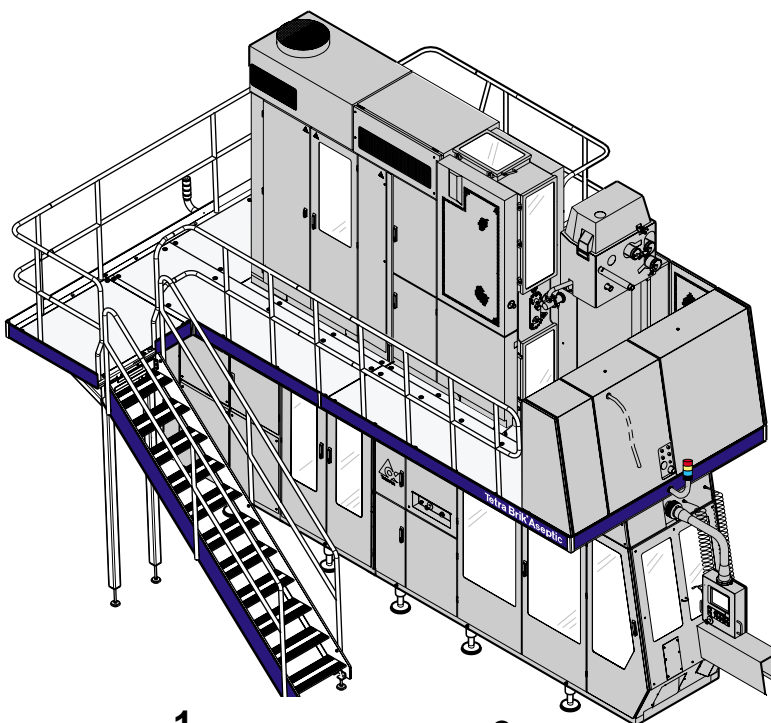
### Manufacturer

This Tetra Pak equipment has been manufactured by:

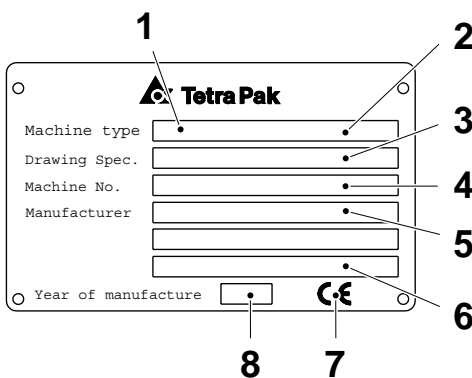
Tetra Brik Packaging Systems AB  
 Ruben Rausings gata  
 22186 LUND  
 Sweden

or by:

Tetra Brik Packaging Systems S.p.A.  
 Via Delfini 1  
 41100 MODENA  
 Italy



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- 1 Machine type
- 2 Volume
- 3 Drawing specifications
- 4 Machine serial number
- 5 Manufacturer
- 6 (Designed by)
- 7 CE mark
- 8 Year of manufacture

### Service

Contact the nearest Tetra Pak service station.

### Identification

The figure shows an example of the equipment sign. The sign carries data needed when contacting Tetra Pak concerning this specific equipment.

### CE marking

This equipment complies with the basic health and safety regulations of the European Economic Area (EEA).

## Document information

### Purpose of Operation Manual (OM)

The purpose of the Operation Manual is to provide the operator with information on how to handle and operate the equipment before, during, and after production.

It is important to keep the manual for the life of the equipment and pass the manual on to any subsequent holder or user of the equipment.

### Design modifications

The directives in this document are in accordance with the design and construction of the equipment at the time it was delivered from the Tetra Pak production plant.

### Technical publications

The technical publications for this equipment are:

- Electrical Manual (EM)
- Installation Manual (IM)
- Maintenance Manual (MM)
- Operation Manual (OM)
- Spare Parts Catalogue (SPC)

Additional copies can be ordered from the nearest Tetra Pak service station.

When ordering technical publications, always quote the **document number** that can be found in the machine specification document.

**Number of pages**

This document contains a total of 224 pages.

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# Safety precautions

To ensure maximum safety, always read this section carefully before doing any work on the equipment or making any adjustments.

---

## Hazard information

Hazard information in this document has the following significance:



Failure to observe information marked with "DANGER!" **puts your life in danger.**








Failure to observe information marked with "WARNING!" can result in **personal injury and/or serious damage to or destruction of equipment.**

### Caution!

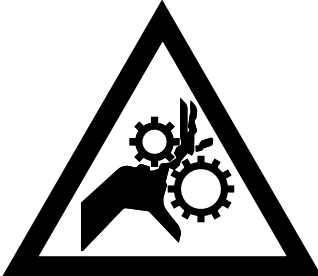

Failure to observe information marked with "Caution" can result in **damage to equipment.**

## Mandatory signs

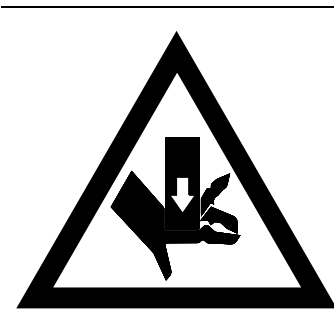
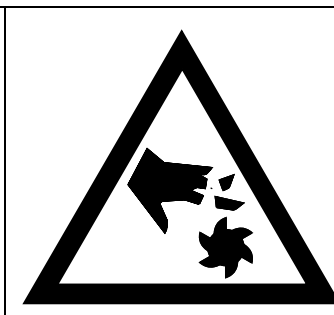
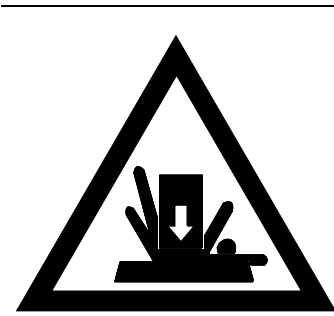
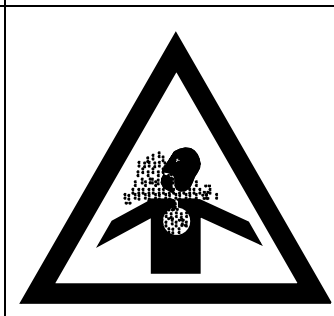
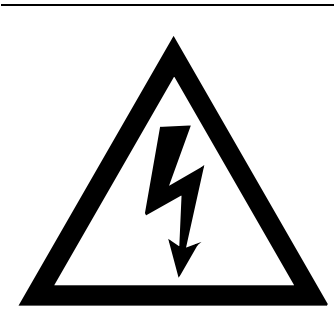

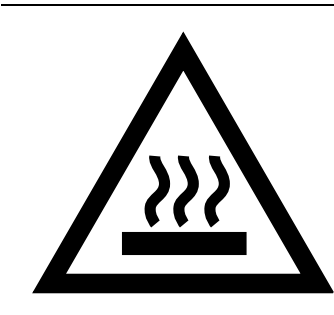

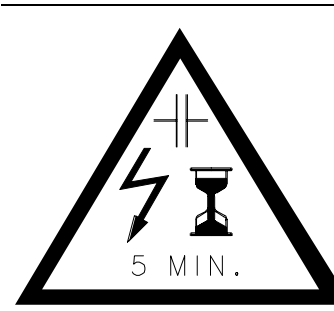
	Wear eye protection		Wear hearing protection
	Wear head protection		Wear protective gloves
	Disinfect hands/gloves		

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## Warning signs

	Risk of entanglement!		Risk of corrosion and acid burns!
---	-----------------------	--	-----------------------------------

## Warning signs

	<p><b>Risk of crushing!</b></p>		<p><b>Risk of cutting/amputation!</b></p>
	<p><b>Risk of crushing!</b></p>		<p><b>Risk of intoxication!</b></p>
	<p><b>Risk of electrocution!</b></p>		<p><b>Risk of falling!</b></p>
	<p><b>Risk of burns!</b></p>		<p><b>Risk of personal injury!</b> (general)</p>
	<p><b>Risk of residual voltage warning!</b></p>		

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## Personnel

Only skilled or instructed persons are allowed to work on the equipment.

The manufacturer declines all responsibility for injury or damage if the instructions in this manual are not followed.

Personnel are responsible for:

- the equipment and the work area around the equipment
- all personnel in the vicinity of the equipment
- making sure that all safety devices are fully operational

Personnel must regard all electrical equipment as live. In general switch the equipment off at the mains power and padlock the switch before carrying out maintenance or repair work.

Electricians should be certified according to local regulations and have experience of similar types of installations, proven skills in reading and working from drawings and cable lists, and knowledge of local safety regulations regarding power and automation. Work with the electrical equipment must be performed only by skilled or instructed technicians.

According to EN 60204-1, 3.30 an instructed person is:

An individual adequately advised or supervised by a skilled person to enable that individual to avoid hazards which electricity can create (e.g. operating and maintenance staff).

According to EN 60204-1, 3.55 a skilled person is:

An individual with technical knowledge or sufficient experience to enable that individual to avoid hazards which electricity can create.



## General safety precautions

Wear hearing protection while the equipment is running.

## Hygiene

It is important to keep hands and/or gloves clean.



Disinfect hands and/or gloves before touching the packaging material, the strip(s) or any other equipment part that may come into contact with the product.

Clean the platforms, the ladder and the area around the equipment.

To avoid production faults, it is important that the packaging material and the strip(s) never touch the floor, the platform or the area around the equipment.



## Electrical cabinet

There is high voltage in the electrical cabinet (up to 560 V). In case of accident, call for medical attention immediately.

Work inside the electrical cabinet must be performed by skilled or instructed persons only.

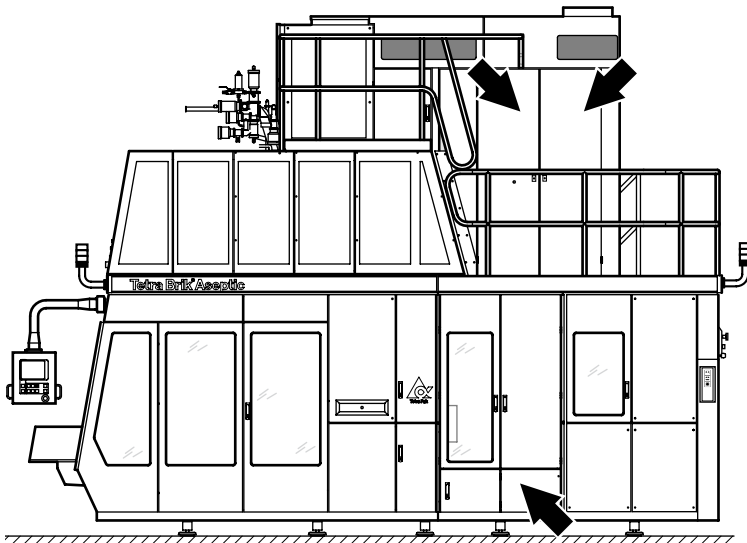
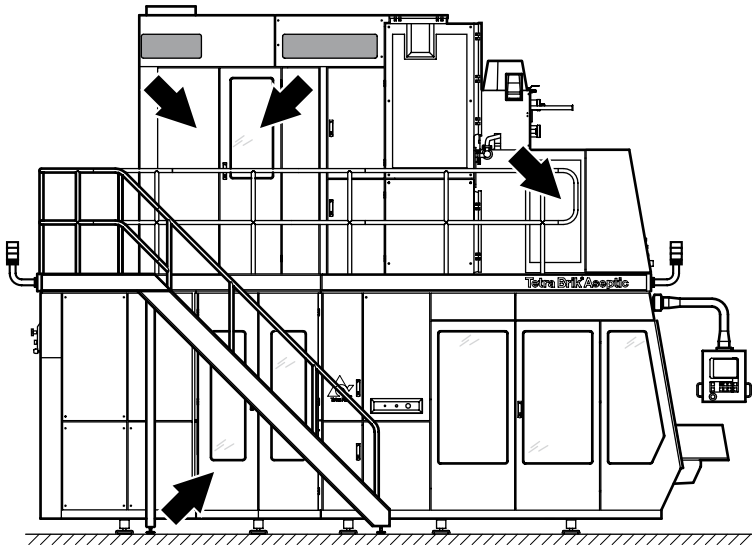
Electrical cabinet doors locked with screws may be opened only by skilled or instructed persons.



## TPIH generator

During operation the voltage in the TPIH generator can be up to 2 000 V (400 V when not in operation). In case of accident, call for medical attention immediately

**Never** open the TPIH generator. Remove and return the unit to an authorised service centre for servicing and repair.



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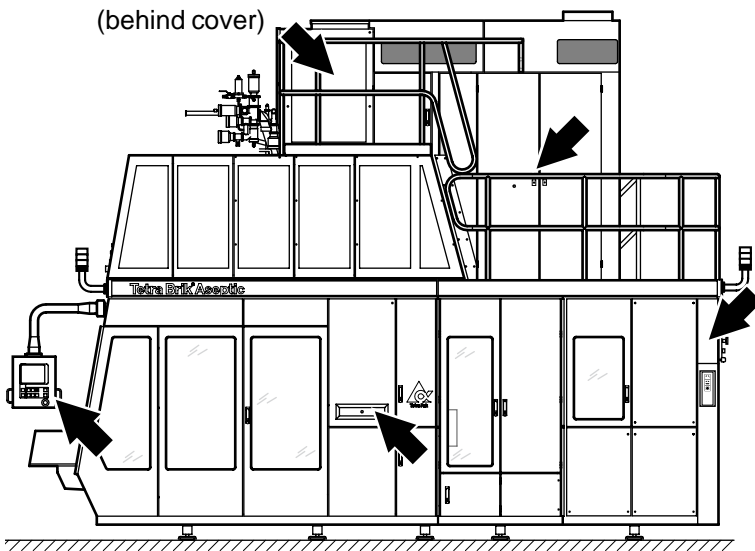
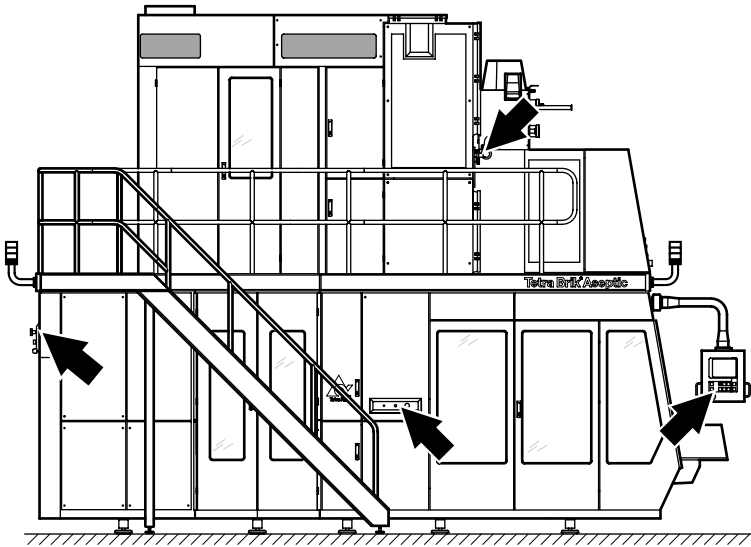
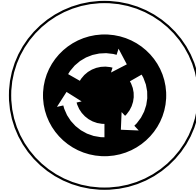
## Machine safety devices

### Emergency stop buttons

Learn the position of the **Emergency stop** buttons in order to stop the equipment immediately in case of danger to people or damage to the equipment.

The **Emergency stop** buttons do not switch off the power at the mains power switch.

Pushing the **Emergency stop** buttons will reset the equipment program to **Zero** position and deactivate all pneumatic cylinders.



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## Doors, covers and guards

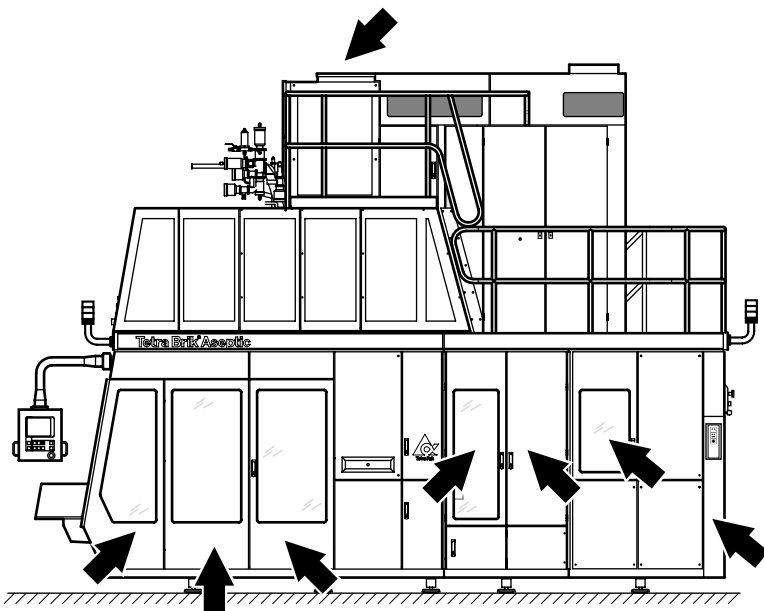
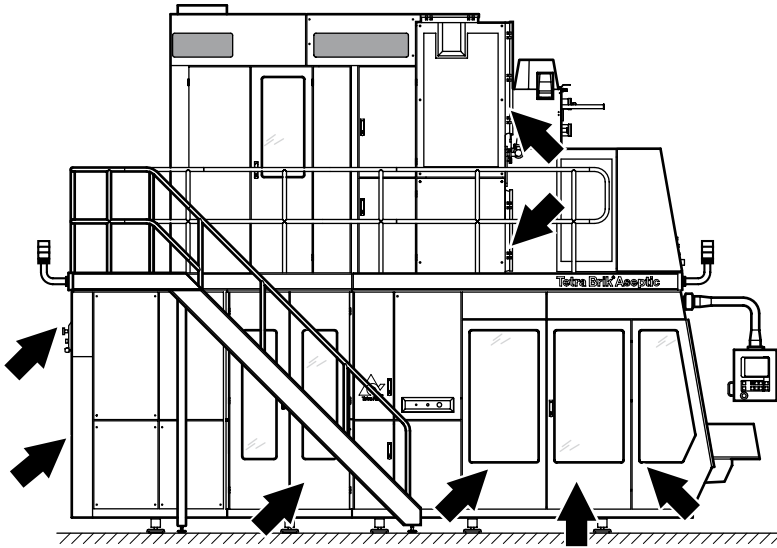
Make sure that all doors, covers and guards are in place and functioning before operating the equipment.

Some equipment parts protected by doors, covers, and guards may be hot.

In case of accident, call for medical attention.

Certain doors are fitted with safety switches. These switches are part of the safety system of the equipment and must **never** be bridged, by-passed or otherwise made non-operational.

- Never open doors marked with arrows or remove covers or guards while the equipment is operating.
- Never stop the equipment by opening a door with a safety switch.





## Chemical products

### Risk of personal injury!

Certain chemical products are toxic and/or inflammable. Carefully follow the instructions on the container label.

Follow the supplier's instructions for handling and disposal of the chemical products.

## Personal protective equipment

- **Safety goggles**, TP No. 90303-11
- **Apron**, TP No. 90303-13
- **Shoes** made of PVC, PE plastic or rubber
- **Protective gloves** made of neoprene, TP No. 90303-12

Before starting work with any chemical products, make sure that:

- the showers work
- a portable, TP No. 90303-6, or wall-mounted eyewash device is available at or near each machine site
- there are additional washing facilities



## General emergency procedures

If chemical products are **swallowed** accidentally, drink large amounts of lukewarm water.

If splashes or vapour from chemical products come into contact with the **eyes**, wash the eyes thoroughly with lukewarm water for 15 minutes (keeping eyelids wide apart).

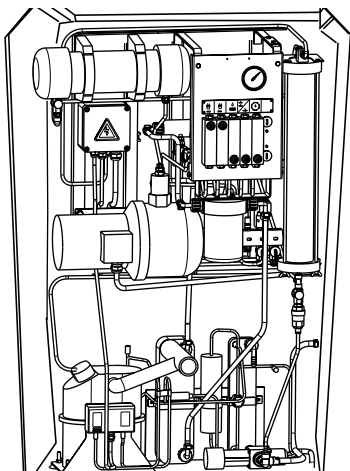
If chemical products come into contact with the **skin** or **clothes**:

- rinse immediately with plenty of water
- if skin burns appear, call for medical attention immediately
- thoroughly wash clothes before wearing them again

If irritation or pain is felt due to **inhalation** of chemical products vapour:

- leave the affected area and get some fresh air
- if the symptoms get worse, call for medical attention

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## Cooling media

### Risk of cooling injury!

If a compressor leakage occurs in the service unit, the cooling media R134A (freon) may cause serious cooling injuries if it comes in contact with bare skin.

## Hydrogen peroxide

The liquid for sterilising the packaging material consist of 35% hydrogen peroxide ( $H_2O_2$ ).

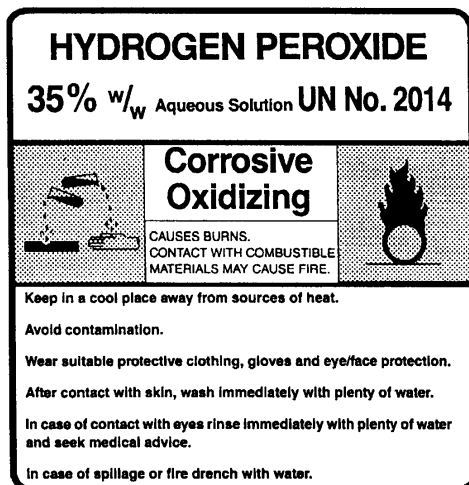
Hydrogen peroxide in liquid and gas form can cause irritation and injury if it comes into contact with the skin, mucous membranes, the eyes or clothes. Carefully follow the instructions on the can label.



### Hydrogen peroxide can label

HYDROGEN PEROXIDE:

- 35% w/w Aqueous Solution UN No. 2014
- Corrosive
- Oxidizing
- Causes burns. Contact with combustible materials may cause fire.
- Keep in a cool place away from sources of heat
- Avoid contamination
- Wear suitable protective clothing, gloves, and eye/face protection
- After contact with skin, wash immediately with plenty of water and call for medical attention
- In case of contact with eyes, rinse immediately with plenty of water and call for medical attention
- In case of spillage or fire, drench with water



**Reference:** TP document No. M 1751.80

## Storage of hydrogen peroxide

Make sure that the area or room used for storage is:

- cool, clean and well ventilated
- shielded from direct sunlight
- free from combustible materials

Hydrogen peroxide must be stored only in its **original container** as delivered by the suppliers.

Keep the container upright and closed with a **proper ventilation cap** which allows oxygen to escape.

Pumps and other equipment used for hydrogen peroxide must be used **for this purpose only**.

**Never** put used hydrogen peroxide back into storage.

## Disposal of hydrogen peroxide

Hydrogen peroxide should be sent for destruction by waste disposal specialists.

### Risk of explosion!

Do not pour surplus hydrogen peroxide back into its original container. Hydrogen peroxide may decompose. In case of accident, call for medical attention immediately.

In some countries it is permitted to dilute hydrogen peroxide with water to a concentration below 1% and to dispose of it in the normal waste water drain.

Hydrogen peroxide with a concentration below 1% is considered harmless.





## Equipment for lifting and moving loads

Make sure that the capacity of the lifting equipment is adequate and that the equipment itself is in good working order.

If lifting tackle has to be joined to make up the necessary lengths, make sure that the joins are secure and have the same lifting capacity as the rest of the tackle.

Always engage the safety clip on lifting hooks to prevent the tackle from slipping off.

Use ropes or poles to steady and manoeuvre loads. Do **not** use hands or feet.

Make sure that the route and the destination are free from obstacles before moving a suspended load. It must be possible to lower the load to the floor quickly and safely in an emergency.

When depositing loads, keep the lifting equipment in place until the stability of the load has been checked.



# General description

## Caution!

To ensure maximum safety, always read this section and the Safety precautions carefully before doing any work on the equipment or making any adjustments

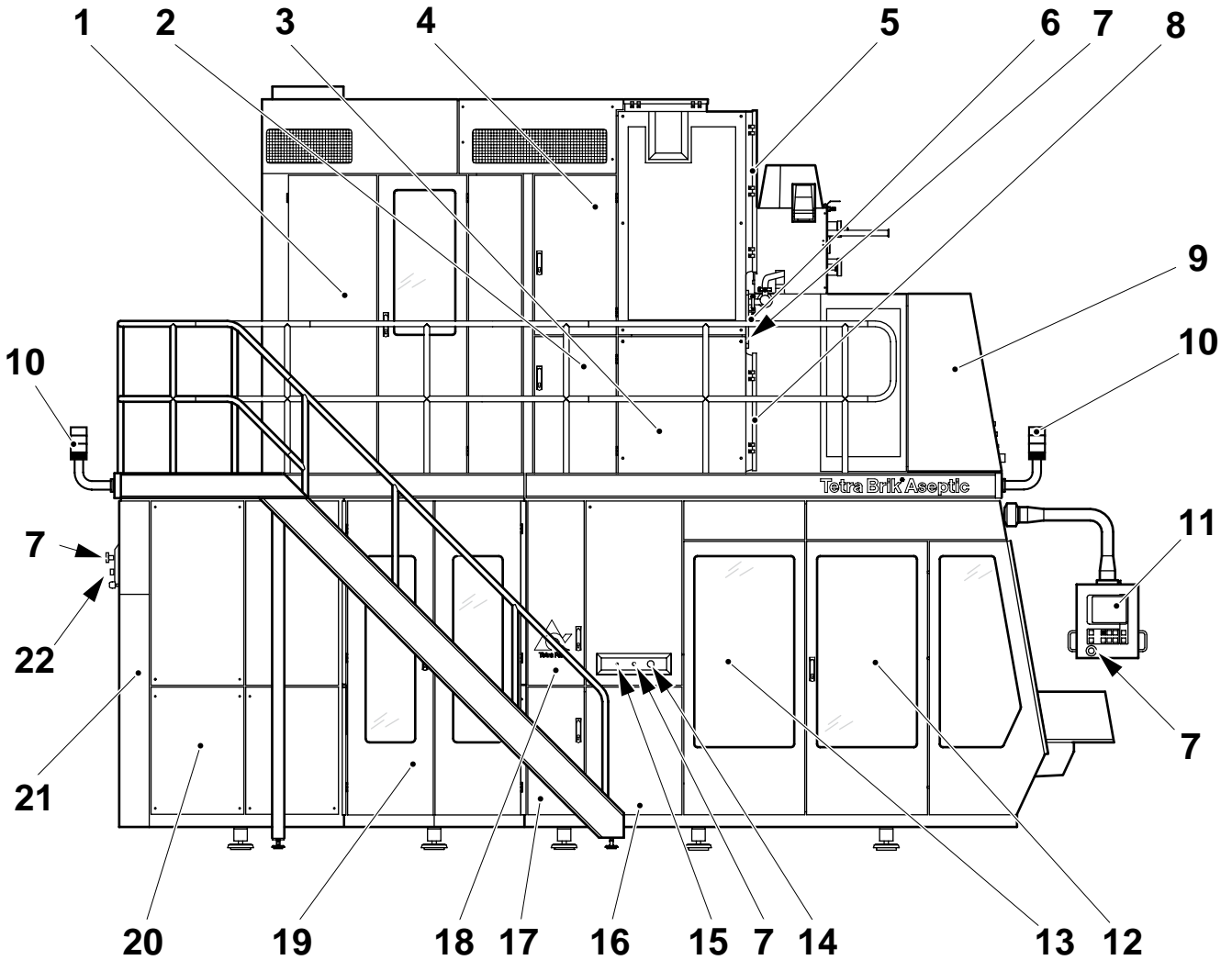
This section describes the main parts of the machine and the terminology

## Abbreviations

	Description
AN	Analog
ASSU	Automatic Strip Splicing Unit
ASU	Automatic Splicing Unit
B	Base (package shape)
CIP	Cleaning In Place
DI	Digital
IS	Inner Strip
LH	Left Hand
LS	Longitudinal Sealing
min	Minimum
max	Maximum
OK	Optional Kit
OE	Optional Equipment
PE	Polyethylene
PM	Packaging Material
PT	PullTab
RH	Right Hand
S	Slim (package shape)
SA	Strip Applicator
Sq	Square (package shape)
TBA	Tetra Brik Aseptic
TMCC	Tetra Pak Multi-purpose Compact Controller
TPOP	Tetra Pak Operator Panel
TS	Transversal Sealing
TPIH	Tetra Pak Induction Heating

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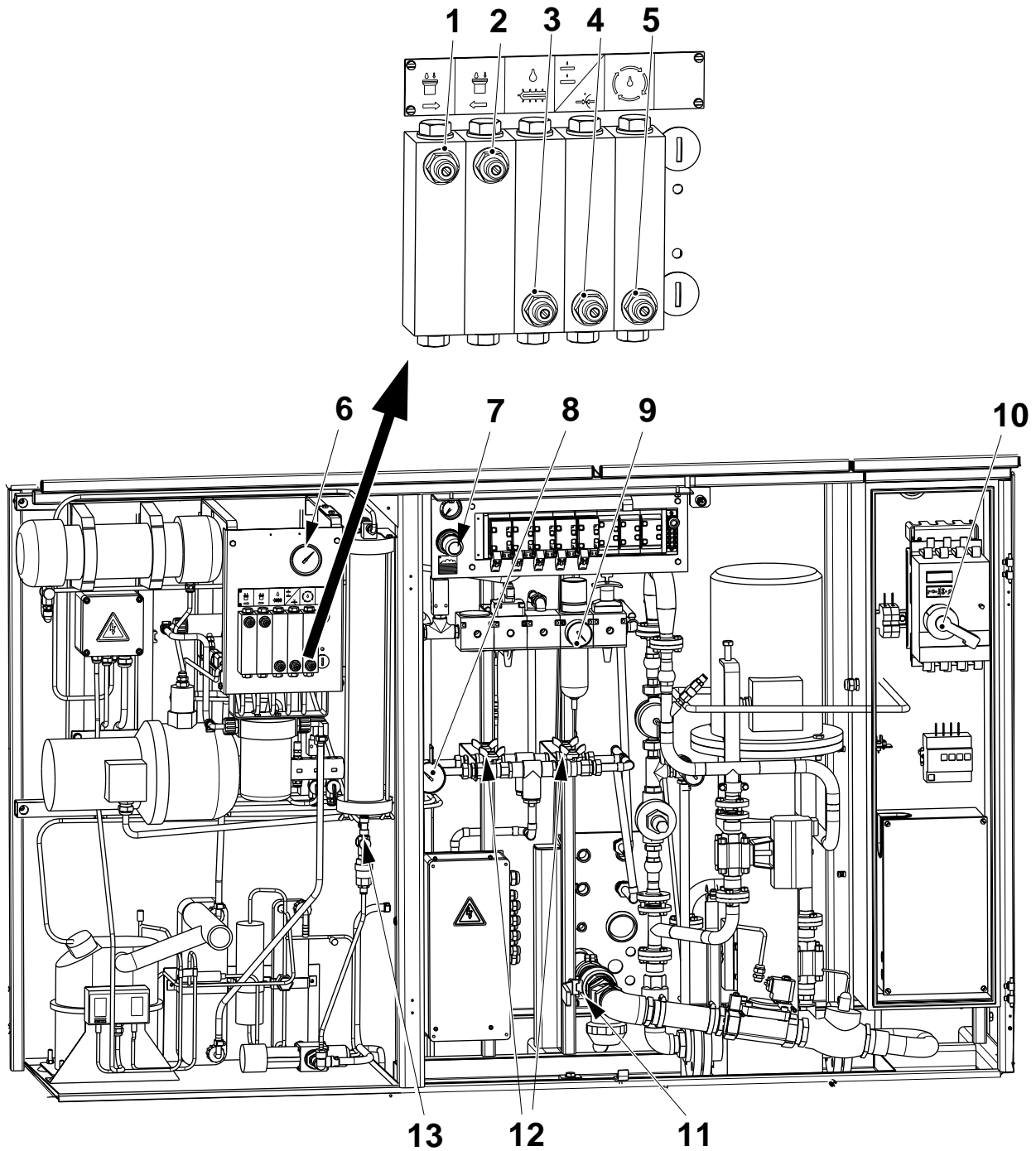
## LH side



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- |                                |                                   |
|--------------------------------|-----------------------------------|
| 1 Electrical cabinet           | 12 Final folder                   |
| 2 Valve panel, superstructure  | 13 Jaw system                     |
| 3 Lower, peroxide bath hatch   | 14 Volume adjustment              |
| 4 Tab folding device           | 15 Tube flushing                  |
| 5 Upper, aseptic chamber door  | 16 Central lubrication container  |
| 6 Knob, tube adjustment        | 17 Detergent container            |
| 7 <b>Emergency stop</b> button | 18 Valve panel, machine body      |
| 8 Lower, aseptic chamber door  | 19 PullTab unit                   |
| 9 Service unit                 | 20 Packaging material carriage    |
| 10 Warning beacon              | 21 Material holder                |
| 11 Control panel               | 22 <b>Material locking</b> button |

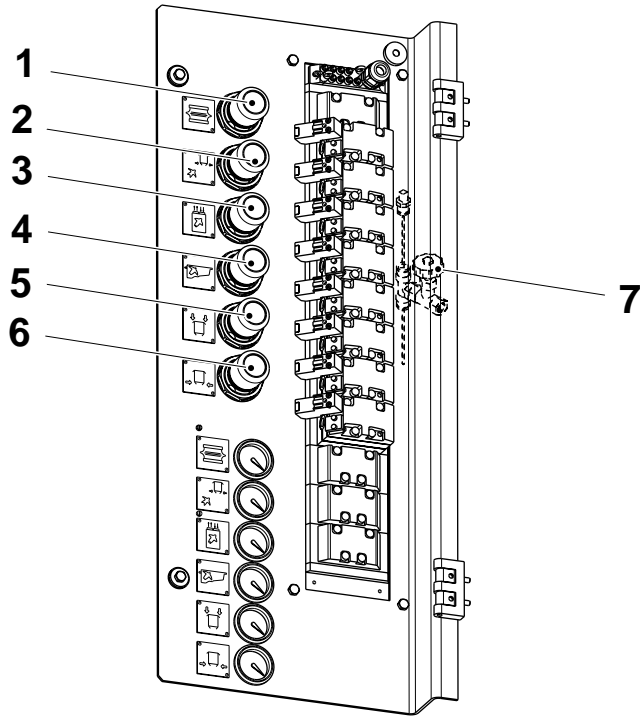
## Service unit



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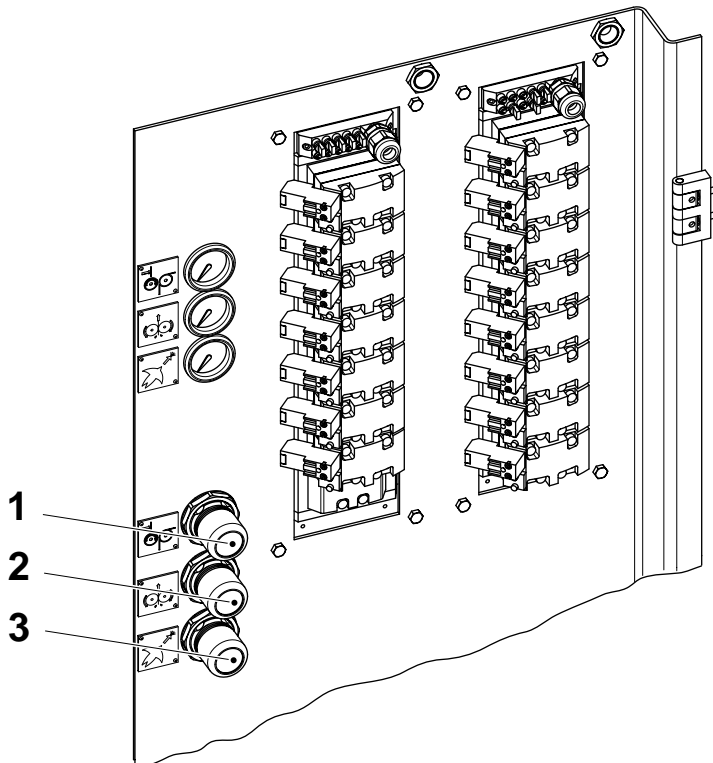
- |  |  |
|--|--|
| 1 Cooling water flowmeter, jaw system, TS right                | 7 Foaming pressure regulator external cleaning |
| 2 Cooling water flowmeter, jaw system, TS left                 | 8 Mains water pressure gauge                   |
| 3 Cooling water flowmeter, final folder                        | 9 Air pressure gauge                           |
| 4 Cooling water flowmeter, hydraulic system and LS transformer | 10 Mains power switch                          |
| 5 De-ionizing circuit flometer                                 | 11 External cleaning handle                    |
| 6 Cooling water pressure gauge                                 | 12 Mains water supply valve                    |
|  | 13 Cooling water refilling valve               |

## Valve panel, machine body



- 1 Air pressure, hold down device
- 2 Air pressure, flap blowing
- 3 Air pressure, design correction photocells
- 4 Overpressure, final folder
- 5 Air pressure, flap heating top left and right
- 6 Air pressure, flap heating bottom left and right
- 7 Air valve

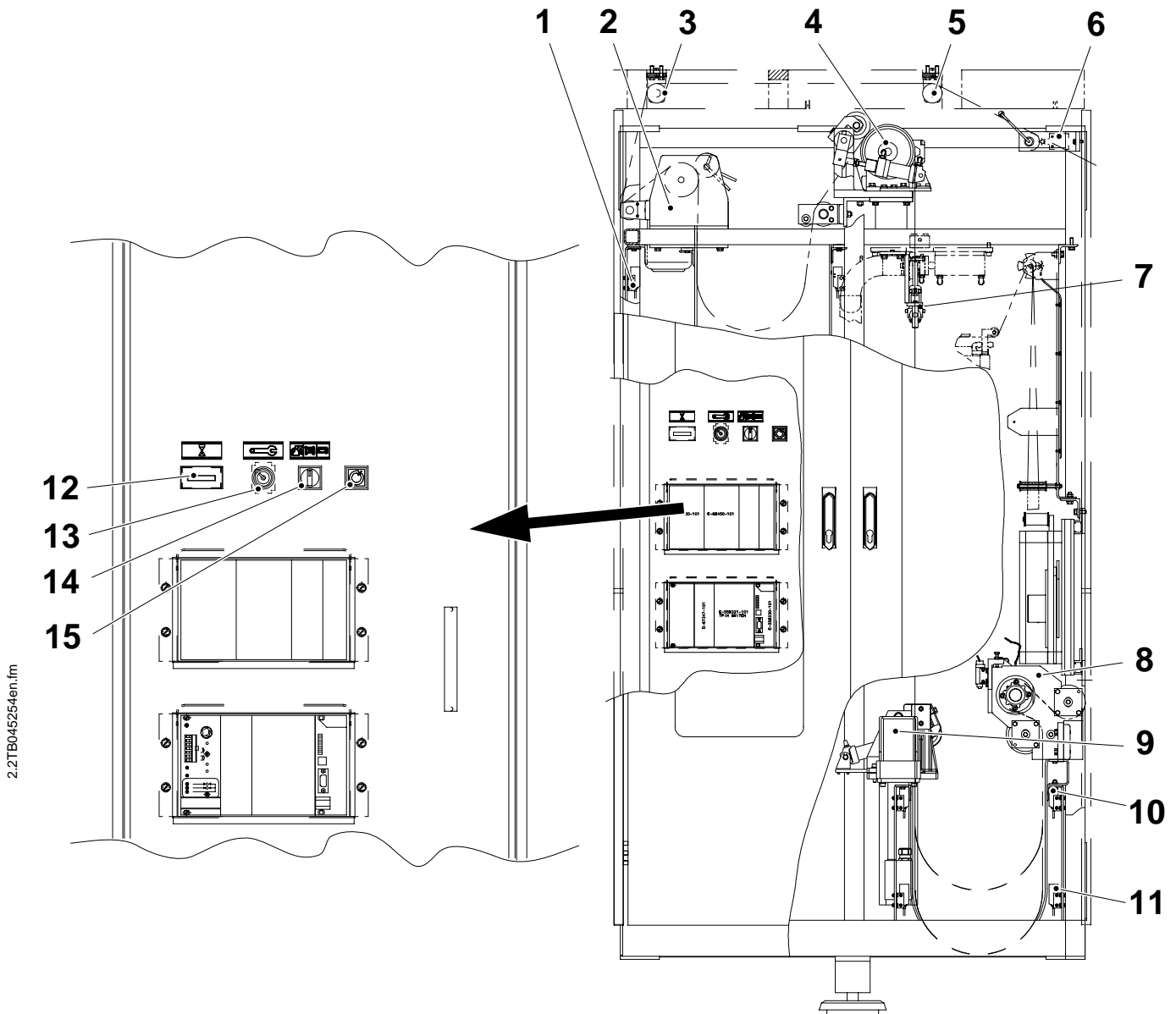
## Valve panel, superstructure



- 1 Air pressure, feed packaging material
- 2 Air pressure, calender rollers
- 3 Air pressure, peroxide spray

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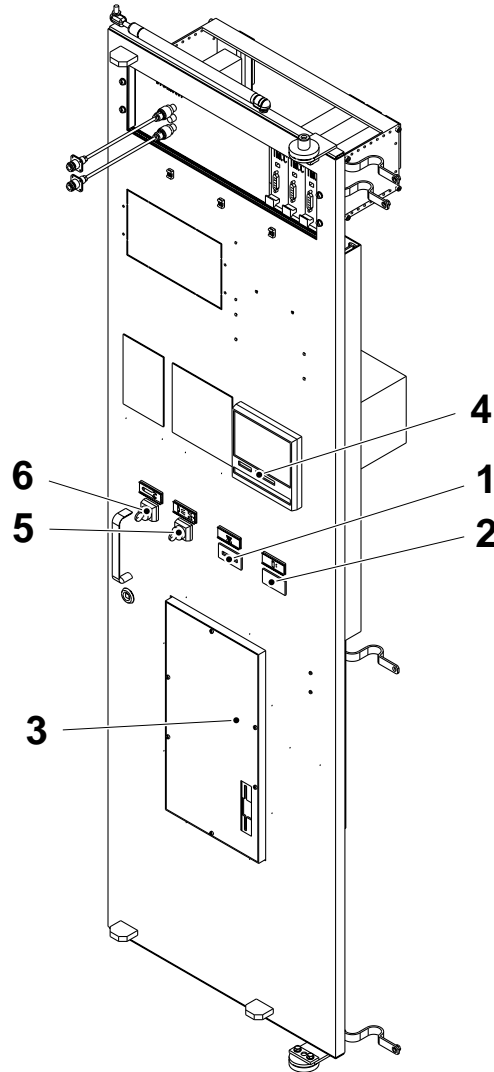
## PullTab unit



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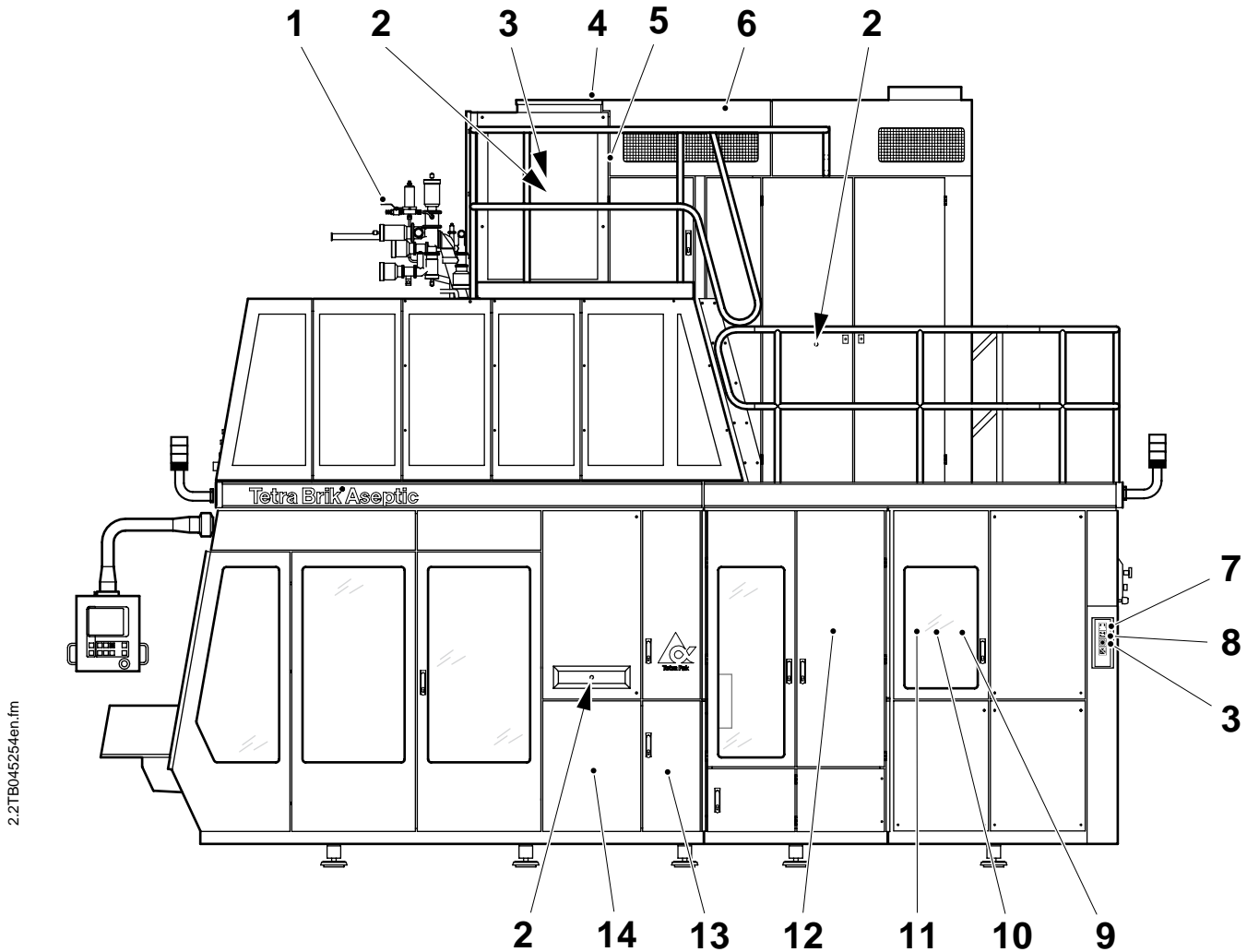
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 Upper photocell, infeed</li> <li>2 Infeed unit</li> <li>3 Bypass roller</li> <li>4 Tension unit</li> <li>5 Bypass roller</li> <li>6 Bypass sensor</li> <li>7 Packaging material guide</li> <li>8 Roller assembly</li> <li>9 Drive unit</li> </ul> | <ul style="list-style-type: none"> <li>10 Upper photocell, outfeed</li> <li>11 Lower photocell, outfeed</li> <li>12 Hour counter</li> <li>13 Service key</li> <li>14 Selector switch PullTab functions<br/>left pos. = <b>Preparation</b><br/>straight pos. = <b>Production without PullTab</b><br/>right pos. = <b>Production with PullTab</b></li> <li>15 <b>Single cycle</b> button</li> </ul> |
|--|---|

## Electrical cabinet



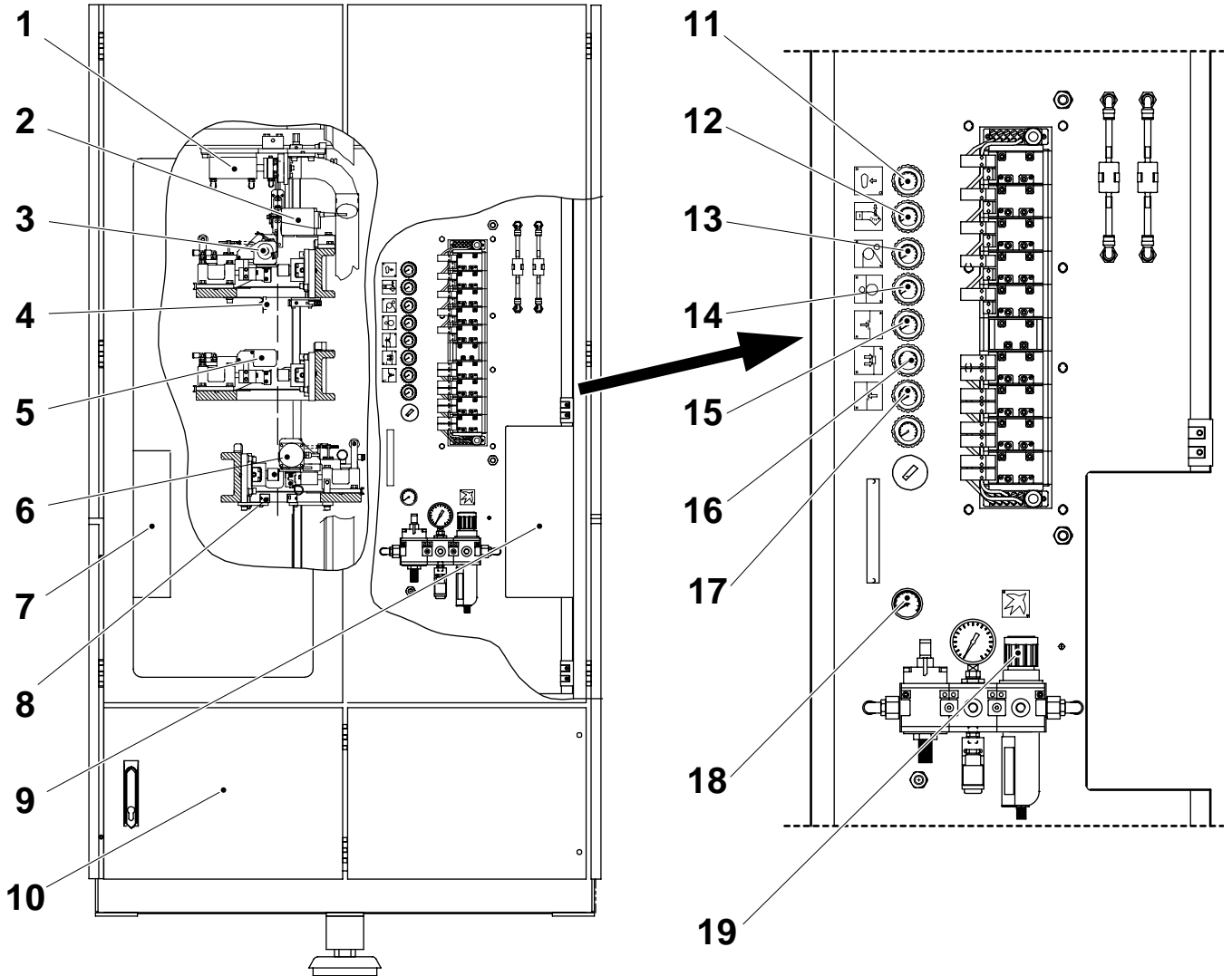
- 1 Hour counter
- 2 Package counter
- 3 TPOP PC
- 4 Process recorder
- 5 Cleaning steam barrier space, key switch
- 6 Service switch

## RH side



- 1 Steam valve
- 2 **Emergency stop** button
- 3 **Short stop** button
- 4 Top, aseptic chamber door
- 5 Upper, peroxide bath hatch
- 6 Top cover
- 7 **Manual web splice** button
- 8 **Manual strip splice** button
- 9 Strip applicator
- 10 ASSU
- 11 Rope, magazine roller
- 12 PullTab unit
- 13 Hydrogen peroxide tank and dilution tank
- 14 Hydrogen peroxide container

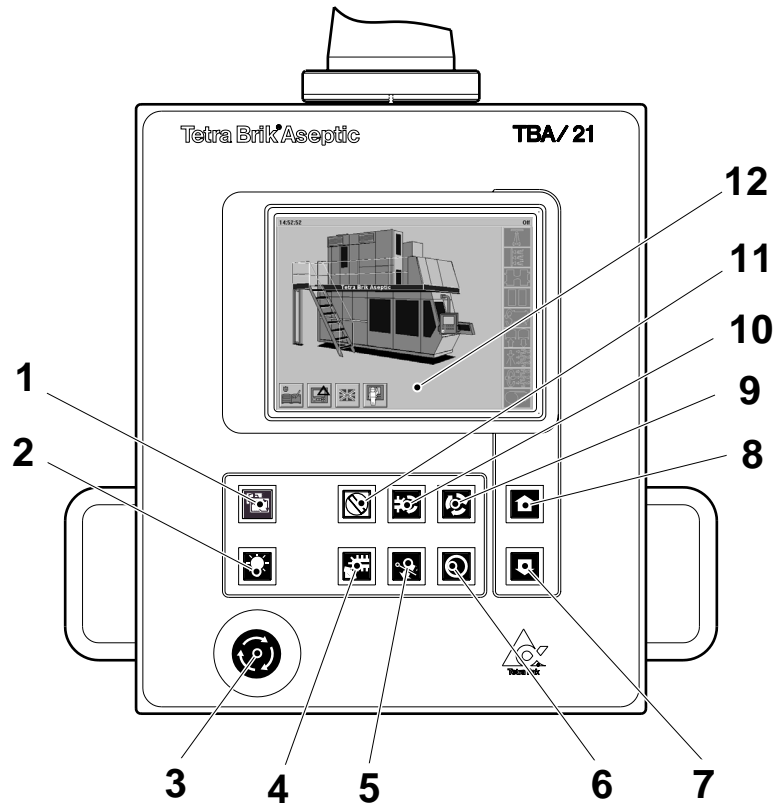
## PullTab unit



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 Hole punch unit</li> <li>2 Bar code reader</li> <li>3 IS patch station</li> <li>4 Missing patch detector</li> <li>5 Reseal station</li> <li>6 Tab station</li> <li>7 IS strip magazine</li> <li>8 Missing tab detector</li> <li>9 Tab strip magazine</li> <li>10 Waste box</li> </ul> | <ul style="list-style-type: none"> <li>11 Cap blowing</li> <li>12 Waste blowing</li> <li>13 Tension unit, pressure roller</li> <li>14 Drive unit, pressure roller</li> <li>15 IS patch counter jaw</li> <li>16 Reseal counter jaw</li> <li>17 Tab counter jaw</li> <li>18 Vacuum, strip suction</li> <li>19 Main air valve</li> </ul> |
|--|---|

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## Control panel

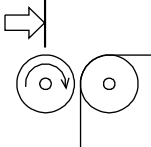
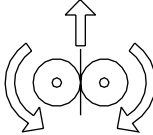
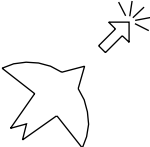
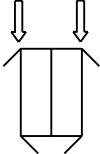
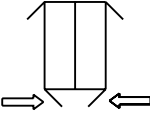
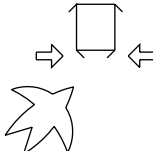
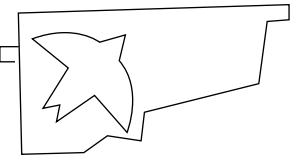
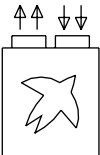
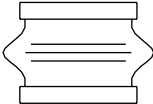


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- |  |   |
|--|---|
| <p>1 <b>TPOP reset</b></p> <ul style="list-style-type: none"> <li>• flashing light = restart the TPOP</li> <li>• constant light = warm-up mode.</li> </ul> <p>2 <b>Lamp test</b></p> <p>3 <b>Emergency stop</b></p> <p>4 <b>Manual flushing</b><br/>final folder and jaw system</p> <p>5 <b>Package ejector</b></p> <p>6 <b>Short stop</b></p> <p>7 <b>Program down</b></p> <p>8 <b>Program up</b></p> | <p>9 <b>Jaw system inching</b><br/>flashes when inching is possible</p> <p>10 <b>Final folder inching</b><br/>flashes when inching is possible</p> <p>11 <b>Selector switch</b></p> <ul style="list-style-type: none"> <li>• RH position:<br/>high speed inching<br/>RH jaw pair opened in short stop.</li> <li>• LH position:<br/>low speed inching<br/>LH jaw pair opened in short stop.</li> </ul> <p>12 <b>TPOP display</b> (See the <i>TPOP Display</i> section)</p> |
|--|---|

## Symbols

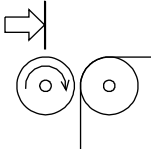
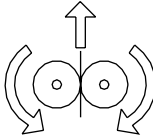
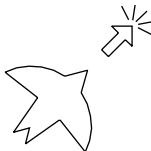
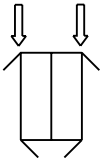
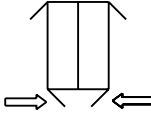
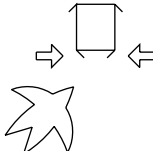
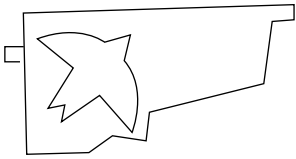
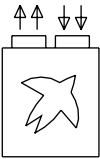

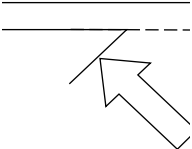
### On valve panels

	<p>Feed packaging material</p>		<p>Calender rollers</p>
	<p>Air pressure, peroxide spray</p>		<p>Flap sealing top left and right</p>
	<p>Flap sealing bottom left and right</p>		<p>Flap blowing</p>
	<p>Overpressure final folder</p>		<p>Air pressure, design correction photocells</p>
	<p>Hold down device</p>		

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## Symbols

### On valve panels

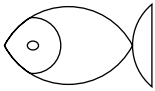
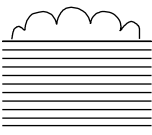
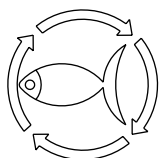
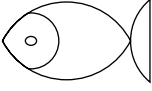
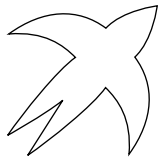
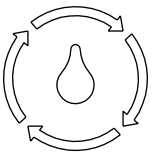
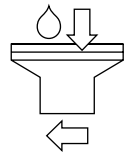
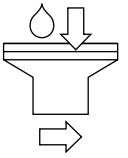
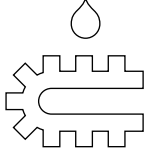
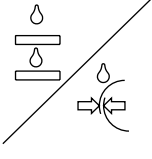
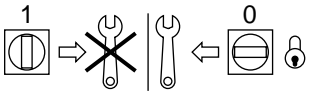
	<p>Feed packaging material</p>		<p>Calender rollers</p>
	<p>Air pressure, peroxide spray</p>		<p>Flap sealing top left and right</p>
	<p>Flap sealing bottom left and right</p>		<p>Flap blowing</p>
	<p>Overpressure final folder</p>		<p>Air pressure, design correction photocells</p>
	<p>Hold down device</p>		<p>Tab folder</p>

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# General description

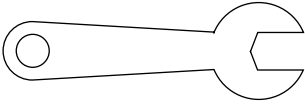
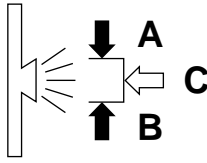

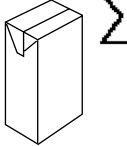


## On Service unit

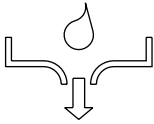
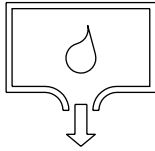
	<p>Cold water (blue)</p>		<p>Foaming</p>
	<p>Cooling water</p>		<p>Warm water (red)</p>
	<p>Air</p>		<p>De-ionizing circuit</p>
	<p>Cold water flow, TS left</p>		<p>Cold water flow, TS right</p>
	<p>Cold water flow, final folder</p>		<p>Cold water flow, hydraulics/ IH- LS transformator</p>
		<p>Main switch (on/off)</p>	

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## In electrical cabinet

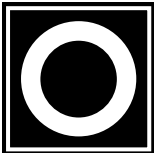
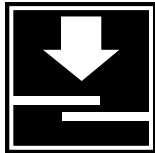
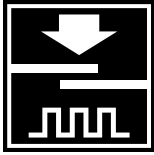
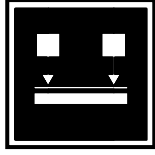
 <p>Service switch</p>	 <p>Cleaning steam barrier space</p>
 <p>Hour counter</p>	 <p>Package counter</p>

## On equipment

 <p>Hydraulic draining</p>	 <p>Hydraulic emptying</p>

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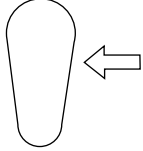
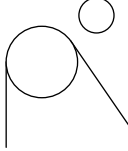
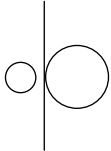
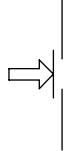
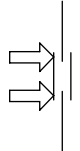
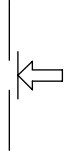
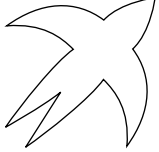
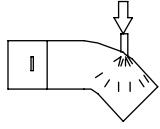
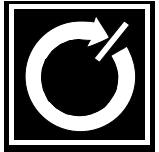

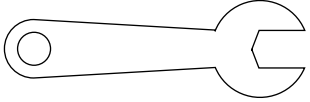
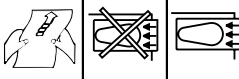
## On ASU

 <p>Short stop</p>	 <p>Manual web splice</p>
 <p>Manual strip splice</p>	 <p>Material holder</p>

# General description

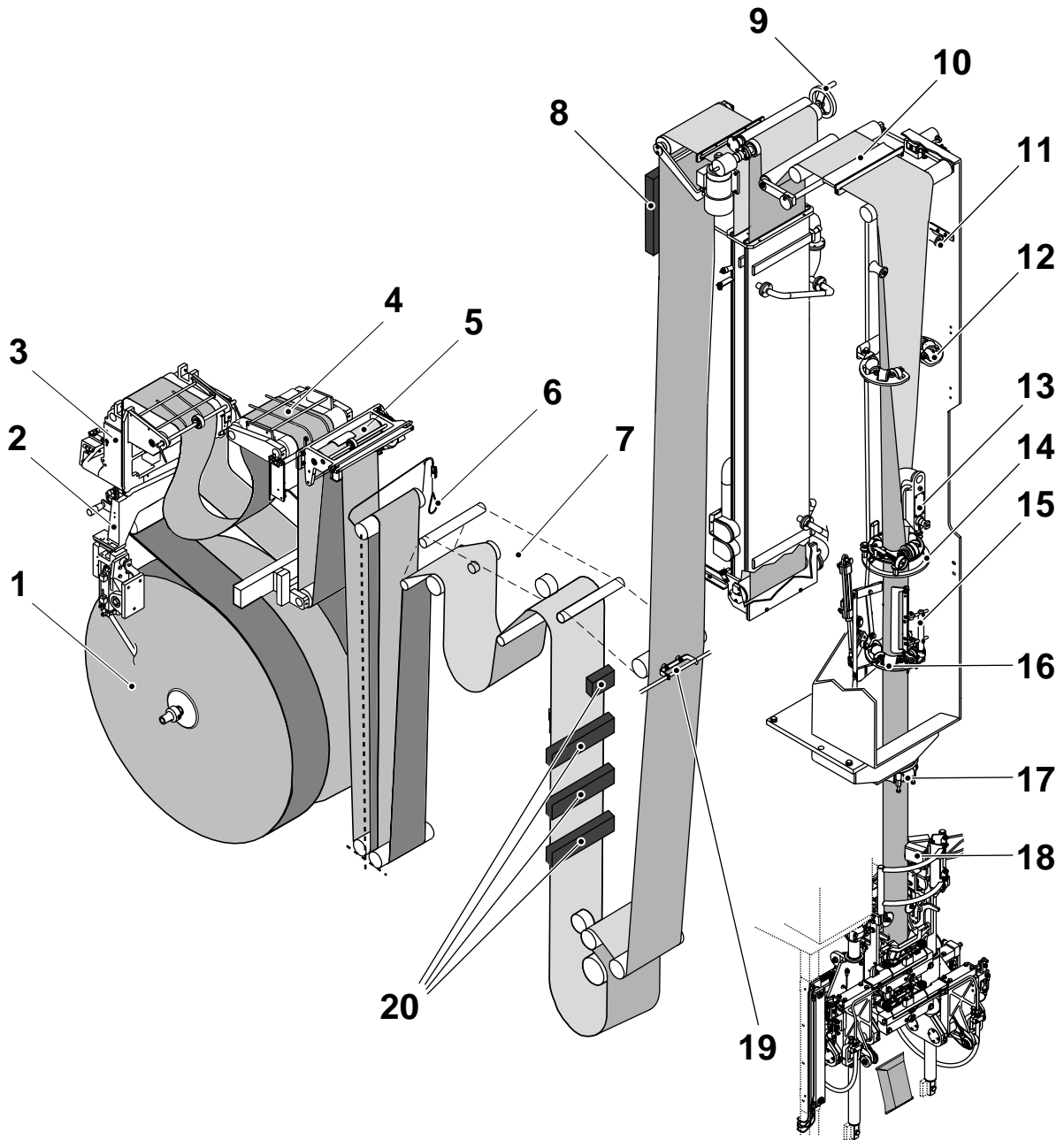


## On PullTab unit

	<p>Cap blowing</p>		<p>Tension roller, pressure tension</p>
	<p>Drive unit, pressure roller</p>		<p>IS patch counter jaw</p>
	<p>Re-seal counter jaw</p>		<p>Tab counter jaw</p>
	<p>Air</p>		<p>Waste blowing</p>
	<p>Single cycle</p>		<p>Hour counter</p>
	<p>Service key</p>		<p>Selector switch:          - Preparation          - Production without PT          - Production with PT</p>

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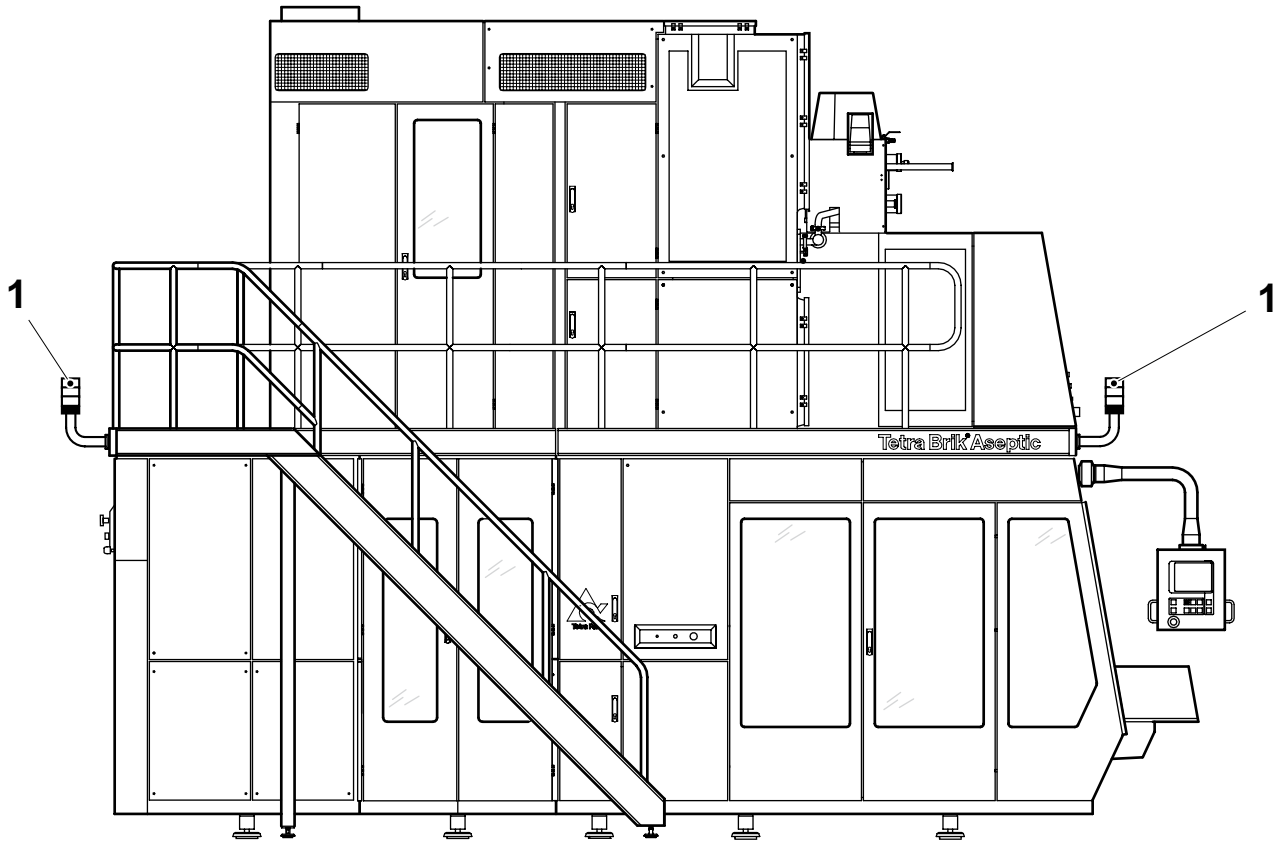
## Packaging material web



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- |    |                                     |    |                                     |
|----|-------------------------------------|----|-------------------------------------|
| 1  | Packaging material reel             | 11 | Edge rollers                        |
| 2  | Material holder                     | 12 | Upper tube support                  |
| 3  | Movable splicing device             | 13 | Filling pipe                        |
| 4  | Inner frame                         | 14 | Upper forming ring                  |
| 5  | Drive unit front                    | 15 | LS inductor                         |
| 6  | Rope magazine roller                | 16 | Lower forming ring                  |
| 7  | Packaging material by-pass position | 17 | Outlet rubber seal, aseptic chamber |
| 8  | Tab folding device                  | 18 | Photocells, design correction       |
| 9  | Crankhandle peroxide bath           | 19 | Material lock                       |
| 10 | Tunnel                              | 20 | PullTab applicators                 |

## Warning beacons



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Warning beacon (1) colours:

- Red = hazardous condition
- Yellow = abnormal condition
- Blue = requires operator action

# TPOP Display

## Caution!

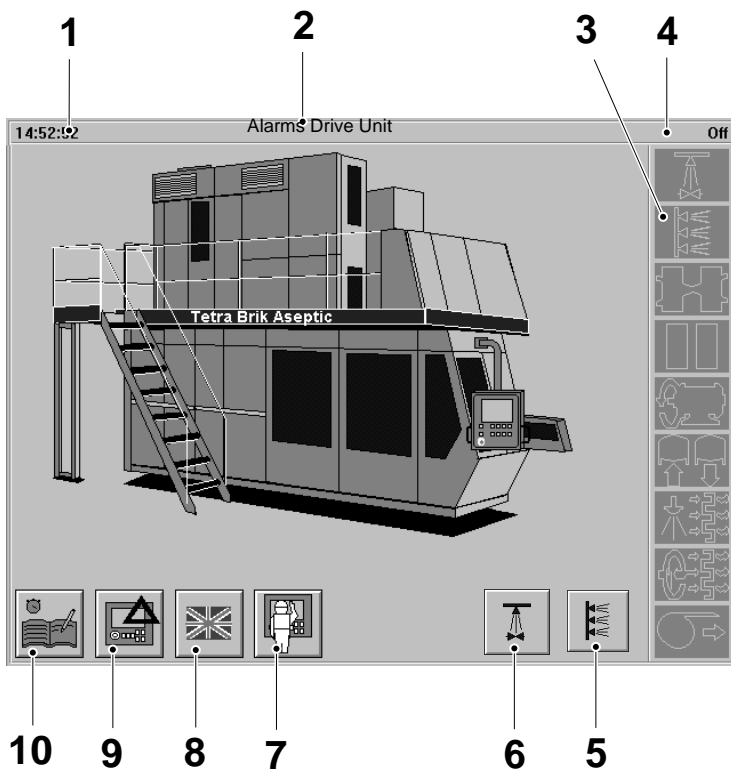
This chapter contains instructions for setting and handling the TPOP system. These settings must be performed by a TPOP trained operator.

This section describes these items:

- Description
- Navigation

- Program steps
- External cleaning
- CIP
- System setting
- Alarm system
- Collect system
- Manoeuvre system

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## Description

The TPOP display is touch-sensitive. The buttons on the display allow the operator to communicate with the system.

- 1 Current time
- 2 Alarm group (if any activated)
- 3 Program step icon
- 4 Program step name
- 5 **External cleaning** button
- 6 **CIP** button
- 7 **Manoeuvre system** button
- 8 **System setting** button
- 9 **Alarm system** button
- 10 **Collect system** button

## Navigation

This section describes how to navigate into the TPOP windows.



Touch the **OK** button to record the data entry and close the active window.



Touch the **Cancel** button to close the active window without recording any data.



If the entry number is incorrect, touch the **Clear** button and enter the correct number.

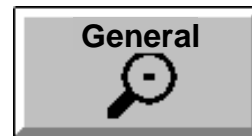
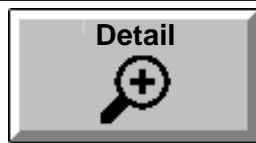


Touch the **Exit** button to close the active window.

PLANT	▲▲
PROCESSING EQUIPMENT	▲▲
<b>FILLING MACHINE</b>	▲▲
CONVEYOR / TP DISTRIBUTION EQ	▲
MACHINE IDLE TIME	▼
PLANNED TIME	▼▼



SAFETY	▲▲
<b>DRIVE UNIT / JAW SYSTEM</b>	▲▲
FINAL FOLDER	▲
FILLING	▲
SERVICE UNIT	▼
STERILE SYSTEM	▼
PEROXIDE SYSTEM	▼▼
ASU	▼▼
SUPERSTRUCTURE	▼▼
CIP/EXTERNAL CLEANING	▼▼
SA/MAGAZINE UNIT	▼▼



Jaw system, hold down device	▲▲
<b>Left jaw overload</b>	▲▲
Right jaw overload	▲
Left jaw sealing	▲
Right jaw sealing	▼
Main motor servo system fault	▼
Jaw system, angle encoder	▼▼
Left jaw pressure, hydraulic valve	▼▼
Right jaw pressure, hydraulic valve	▼▼
No volume values	▼▼
Tube support roller position	▼▼

## Selection of an event cause

When a selection of a specific cause is needed, it is possible to select the cause with different levels.

The first window gives the list of the main level causes.

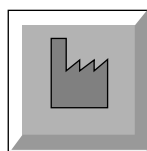
To find the specific cause, use the arrows to select its main group, and then touch the **Detail** button. Repeat until the specific cause is found.

To move back one level, touch the **General** button.

### Note!

Specific cause selection can be also made by pressing the alarm group button and selecting the alarm symbol.

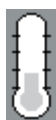
2.2.TB05254en.fm



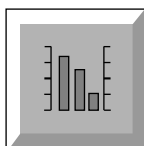
Factory



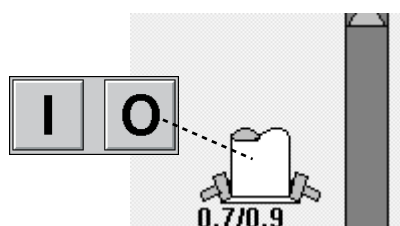
Inductor



Temperature monitor  
or  
Temperature regulator



Trend



## Common buttons

- Factory - touch and hold for at least three seconds to reset values to factory settings. The button changes to white to indicate that the value has been reset.

### Note!

Some settings have more than one factory value (such as the setting for the tab sealing pad heater that changes with the hole type). For these settings, the factory button only provides an approximate value.

- Inductor - touch to display the current value(s) for the inductor
- Temperature monitor or temperature regulator - touch to display the current value(s) for the monitor or regulator
- Trend - touch to display statistical information

When an item shown in white is touched

- the **Start/Stop** buttons are displayed, or
- a dialogue window is displayed.

Start/stop button is used for automatic processes and also to turn on the light inside the machine.



Lower Limit



Output



Process



Set point

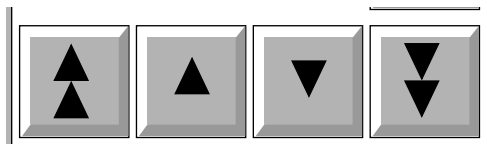


Upper limit

## Common symbols

- Lower limit - temperatures below this value activate an alarm
- Output - percentage of time the heater is on
- Process - actual value
- Set point - value that has been set for the particular function
- Upper limit - temperatures above this value activate an alarm

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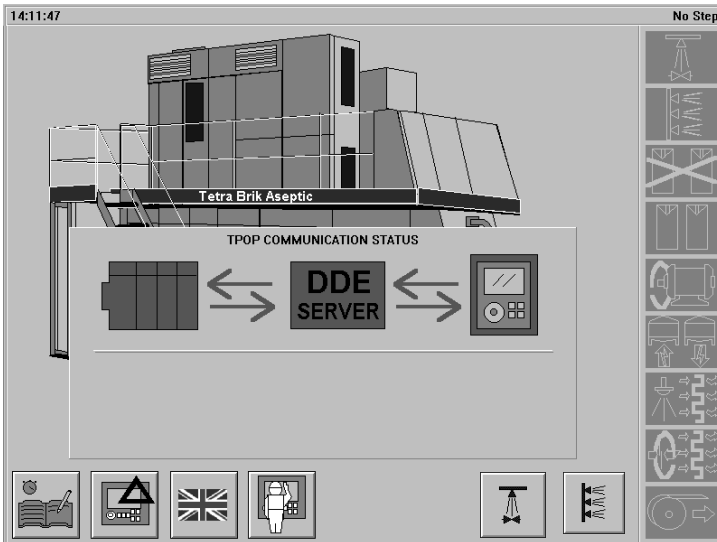


## Changing the values

If the dialogue window has arrow keys, the values can be changed in increments of 10 (double-arrow keys) or in increments of 1 (single-arrow keys).

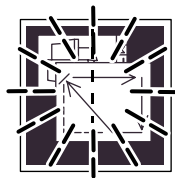
### Note!

After a single-arrow key has been continuously touched for 10 increments of 1, the values will change by 10 instead of 1.



## System communication fault reset

If a communication fault occurs, a dialog window is displayed on the TPOP display.



The **TPOP** reset button also flashes to show that an error has occurred.

Press the **TPOP** reset button to reset the TPOP.

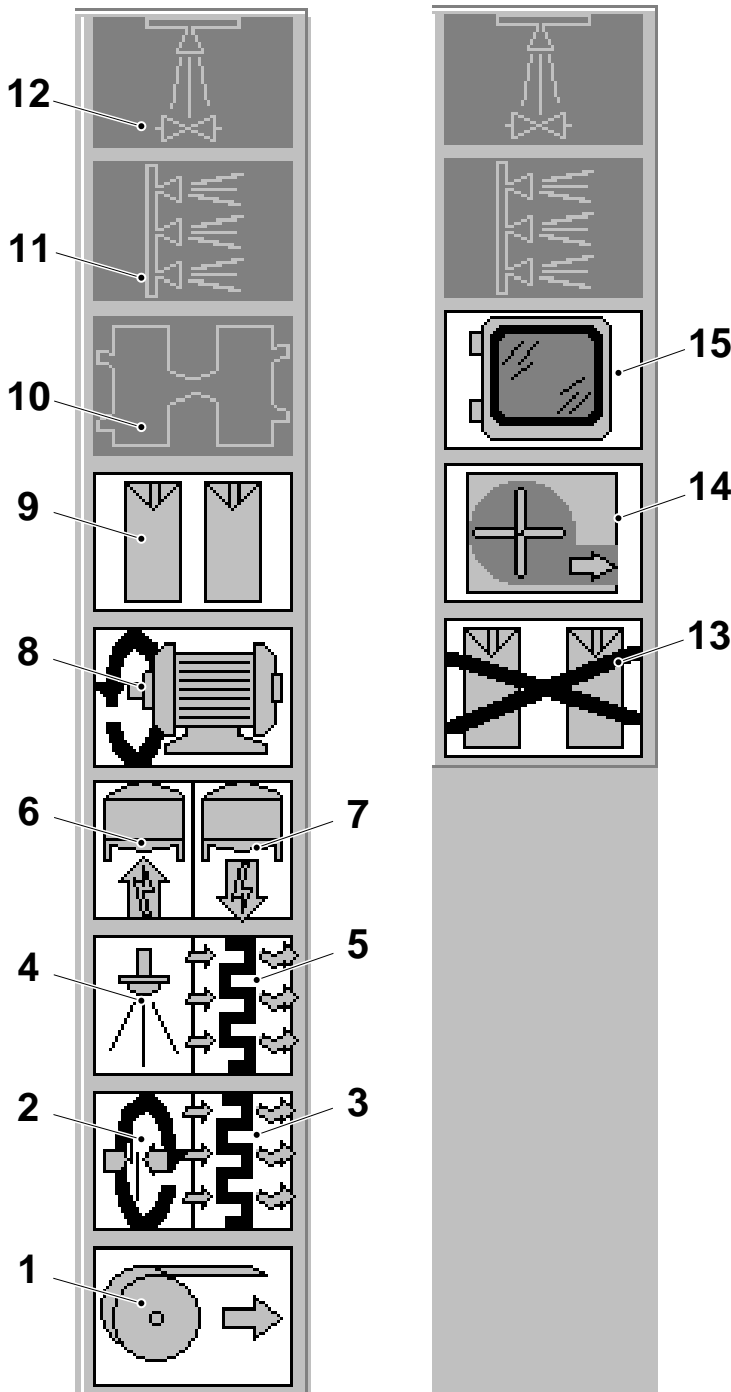
### Note!

If the communication fault remains, call a technician to check the communication cable between the PLC and the flexbox.

## During Production

## After Production

## Program steps



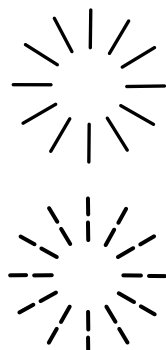
### During Production

- 1 No light = **Step Zero**  
Light = **Preparation**
- 2 **Tight Tube**
- 3 **Heat Sterilization**
- 4 **Spraying**
- 5 **Drying**
- 6 **Signal to Sterilizer**
- 7 **Signal from Sterilizer**
- 8 **Motor Start**
- 9 **Production**
- 10 **Production Ended**
- 11 **External Cleaning**
- 12 **Cleaning - CIP**

### After Production

- 13 **Production Ended, time out**
- 14 **Venting Aseptic Chamber**
- 15 **Doors Aseptic Chamber**

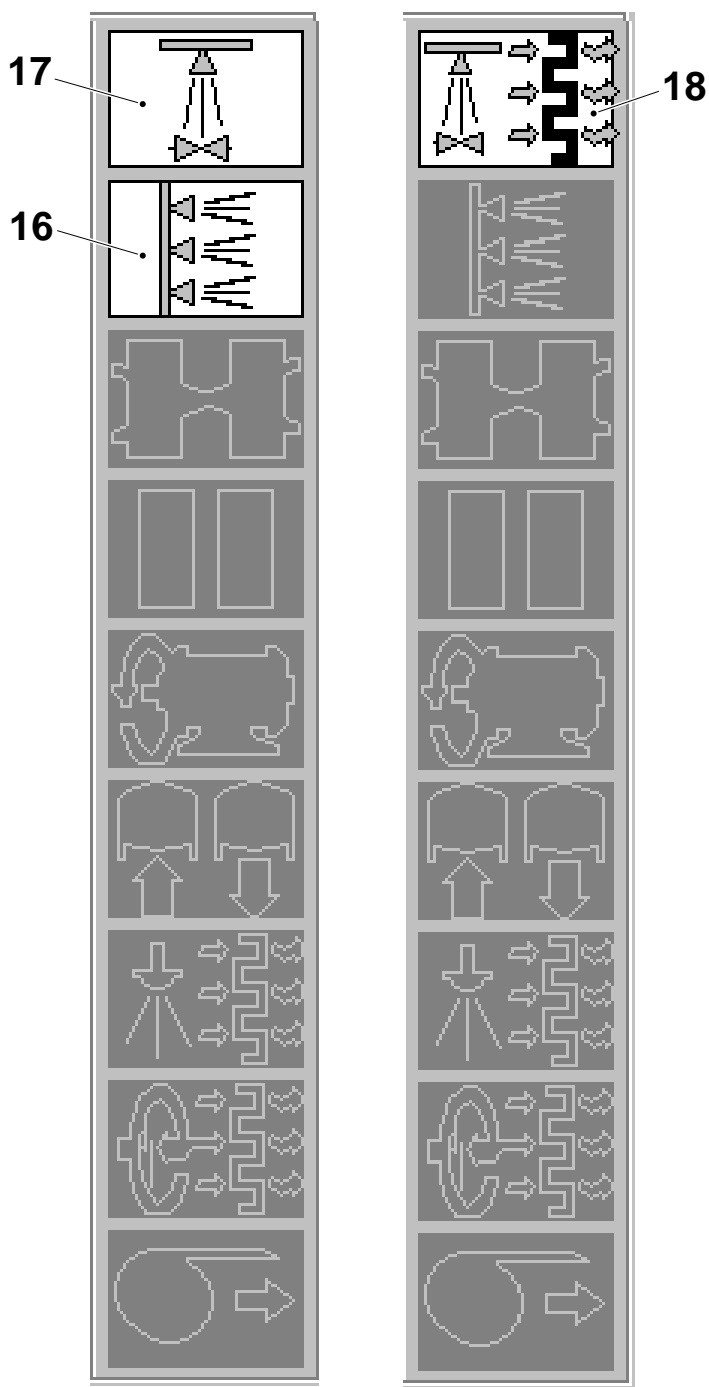
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A fixed light indicates the current program step.

A flashing light indicates when the machine is ready to begin a program step.

## Cleaning

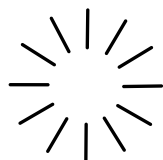


## Program steps

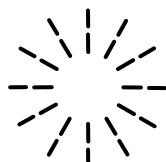
### Cleaning

- 16 External Cleaning
- 17 Cleaning - CIP
- 18 CIP drying

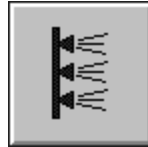
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A fixed light indicates the current program step.

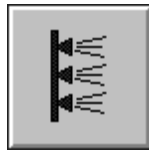


A flashing light indicates when the machine is ready to begin a program step.



## External cleaning

This function allows the operator to clean the exposed mechanical parts.



To start the **External Cleaning** program:

- Touch the **External cleaning** button.
- When the **Program up** button begins to flash, press it to start the cleaning.



To stop the **External Cleaning** program:

- Touch the **Stop** button
- When the **Program down** button begins to flash, press it to stop the **External cleaning**.





## Cleaning - CIP

This function allows the operator to clean the product line system.



To start the **Cleaning - CIP** program:

- Touch the **CIP** button.
- When the **Program up** button begins to flash, press it to start the cleaning.



To stop the **Cleaning - CIP** program:

- Touch the **Stop** button
- When the **Program down** button begins to flash, press it to stop the cleaning.



## System setting



This function allows the operator to change the language used by the TPOP software and to set the current time.

## Language setting

**1**

Touch the **System setting** button.



**2**

Touch the required language button.  
Wait few seconds.

### Note!

If the **TPOP reset** button starts flashing, do not press it.



**3**

Touch the **Exit** button.





## Time setting

**1**

### Note!

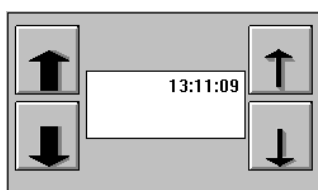
Setting the time can only be done in program **Step Zero** and with **Preparation Phase** and **Production Phase** closed.

Touch the **System setting** button.



**2**

Touch the **Clock** button.



**3**

Touch the thick arrows to set the hours and the thin arrow to set the minutes.



Touch the **OK** button.



**4**

Touch the **Exit** button.

## Production shift setting

Setting the Production shift can only be done in **Step Zero** and with **Preparation Phase** and **Production Phase** closed.

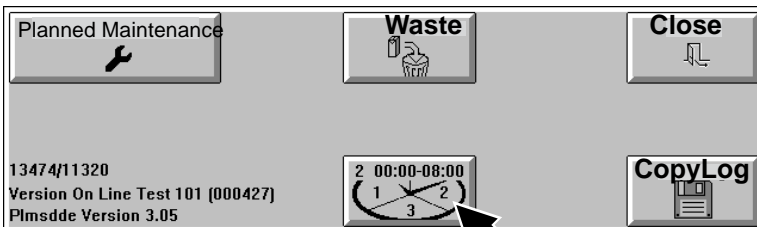
### Note!

If the filling machine is not in **Step Zero**, the **Shift** button is displayed as an icon showing the shift number and the shift time setting.



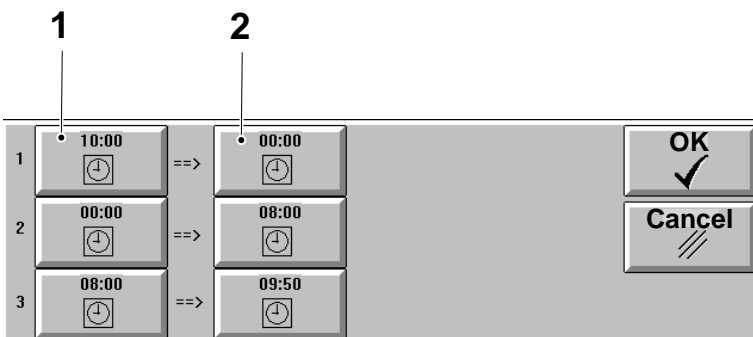
**1**

Touch the **Collect system** button.



Touch the **Shift** button.

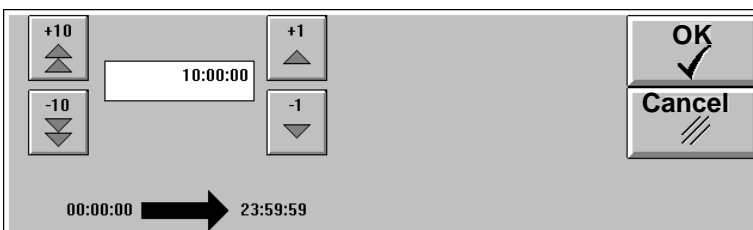
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**2**

Touch the required **Shift** button.

Input a start time (1) and an end time (2) for each shift as required.



Set the shift time as required and touch the **OK** button.

Repeat for the other shifts as required.

### Note!

Do not overlap the shift time otherwise an error will be displayed.



## Alarm system

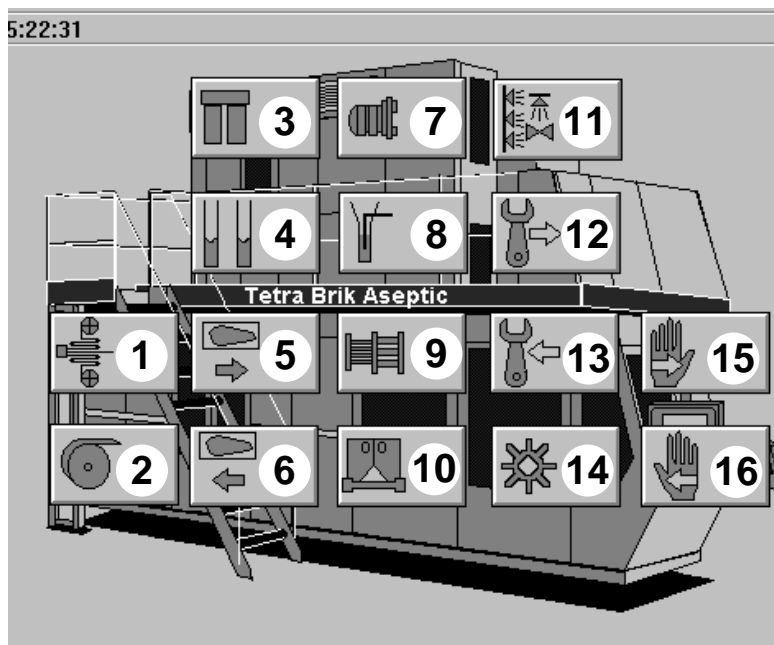
Alarms show where there is a problem in the machine and how to resolve it.

Alarms are divided into groups. When an alarm is activated, its window is displayed with the activated alarm lit up.



## Alarm group buttons

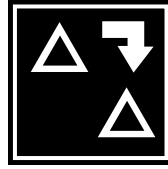
If no alarms appear, touch the **Alarm system** button.



The **Alarm system** window is displayed showing the alarm groups. Each button opens the corresponding alarm window.

- |                     |                              |
|---------------------|------------------------------|
| 1 SA/Magazine       | 9 Design correction          |
| 2 ASU               | 10 Drive unit                |
| 3 Superstructure    | 11 External cleaning and CIP |
| 4 Peroxide system   | 12 Service unit, right       |
| 5 PullTab, right    | 13 Service unit, left        |
| 6 PullTab, left     | 14 Final folder unit         |
| 7 Sterile system    | 15 Safety, right             |
| 8 Filling equipment | 16 Safety, left              |

## General information



When the **Multiple alarm** button is displayed, other alarm groups are also activated. Touch the button to display these groups.



A triangle in the symbol for an alarm group, indicates that an alarm has not been acknowledged.

## Alarm colour code

The alarms are colour-coded:

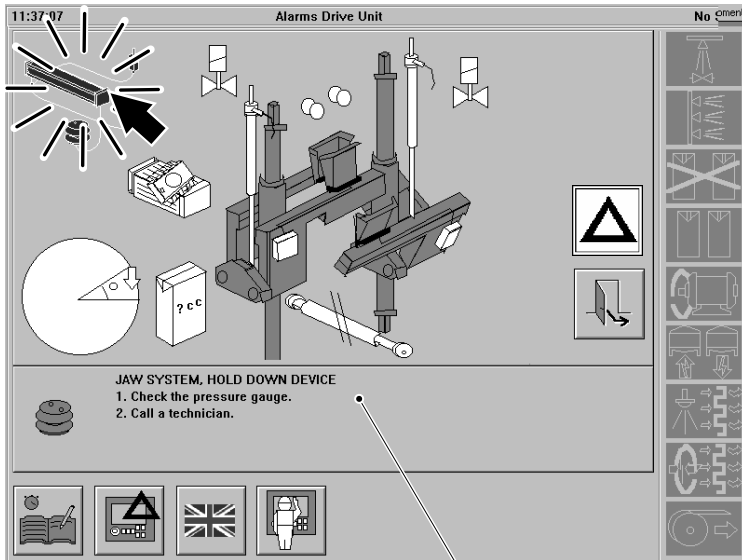
- Red = hazardous condition
- Yellow = abnormal condition
- Blue = information or operator action

All red or yellow alarms must be acknowledged.

There is no need to acknowledge blue alarms they disappear when the cause is corrected.

### Note!

If the alarm window does not close after pressing the **Acknowledge** button the alarm still exists.



1



## Alarm handling

1

When the alarm window opens, the alarm that was activated is lit up. Touch the lit symbol to open the instruction window (1).

Follow the instructions in the order given.

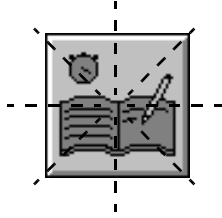
2

Touch the flashing **Acknowledge** button to acknowledge the alarm. The acknowledge button disappears.

3

Touch the **Exit** button to return to the main window.





## Collect system

The machine automatically records the causes of the events in **Preparation Phase** and **Production Phase**.

The TPOP prompts the operator to enter the cause for some events.

See *Record manual stop reason* for information on how to record event causes.

The **Preparation Phase** starts automatically 4 minutes after the machine steps to step **Preparation** or as soon as it steps to **Tight Tube**.

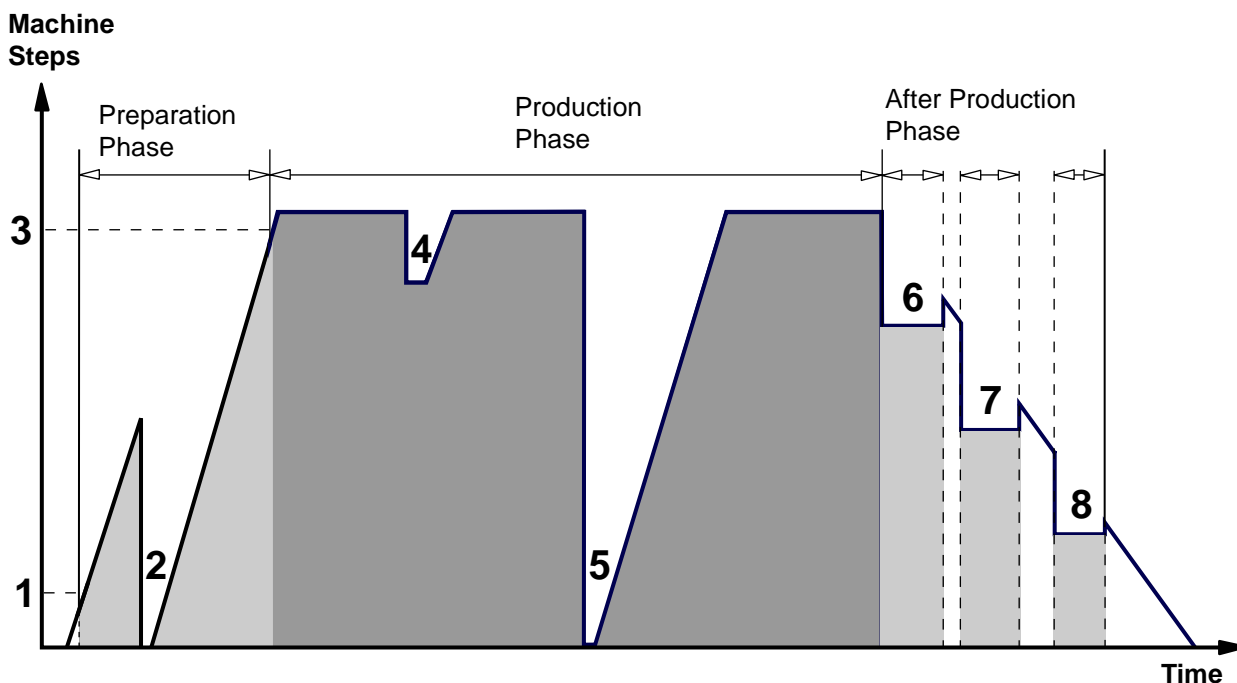
### Events list:

- *Jump to Step Zero during Preparation Phase*
- *Jump to Step Venting during Preparation Phase*
- *Record too long Preparation warm up reason*
- *Motor start interruption*
- *Record manual stop reason*
- *Conveyor congestion*
- *Jump to Step Zero during Production*
- *Temporary stop of Production*
- *End of Production*

### Generic tasks:

- *Check or change recorded stop cause*
- *Record package waste for quality check*
- *Record maintenance time*
- *Recorded data copying*

## Phases



- 1 Preparation
- 2 Jump to zero during Preparation  
(Only if occurs)
- 3 Motor Start
- 4 Short Stop  
(Only if occurs)
- 5 Jump to zero during Production  
(Only if occurs, Cleaning and Preparation follow)
- 6 Venting
- 7 Cleaning - CIP
- 8 External Cleaning

### Preparation Phase

This phase starts with the first attempt to prepare the equipment for planned production and ends when Production Phase starts.

### Production Phase

Starts with the first attempt to produce packages and ends when the planned production is done or when a production interruption is decided.

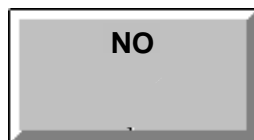
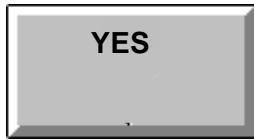
### After Production Phase

Starts with the first attempt to run the after production program and ends when intended tasks in After Production Phase have been completed.

### Planned Maintenance Phase

Starts at the beginning of the first preventive action and ends when the planned maintenance has been carried out.

Do you want to continue the Preparation Phase?

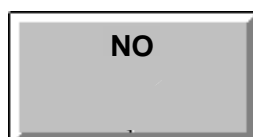
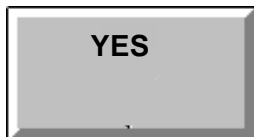


## Jump to Step Zero during Preparation Phase

When the machine steps down to **Step Zero** during the **Preparation Phase** the TPOP prompts a question.

- If the answer is **NO** the TPOP closes the **Preparation Phase**.
- If the answer is **YES** the TPOP keeps the **Preparation Phase** on. After 10 minutes in **Step Zero** the TPOP prompts again the same question. If the answer is **YES** again the **Preparation Phase** is closed automatically after 10 minutes.
- If no answer is given within 20 minutes the TPOP closes **Preparation Phase**.

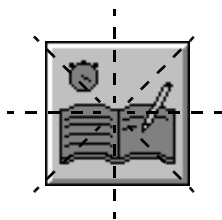
Do you want to continue the Preparation Phase?



## Jump to step Venting during Preparation Phase

When the machine steps down to step **Venting** during **Preparation Phase** the TPOP prompts a question.

- If the answer is **NO** the TPOP closes the **Preparation Phase**.
- If the answer is **YES** the TPOP keeps the **Preparation Phase** on.
- If no answer is given within 4 minutes the TPOP assign as default **NO**.

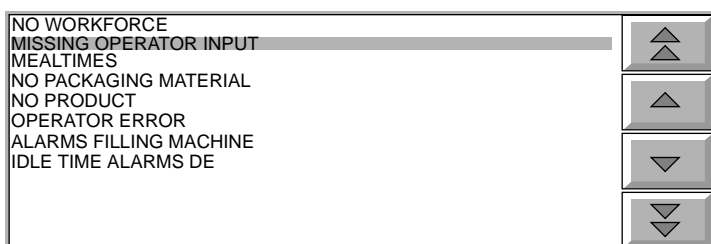


## Record too long for preparation warm up reason

If the time to prepare the machine is more than 30 minutes, the **Collect system** button starts to flash.

Touch the **Collect system** button.

Why so much pre-production delay?



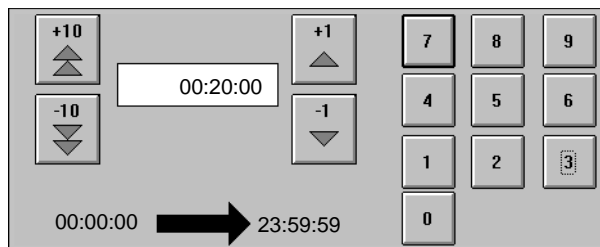
The TPOP prompts a question.

The operator must answer by selecting the correct cause for the event, see *Navigation* for details.

If no answer is given within 10 minutes of production a **Missing operator input** will be assigned automatically as a stop reason.



If required the time can be divided in more than one cause, adjust the time by touching the **Clock** button.



Use the **Arrow** buttons or the numeric key pad to enter the correct time used.



Touch the **OK** button to accept the time entry and return to the previous window.

Repeat the procedure for allocating the time to causes until the time has been assigned to all causes.

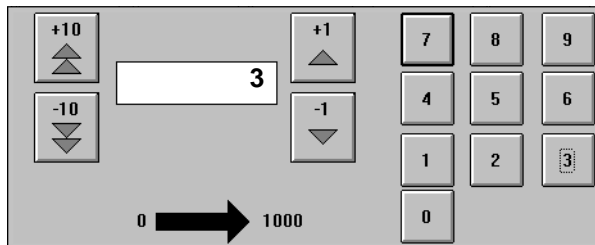


In case of extra waste, touch the **Waste number** button.

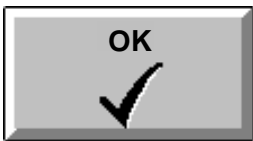
**Note!**

Extra waste means packages taken away manually.

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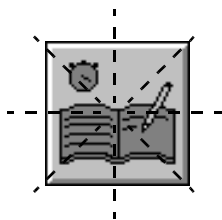
Use the **Arrow** buttons or the numeric key pad to enter the number of packages.



Touch the **OK** button to accept the entry for packages number and return to the previous window.



Touch the **OK** button to record the cause and return to the main window.

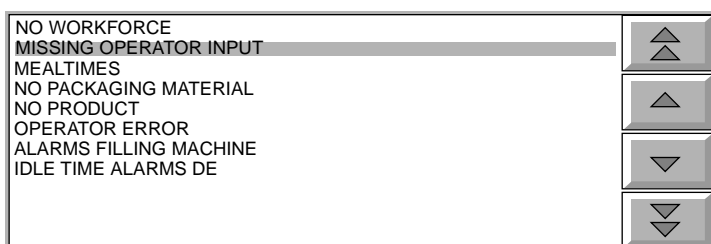


## Motor start interruption

If the **Motor Start** sequence is manually interrupted, the **Collect system** button starts to flash.

Touch the **Collect system** button.

Why did you interrupt Motor Start?



The TPOP prompts a question.

The operator must answer by selecting the correct cause for the event, see *Navigation* for details.

If no answer is given within 10 minutes of production, a **Missing operator input** will be assigned automatically as a stop reason.



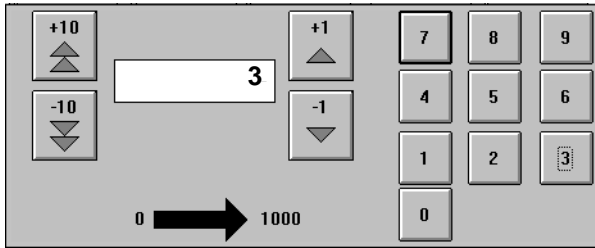
The **Clock** symbol displays the time wasted for the interruption of **Motor Start**.



In case of extra waste, touch the **Waste number** button.

### Note!

Extra waste means packages taken away manually.



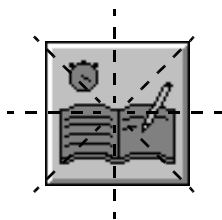
Use the **Arrow** buttons or the numeric key pad to enter the number of packages.



Touch the **OK** button to accept the entry for packages number and return to the previous window.



Touch the **OK** button to record the cause and return to the main window.



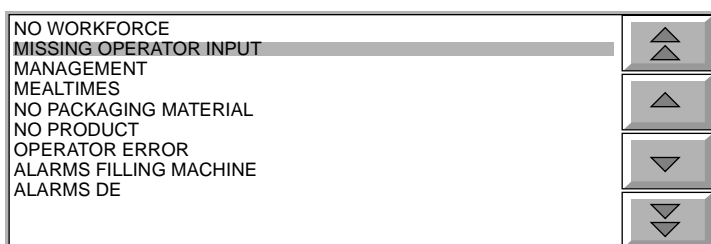
## Record manual stop reason

The **Collect system** button starts to flash in the following situations:

- Emergency stop
- Short stop
- Step down or step up from **Production**
- Door open
- Motor start interruption

Touch the **Collect system** button.

Why did you press short stop?



## Example of manual stop reason

The TPOP prompts a question.

The operator must answer by selecting the correct cause for the event, see *Navigation* for details.

If no answer is given within 10 minutes, a **Missing operator input** will be assigned automatically as a stop reason.



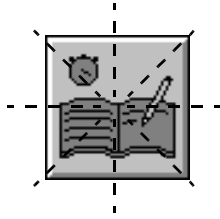
The **Clock** symbol displays the time wasted for pressing **Short stop** button.



In case of extra waste, touch the **Waste number** button.

### Note!

Extra waste means packages taken away manually.

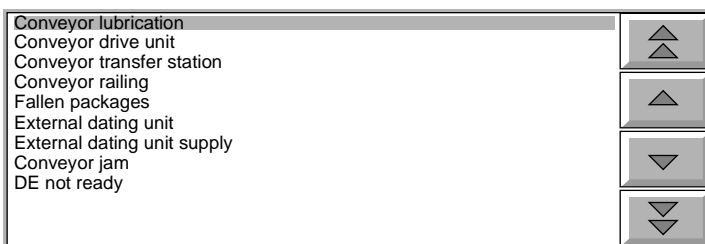


## Conveyor congestion

If the machine stops due to a queue in the conveyor system the **Collect system** button starts to flash.

Touch the **Collect system** button.

### Reason for conveyor congestion



The PLMS prompts a question.

The operator must answer by selecting the correct cause for the event, see *Navigation* for details.

If no answer is given within 10 minutes after the Production is restarted, a generic **conveyor congestion** will be assigned automatically as a stop reason.

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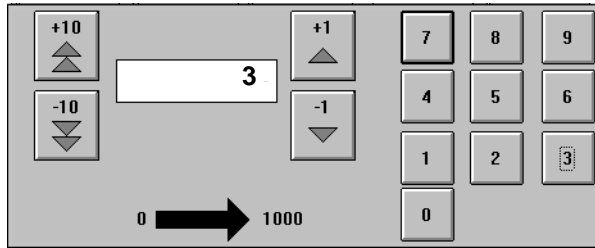
The **Clock** symbol displays the time wasted for pressing **Short stop** button.



In case of extra waste, touch the **Waste number** button.

### Note!

Extra waste means packages taken away manually.



Use the **Arrow** buttons or the numeric key pad to enter the number of packages.



Touch the **OK** button to accept the entry for packages number and return to the previous window.

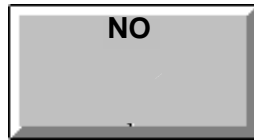
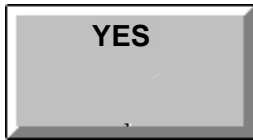


Touch the **OK** button to record the cause and return to the main window.

Is this the end of Production?

YES = End of production

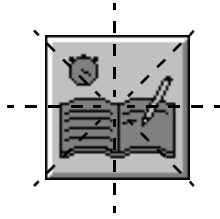
NO = Machine failure-Prepare for a new production



## Jump to Step Zero during production

When the machine steps down to **Step Zero** during **Production Phase** the TPOP prompts a question.

- If the answer is **YES** the TPOP stops the **Production Phase**.
- If the answer is **NO** the TPOP keeps the **Production Phase** on and all the time until the next **Motor Start** will be recorded as a **Production stop**. After 10 minutes in **Step Zero**, the TPOP prompt a question again. If the answer is **NO** again the **Production Phase** is closed automatically after 10 minutes in **Step Zero**.
- If no answer is given within 20 minutes, the TPOP closes the **Production Phase**.

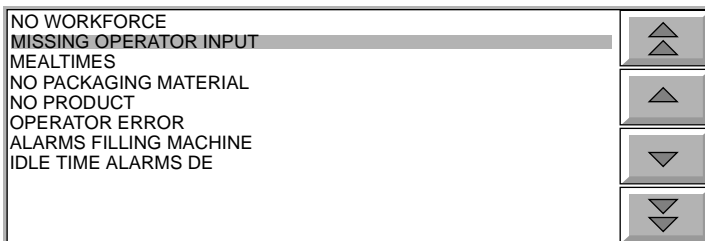


## Temporary stop of Production

In case of end of production the **Collect system** button starts to flash.

Touch the **Collect system** button.

Why did you step out from production?



The TPOP prompts a question.

The operator must answer by selecting the correct cause for the event, see *Navigation* for details.

If no answer is given within 10 minutes, a **Missing operator input** will be assigned automatically as a stop reason.



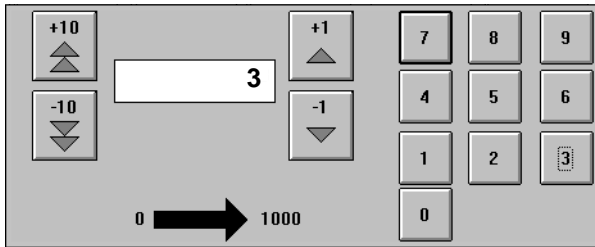
The **Clock** symbol displays the time wasted for stepping down from production.



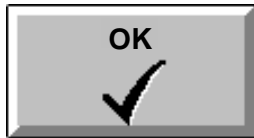
In case of extra waste, touch the **Waste number** button.

### Note!

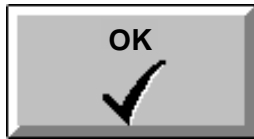
Extra waste means packages taken away manually.



Use the **Arrow** buttons or the numeric keypad to enter the number of packages taken.



Touch the **OK** button to accept the entry for packages number and return to the previous window.



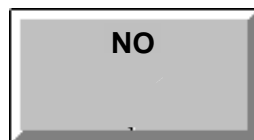
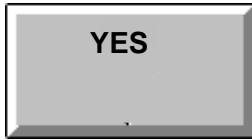
Touch the **OK** button to record the data entry and return to the main window.

If the machine is stepped up to **Production Ended**, after 2 minutes the machine step up to step **Venting**.

Is this the end of Production?

YES = End of production

NO = Machine failure-Prepare for a new production



## End of production

When the machine steps down to step **Venting** during **Production Phase** the TPOP prompts a question.

- If the answer is **YES** the TPOP stops the **Production Phase**.
- If the answer is **NO** the TPOP keeps the **Production Phase** and all the time until the next **Production** will be recorded as a **Production stop**.
- After 10 minutes in **Step Zero** the TPOP prompts the same question again. If the answer is **NO** again the **Production Phase** stops automatically after 10 minutes in **Step Zero**.
- If no answer is given within 4 minutes the TPOP assign as default **YES**.



## Record package waste for quality check

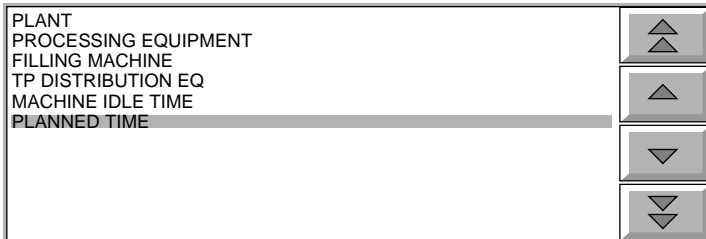
Remember to record the number of packages taken whenever packages are collected for quality checks.

Touch the **Collect system** button.



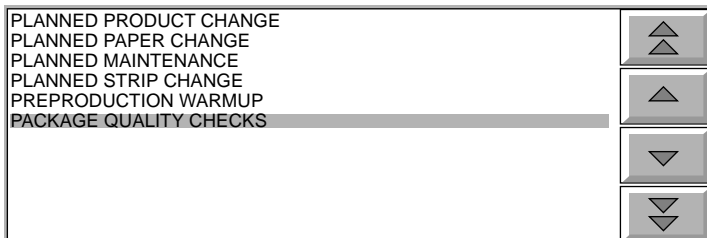
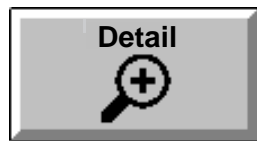
Touch the **Waste** button.

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Use the arrow keys to select **Planned time**.

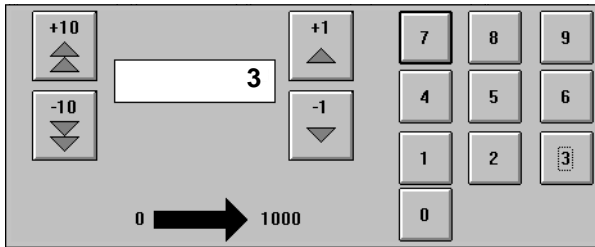
Touch the **Detail** button.



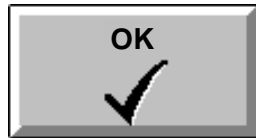
Use the arrow keys to select **Package quality checks**.

Touch the **Waste number** button.





Use the **Arrow** buttons or the numeric keypad to enter the number of packages taken.



Touch the **OK** button to accept the entry for packages number and return to the previous window.



Touch the **OK** button to record the data entry and return to the main window.



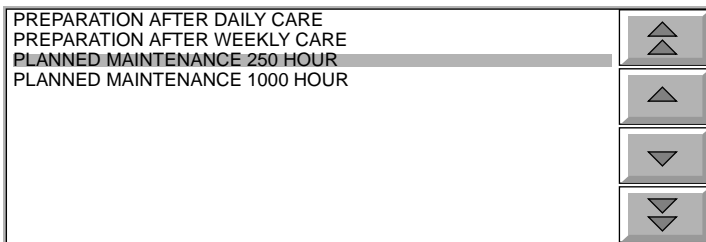
## Record maintenance time

Touch the **Collect system** button.

### Note!

This button is only available in **Step Zero**.

Touch the **Planned maintenance** button.

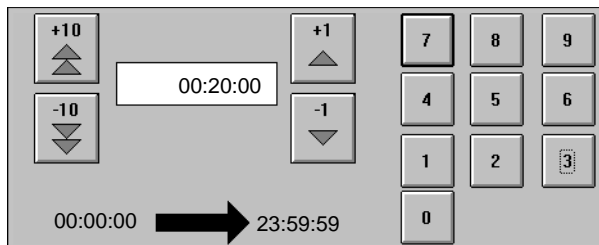


Select the correct item, see *Navigation* for details.



Touch the **Clock** button.

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Use the **Arrow** buttons or the numeric key pad to enter the time used.



Touch the **OK** button to accept the time entry and return to the previous window.



Touch the **OK** button to record the data entry and return to the main window.



## Recorded data copying

The **CopyLog** button is used to copy the data from the TPOP flexbox to a floppy disk.

To analyse the data collected by the system, the data must be copied to an office PC and analysed utilising the appropriate software.



## Manoeuvre system

This function allows the operator to:

- change settings
- know how many packages are wasted
- reset the number of packages wasted
- set the number of packages per cardboard

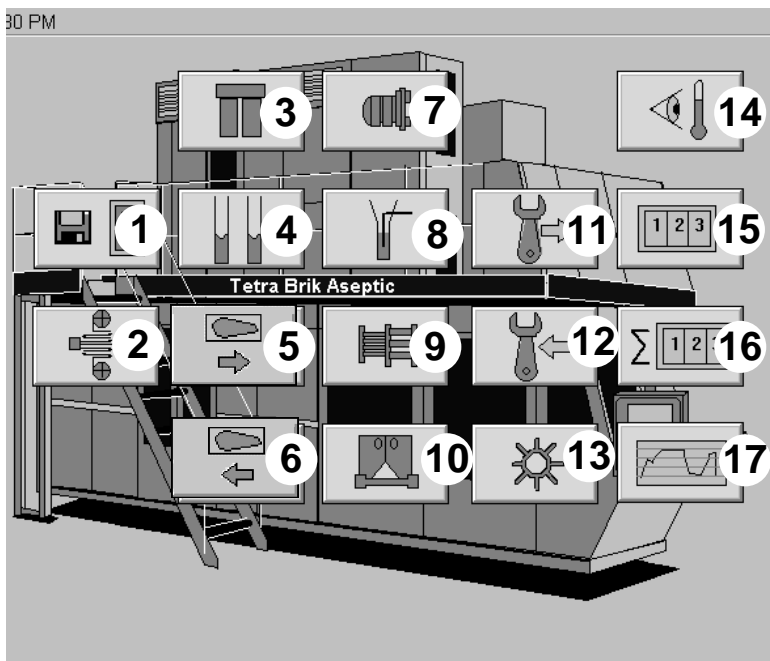


## Manoeuvre system buttons

Touch the **Manoeuvre system** button to view the buttons corresponding to the various manoeuvre functions.

Touch a manoeuvre button to open the associated manoeuvre window.

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- |                      |  |
|----------------------|--|
| 1 Parameters storage | 11 Service unit, right   |
| 2 SA/Magazine        | 12 Service unit, left  |
| 3 Superstructure     | 13 Final folder  |
| 4 Peroxide system    | 14 Overview of temperature monitors/regulators                   |
| 5 PullTab, right     | 15 Package counter   |
| 6 PullTab, left      | 16 Production overview by volume - total produced and total time |
| 7 Sterile system     | 17 Production recorder   |
| 8 Filling system     |  |
| 9 Design correction  |  |
| 10 Drive unit        |  |

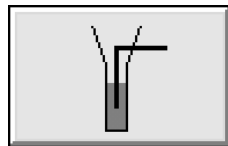
## Example: settings window

Touch the **Manoeuvre System** button.



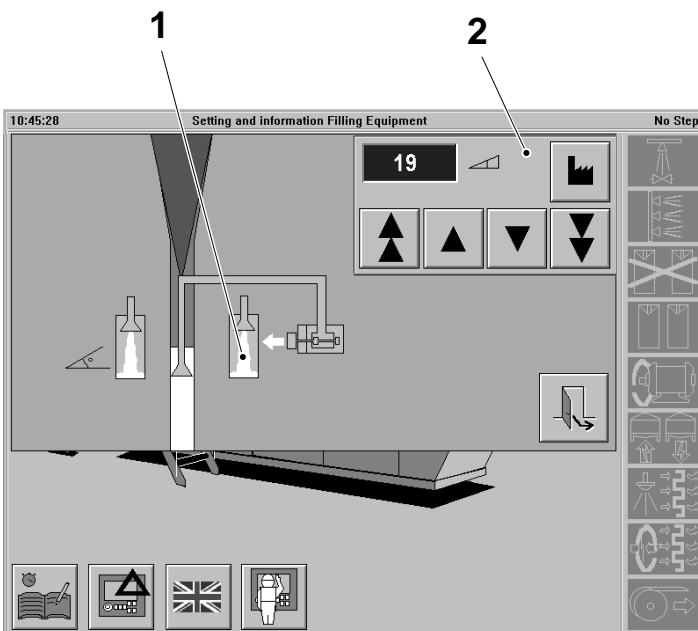
### 1

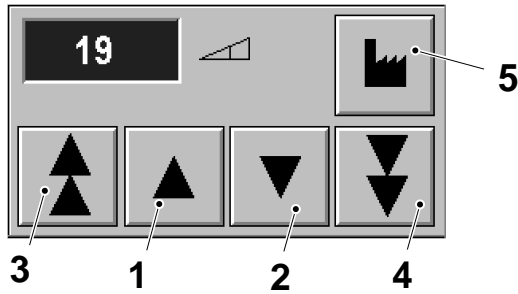
Touch the **Filling system** button.



### 2

Touch the **Start flow** (1) icon.  
The colour of the icon becomes blue and the **Setting window** (2) will be displayed.





- 1 Single arrow button
- 2 Single arrow button
- 3 Double arrow button
- 4 Double arrow button
- 5 Factory settings button

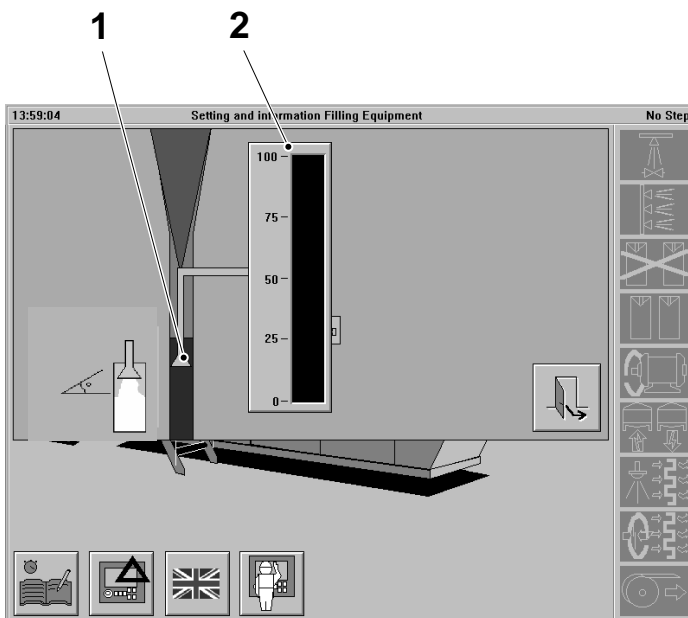
### 3

Touch the **Single Arrow** button (1) to increase or the button (2) to decrease the value in steps of 1. Touch the **Double Arrow** button (3) to increase or the button (4) to decrease the value in steps of 10. Touch the **Load Factory Settings** button (5) to load the factory default values.

#### Note!

The start flow value adjustable in this window can be recalculated from the **TMCC** during production.

2.2.TB05254en.fm



### 4

Touch the **Tube** (1) icon and the **Product level meter** (2) is displayed.



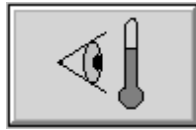
### 5

Touch the **Exit** button to return to the main window.

## Example: Overview of temperature

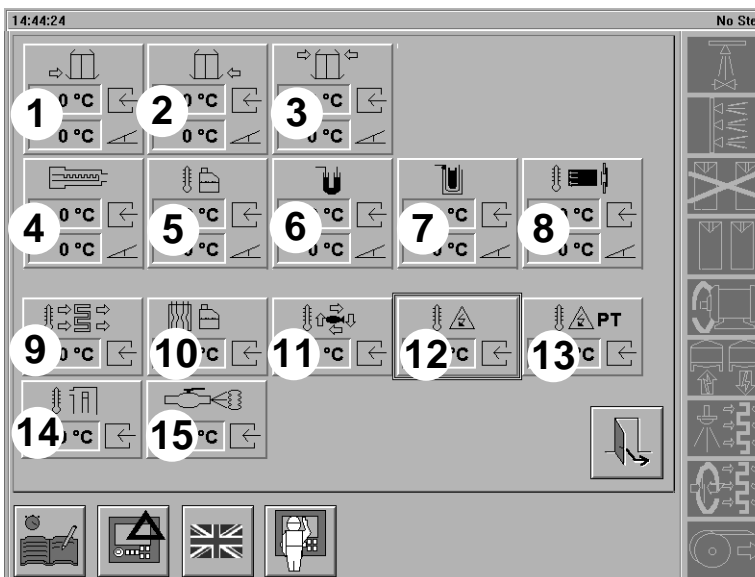
1

Touch the **Overview temperature** button.



2

The **Temperature Settings window** is displayed.



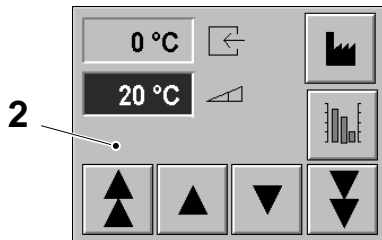
- 1 Top left flap heater
- 2 Top right flap heater
- 3 Bottom flaps heater
- 4 Air super heater
- 5 Peroxide tank
- 6 Peroxide bath
- 7 Water bath
- 8 PT21 Tab applicator
- 9 Pre-sterilization
- 10 Water heat exchanger
- 11 Water circulating
- 12 Electrical cabinet
- 13 PT21 Electrical cabinet
- 14 Aseptic chamber
- 15 Steam



**3**

Touch the **Flap Sealing** bottom left button (1) icon.

The **Settings window** (2) is displayed.



**4**

Touch the **Exit** button to return to the main window.

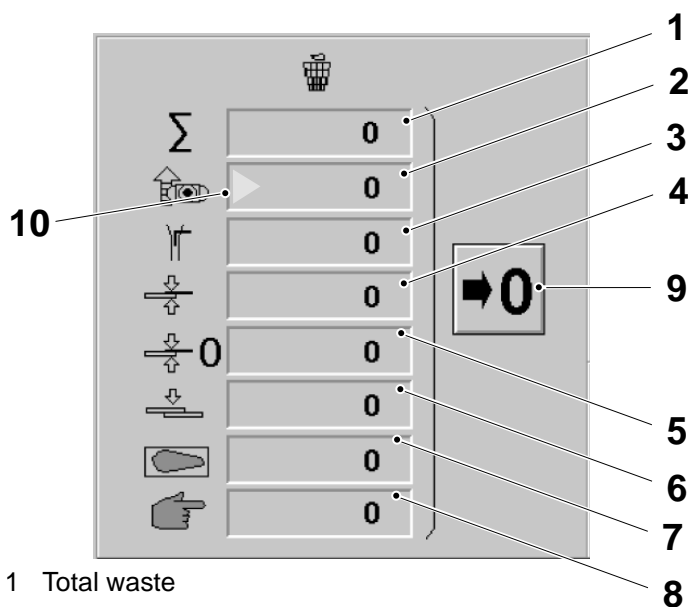




## Package counter window

In the main TPOP window, touch the **Manoeuvre system** button.

Touch the **Package counter** button.

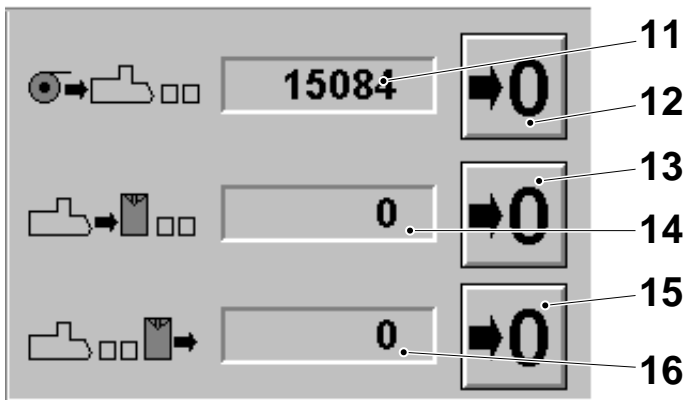


## Waste counters

Reset can be done only when the main motor is not running by means of the button (9).

The waste counters can be observed to know which part of the machine is causing the waste.

- 1 Total waste
- 2 Waste design correction system
- 3 Waste filling system
- 4 Waste strip applicator splice
- 5 Waste strip applicator stop
- 6 Waste paper splice
- 7 Tab waste
- 8 Manual waste
- 9 Reset button
- 10 Latest reason for waste



- 11 Packages into the filling machine
- 12 Reset button
- 13 Reset button
- 14 Packages out of the final folder
- 15 Reset button
- 16 Packages out from the last point counting photocell

## Package counters

The counter (11) displays the incoming packages into the filling machine.

The counter (14) displays the number of packages out from the final folder.

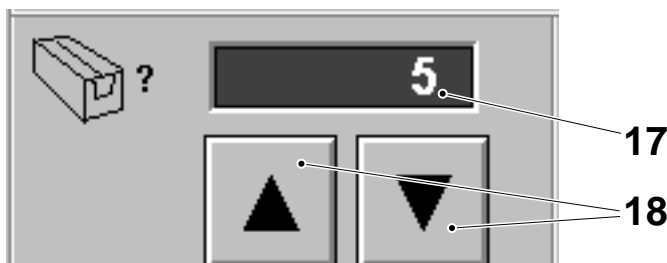
The counter (16) displays the number of packages passing the last point counting photocell on the packaging line.

Reset by means of the buttons (12), (13) or (15).

### Note!

Reset can be done only when the main motor is not running.

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- 17 Packages per unit in the last point distribution machine
- 18 Increase and Decrease button

## Packages per tray setting

The counter (17) displays the number of packages per tray/unit. Touch the buttons (18) to change the value.

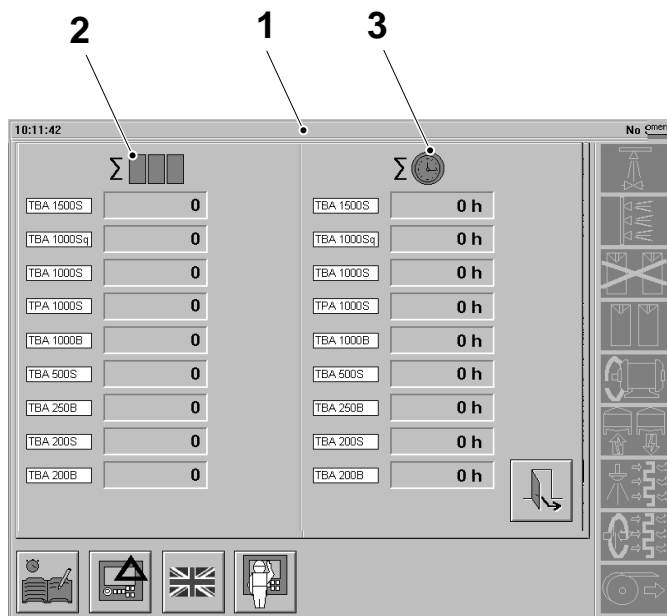
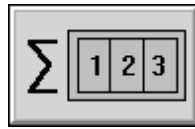
### Note!

The counter (17) values range is from 1 to 100 packages.

## Example: Production overview

**1**

Touch the **Production overview** button.



**2**

The **Production overview** window (1) is displayed.

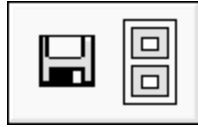
The window displays the total production quantities (2) and the total time (3).

2.2TBO65254en.fm

**3**

Touch the **Exit** button to return to the main window.

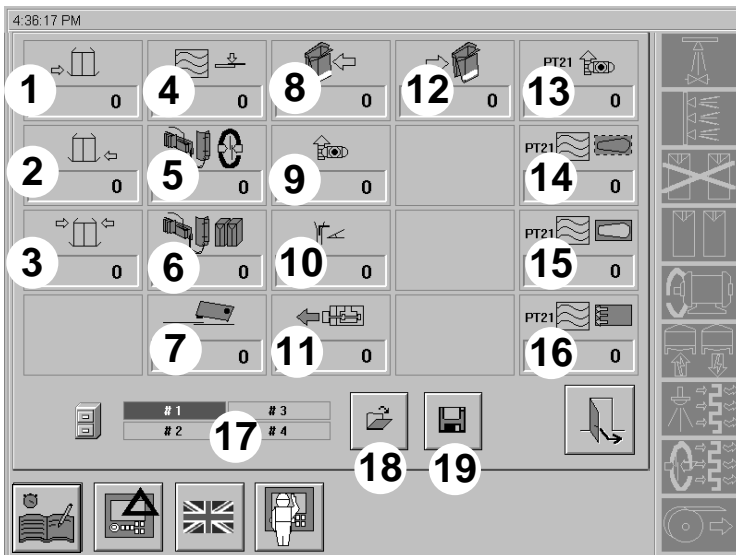




## Example: Parameter storage

**1**

Touch the **Parameter storage** button.



**2**

The **Parameters** window is displayed.

Four different parameter sets can be saved and loaded.

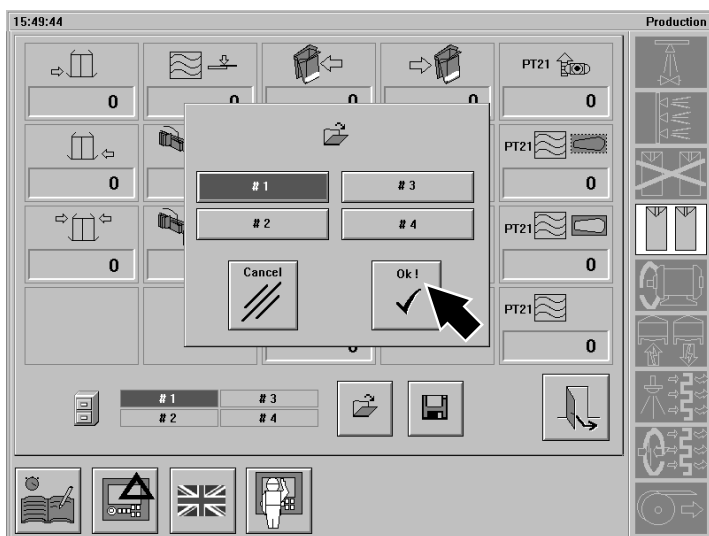
2.2TB05254en.fm

- 1 Flap top left
- 2 Flap top right
- 3 Flaps bottom
- 4 SA power
- 5 LS power during tight tube
- 6 LS power during production
- 7 Strip splice power
- 8 TS left
- 9 Design correction offset
- 10 Filling start sector
- 11 Filling start flow
- 12 TS right
- 13 Design correction offset
- 14 Patch power
- 15 Reseal power
- 16 Tab power
- 17 Actual parameter set
- 18 Load
- 19 Save



**3**

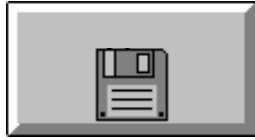
Touch the **Load** button.



**4**

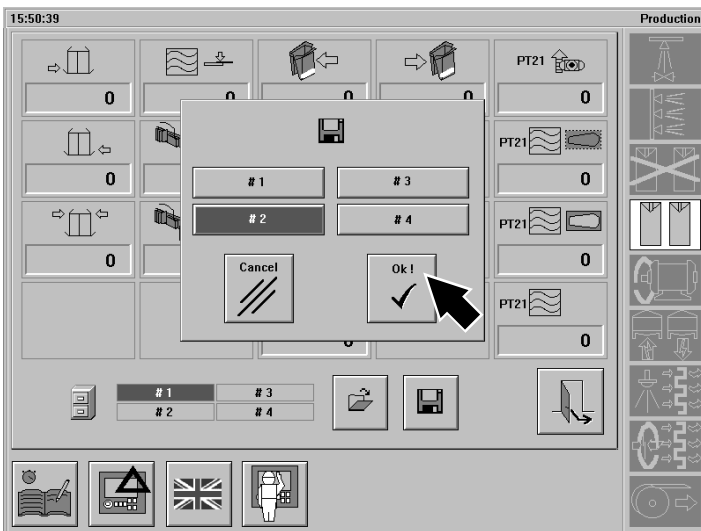
A dialogue window with four different parameter sets is displayed.

Select which set to load and press the **OK** button.



## 5

Touch the **Save** button.



## 6

Select which set to save and press the **OK** button.

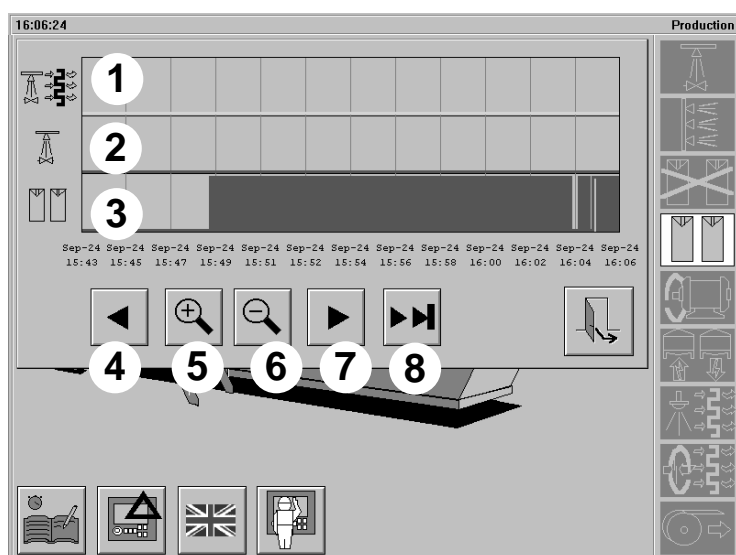
### **Note!**

The parameters name can be changed by pressing the set button for few seconds.



**7**

Touch the **Production recorder** button.



**8**

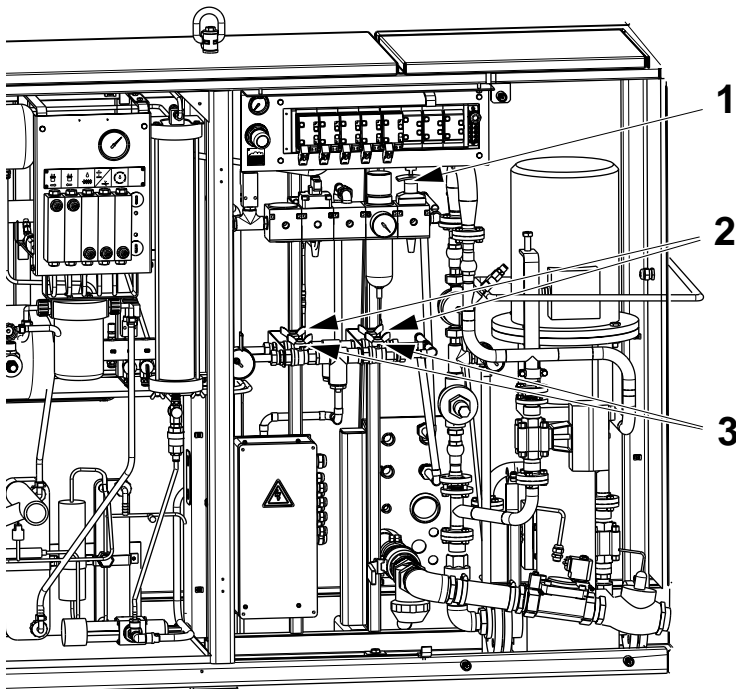
The production data window is displayed.

- 1 CIP drying
- 2 CIP
- 3 Production
- 4 Backwards
- 5 Zoom in
- 6 Zoom out
- 7 Forward
- 8 Set end of diagram to actual time

# Preparation after weekly care

This section describes how to thread the packaging material through the machine after weekly care has been performed.

2.2TB065254en.fm



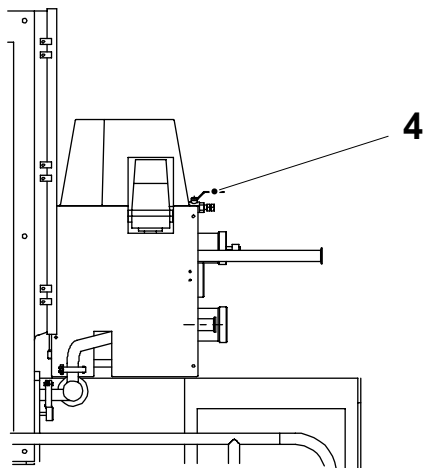
## 1

If the machine has been shut down:

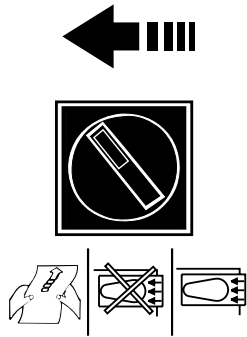
- Turn **On** the air supply (1),
- Turn **On** the cooling water supply (2) and (3), depending on which filter is in use.
- Turn **On** the steam (4).

### Note!

Do not crank the jaw system while the air is off.

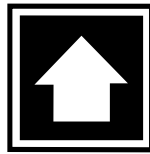


- 1 Air supply
- 2 Cooling water supply
- 3 Cooling water supply
- 4 Steam



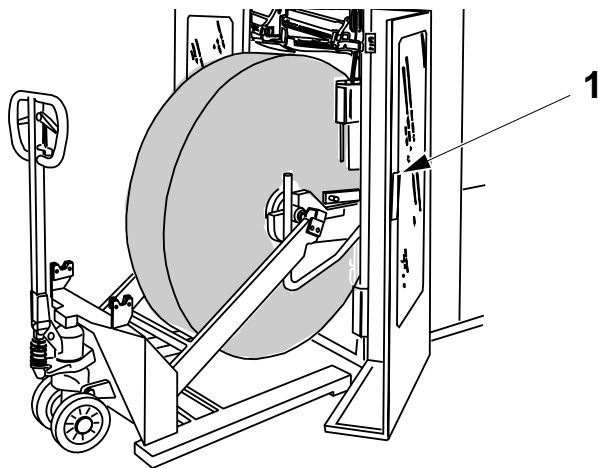
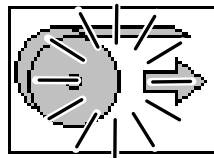
**2**

On the PullTab panel, turn the PullTab selector switch to the LH position (Preparation).



**3**

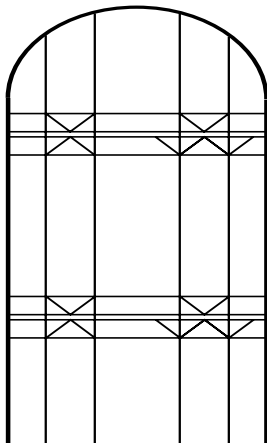
Press the **Program up** button to step up to step **Preparation**.



**4**

Open the ASU doors (1).

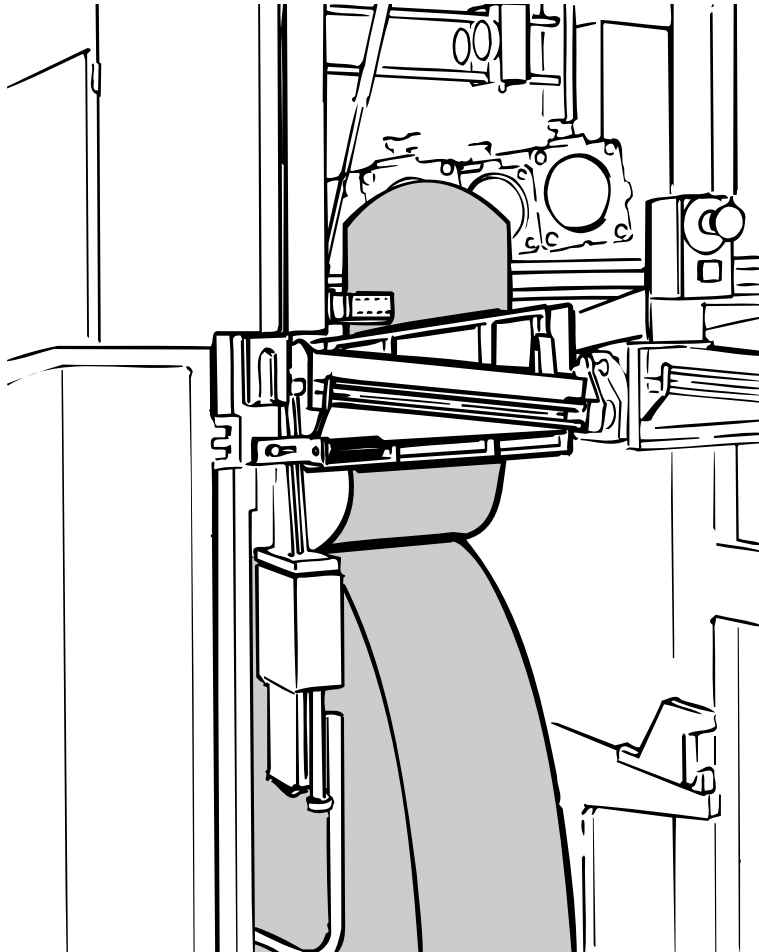
Insert the packaging material reel into the machine as described in Reel handling in the *Packaging material supply* section.



**5**

**Threading inside ASU compartment**

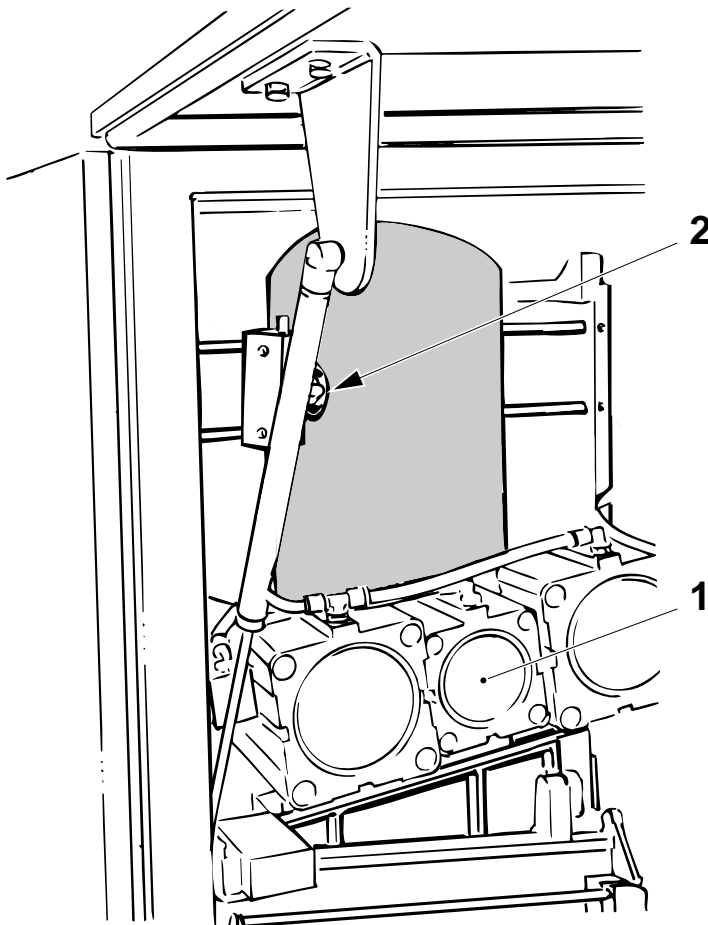
Cut the packaging material end as shown, avoiding crease lines on the tip.



## 5a

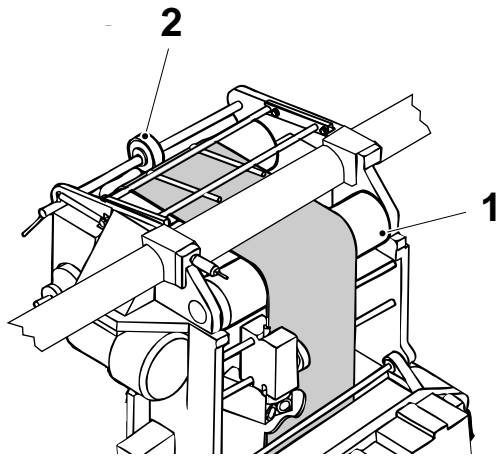
Thread the packaging material through the material holder.

2.2TB065254en.fm



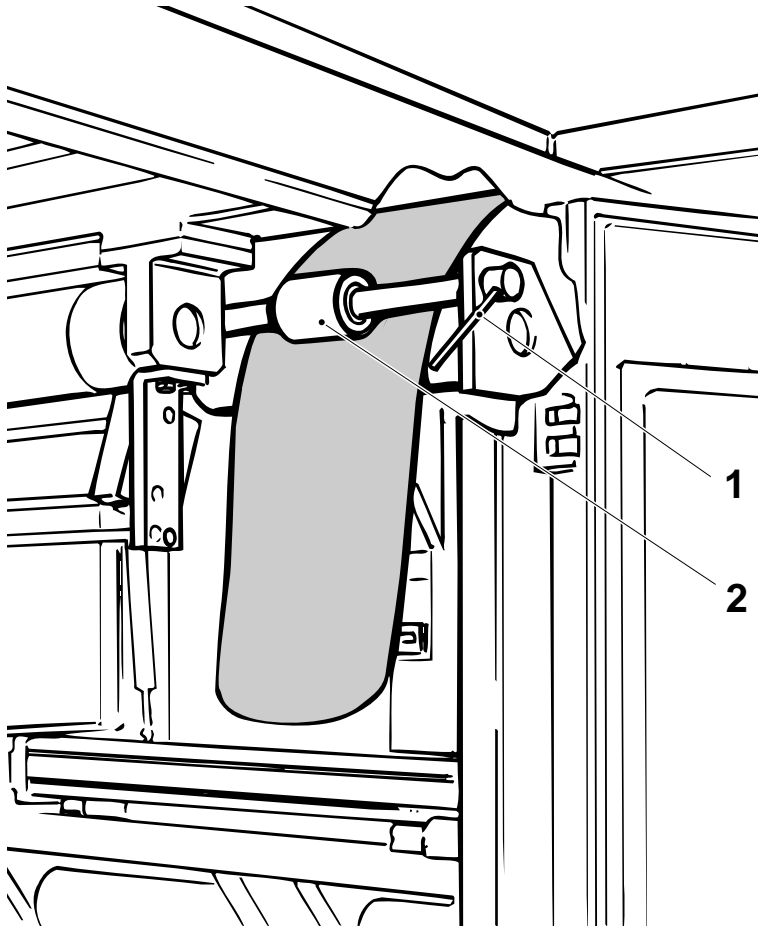
## 5b

Thread the packaging material web through the splicing device (1), then through the web guide (2).



## 5c

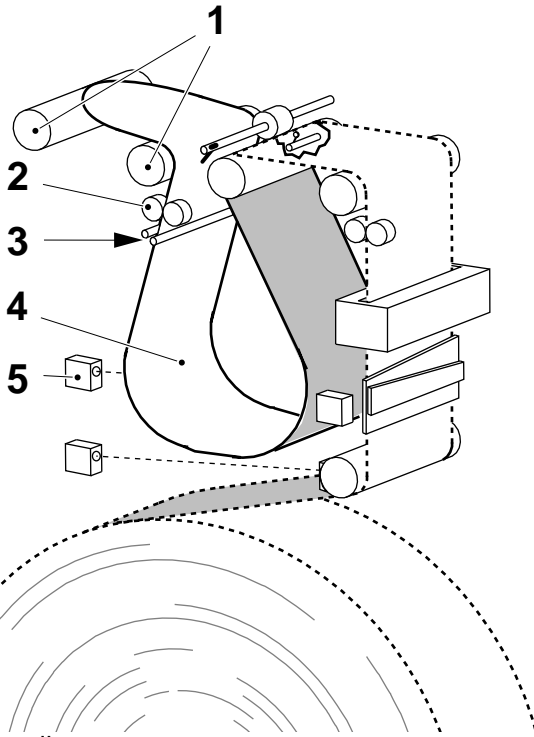
Thread the packaging material over the bending roller (1) and under the counter roller (2).



## 5d

Lift and hold the lever (1).

Feed an extra two metres of packaging material past the counter roller (2) to form the side shift loop.



- 1 Bending roller
- 2 Web guide
- 3 Shafts
- 4 Side shift loop
- 5 Photocell

## 5e

Thread the packaging material

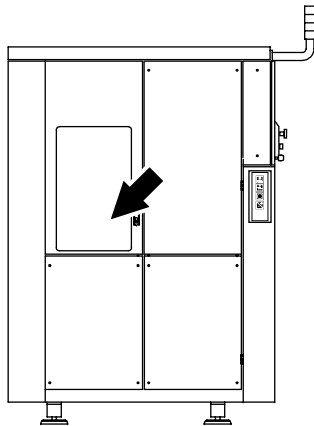
- between the two shafts (3)
- through the web guide (2),
- over the bending rollers (1) and into the ASSU compartment.

### Note!

Make sure that the side shift loop (4) covers both pair of photocells (5).

Close the ASSU doors.

2.2TB065254en.fm

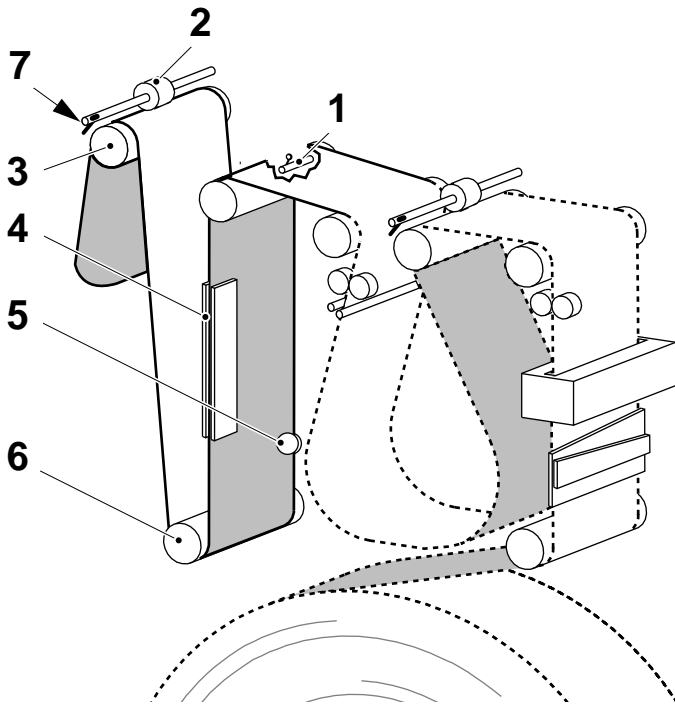


## 6

### Threading inside ASSU compartment

Open the ASSU door and open the strip magazine frame.

# Preparation after weekly care



- |                   |                     |
|-------------------|---------------------|
| 1 Splice detector | 5 Strip guide wheel |
| 2 Counter roller  | 6 Roller            |
| 3 Bending roller  | 7 Lever             |
| 4 SA inductor     |                     |

## 6a

Thread the packaging material:

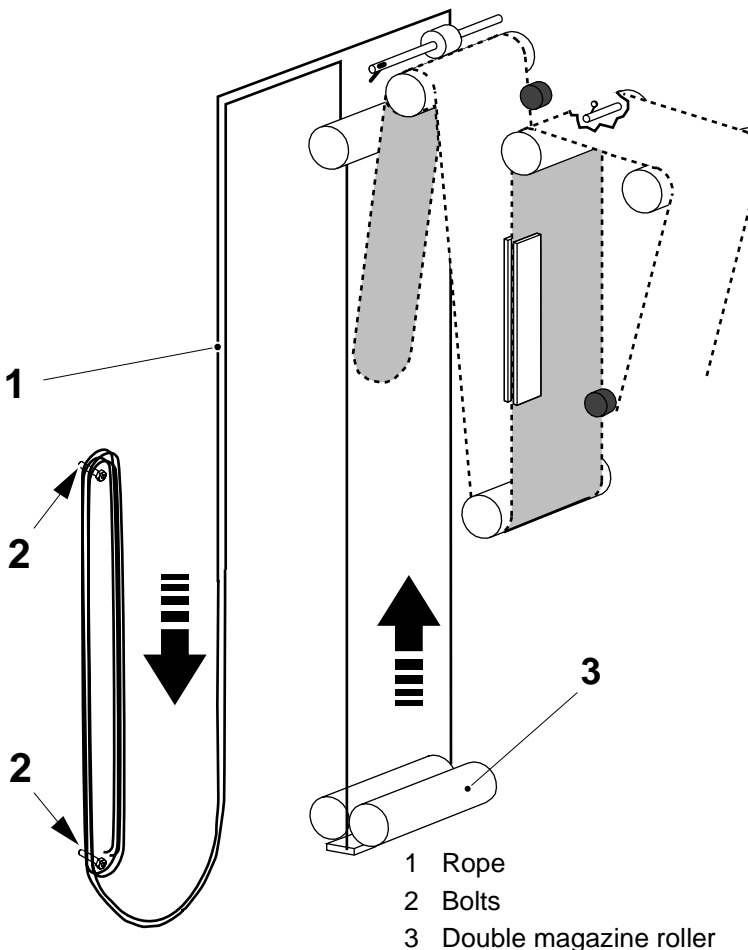
- under the splice detector (1),
- through the SA inductor (4)
- through the strip guide wheel (5)
- under the roller (6)

Lift and hold the lever (7). Thread the packaging material between the bending roller (3) and the counter roller (2).

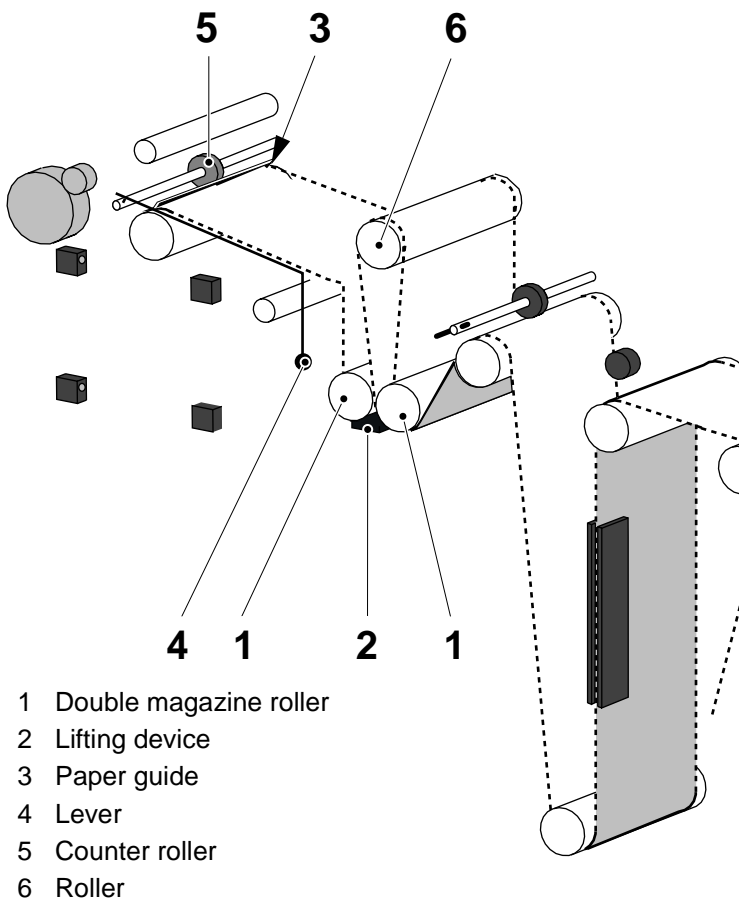
Feed approximately two metres of packaging material past the counter roller (2).

## 6b

Pull down the magazine roller rope (1) to raise the double magazine roller (3). Thread the rope around the bolts (2) to hold the roller in place.



- |                          |
|--------------------------|
| 1 Rope                   |
| 2 Bolts                  |
| 3 Double magazine roller |



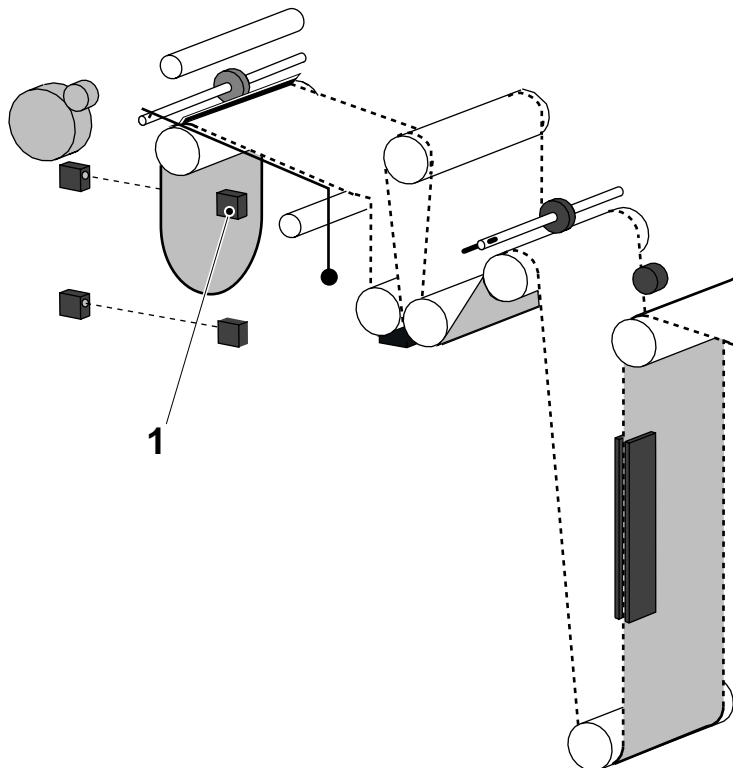
## 6c

Continue feeding the packaging material

- **between** the first roller of the double magazine roller (1) and the lifting device (2)
- up to the roller (6), down under the second roller of the double magazine roller (1)
- through the paper guide (3).

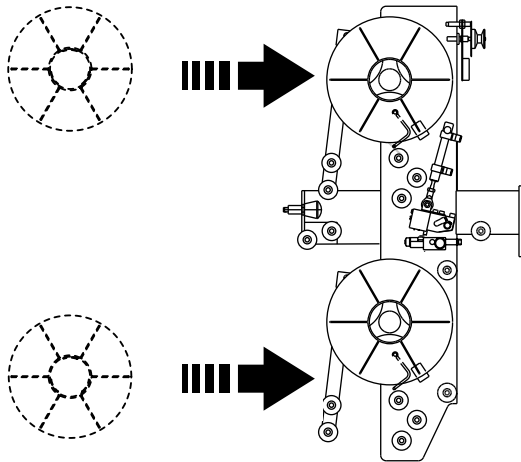
Lift the lever (4) to feed the packaging material under the counter roller (5).

2.2TB065254en.fm



## 6d

Pull the packaging material down so it covers **only** the first pair of photocells (1).



## 7

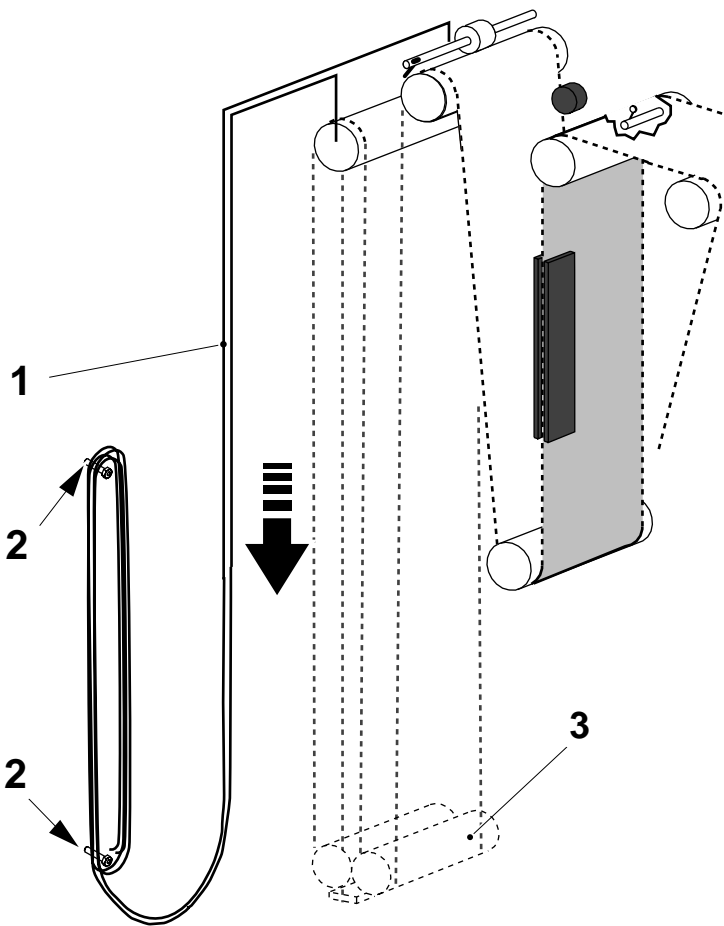
Prepare the strip applicator. See the *Strip supply* section.

### Note!

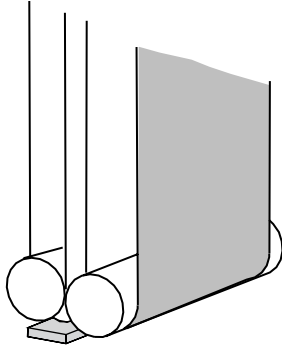
There must be enough strip available in the strip reel for the packaging material threading to be done without any strip splice.

## 8

Undo the rope (1) from the bolts (2) to release the double magazine roller (3).

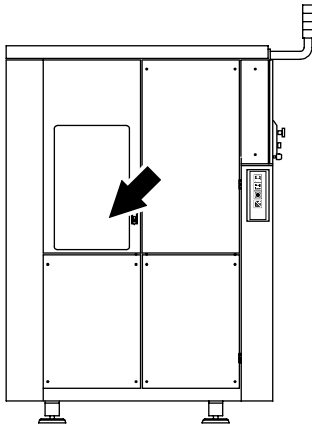


- 1 Rope
- 2 Bolts
- 3 Double magazine roller



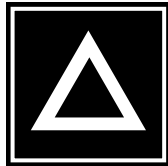
**9**

Check that the packaging material is centred on the roller.



**10**

Close the ASSU door.



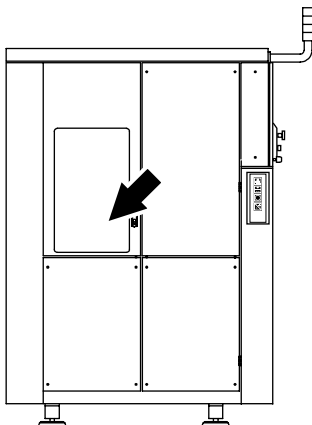
**11**

Close all covers and doors on the machine and reset the alarms on the TPOP display.

The packaging material magazine fills up.

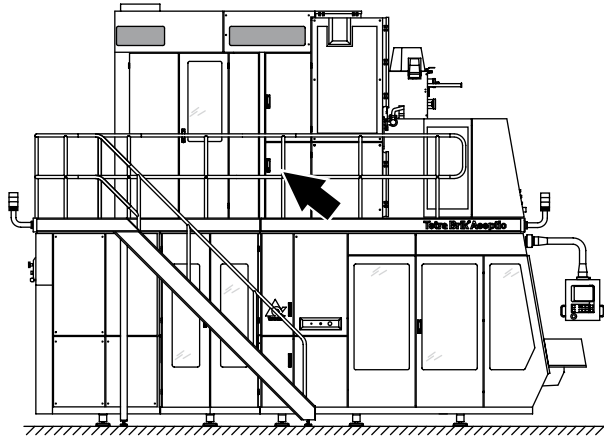
**Note!**

If an alarm is present, take the appropriate measures or call a technician.



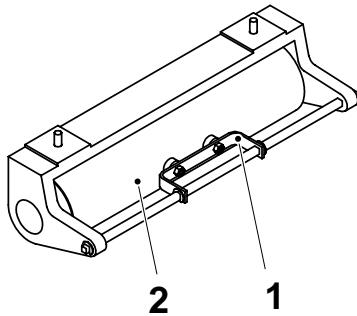
**12**

Open the ASSU door and check that the LS strip is positioned correctly on the packaging material.

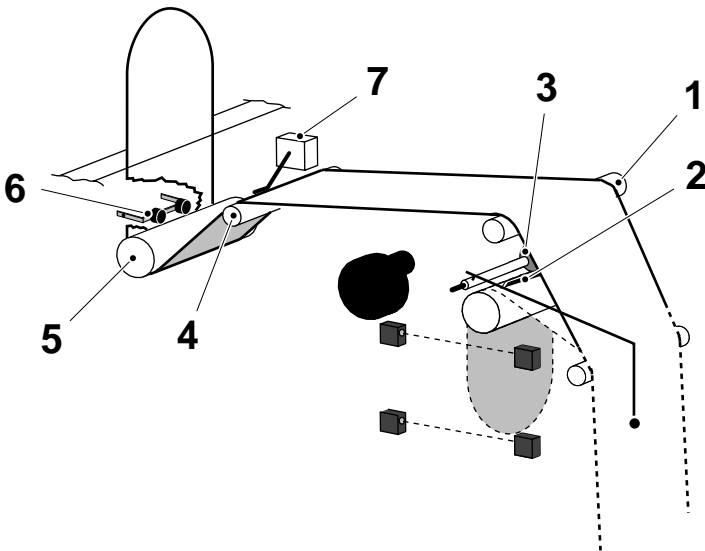


## 13

Ensure that the material lock (1) is resting against the bending roller (2).



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## 14

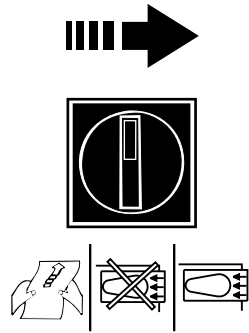
### Production without PullTab

Pull back all the material from under counter roller (3) and out of the paper guide (2).

Continue feeding the packaging material

- over the bypass roller (1),
- over the bypass roller (4),
- under the bypass sensor (7), and
- under the roller (5).

Feed approximately one metre of packaging material up through the platform floor and lock by means of the material lock (6).



## 14a

On the PullTab panel, turn the selector switch to the vertical position (**Production without PullTab**).

Close the PullTab doors.

Go directly to item 16 on page 93.

## 15

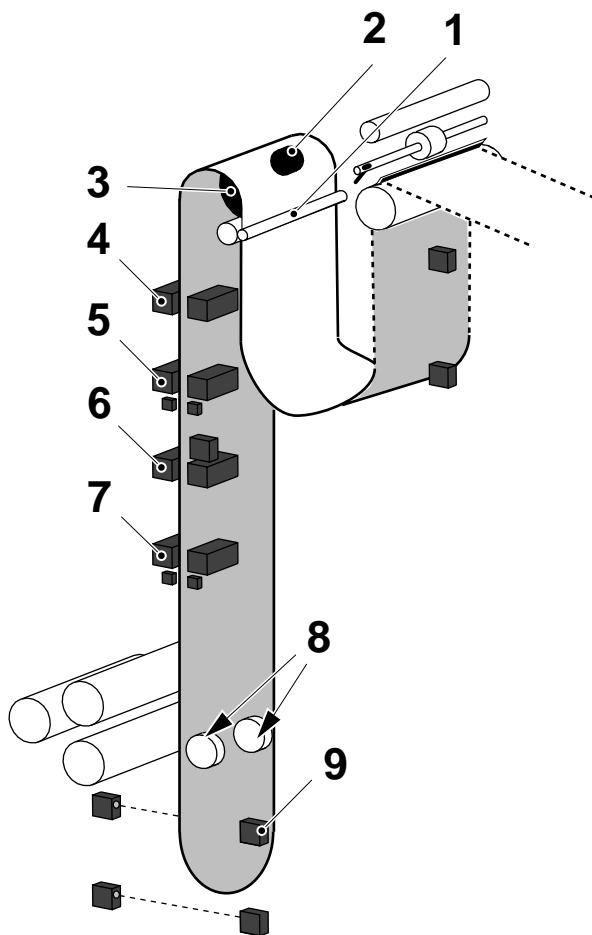
### Production with PullTab

Continue feeding the packaging material

- through steering roller (1),
- under counter roller (2),
- up over paper brake roller (3),
- through the hole punch unit (4),
- through the IS patch station (5),
- through the reseal station (6), and
- through the tab station (7).

Lock the material under the counter roller of the drive roller (8).

Check that the packaging material covers only the first pair of photocells (9).



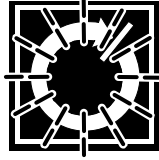
- 1 Steering roller
- 2 Counter roller
- 3 Paper brake roller
- 4 Hole punch unit
- 5 IS patch station
- 6 Reseal station
- 7 Tab station
- 8 Counter roller
- 9 Photocell

## 15a

Close the PullTab door.

When the **Single cycle** button starts flashing, press it.

The machine feeds sufficient paper to fill the outfeed magazine.



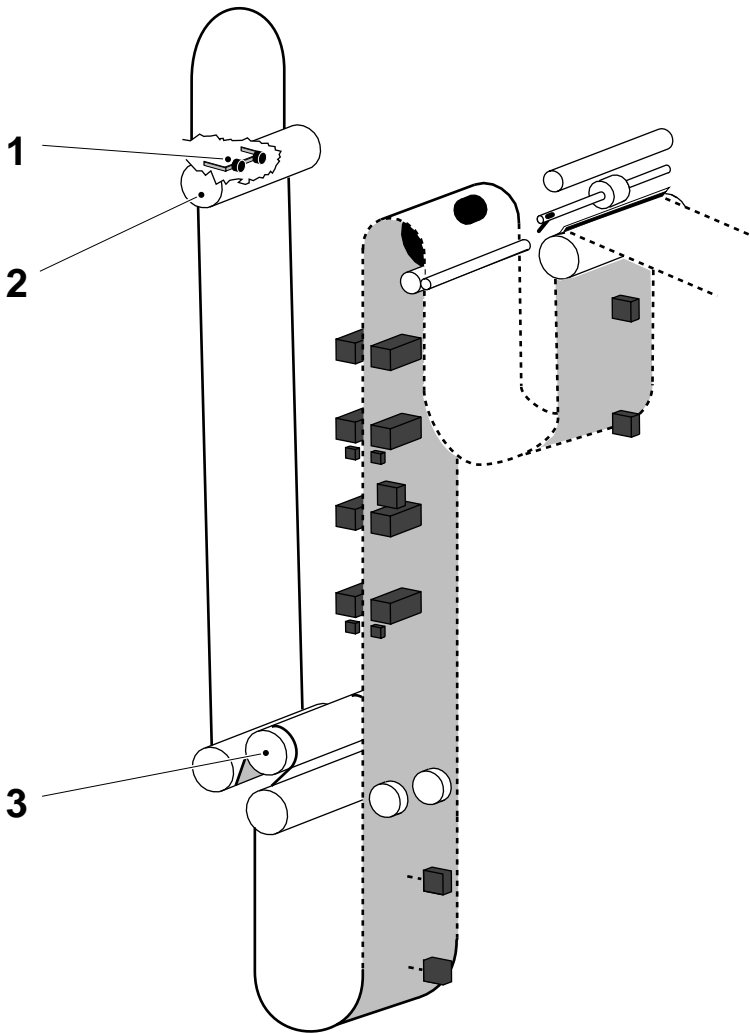
## 15b

Continue feeding the packaging material

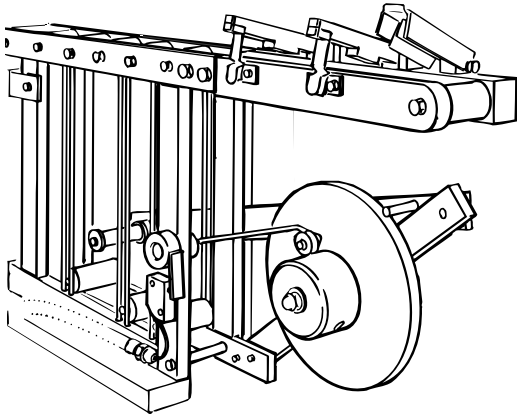
- through the roller assembly (3),
- up behind the roller (2), and
- up through the platform floor, feeding through approximately one metre of material.

Lock the packaging material by means of the material lock (1).

Close the PullTab door.



- 1 Material lock
- 2 Roller
- 3 Roller assembly



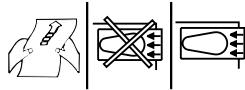
## 15c

Prepare both the patch magazine and tab magazine. See the *Strip supply* section.

## 15d

On the PullTab panel, turn the selector switch to the RH position (**Production with PullTab**).

Close the PullTab doors.



## 16

### Threading up to hydrogen peroxide bath

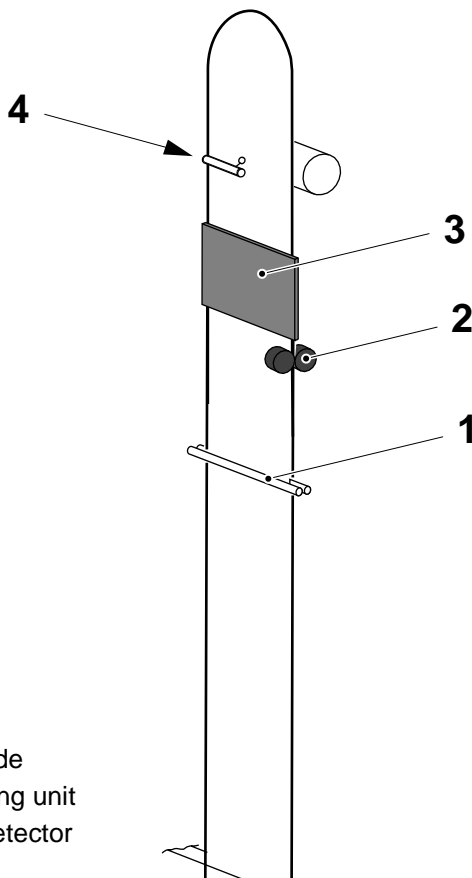
Grip the packaging material from behind the pneumatic panel (superstructure) and pull it upward.

#### Note!

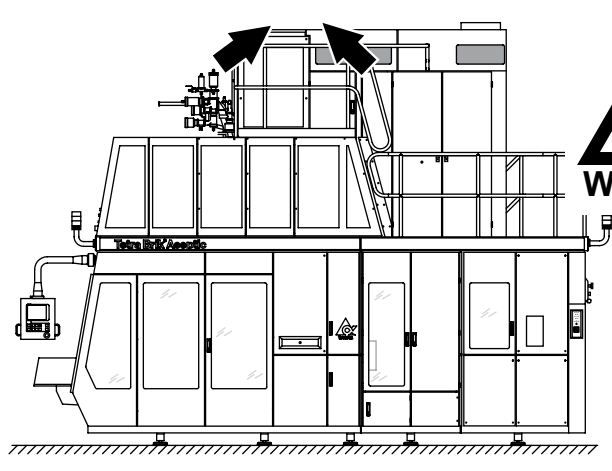
The PullTab will not operate until the tab sealing temperature is reached.

Continue feeding the packaging material

- through the shaft (1),
- through the web guide (2)
- through the tab folding unit (3), and
- under the splice detector (4)

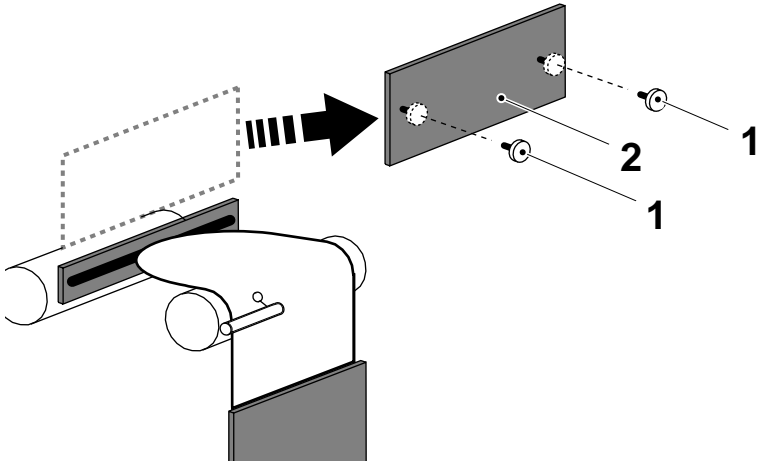


- 1 Shaft
- 2 Web guide
- 3 Tab folding unit
- 4 Splice detector

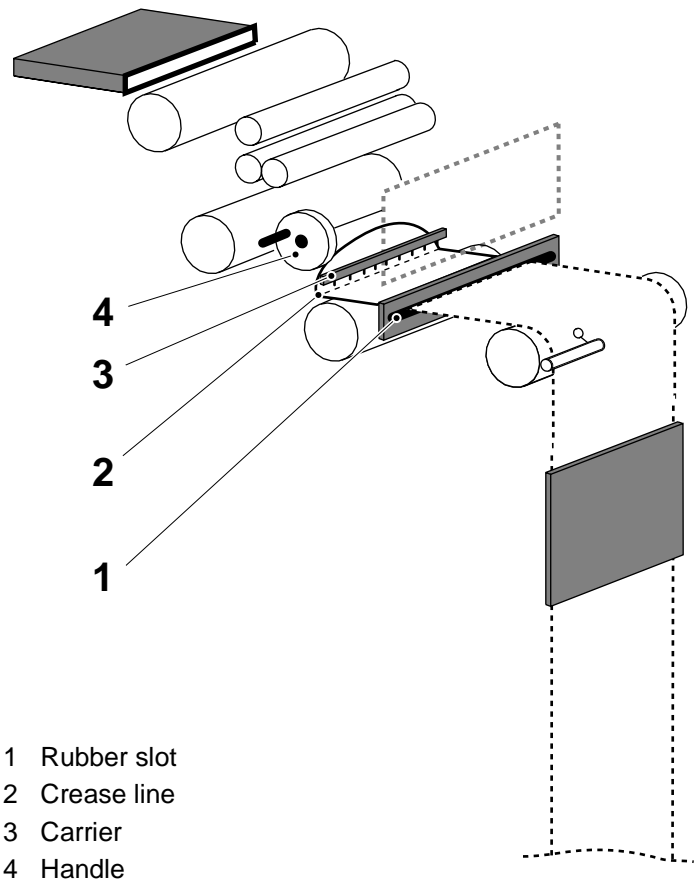


**17**  
**Threading through hydrogen peroxide bath**  
**Hydrogen peroxide!**  
 Follow the *Safety precautions*.

Open the top cover and the top aseptic chamber door.



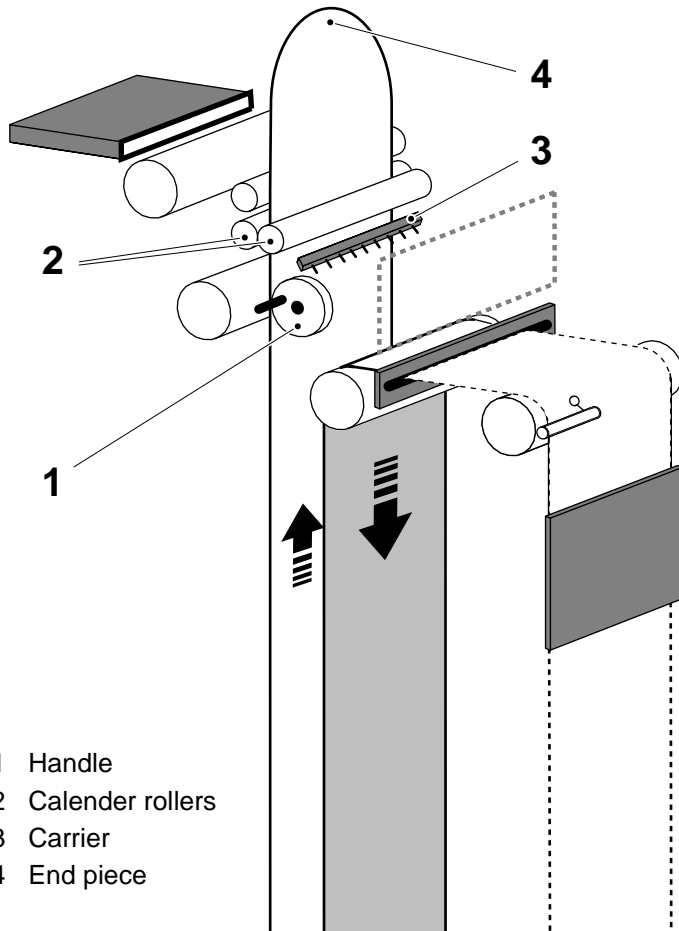
**17a**  
 Loosen the knobs (1) at the same time and remove the hatch (2) of the carrier compartment.



- 1 Rubber slot
- 2 Crease line
- 3 Carrier
- 4 Handle

**17b**  
 Continue feeding the packaging material through the rubber slot (1).  
 Fold the packaging material up along a crease line (2).  
 Crank the handle (4) fully anti-clockwise until the carrier (3) is above the crease line (2).  
 Press the pins of the carrier (3) through the material.

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- 1 Handle
- 2 Calender rollers
- 3 Carrier
- 4 End piece

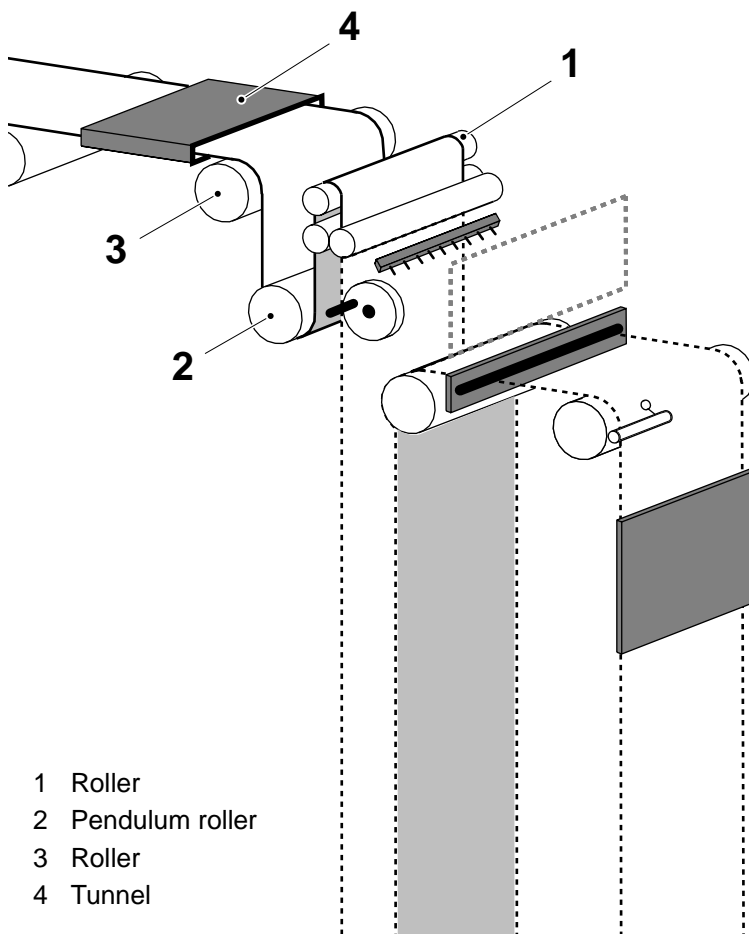
## 17c

Crank the handle (1) to pull the packaging material through the peroxide bath and up through the calender rollers (2).

Remove the packaging material from the carrier (3).

Pull up approximately one and half metres of packaging material and reshape the end piece (4).

2.2TB065254en.fm



- 1 Roller
- 2 Pendulum roller
- 3 Roller
- 4 Tunnel

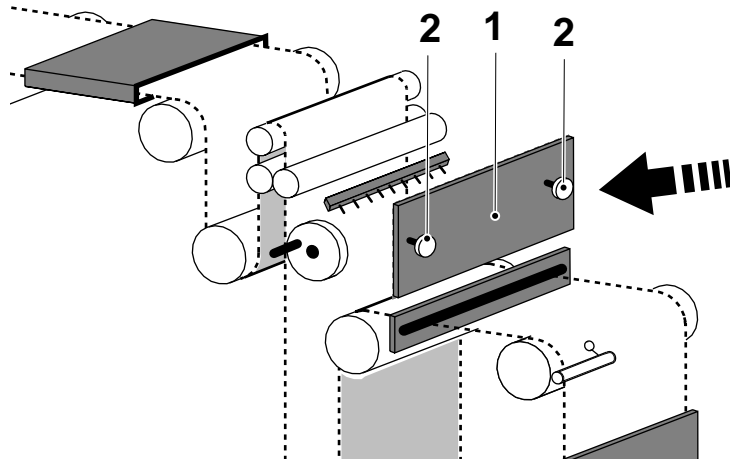
## 17d

Continue feeding the packaging material

- over the roller (1),
- down under the pendulum roller (2),
- up over the roller (3), and
- through the tunnel (4) and into the aseptic chamber.

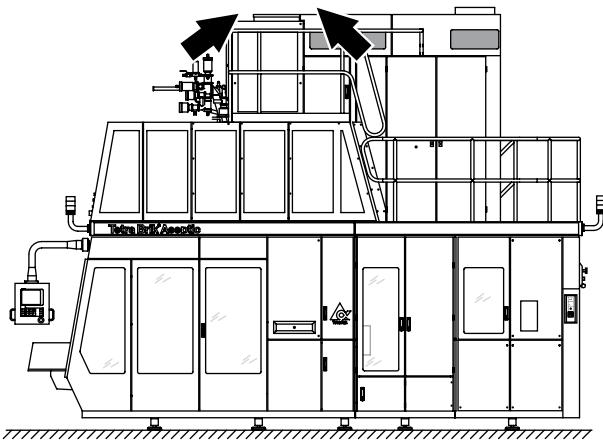
Feed approximately one metre of packaging material into the aseptic chamber.

# Preparation after weekly care



## 17e

Put back the hatch (1) on the carrier compartment and tighten the knobs (2).

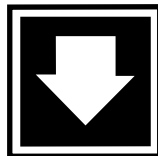


## 17f

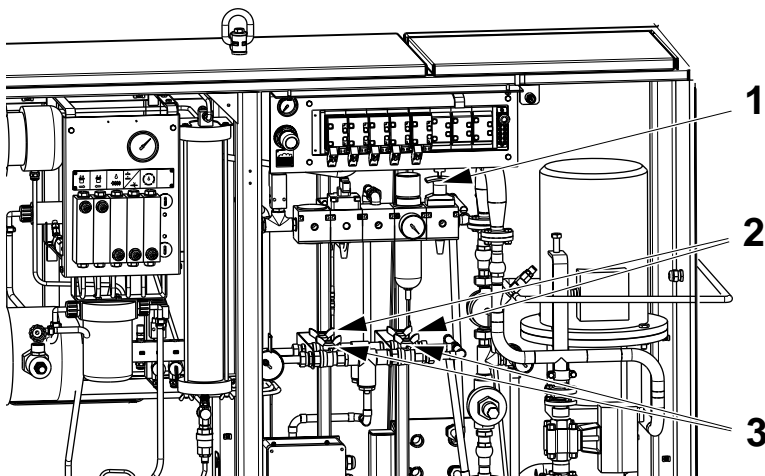
Close the top aseptic chamber door and the top cover.

## 18

Press the **Program down** button to step down to **Step Zero**.



2.2TB065254en.fm



## 19

If production is scheduled, continue according to the *Preparation after daily care* section.

Otherwise,

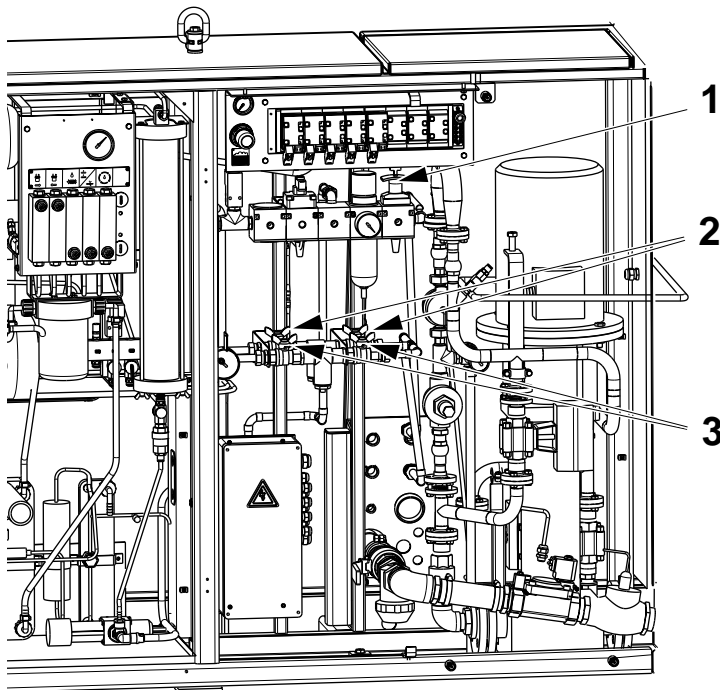
- Turn **Off** the air supply (1)
- Turn **Off** the cooling water (2) or (3), depending on which filter is in use.

# Preparation after daily care

## Caution!

Do not use chlorine-based or iodine-based cleaning compounds when cleaning parts which may come into contact with hydrogen peroxide.

This section describes how to prepare the machine when **Daily care** or **Preparation after weekly care** has been performed.



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## 1

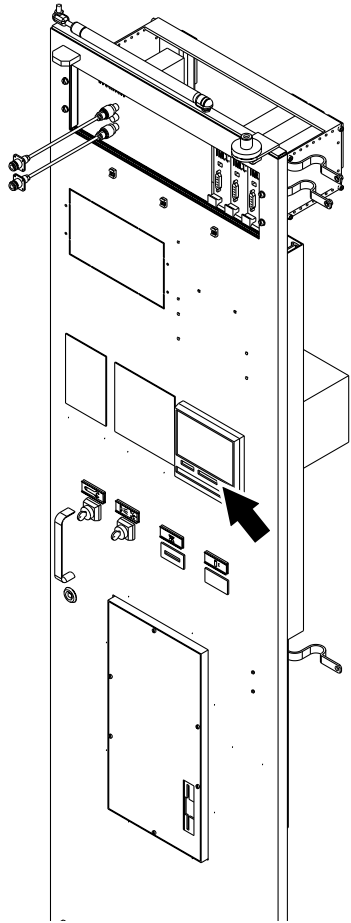
If preparation after weekly care has just been carried out, continue with item 2.

Otherwise,

- Turn **On** the air supply (1),
- Turn **On** the cooling water supply (2) or (3) depending on which filter is in use.

## Note!

Do not crank the jaw system while the air is off.



## 2

### Recorders

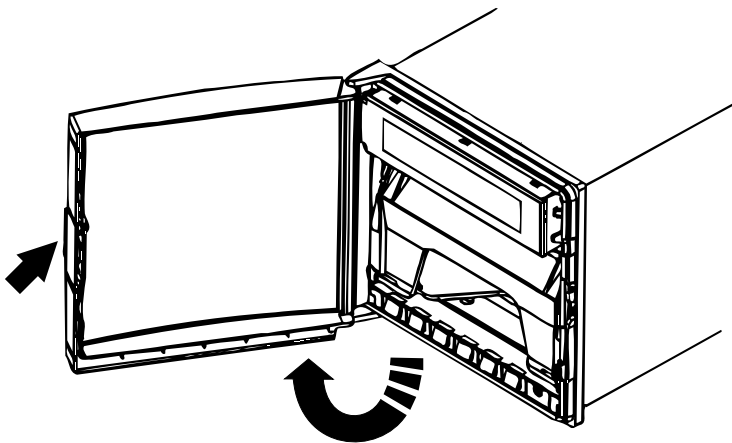
Make sure that there is enough chart paper in the process recorder (for at least one day of production) and in the cleaning recorder. If required, load the recorder with new paper, see item 5.

Check that both recorders print properly. If required, change the ink wheel, see item 6.

For the process recorder, every time the machine is started for **Production**, it is suggested to input the following on the dotted lines provided:

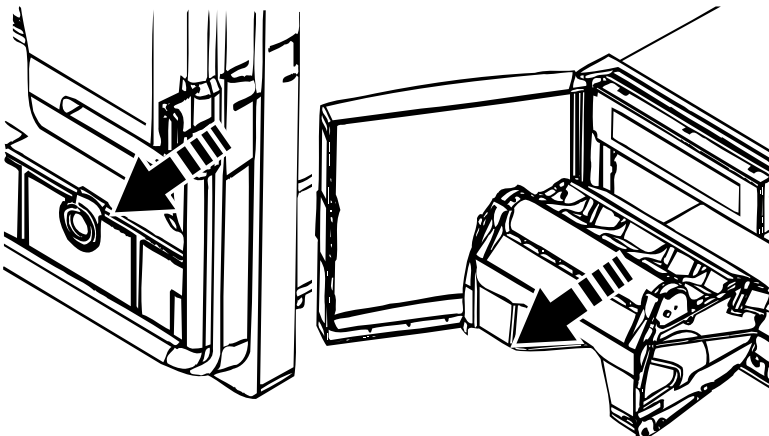
- Machine serial number
- Machine type

See the Honeywell manual for details.



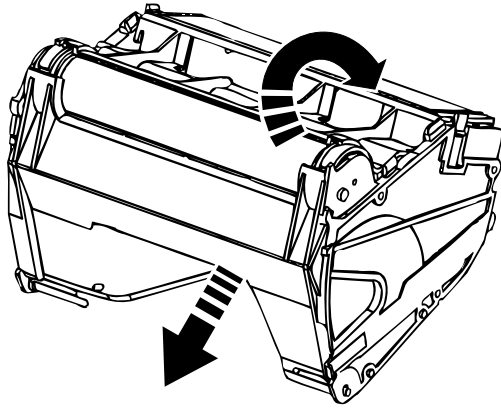
## 3

Pull down the button and open the front cover.



## 4

Pull the pin and pull out the chart cassette.



## 5

### Chart paper load

Open the chart cassette and remove the old chart.

If required, clean the cassette with a damp cotton cloth.

**Note!**

See the *Technical data* section for the correct fanfold type.



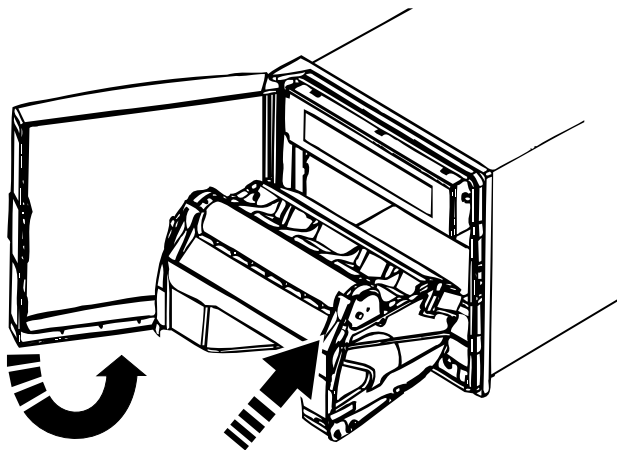
## 5a

Place the fanfold chart in the upper compartment (1) with the folds in the vertical plane.

The slots of the fanfold must be on the RH side, and the graph side on the top.

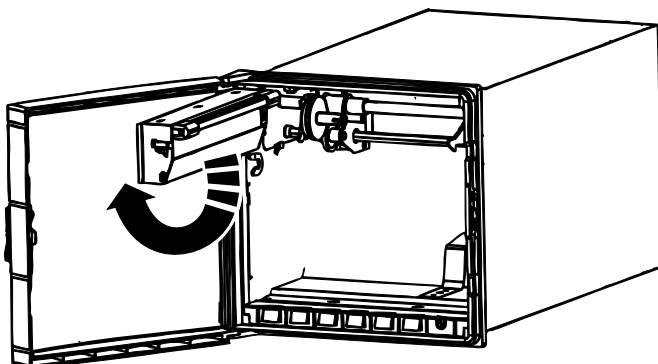
Pull four folds into the compartment (2) and close the covers of the chart cassette.

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## 5b

Insert the chart cassette and close the cover.



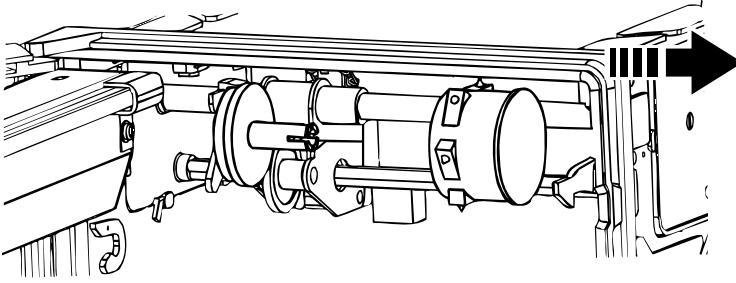
## 6

### Ink wheel change

Open the display.

## 6a

Pull off the old ink wheel.

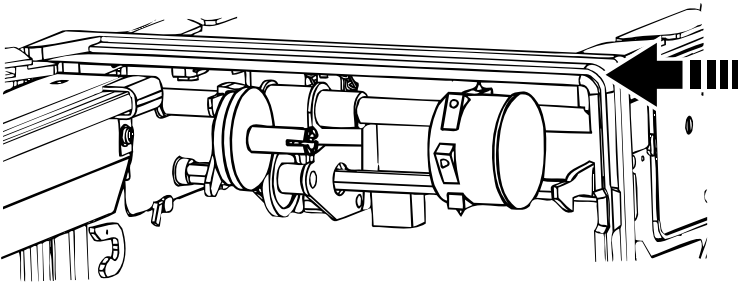


## 6b

Fit the new ink wheel. Rotate it anti-clockwise until the ratchet engages.

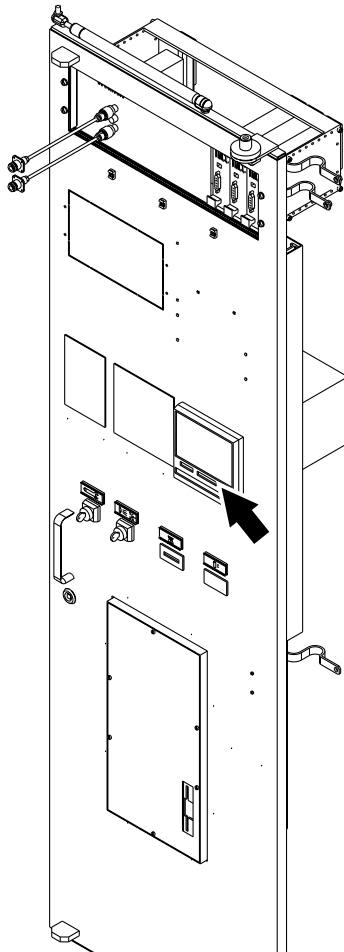
### Note!

See the *Technical data* section for the correct ink wheel type.



## 6c

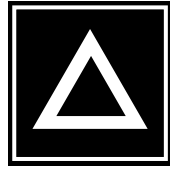
Close the display, insert the chart cassette and close the front cover.



## 7

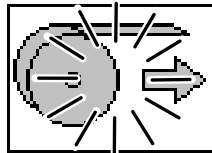
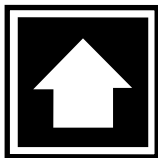
Close all covers and doors on the machine and reset the alarms on the TPOP display.

If an alarm is present, take the appropriate measures or call a technician.



## 8

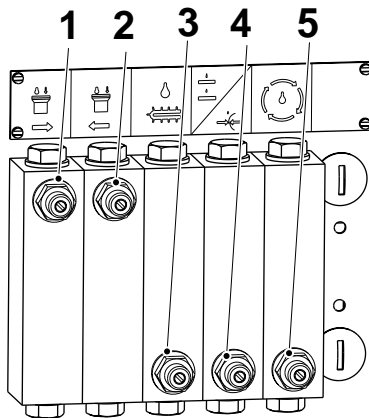
Press the **Program up** button to step up to step **Preparation**.



## 9

Check that there is correct flow in the cooling circuits. See the *Technical data* section.

Call a technician for adjustments.



- 1 Cold water flow, TS right
- 2 Cold water flow, TS left
- 3 Cold water flow, final folder
- 4 Cold water flow, hydraulics
- 5 De-ionizing circuit

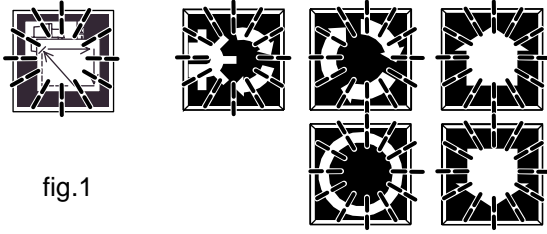


fig.1

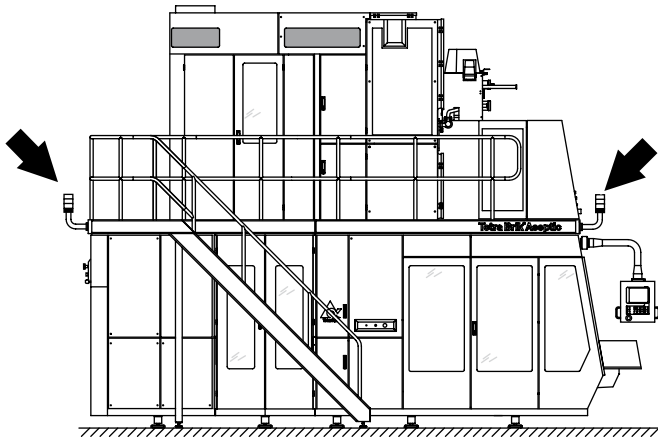
## 10

Press the **Lamp test button**.

Check that the buttons on the control panel are lit (see fig. 1).

Check that the alarm beacons (shown by the arrows) are lit.

Call a technician to replace any faulty lamp before production starts.

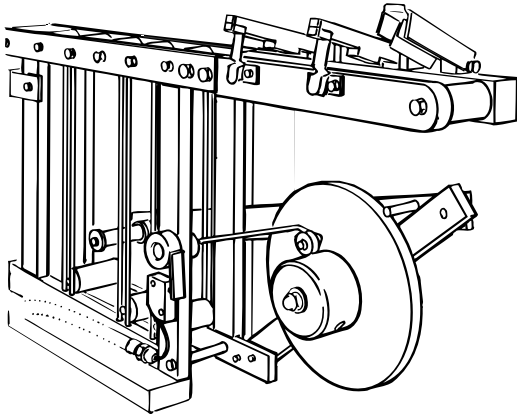


## 11

Check that the strip applicator is prepared for production. See the *Strip supply* section.

### Note!

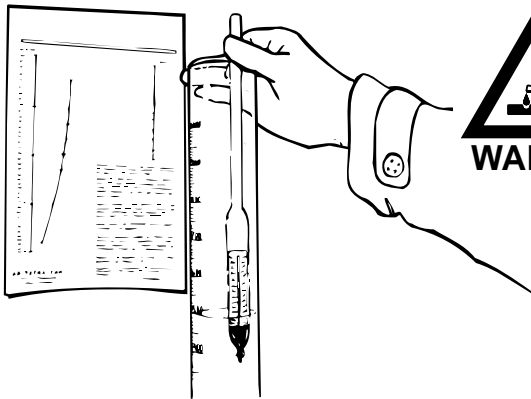
There must be enough strip available in the strip reel for the packaging material threading to be done without any strip splice.



**12**

## Production with PullTab.

Check that the patch magazine and the tab magazine are prepared for production. See the *Strip supply* section.

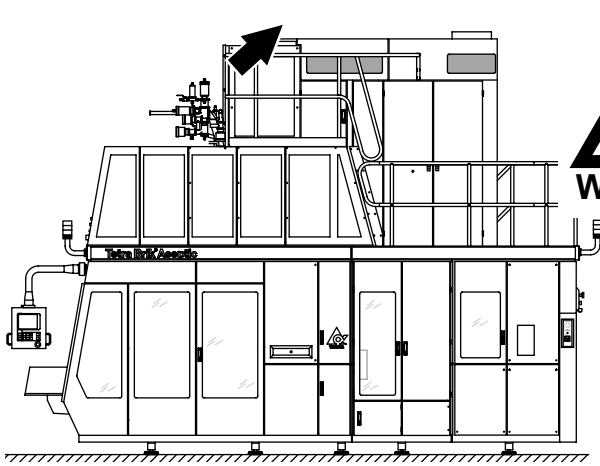


**13**

## Hydrogen peroxide!

Follow the *Safety precautions*.

Check the peroxide concentration. See the *Sterilisation liquid* section.



**14**

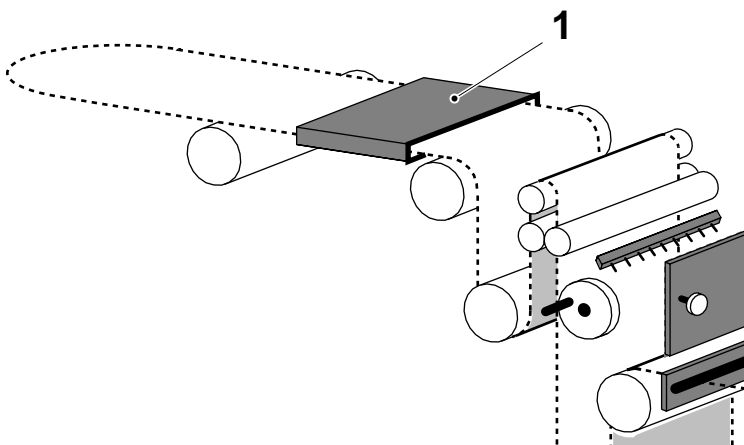
## Note!

If *Preparation after weekly care* has been carried out, continue with item 17.

## Hydrogen peroxide!

Follow the *Safety precautions*.

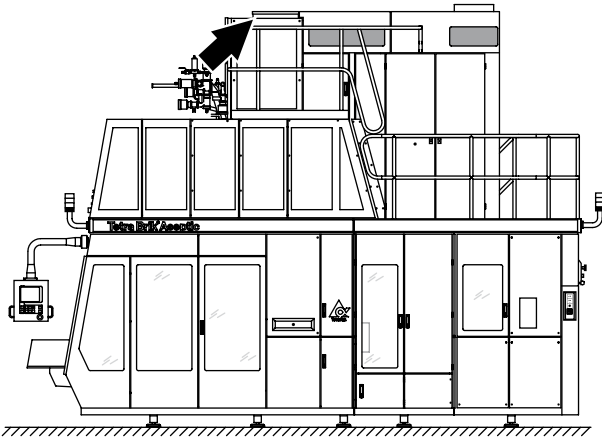
Open the top aseptic chamber door.



**15**

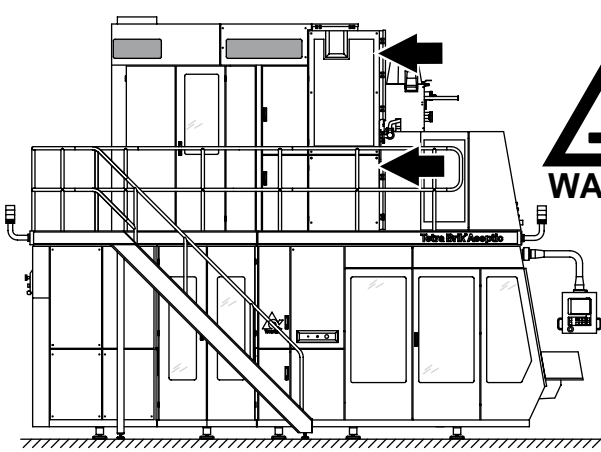
Shape the packaging material end as shown.

Feed the material through the tunnel (1) and into the aseptic chamber, feed through approximately one metre of material.



**16**

Close the top aseptic chamber door.



**17**

**Hydrogen peroxide!**

Follow the *Safety precautions*.

Open the upper aseptic chamber door and the lower aseptic chamber door.



**18**

**Risk of serious production fault!**

Take care to remove all visible product residues from the pipe. Sterilisation is effective on clean surfaces but may not be effective on product residues.



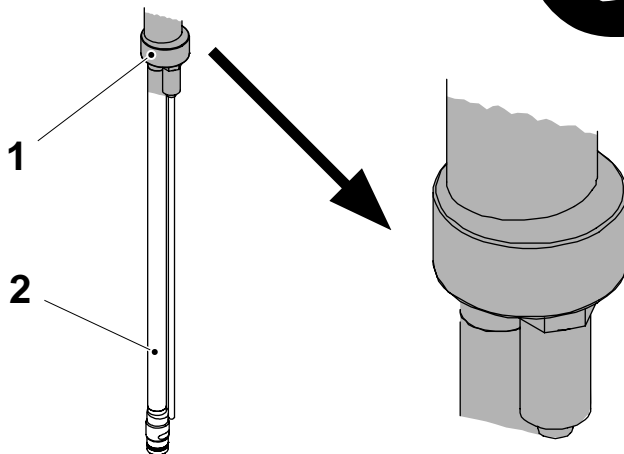
Wipe off any product residues on the cleaning sleeve flange (1) and the lower part of the filling pipe (2) with a sponge.

Use water and cleaning compound code D. See *Technical data* section.

Rinse with drinking water.

Spray a small quantity of disinfectant code G3, on the filling pipe covering entirely the sleeve flange area (1), shown shaded in the picture.

See *Technical data* section.



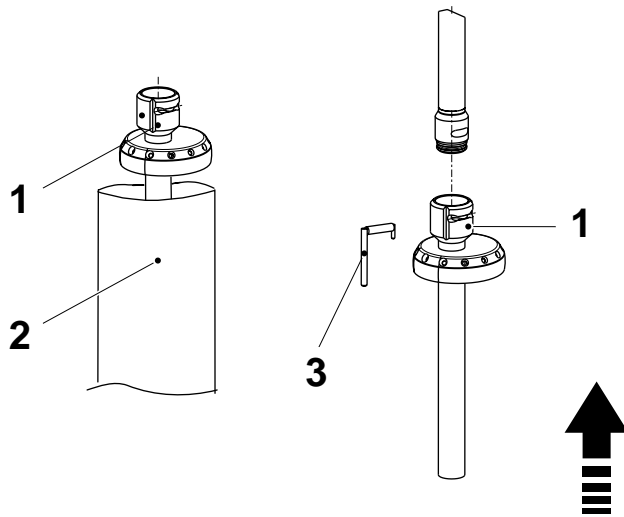


## 19

Take out the lower filling pipe (1) from the container (2). Fit the lower filling pipe by means of the pin (3).

### Caution!

Do not rinse with water. Allow the lower filling pipe to drip dry.



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## 20

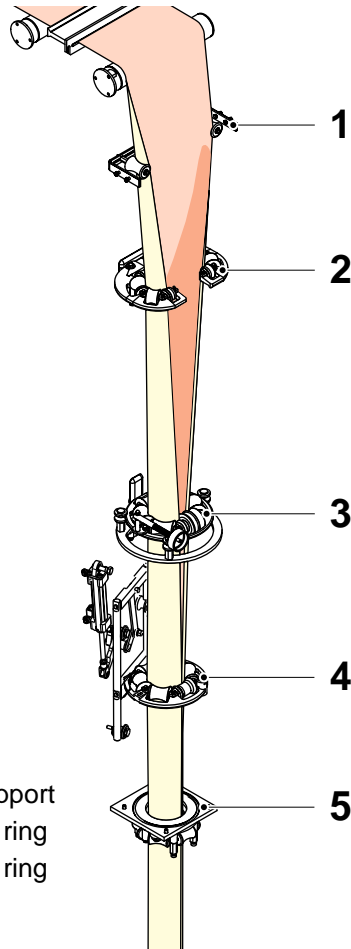
Pull down the packaging material through

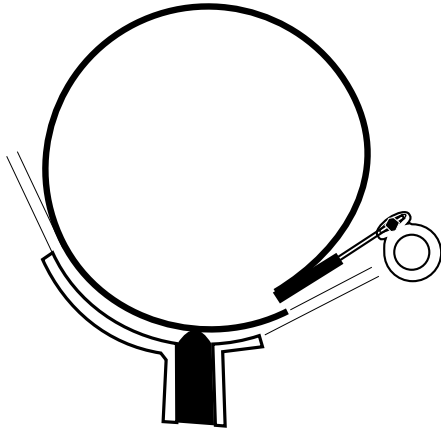
- the edge rollers (1),
- the upper tube support (2),
- the forming ring (3),
- the lower forming ring (4), and
- the seal (5).

Pull down the packaging material to the jaw system.

Check that the jaws grip the packaging material. If required pull down more packaging material.

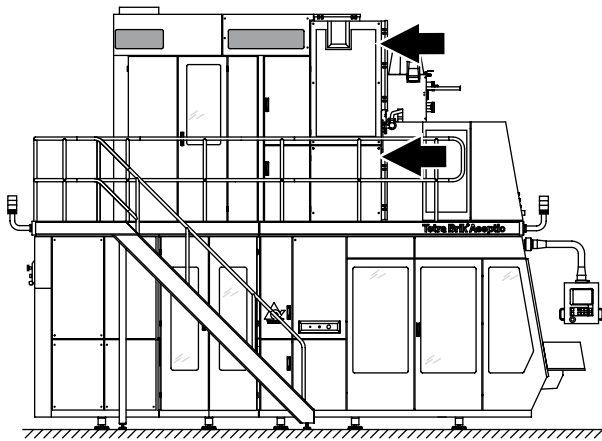
- 1 Edge rollers
- 2 Upper tube support
- 3 Upper forming ring
- 4 Lower forming ring
- 5 Seal





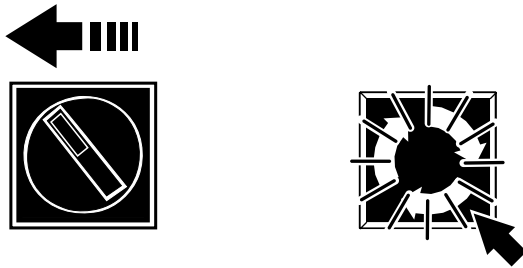
## 21

Check that the packaging material is correctly positioned, as shown, on each side of the LS inductor roller.



## 22

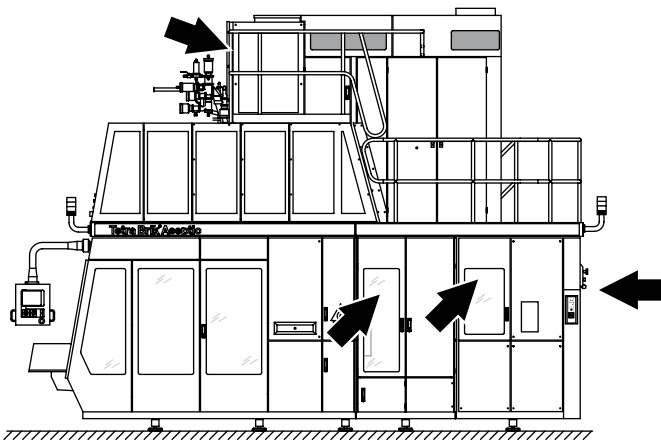
Close the upper aseptic chamber door and the lower aseptic chamber door.



## 23

On the control panel, turn the **Selector** switch to the LH position (slow inching).

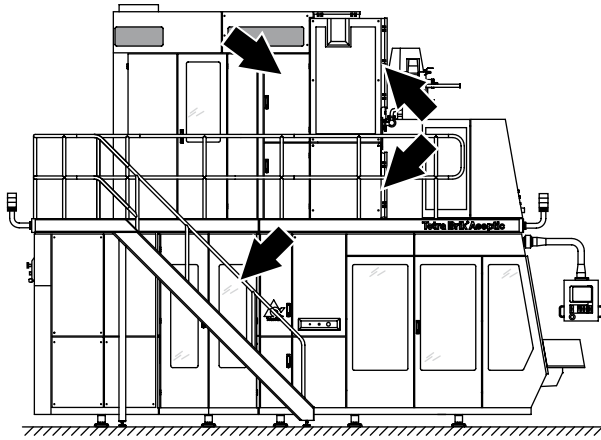
Press the **Inch** button to thread the packaging material through the machine.



## 24

Check the position of the packaging material at the areas shown (arrows).

Correct the position if required.



## 24a

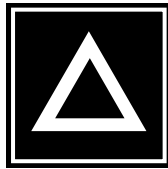
Check the position of the packaging material at the areas shown (arrows).

Correct the position if required.

## 25

Close all covers and doors on the machine and reset the alarms on the TPOP display.

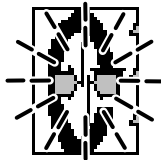
If an alarm is present, take the appropriate measures or call a technician.



## 26

When the **Tight tube** symbol and the **Program up** button start to flash, press the **Program up** button until the motor starts.

A warning signal sounds and the machine inches forward without stopping until the material tube is sealed with the LS strip.

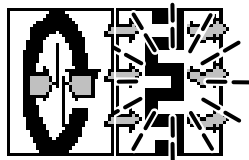


## 27

### LS, Patch and Tab strip

Pick out the last package inched out from the machine. Check according to the *Package checks* section, that:

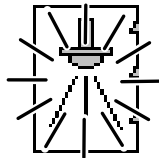
- the LS strip is correctly positioned and properly sealed
- the patch (strip) is correctly positioned and properly sealed
- the tab (strip) is correctly positioned and properly sealed.



## 28

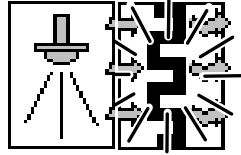
When the material tube has been sealed the **Heat sterilization** symbol and the **Program up** button begin to flash.

Press the **Program up** button and the **Heat sterilization** starts.



## 29

When the preheating temperature has been reached, the **Spraying** symbol is lit and the **Spraying** starts.



## 30

After the spraying sequence the **Drying** symbol remains lit and the drying sequence begins automatically.

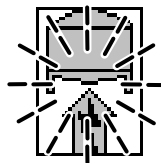
### Note!

If a small arrow appears on the screen the sterilization has failed. The machine program will then automatically step down to **Step Zero** when the drying time is finished.

The drying sequence takes 15 minutes. A clock symbol will show the remaining time.

### Note!

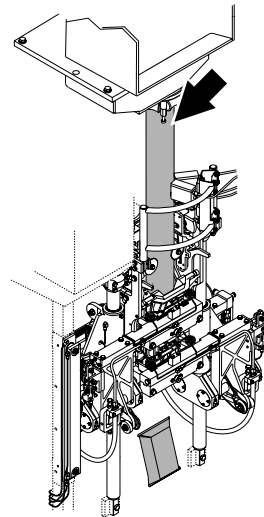
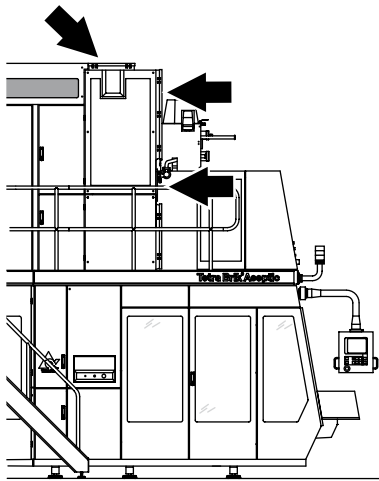
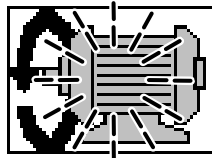
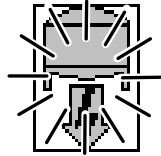
After the step **Drying** and up to step **Production Ended**, the program steps **Venting, Aseptic Chamber Doors, Aseptic Chamber** are executed automatically when the machine program is step down.



## 31

When the drying sequence is over, the **Signal to sterilizer** symbol and the **Program up** button begin to flash.

Press the **Program up** button. The symbol **Signal to sterilizer** remains lit. (Where there is a connection between the filling machine and the sterilizer, a request for the product is sent to the dairy).



## 32

Production can start when the **Motor start** symbol and **Program up** button begin to flash.

### Caution!

If during stops or production the aseptic chamber doors are open, or the tube opens or bursts the machine must be cleaned and sterilized before production restart.



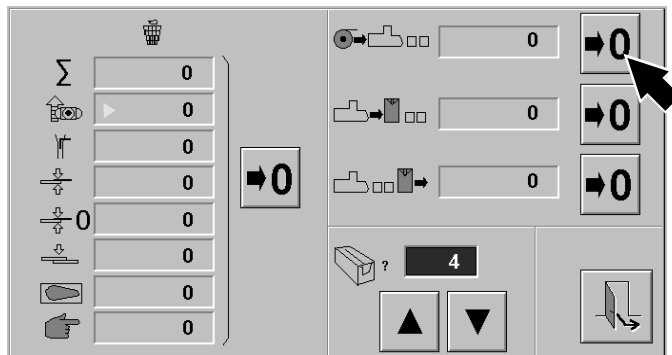
## 33

Proceed according to the *Start* section.

### Note!

If the package counter is being used, set it to zero:

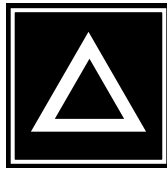
- In the main TPOP window, touch the **Manoeuvre system** button.
- Touch the **Package counter** button.
- Touch the **Reset** button to reset the counter.



# Start

This section describes how to start the machine for production after Preparation after daily care.

Start after stop, see the Stop section.

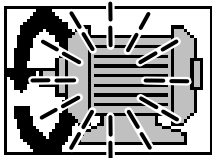


## 1

Close all covers and doors on the machine and reset the alarms on the TPOP display.

If an alarm is present, take the appropriate measures or call a technician.

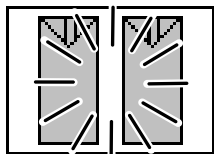
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## 2

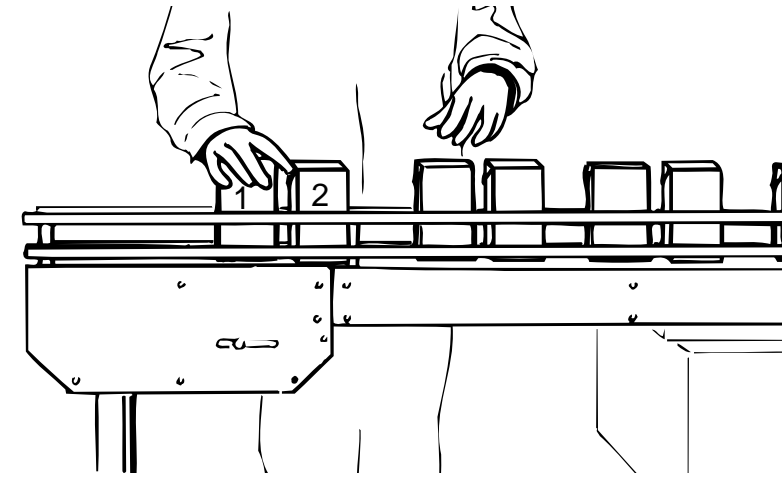
The machine is ready to start when the **Motor start** symbol is flashing.

Press the **Program up** button; keep it pressed until the **Motor start** symbol remains lit and the warning signal stops.



## 3

When the printed design on the tube is in the correct position, the **Production** symbol lights up and the machine automatically lets the packages through the final folder.



**4**

Follow the first packages through the final folder and remove the first two packages discharged from the machine.

**5**

Carry out the destructive checks. See the *Package checks* section.



**Note!**

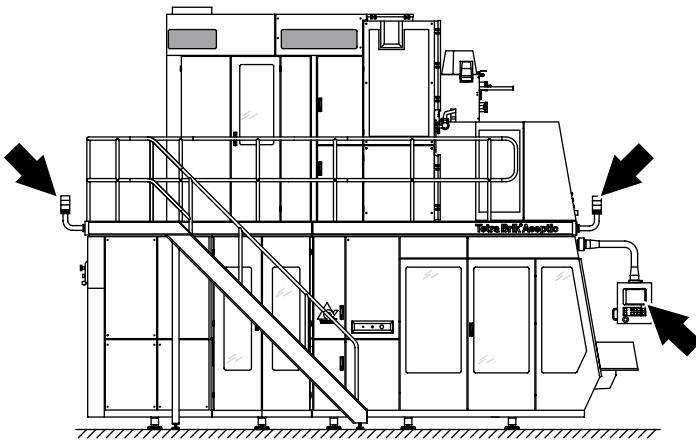
Remember to register the number of packages taken for destructive checks. See the *TPOP Display* section.

# Production checks

## Caution!

Do not leave the machine unattended during **Production**.

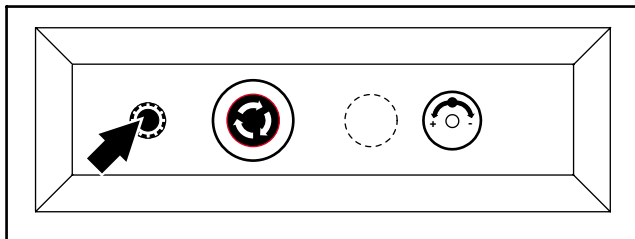
This section describes the checks to perform when the machine is in step **Production**.



## 1

Monitor the warning lights. When they are flashing, check the TPOP display and take the required actions.

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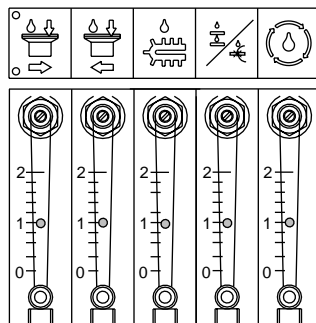
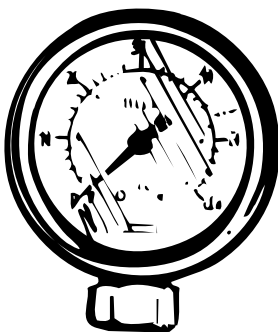
## 2

Check that the tube flushing flow is normal.

### Note!

High flushing flow may cause reading errors by the photocells. Low flow may cause forming problems.

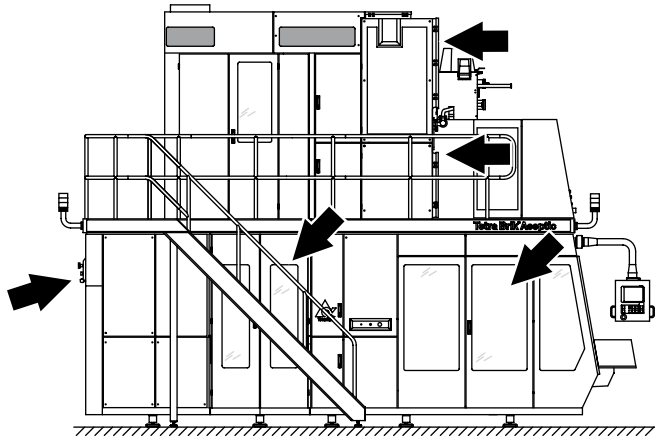
Adjust with the knob (See arrow).



## 3

Check that all pressure gauges and flow meters indicate the correct settings.

See the *Technical data* section for correct settings.



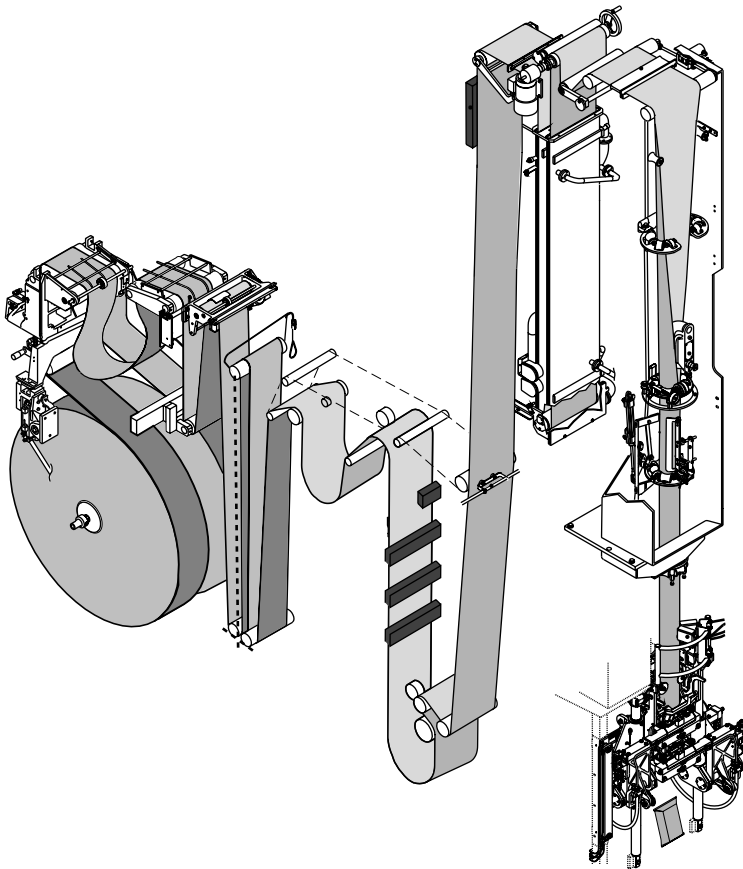
## 4

Check that the packaging material moves through the machine properly.

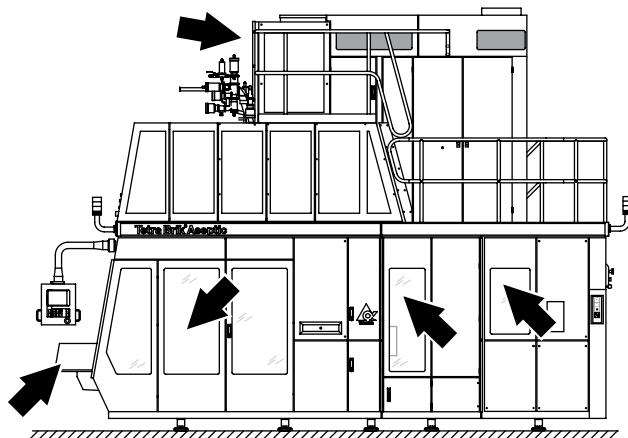
Check that all the strips supply function correctly.

Check that the packages move through the jaw system, final folder area and outfeed correctly.

Refer to the threading diagram and make checks at the positions shown by the arrows:

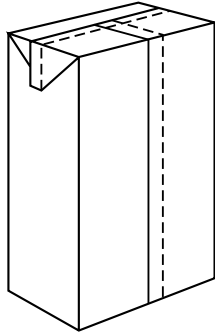


- in the ASU
- in the LH PullTab side
- in the LH side of the jaw system and final folder area
- in the aseptic chamber
- in the ASSU
- in the RH PullTab side
- in the RH side of the jaw system and final folder area
- in the outfeed



## 5

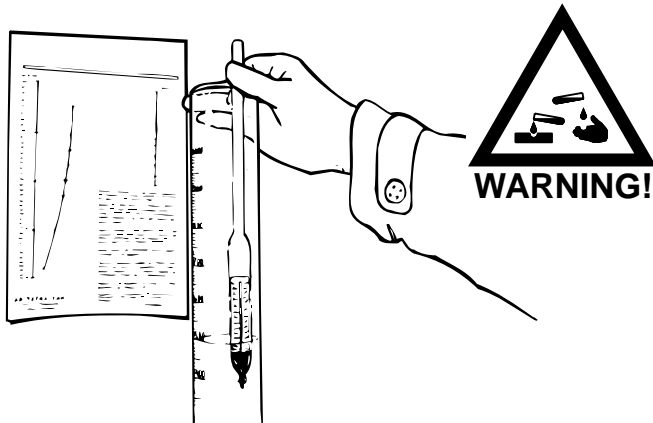
Check the forming and shape of the packages. See the *Package checks* section.



## 6

**Hydrogen peroxide!**  
Follow the *Safety precautions*.

Check the hydrogen peroxide concentration **at least** every eight hours of operation. See the *Sterilisation liquid* section.

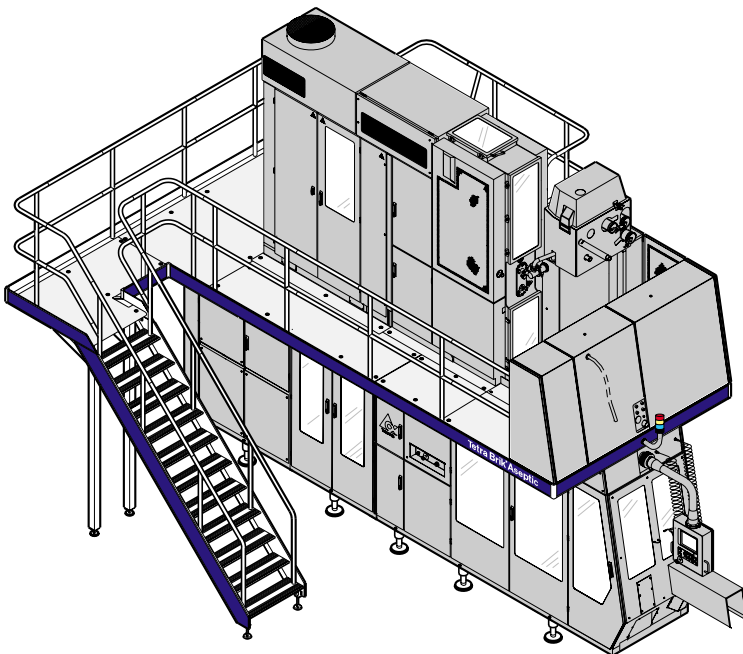


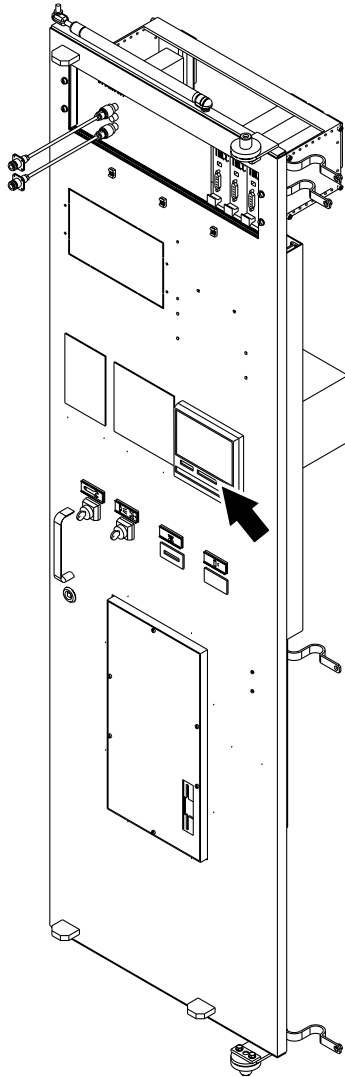
## 7

Check that all doors are closed. The doors of the electrical cabinet must be closed to ensure sufficient cooling.

Check that all safety covers and guards are fitted.

Make sure the platform, the stairs, and the area around the machine are clean and free from loose objects.





## 8

Check that the process recorder prints properly on all of the channels. If not, call a technician.

Process recorder channels are as follows:

Ch	Colour	Function
DI 1	Purple	Sterile parameters
DI 2	Red	Operational parameters
DI 3	Green	Drive motor <b>On</b>
DI 4	Black	In production
AN 1	Blue	Temperature in peroxide bath
AN 2	Brown	Temperature in top aseptic chamber
AN 3	Black	Sterile air temperature

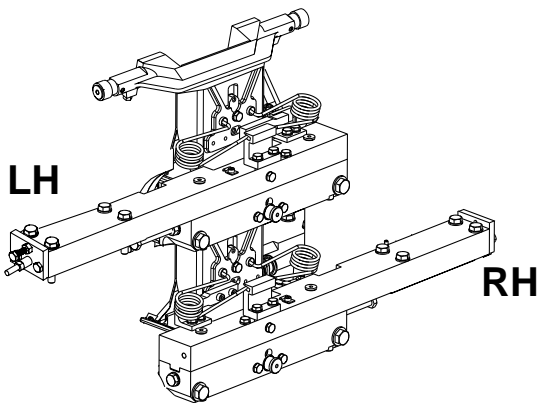
**Note!**

Use these checking methods as the minimum requirement. If there is any doubt about the integrity of the seals, pick out more packages for further checking. Whenever a fault cannot be eliminated, call a technician. Also pick out packages for laboratory tests.

# Package checks

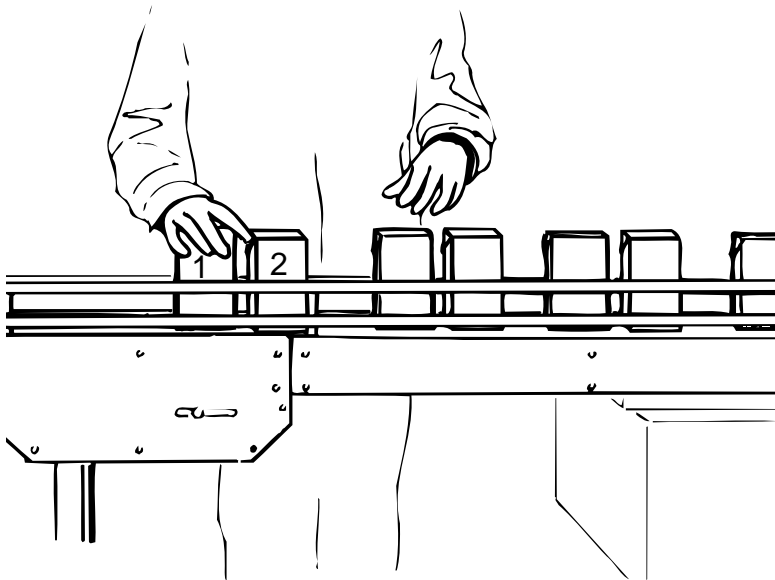
This section describes how to check packages for quality. The section is divided into the following topics:

- Package terms
- Checking intervals
- Non-destructive checks
- Destructive checks



When selecting packages for quality checks, always select packages in pairs.

- 1) When the jaw system is running, visually identify a package made in the RH jaw.
- 2) Visually follow this package as it moves through the infeed unit, the final folder, the discharger unit, and out of the machine.
- 3) Remove the package made in the RH jaw and one package either before or after it.
- 4) To prevent confusion, mark RH on the package made in the RH jaw. Mark LH on the other package.

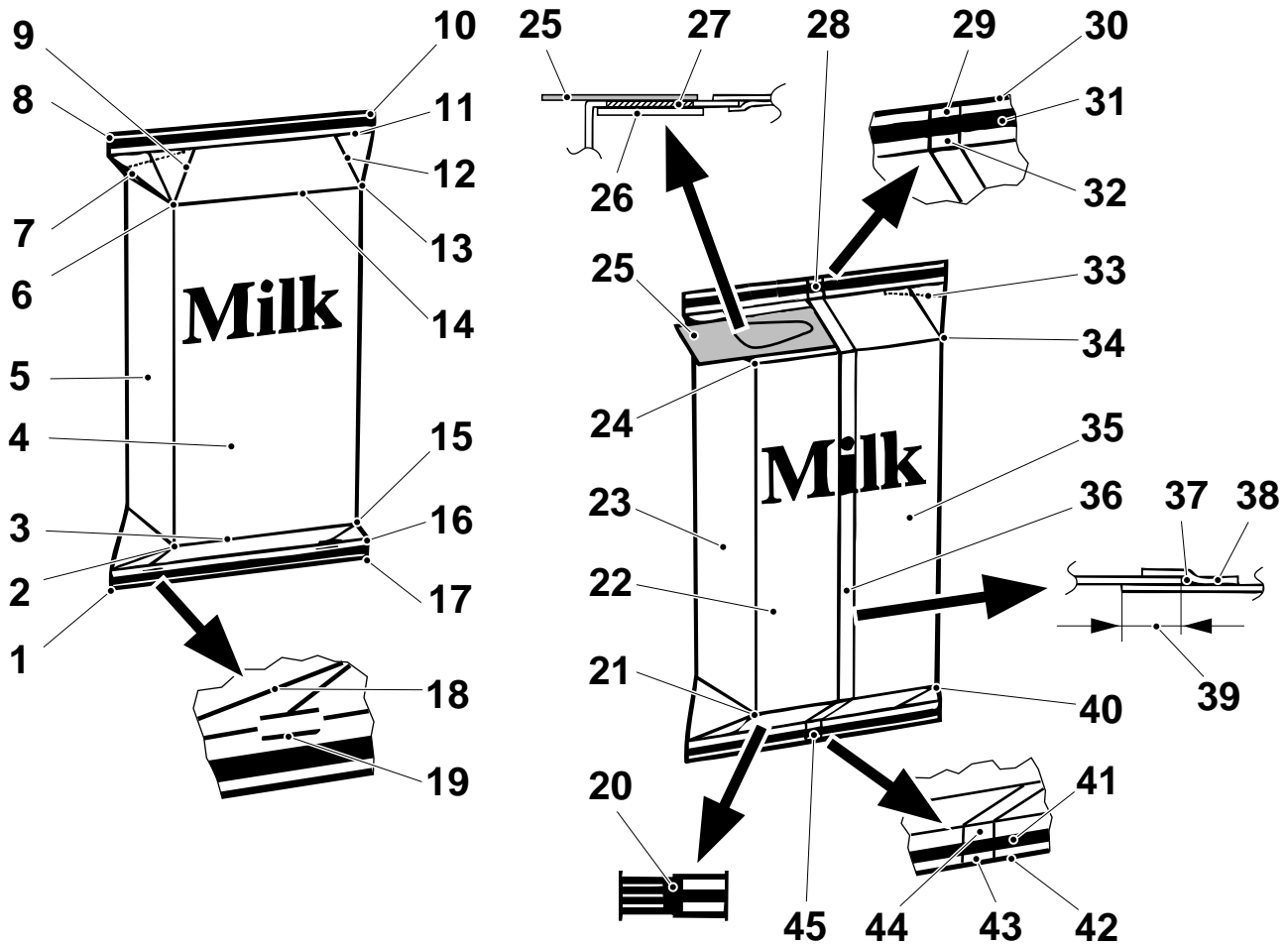


**Note!**

Remember to register in the TPOP the number of packages taken for destructive checks. See *Control Panel*.

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## Package terms



- |                                 |                                  |                                 |
|---------------------------------|----------------------------------|---------------------------------|
| 1 Bottom left fin corner        | 16 Bottom fin crease             | 31 Top transversal seal         |
| 2 Bottom front left corner      | 17 Bottom right fin corner       | 32 Top inner cross              |
| 3 Bottom crease                 | 18 Bottom flap crease            | 33 Perforation                  |
| 4 Front side of package/panel 3 | 19 Double creases                | 34 Top rear left corner         |
| 5 Left side of package/panel 2  | 20 Register code                 | 35 Rear side of package/panel 1 |
| 6 Top front left corner         | 21 Bottom rear right corner      | 36 Longitudinal seal (LS)       |
| 7 Top flap creases              | 22 Rear side of package/panel 5  | 37 Air gap                      |
| 8 Top left fin corner           | 23 Right side of package/panel 4 | 38 LS strip                     |
| 9 Spout crease                  | 24 Top rear right corner         | 39 LS overlap                   |
| 10 Top right fin corner         | 25 Tab (PT)                      | 40 Bottom rear left corner      |
| 11 Top fin crease               | 26 IS patch (PT)                 | 41 Bottom transversal seal      |
| 12 Longitudinal crease          | 27 Hole (PT)                     | 42 Bottom cutting line          |
| 13 Top front right corner       | 28 Top cross                     | 43 Bottom outer cross           |
| 14 Top crease                   | 29 Top outer cross               | 44 Bottom inner cross           |
| 15 Bottom front right corner    | 30 Top cutting line              | 45 Bottom cross                 |

## Checking intervals

For both destructive and non-destructive checks, select the first two consecutive packages.

Mark each package in order to identify which jaw pair made it.

































(To prevent confusion, mark RH on the package made in the RH jaw. Mark LH on the other package).

Also check the packages at intervals according to internal quality procedures. During **Production** the Start check should be repeated at intervals of maximum 30 min.

### Tools needed

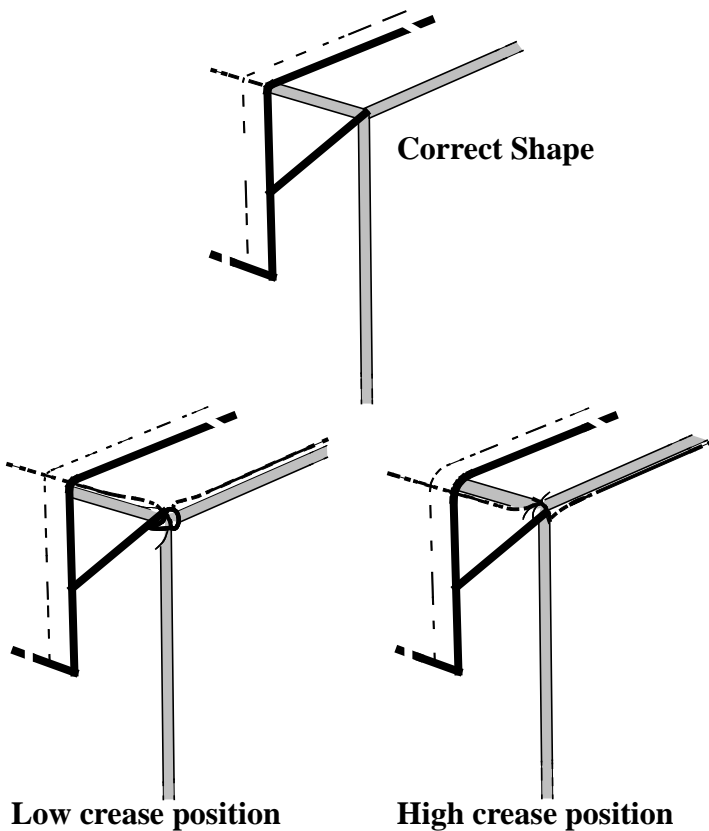
- Scissors.
- Red ink. See the *Technical data* section for the TP No.

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		Start	Packaging material splice	LS strip splice	IS strip splice	Tab strip splice
<b>Non destructive checks</b>	<b>1</b> Shape and top creases					
	<b>2</b> Printing					
	<b>3</b> Weight					
<b>Destructive checks</b>	<b>1</b> Flaps					
	<b>2</b> Crease lines					
	<b>3</b> Overlap					
	<b>4</b> Surfaces					
	<b>5</b> Hole (PT)					
	<b>6</b> Patch (PT)					
	<b>7</b> Tab (PT)					
	<b>8</b> TS					
	<b>9</b> LS					

## Non-destructive checks

Pick out and check packages according to *Checking intervals*.

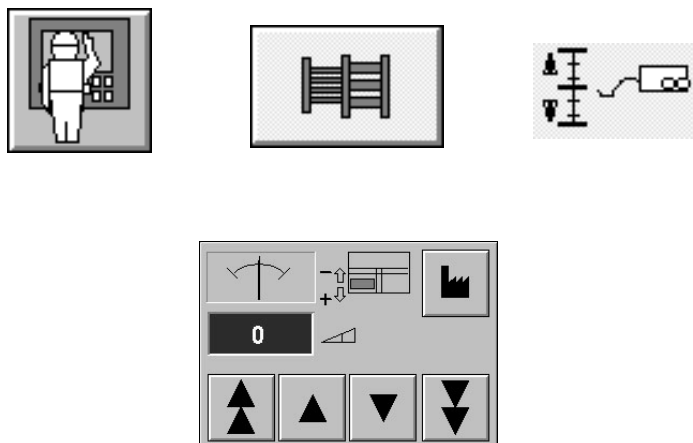


### 1

#### Shape and top creases

Check the shape of the packages.

Check that the preformed creases in the packaging material are correctly aligned along the top crease.



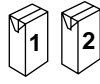
If the crease position is not correct, touch the **Manoeuvre system** button in the TPOP main window.

Touch the **Design correction** button.

Touch the **Design correction photocells** button.

Increase the value as required.

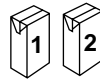
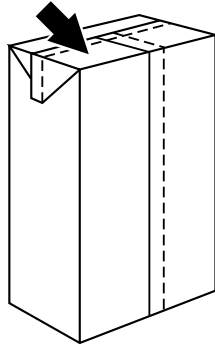
To move the crease in the opposite direction, decrease the value.



## 2

### Printing

Check the date printing and the coding.



## 3

### Weight

Weigh the packages.

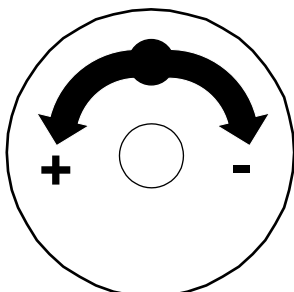
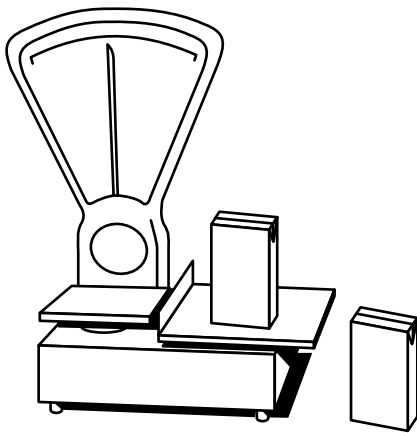
Record their weights and weight deviations.

To adjust the package weight, turn the knob on the process panel:

- **plus**, increases the package weight
- **minus**, decreases the package weight

This can be done during the step **Production**.

After setting, pick out new packages and check them.

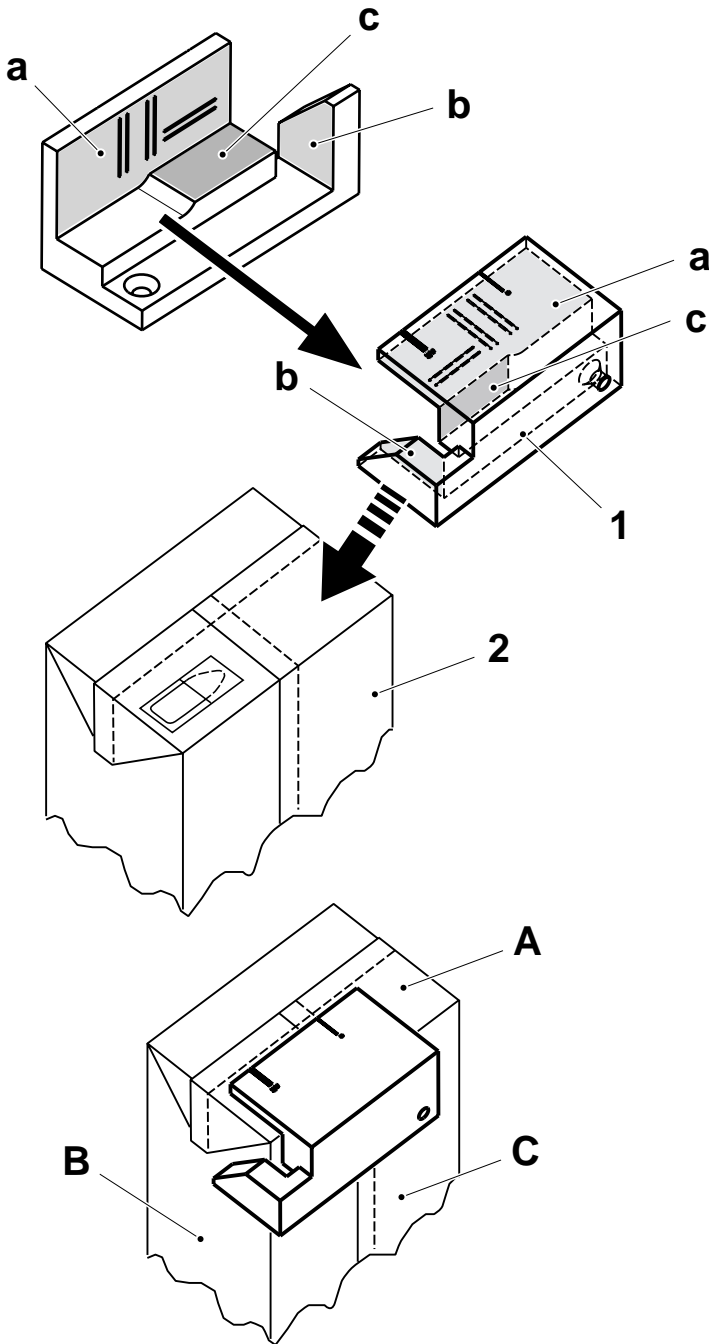


## 4

Only for volumes  
TBA 1000 B (Hole 85),  
TBA 1000 S (Hole 85),  
TBA 1000 Sq (Hole 85),  
TBA 1500 S (Hole 85) and  
TPA 1000 S (Hole 60)

### Tab position check

Place the template (1) above the package (2) so that the package surfaces (A), (B) and (C) are in contact with the inside surfaces (a), (b) and (c) of the template.

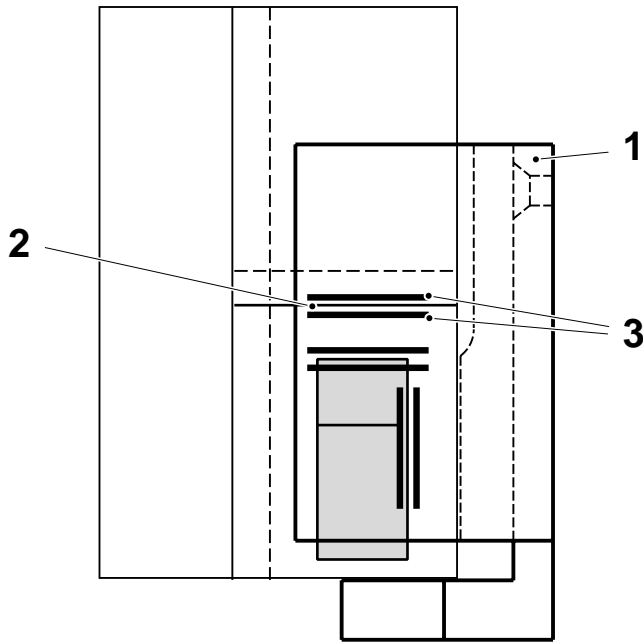


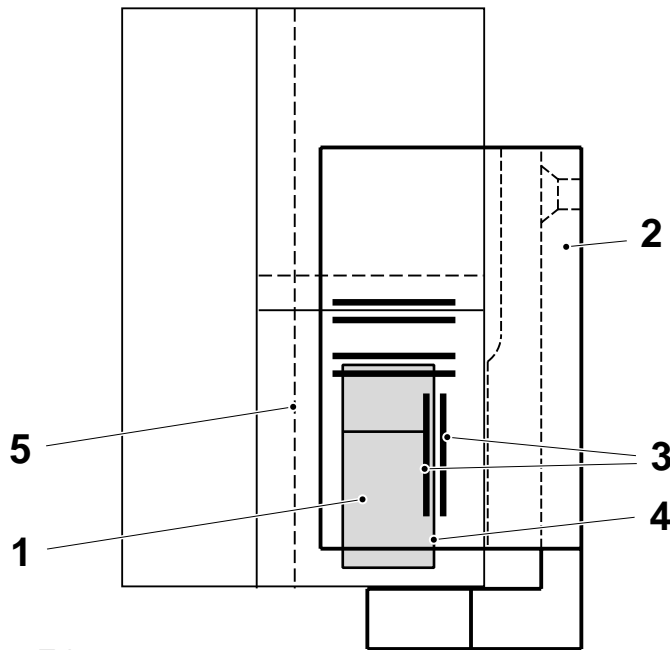
## 4a

### LS position

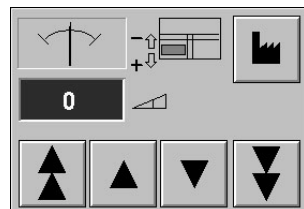
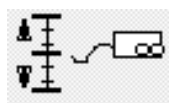
Check that the LS paper edge (2) is visible between the two marks (3) of the template (1).

If the paper edge is not visible or is hidden below one of the two signs, the crease lines position (tube position) is required, see item *Crease lines* on page 128.





- 1 Tab
- 2 Template
- 3 Mark
- 4 Tab edge
- 5 Crease



## 4b

### Tab longitudinal position

Check that the tab edge (4) of the tab (1) is visible between the two marks (3) of the template (2).

If the tab edge is not visible or is hidden below one of the two marks, adjust the position of the tab by means of the TPOP.

Touch the **Manoeuvre system** button.

Touch the **PullTab, left** button.

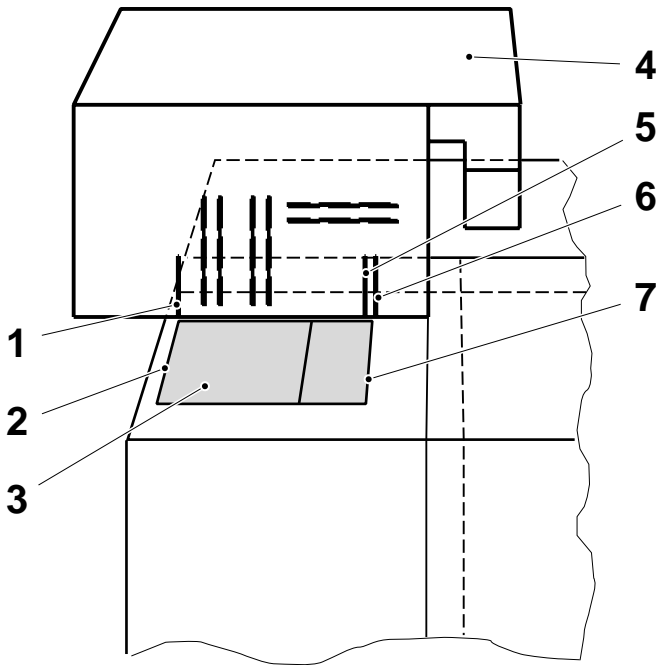
Touch the **Pull Tab position** button.

Adjust the value as required.

#### Note!

The adjustment range corresponds to a movement of  $\pm 2$  mm on the Pulltab position, this range is the same for all volumes. The actual adjustment will be done in steps of 0.15 mm each index if the change is greater than 0.3 mm.

Run at least 80 packages before checking the position again.



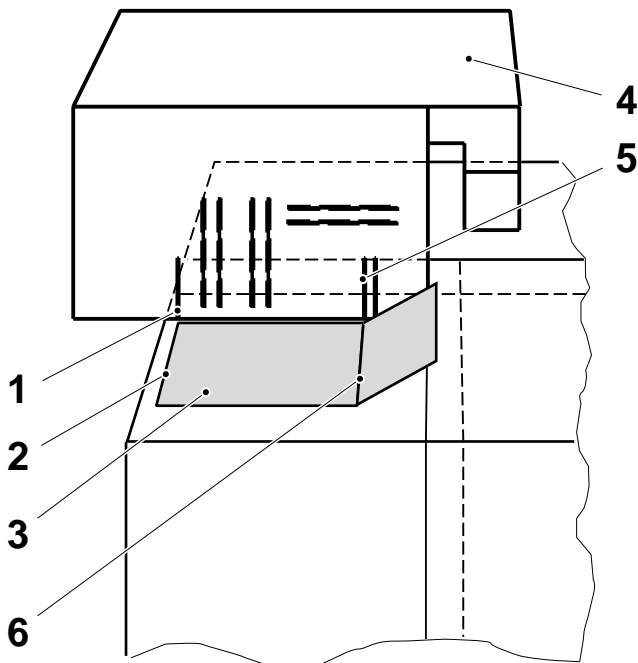
- |            |                   |
|------------|-------------------|
| 1 Line     | 5 Mark            |
| 2 Tab edge | 6 Mark            |
| 3 Tab      | 7 Tab folded edge |
| 4 Template |                   |

## 4c Folded tab length

Place the template (4) on the opening so that the mark (1) is in correspondence of the tab edge (2)

Check that the folded edge (7) of the tab (3) is between the marks (5) and (6) of the template(4).

The tab length must not exceed the mark (6). If it does call a technician.

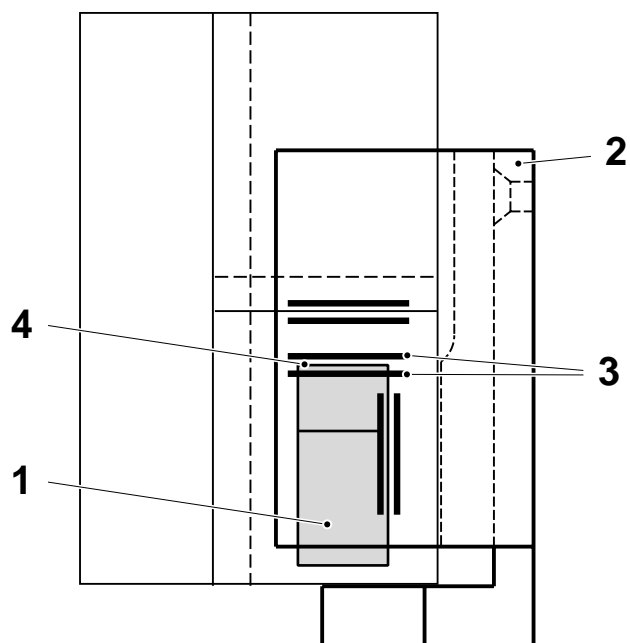


- |            |               |
|------------|---------------|
| 1 Mark     | 4 Template    |
| 2 Tab edge | 5 Mark        |
| 3 Tab      | 6 Sealed edge |

## 4d Sealed tab length

Unfold the tab (3).  
Place the template (4) on the opening so that the mark (1) is in correspondence of the tab edge (2).

Check that the sealed edge (6) of the tab, corresponds to the mark (5) of the template. If not call a technician



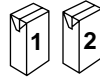
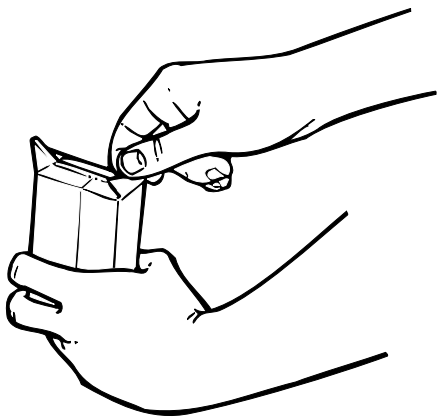
## 4e Tab trasversal position

Check that the folded edge (4) of the tab (1) is visible between the two marks (3) of the template (2). If not call a technician.

- 1 Tab
- 2 Template
- 3 Mark
- 4 Folded edge

## Destructive checks

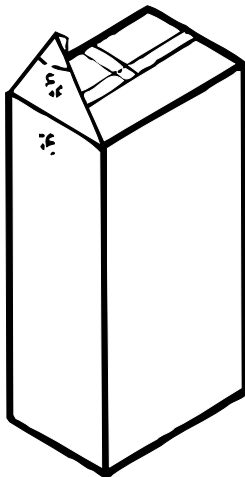
Pick out and check packages according to *Checking intervals*.



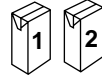
**1**

### Flaps

Unfold the flaps and check that they are properly sealed.



Bottom view of package



## 2

### Crease lines

Check the position of the preformed crease lines (1).

#### The position is acceptable if

the creases are opposite one another (fig.1) either parallel (fig.2) or at an angle (fig.3).

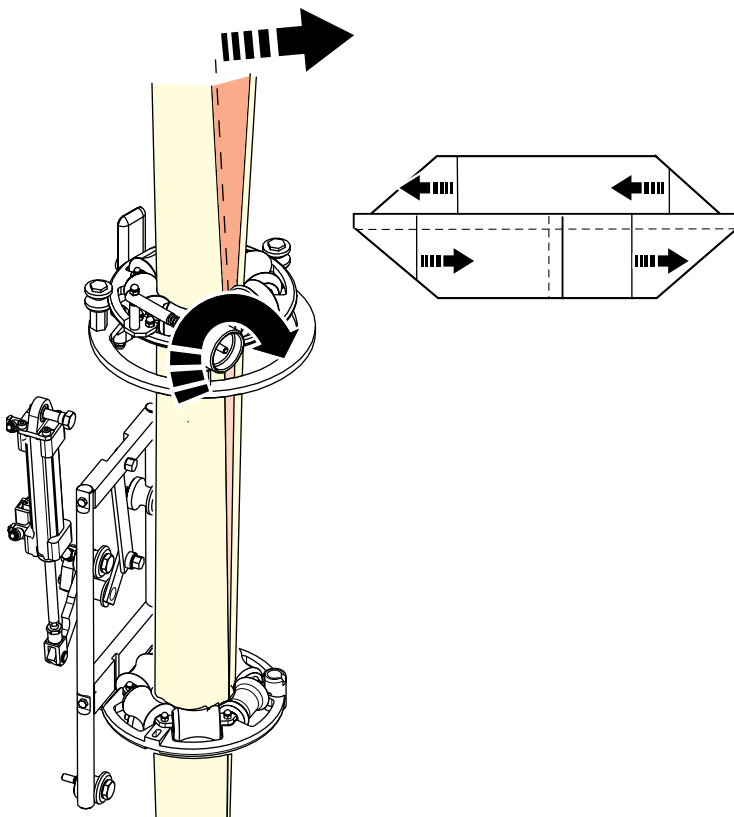
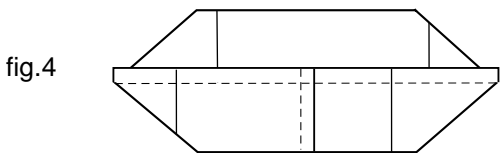
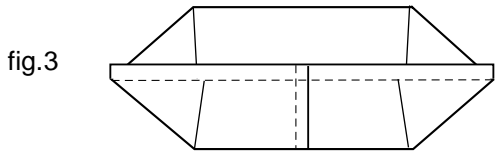
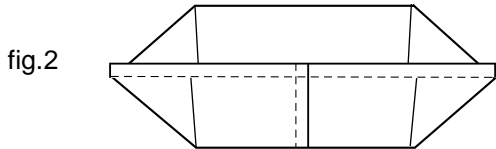
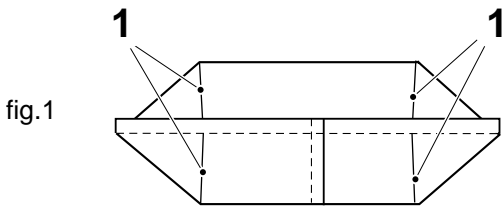
#### The position is not acceptable if

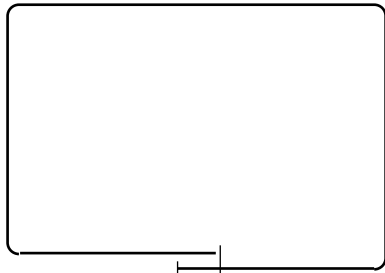
the preformed crease lines are not opposite one another (fig.4).

To adjust the position of the preformed crease lines, turn the knob clockwise to rotate the tube and move the creases in the direction shown, and vice versa.

After adjustment, pick out new packages and check them.

Check the longitudinal sealing according to item *11c* on page 139.



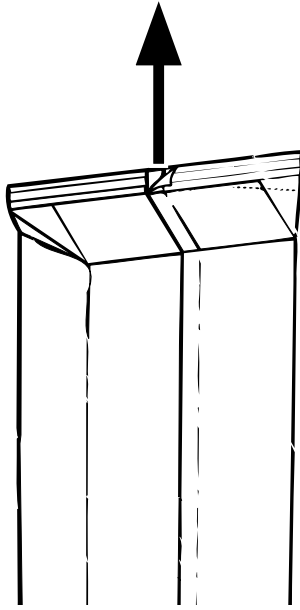


### 3

#### Overlap

Check the width of the overlap, distance **A**.

Package	A ± 1(mm)
TBA 200 S	4.0
TBA 1000 Sq	6.0
TPA 1000 S	6.0
TBA 500 S	7.0
TBA 250 B	8.0
TBA 200 B	8.0
TBA 500 B	8.0
TBA 1000 B	8.0
TBA 1000 S	8.0
TBA 1500 S	8.0



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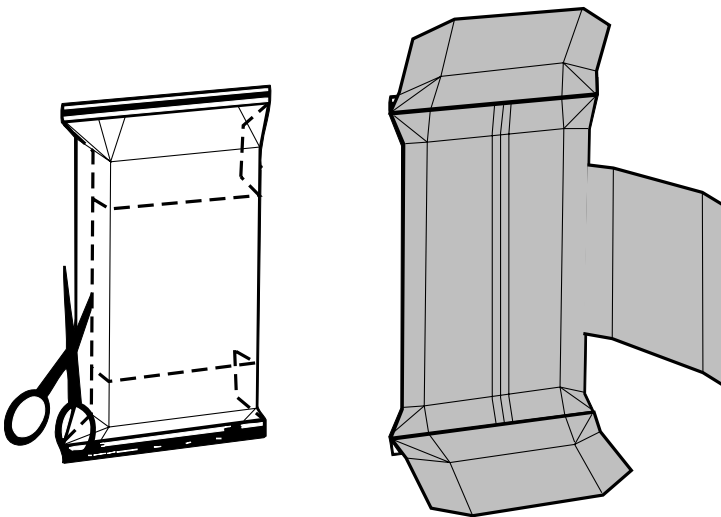
### 4

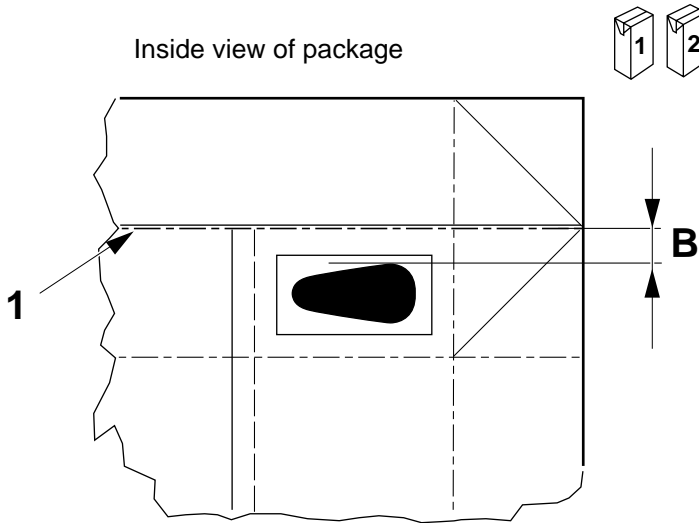
#### Surfaces

Cut open the packages as illustrated.

Rinse and dry the packages.

Check the outside and inside surfaces of the packages for scratches or other possible defects.





## 5

### Hole position (PullTab)

On the inside of the package, check the distance **B** from the centre of the top fin crease (1) to the edge of the PullTab hole.

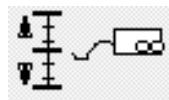
Package	B ± 1 (mm)
TBA 1000 B Hole 45	10.0
TBA 1000 S Hole 45	8.9
TBA 1500 S Hole 45	11.0
TBA 1000 B Hole 50	11.4
TBA 1000 S Hole 50	10.3
TBA 500 S Hole 55	8.25
TPA 1000 S Hole 60	8.3
TBA 1000 B Hole 85	11.0
TBA 1000 Sq Hole 85	13.0
TPA 1500 S Hole 85	12.0



If required, adjust the hole position.  
In the main TPOP window, touch the **Manoeuvre system** button.

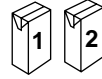


Touch the **PullTab, left** button.



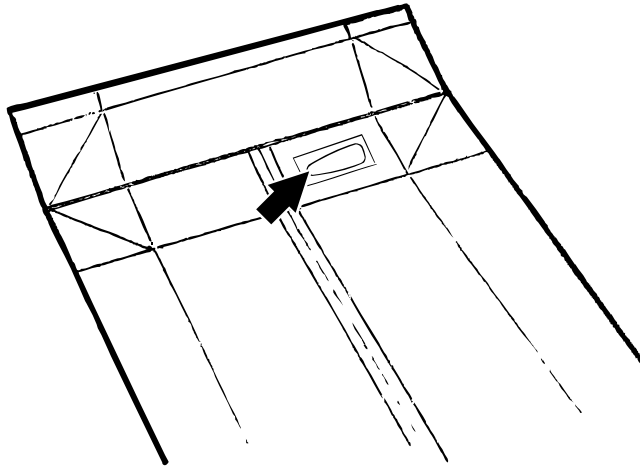
Touch the **Hole position photocells** button.

Adjust the value as required.



## 6

Inside view of package



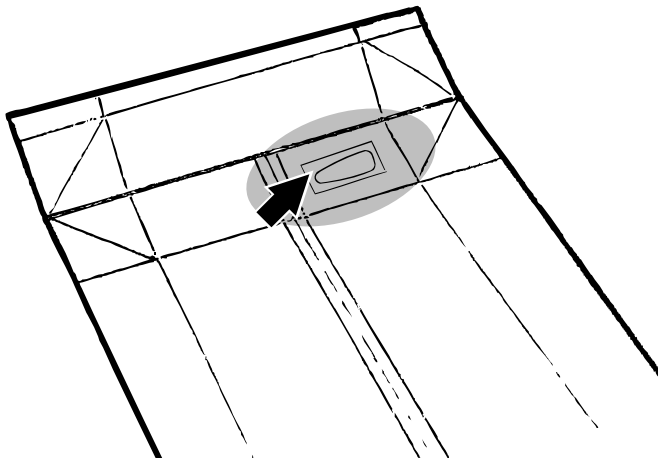
### Patch (PullTab)

On the inside of the package, check that the patch is fully sealed to the inside of the packaging material, and that it covers the hole completely.

Also check that there is a minimum of 0.5 mm of patch all around the hole.

If there is not, the package integrity is defective. Call a technician to set the patch applicator.

2.2TB105254en.fm



## 6a

Apply red ink by means of a plastic pipette to the inside surface of the packages in the area shown. See the *Technical data* section for the TP No.

Wait for five minutes to let the ink dry.

If too much ink has been applied, wipe off with a clean dry cloth.

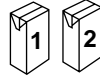
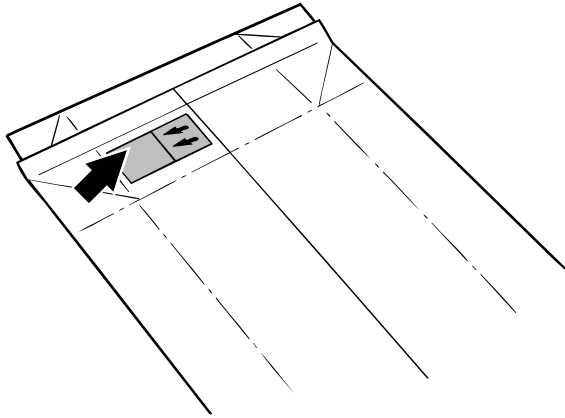
Check that there is no ink penetration through the edges of the patch.

If there is, the package integrity is defective. The patch sealing temperature and/or pressure must be adjusted.

To adjust the temperature see item *Example: Overview of temperature* on page 72.

To adjust the pressure see item *PullTab unit* on page 26.

Check also that there are no scratches or wrinkles in the patch.

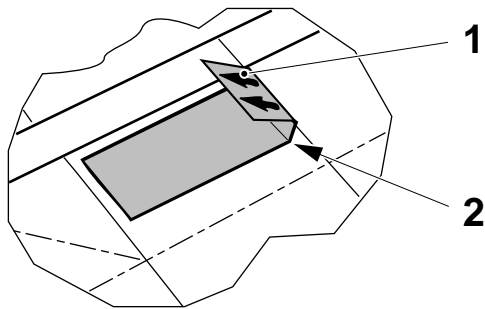


## 7

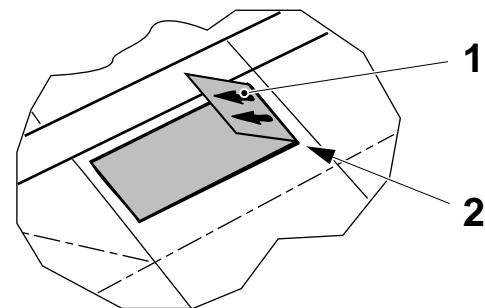
### Tab (PullTab)

Check that the tab is sealed to the packaging material, and that it covers the hole completely.

If it does not, package integrity is defective. Call a technician to set the tab applicator.



not acceptable



acceptable

## 8

### Only for ReCap Machine

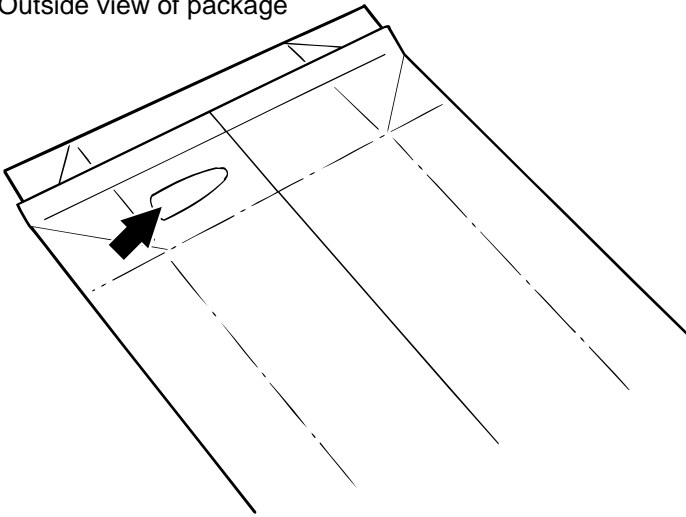
#### Note!

Perform this check before the cap is applied.

Check that the tab (1) is properly folded at the edge of the the sealing area (2).

Incorrectly folded tabs are not acceptable. Call a technician to set the tab folding device.

Outside view of package



## 9

Carefully remove the tab.

Check that the inside PE is delaminated.

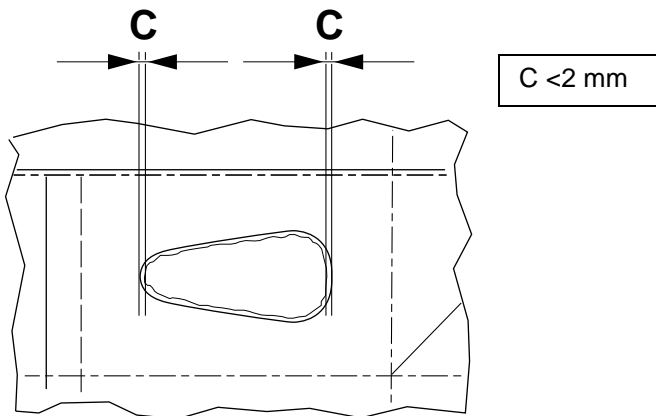
Check that there is no ink penetration into the packaging material layers around the PullTab hole.

If there is, the package integrity is defective. The patch sealing temperature and/or pressure must be adjusted.

To adjust the temperature see item *Example: Overview of temperature* on page 72.

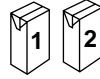
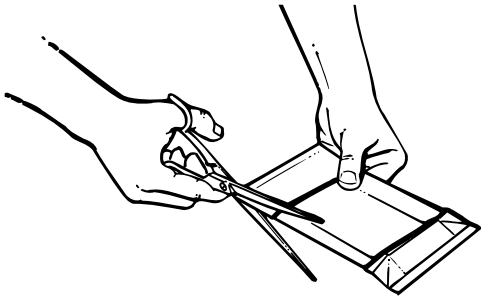
To adjust the pressure see item *PullTab unit* on page 26.

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## 9a

Check that no more than 2 mm of PE is visible at the edges of the hole.



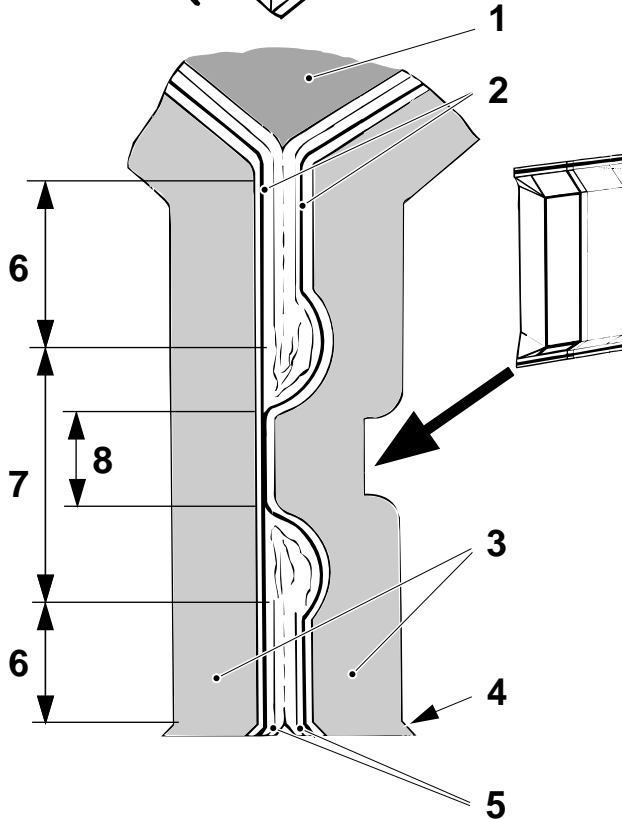
**10**

**TS**

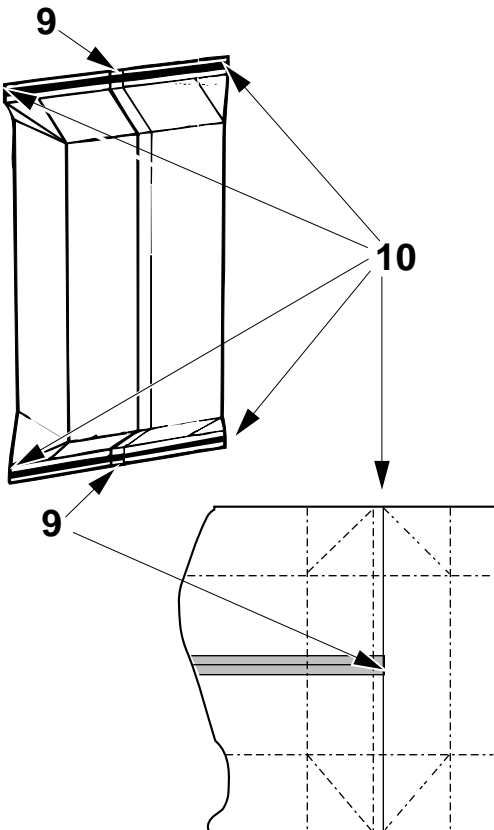
Cut off about 1 mm from each side of the package at a right angle to the TS.

Critical points of the TS are:

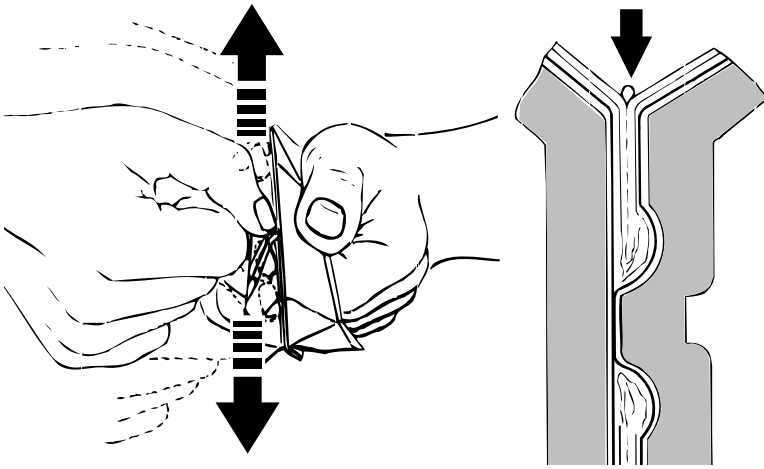
- the crosses (9) (where the TS and the LS meet)
- the corners (10).



- 1 Filling product
- 2 Al-foil
- 3 Paper board
- 4 Cutting line
- 5 Plastic film, double layers
- 6 Blocked area
- 7 Sealed area
- 8 Ridge
- 9 Cross
- 10 Corner



2.2TB105254en.fm



## 10a

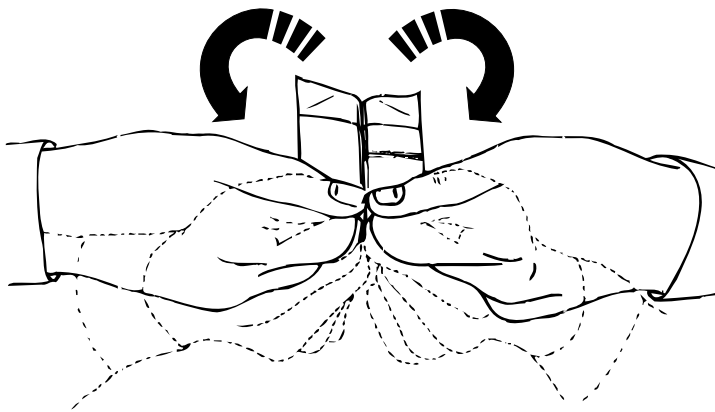
Bend the TS.

The sealing is defective if there are lumps or ridges in the sealing area.

This may be caused by too much heat or too high pressure on the jaws during sealing.

To adjust the temperature see item *Example: Overview of temperature* on page 72.

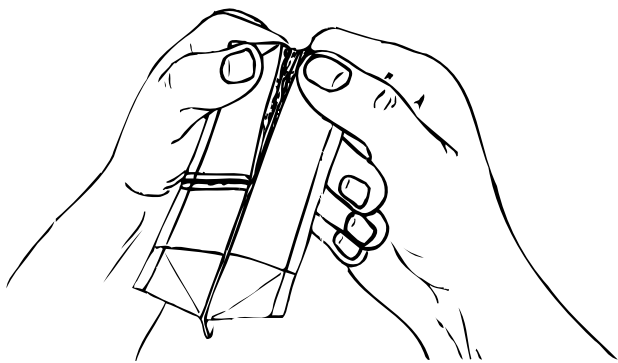
If the pressure is too high call a technician.



## 10b

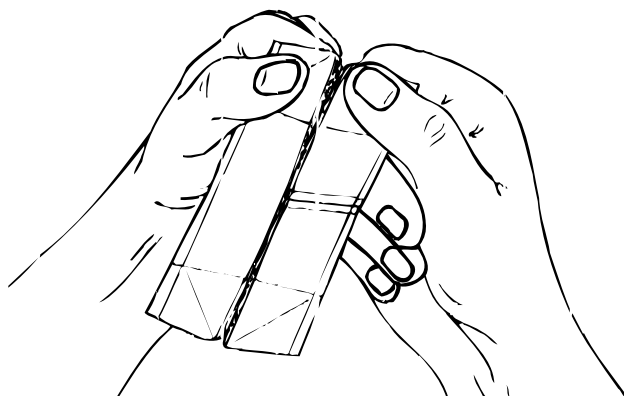
Carefully, with a rolling movement, pull apart a bit of the TS from one end.

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## 10c

Pull apart approximately one third of the sealing length.



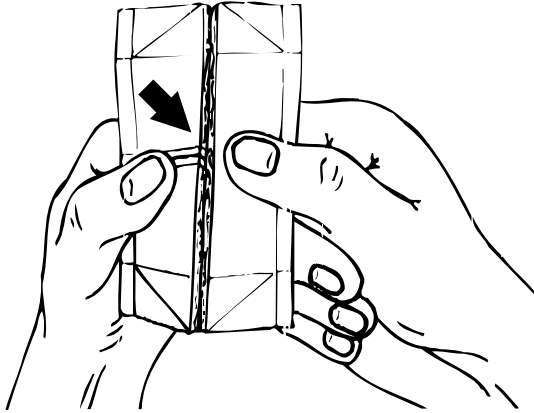
## 10d

Pull apart the seal from the other end.

Pull apart approximately one third of the sealing length.

## 10e

Pull at the point where the LS and TS cross.



## 10f

Check the TS sealing:

### The sealing is acceptable if

- the seal remains intact but a delamination between the two inner coatings takes place (fig.1)
- the seal remains intact when the joint is pulled apart, but the Al-foil comes off on one of the sides presenting a shiny metal surface (fig.2)
- the seal remains intact but a rupture takes place in the paper board layer (fig.3)

fig.1

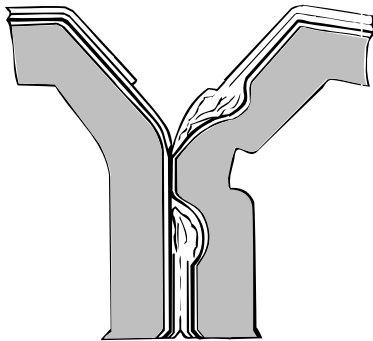


fig.2

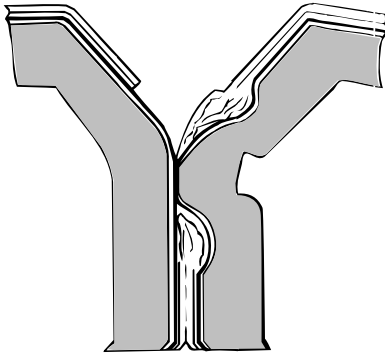


fig.3

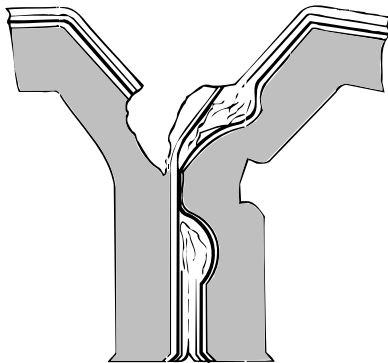
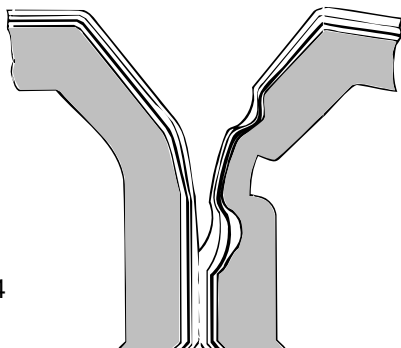


fig.4



### The sealing is defective if

the seal is so weak that the two plastic layers separate without rupturing (fig.4). This may be caused by a too low sealing temperature.

To adjust the temperature see item *Example: Overview of temperature* on page 72.

fig.1

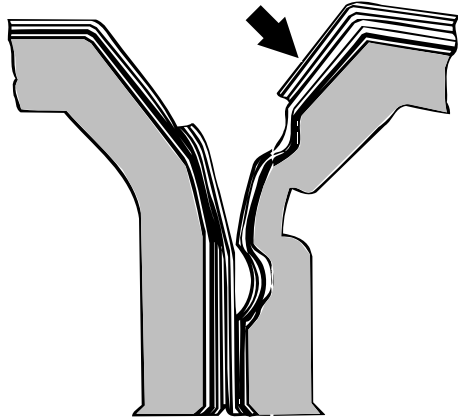
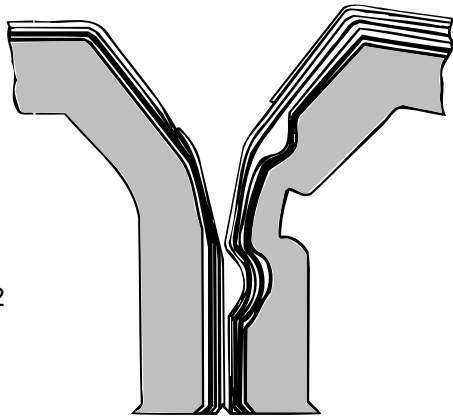


fig.2



## 10g

Check the TS sealing in the cross area.

### Note!

The evaluation of the TS also applies to the evaluation of the cross.

The strip (shown by the arrow) can be regarded as additional coating layers on the Al-foil.

### The sealing is acceptable if

a rupture occurs in any of the layers (fig.1)

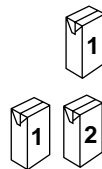
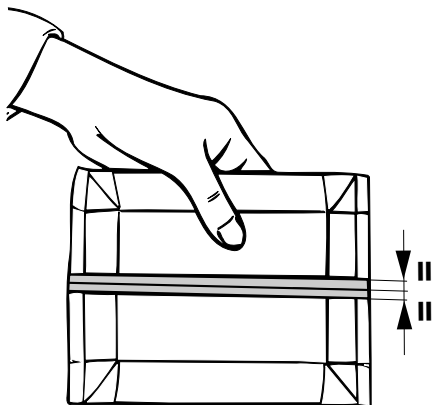
### The sealing is defective if

there is **no** rupture (fig.2).

This may be caused by a too low sealing temperature.

To adjust the temperature see item *Example: Overview of temperature* on page 72.

2.2TB105254en.fm



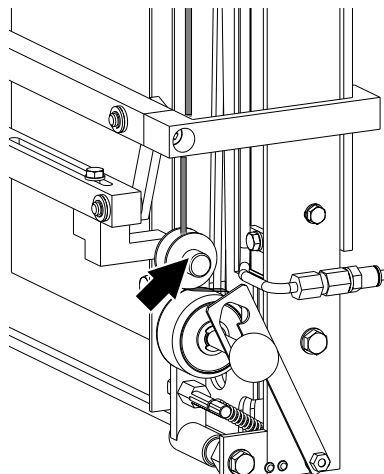
## 11

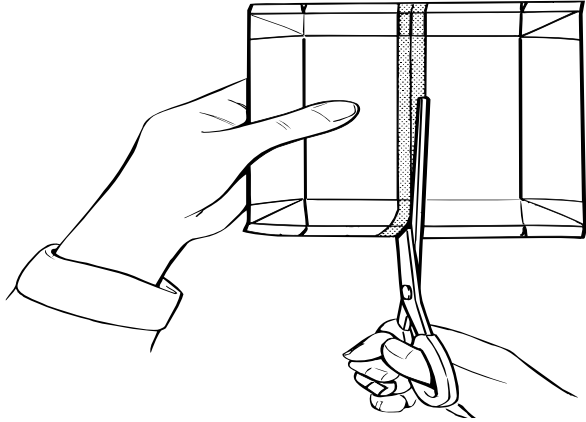
### LS

Check that the LS strip is symmetrically positioned on **one** package.

After an **LS strip splice**, check **two** packages.

If required, adjust the position of the LS strip by means of the knob on the strip roller.



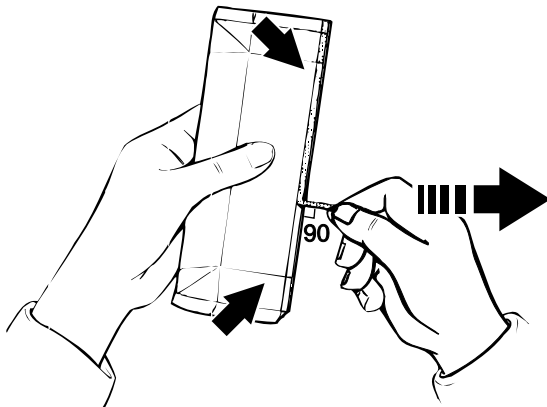


## 11a

Check that there are no blisters in the Al-foil.

Cut through the middle of the LS strip, along the inner edge of the packaging material.

Pull off the overlapping packaging material layer along the outside of the package.



## 11b

Check the strip sealing by slowly pulling approximately 20 mm of the strip outwards at an angle of 90°. Pull extremely slowly over the creases. Take hold again and pull another 20 mm. Continue along the whole edge.

Pull on both sides.

### Note!

If any of the layers come off, cut the strip and start pulling again.

fig.1

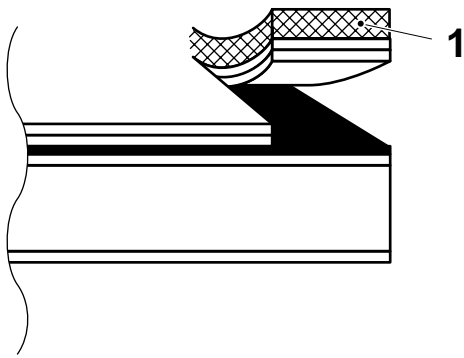


fig.2

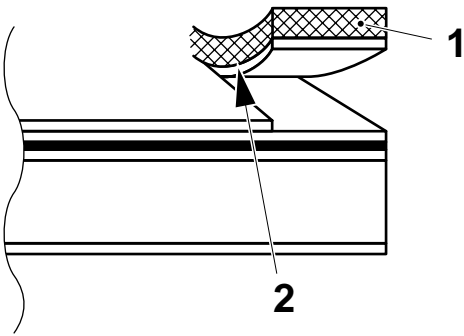


fig.3

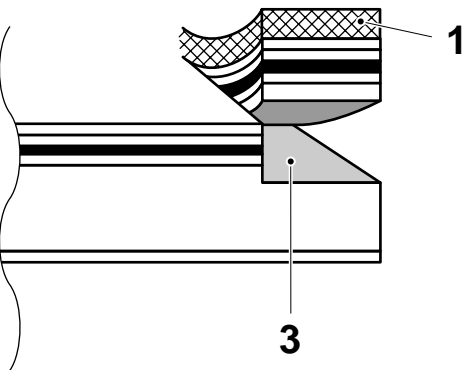


fig.4

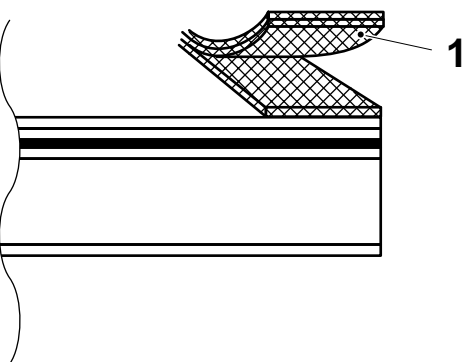
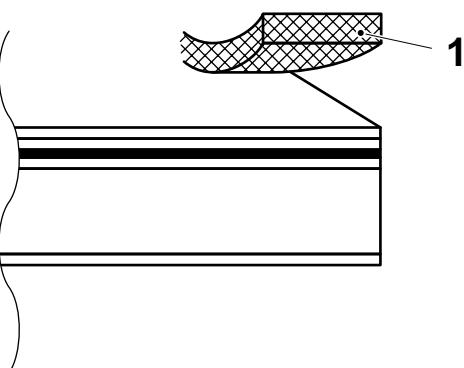


fig.5



## 11c

Check the LS sealing.

### The sealing is acceptable if

- both inner coatings come off with the strip (1), leaving the Al-foil bare (fig.1)
- one of the two inner coatings comes off with the strip (1), leaving a ruptured edge (2) along the seal (fig.2)
- all the inner layers including the Al-foil come off with the strip (1), although possibly leaving paper board fibres (3) (fig.3)
- the strip separates (delaminates) when it is pulled off (fig.4).

### The sealing is defective if

the strip (1) comes off leaving the inner coatings of the package unaffected (fig.5). This may be caused by a too low sealing temperature.

To adjust the temperature see item *Example: Overview of temperature* on page 72.

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# Strip supply

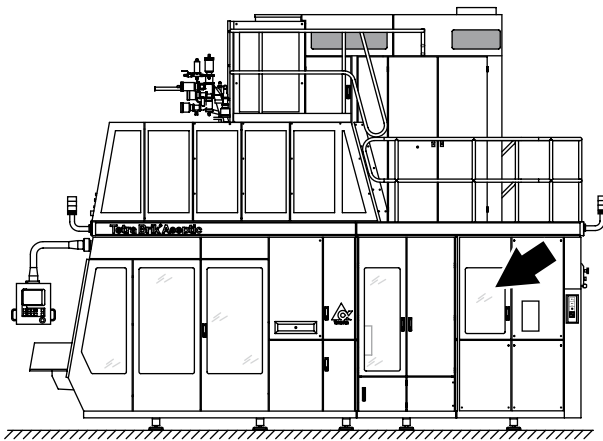
## Caution!

Before touching the strip(s), disinfect hands/gloves.

## Note!

To avoid unnecessary production stops, always make sure that the strip reels are prepared and the strips are threaded.

This section describes how to thread and splice the strip(s).



## Threading of LS strip

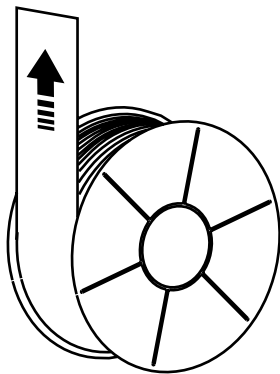
1

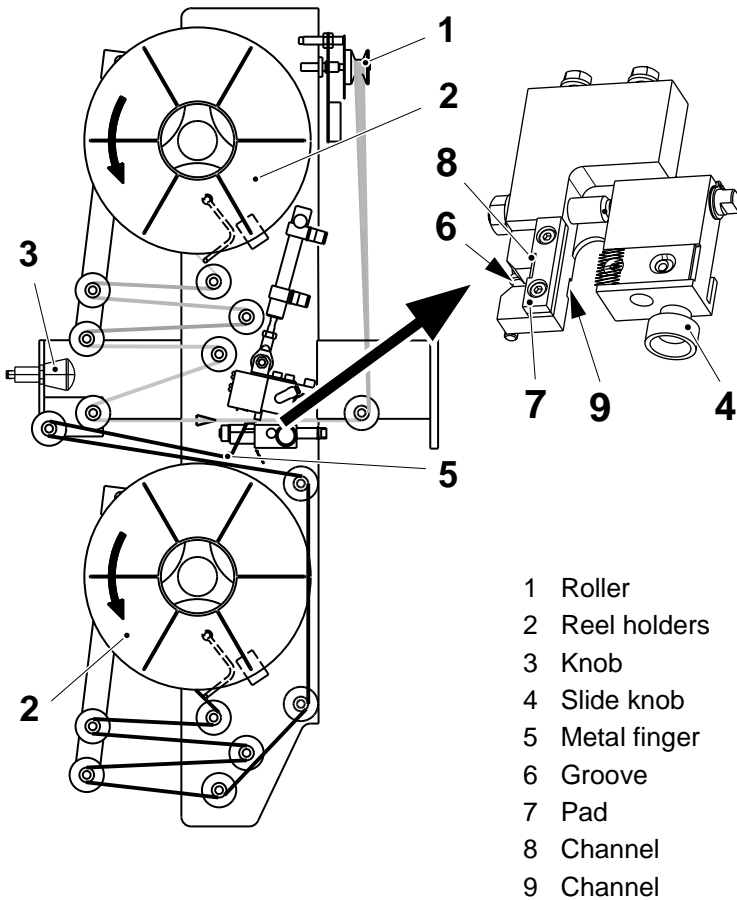
Open the ASSU door.



2

Remove the protective wrapping from the strip roller.





### 3

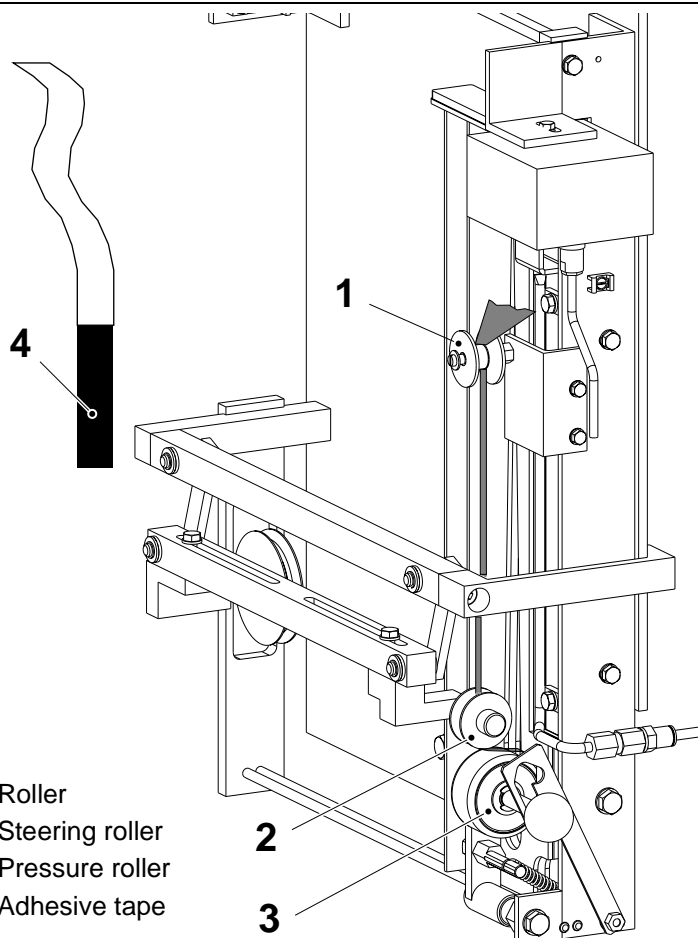
**Note!**

The strip shown in grey will be used for production.

The strip shown in black is prepared for splicing.

- a) Fit a jumbo strip reel (2) to each of the two reel holders.
- b) Thread as shown in the picture. Take care not to twist the strip during the threading.
- c) Move the slide backwards by means of the slide knob (4), fit the strip under the metal finger (5), up to the groove (6), above the pad (7), down into position through the two channels (8) and (9), close the slide.
- d) Pull the strip that will be used for production over the roller (1).
- e) Pull out the knob (3) and open the strip magazine frame.

- 1 Roller
- 2 Reel holders
- 3 Knob
- 4 Slide knob
- 5 Metal finger
- 6 Groove
- 7 Pad
- 8 Channel
- 9 Channel



### 4

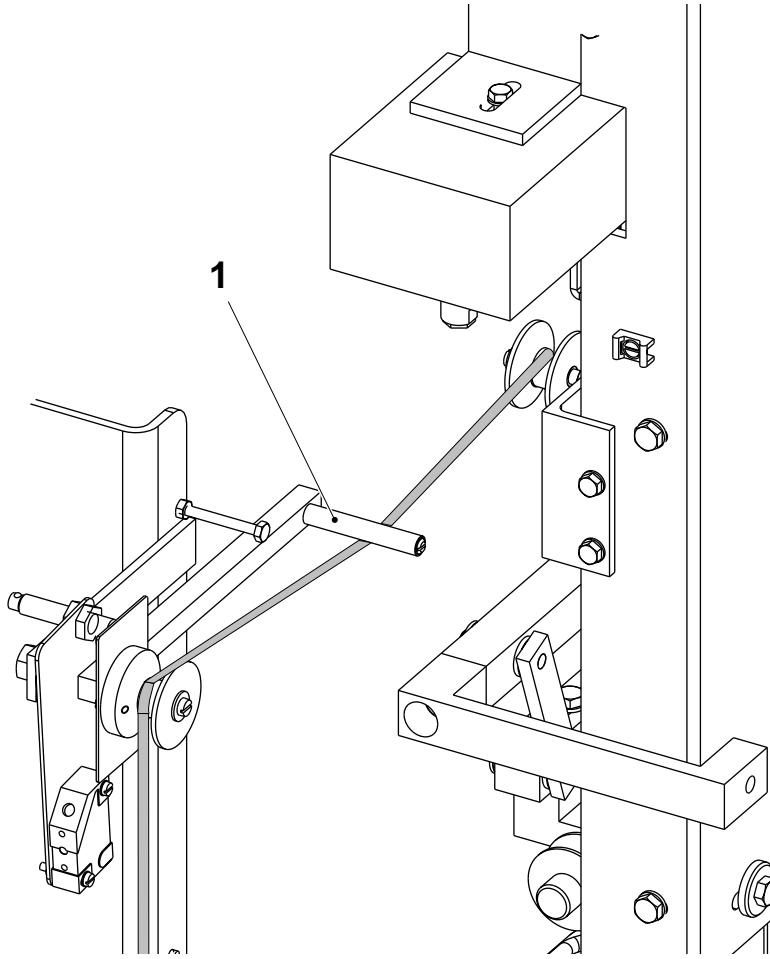
- a) Thread the strip over the roller (1).
- b) Attach a piece of adhesive tape (4) to the end of the strip (not wider than the strip).
- c) Pull the pressure roller (3) away from the packaging material and lock in place.
- d) Attach the tape to the edge of the packaging material.

**Note!**

The fastening tape for the strip can cling to a roller and be pulled off from the packaging material.

- e) Release the pressure roller (3).
- f) Thread the strip over the steering roller (2).

- 1 Roller
- 2 Steering roller
- 3 Pressure roller
- 4 Adhesive tape



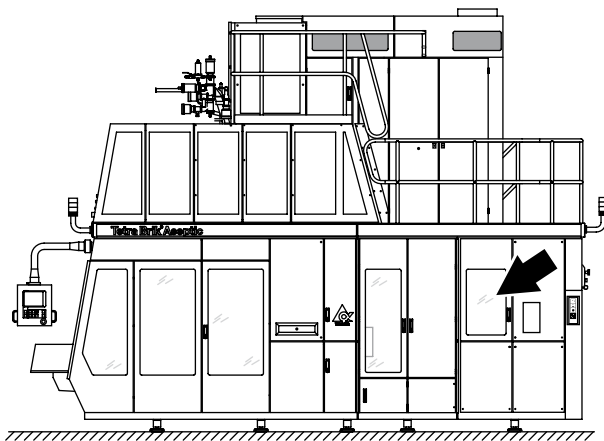
## 5

- a) Close the strip magazine frame and **make sure it locks correctly.**
- b) Ensure that the strip guard (1) is positioned on top of the strip
- c) Rewind the strip reel slightly to tension the strip.

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## 6

- Close the ASSU door and reset the alarms on the TPOP display.

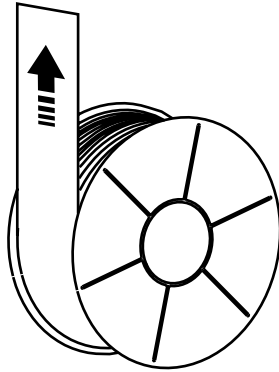




## Preparation of a new strip reel

**1**

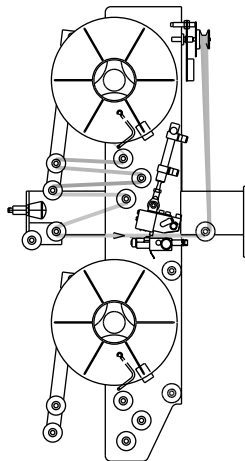
Remove the protective wrapping from the strip roller.



**2**

Open the ASSU door.

Remove the empty strip reel and put in a new one.



**3**

### New upper reel

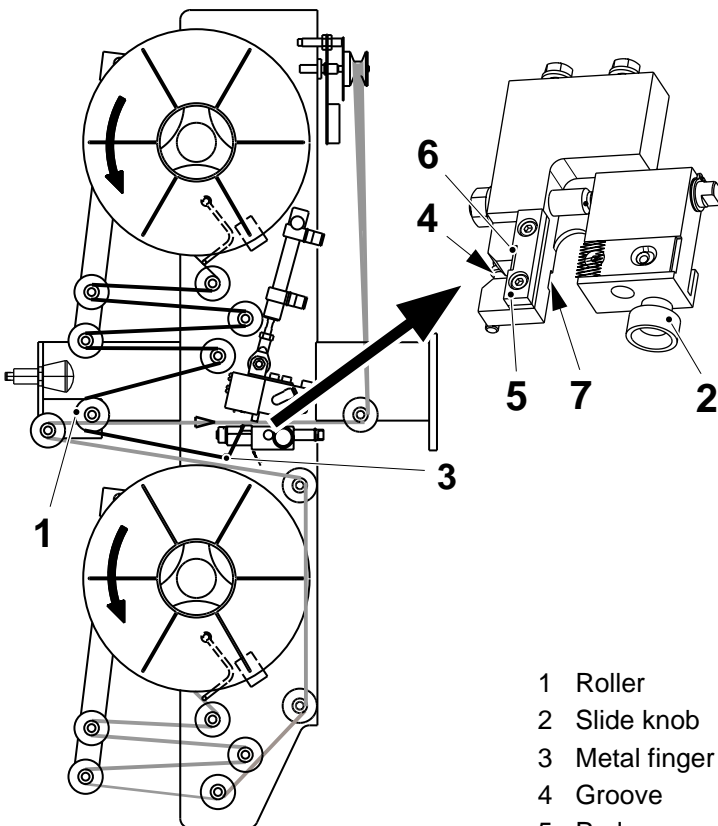
#### Note!

The strip shown in grey will be used for production.

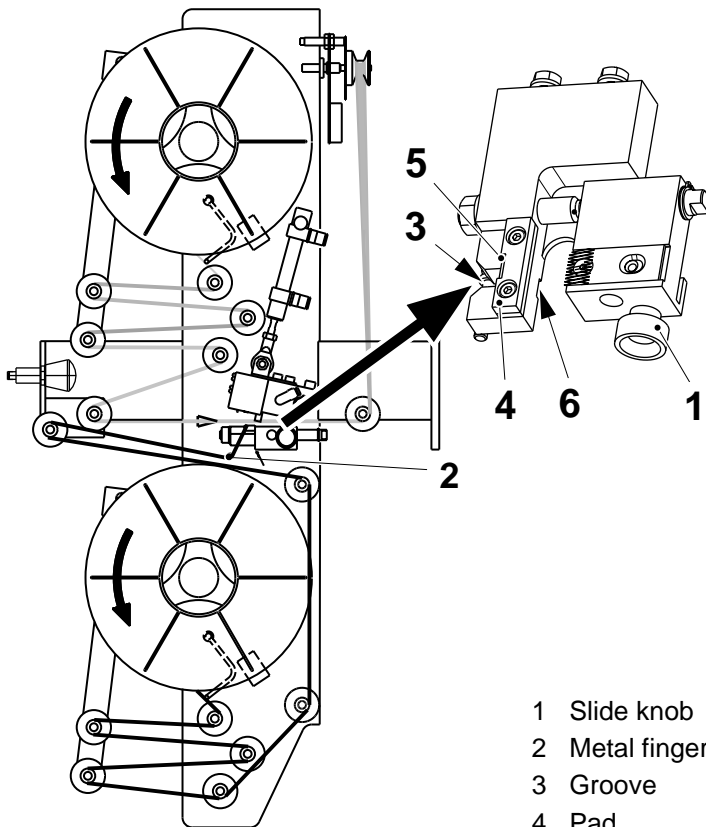
The strip shown in black is prepared for splicing.

Thread as shown in the picture, and ensure that the strip is placed on the outer diameter of the roller (1). Take care not to twist the strip during the threading.

Move the slide backwards by means of the slide knob (2), fit the strip under the metal finger (3), up to the groove (4), above the pad (5), down into position through the two channels (6) and (7), close the slide.



- 1 Roller
- 2 Slide knob
- 3 Metal finger
- 4 Groove
- 5 Pad
- 6 Channel
- 7 Channel



- 1 Slide knob
- 2 Metal finger
- 3 Groove
- 4 Pad
- 5 Channel
- 6 Channel

## 4

### New lower reel

#### Note!

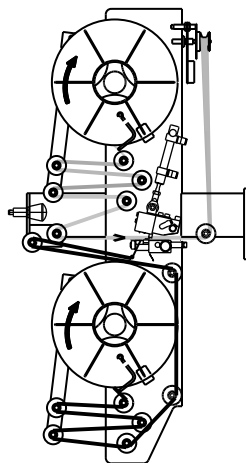
The strip shown in grey will be used for production.

The strip shown in black is prepared for splicing.

Thread as shown in the picture. Take care not to twist the strip during the threading.

Move the slide backwards by means of the slide knob (1), fit the strip under the metal finger (2), up to the groove (3), above the pad (4), down into position through the two channels (5) and (6), close the slide.

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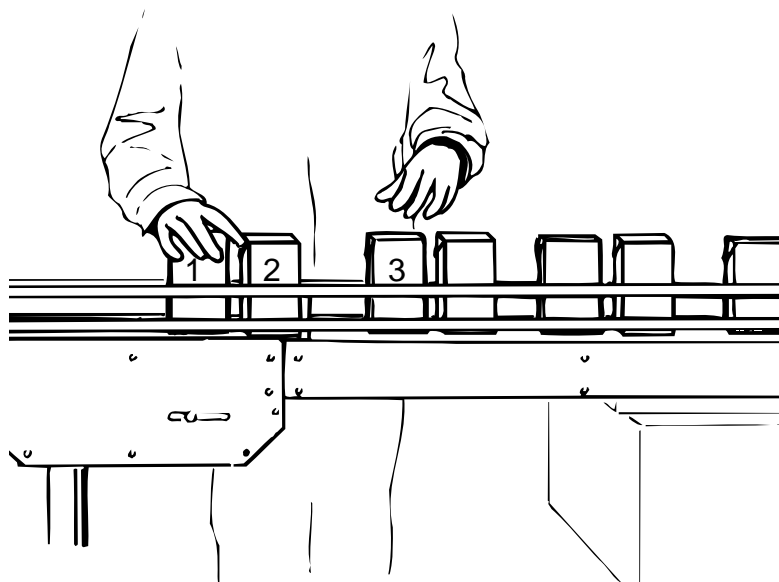


## 5

Rewind the strip reel slightly to tension the strip.

Close the ASSU door.

The machine is now prepared for an automatic LS strip splice.



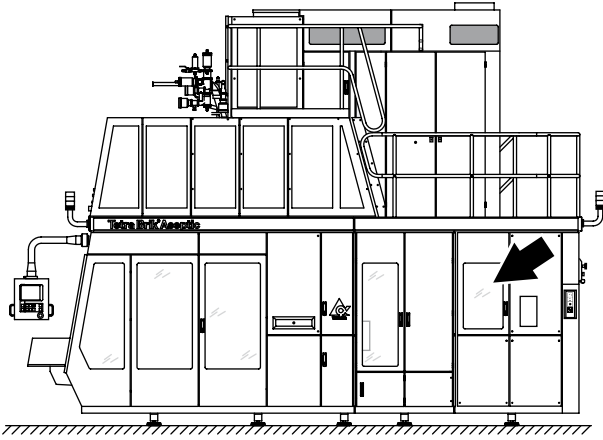
## 6

Some packages are discarded after the splice. Pick out the first three packages and perform the destructive checks. See the *Package checks* section.



### **Note!**

Remember to register the number of packages taken for checks. See the *TPOP Display* section.



## Manual splicing

**1**

In some cases it may be necessary to perform a strip splice manually.

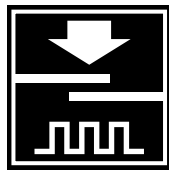
Before doing the splice, make sure that

- both reels of LS strip are threaded.
- the ASSU door of the LS strip magazine is closed.

**2**

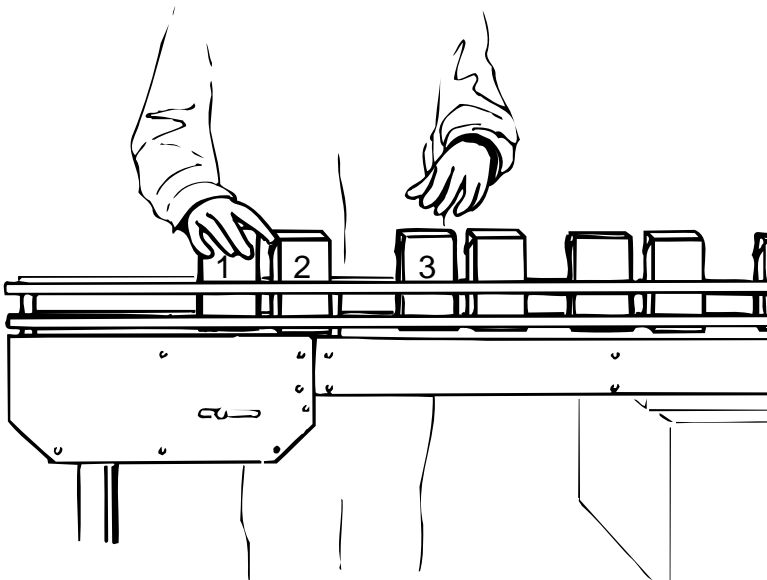
Press the **Manual strip splice** button.

The packages with the strip splice will be discarded automatically.



**3**

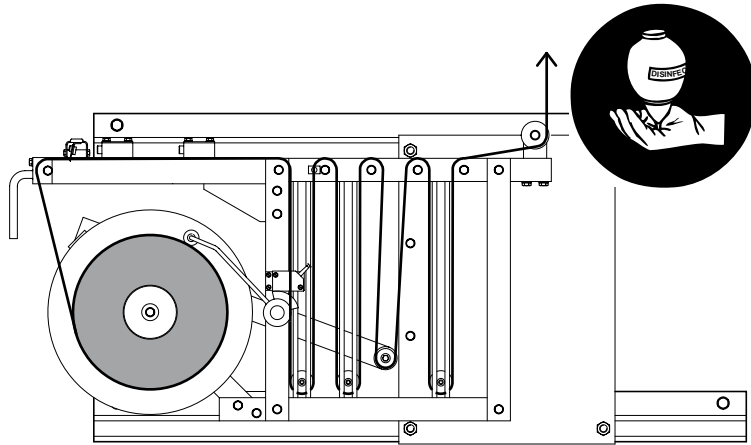
Some packages are discarded after the splice. Pick out the first **three** packages and perform the destructive checks. See the *Package checks* section.



### Note!

Remember to register the number of packages taken for checks. See the *TPOP Display* section.





## Threading of patch strip

### 1

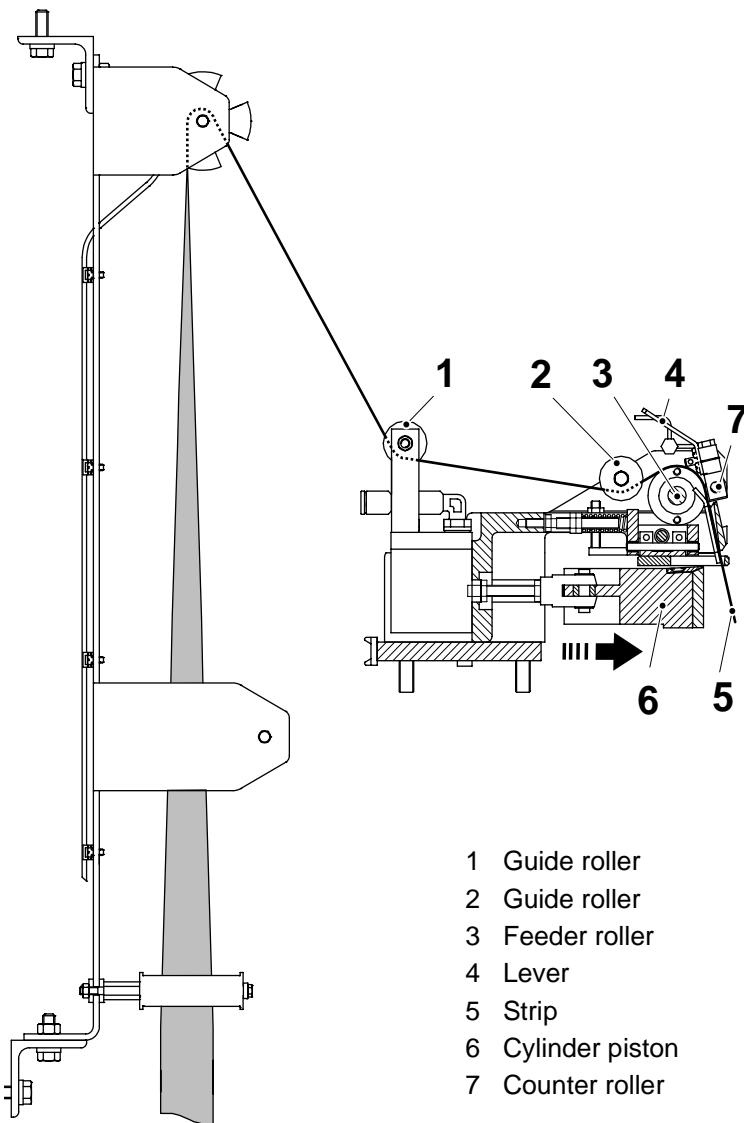
- a) Fit a patch strip roller to the magazine roller, note the unwinding direction.
- b) Thread the patch strip through the magazine as illustrated.

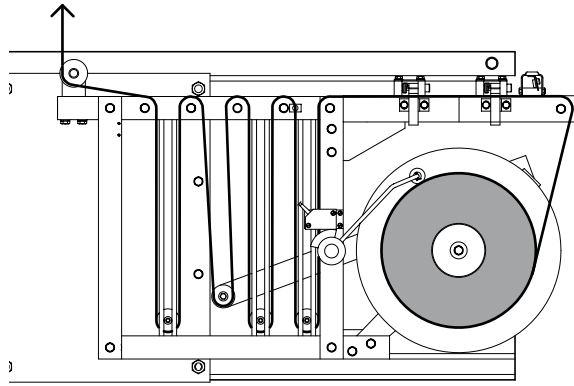
### 2

- a) Thread the strip through the turning device rollers and under the guide rollers (1) and (2).
- b) Press down the lever (4) to lift the counter roller.
- c) Insert the strip between the feeder roller (3) and the counter roller (7).
- d) Feed some strip manually by turning the knob on the applicator.

### Note!

Manually force the cylinder piston (6) towards the patch strip and then back to cut off any excess strip (5).

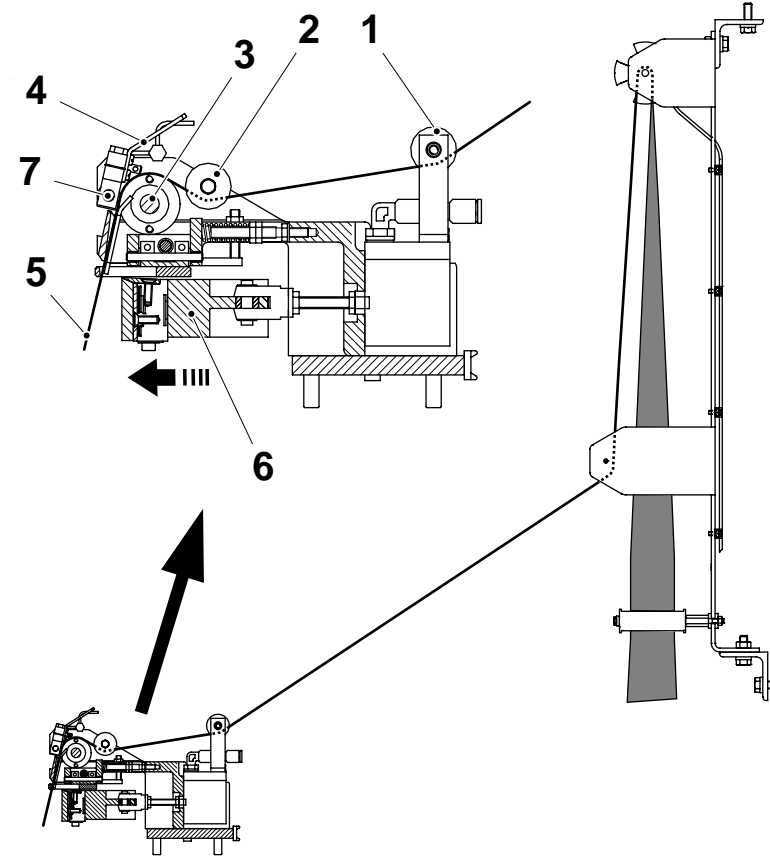




## Threading of tab strip

### 1

- a) Fit a tab strip roller to the magazine roller, note the unwinding direction.
- b) Thread the tab strip through the magazine as illustrated.



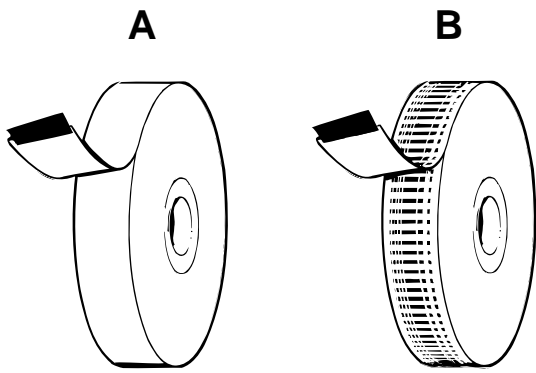
### 2

- a) Thread the strip through the turning device and under the guide rollers (1) and (2).
- b) Press down the lever (4) to lift the counter roller.
- c) Insert the strip between the feeder roller (3) and the counter roller (7).
- d) Feed some strip manually by turning the knob on the applicator.

### Note!

Manually force the cylinder piston (6) towards the tab strip and then back to cut off any excess strip (5).

- 1 Guide roller
- 2 Guide roller
- 3 Feeder roller
- 4 Lever
- 5 Strip
- 6 Cylinder piston
- 7 Counter roller



## Splicing of the patch and tab strips

### 1

The splicing sequence is the same for both the patch and the tab strip.

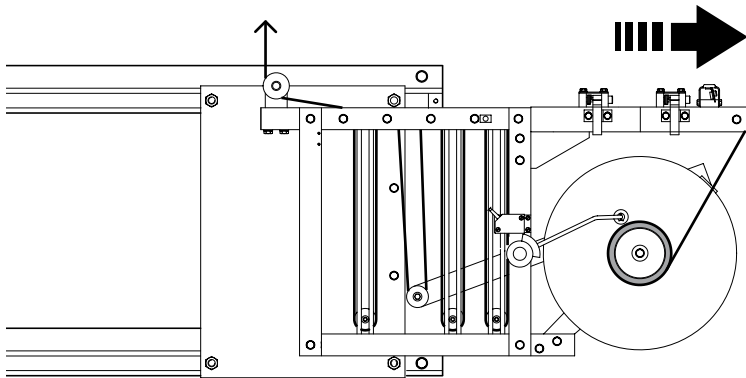
Prepare a new patch **A** or tab **B** strip roller. Put a piece of black tape on the **inner** side of the strip.

#### Note!

See the *Technical data* section for the correct black tape type.

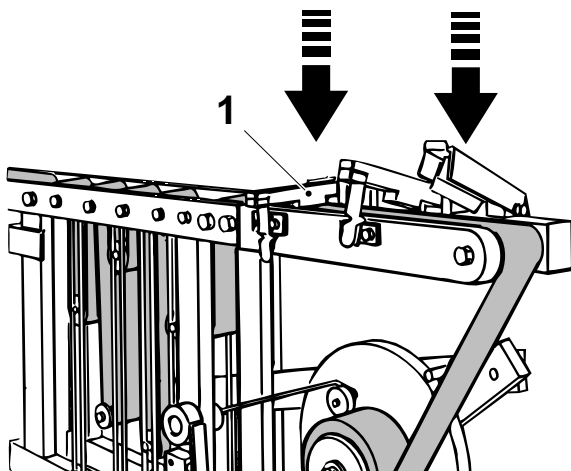
#### Note!

For the patch strip there are 40-50 seconds available to do the manual splice.  
For the tab strip, there are 50-55 seconds available to do the splice.



### 2

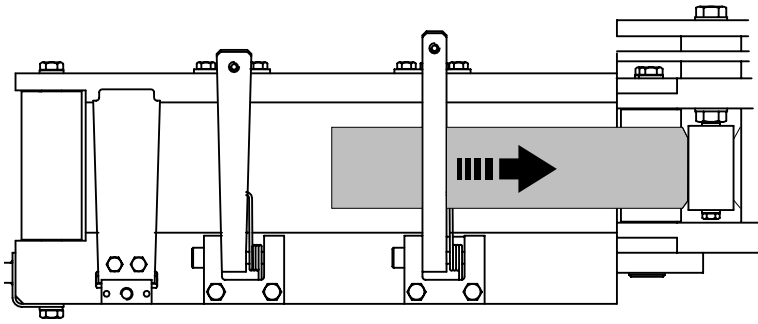
Open the PullTab door and pull out the magazine.



### 3

- a) Push down the lock grip (1).
- b) Stretch the strip and cut it with the knife.

2.2TB115254en.fm

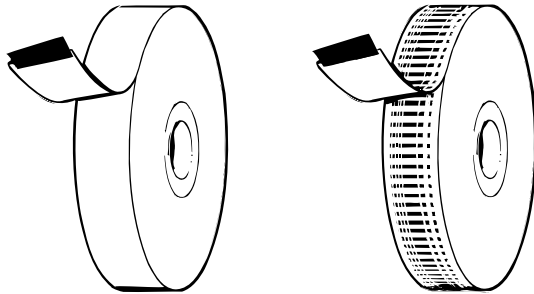


**4**

Release the lock grip and place the strip end between the two lock grips and push down the lock grip.

**A**

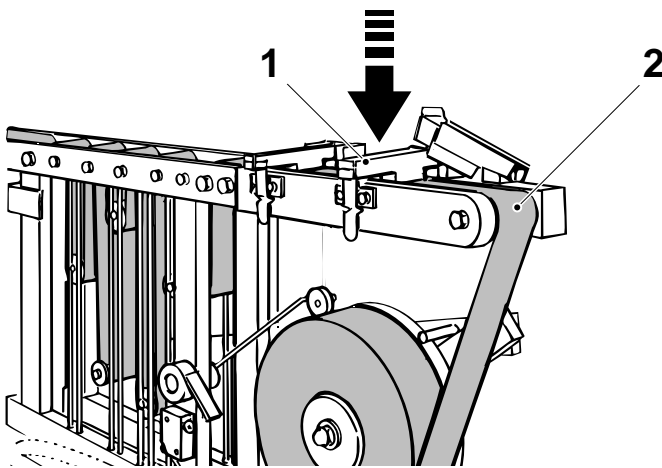
**B**



**5**

Change the strip reel.

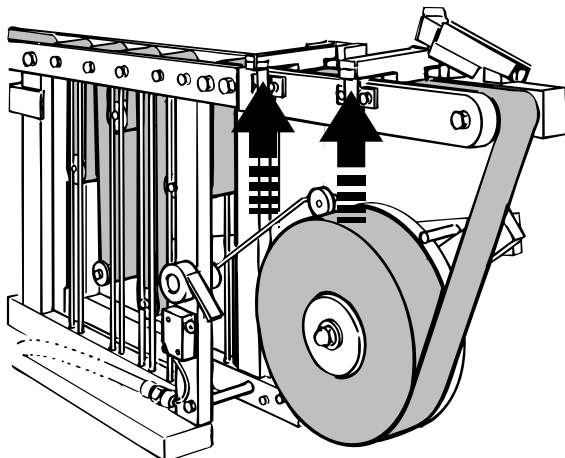
2.2TB115254en.fm



**6**

Thread the strip over the roller (2), pass the first lock grip (1) and place the new strip **under** the old one with 2 mm overlap.

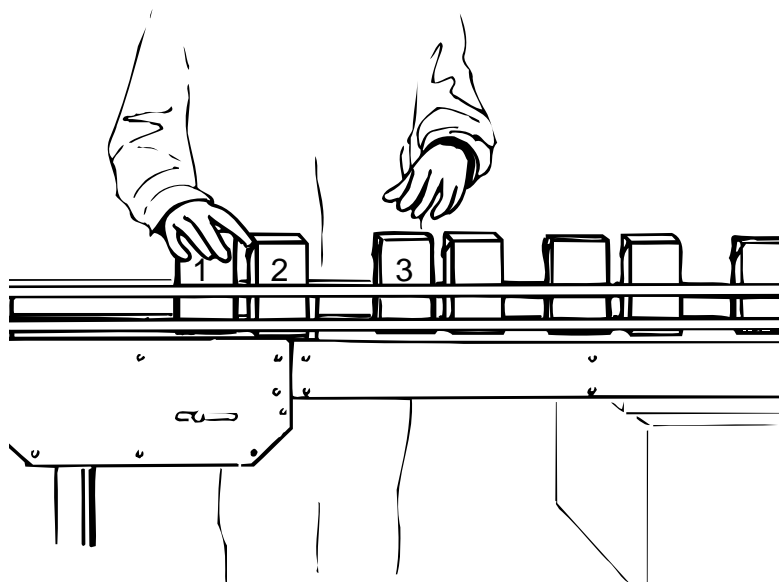
Push down the lock grip and seal the strip with the black tape piece.



**7**

Release the two lock grips and push in the strip magazine.

Close the PullTab door.



## 8

**Three** packages are discarded after the splice. Pick out the last **two** packages and perform the destructive checks. See the *Package checks* section.



### **Note!**

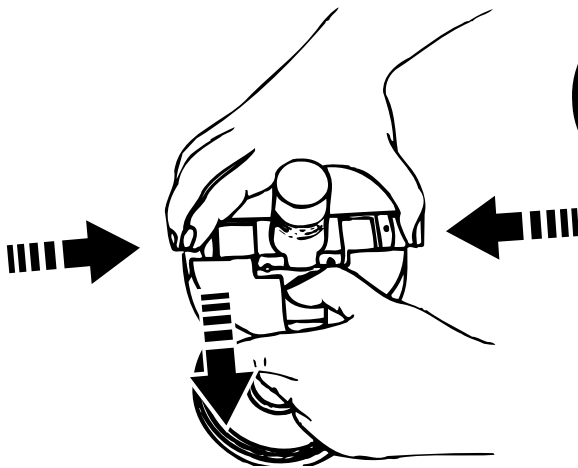
Remember to register the number of packages taken for checks. See the *TPOP Display* section.

# Packaging material supply

## Caution!

The packaging material must never touch the floor. Before touching the packaging material, disinfect hands/gloves.

This section describes how to load and prepare a new reel of packaging material.



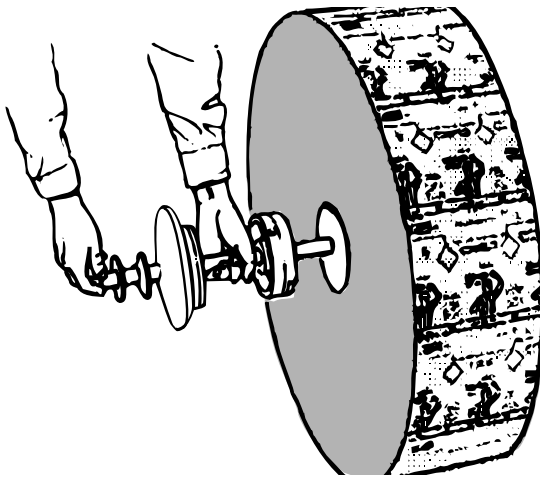
## Reel handling

1

Pull out the reel holder catch slightly and hold while pushing in the spring-loaded lugs.

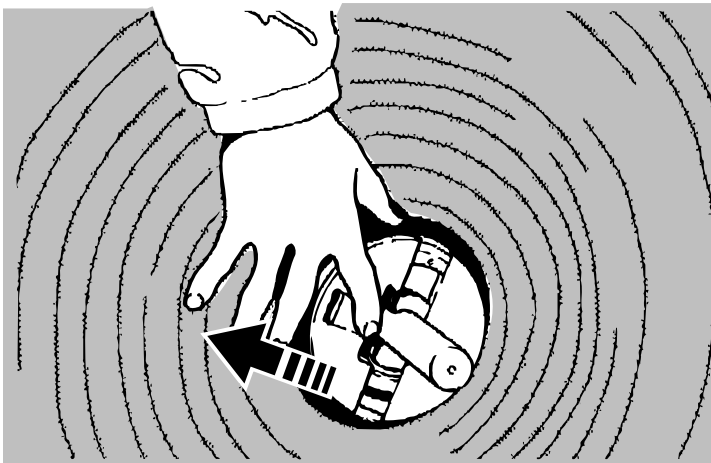
When the lugs lock, release the reel holder catch.

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2

Insert the reel holder into the core.

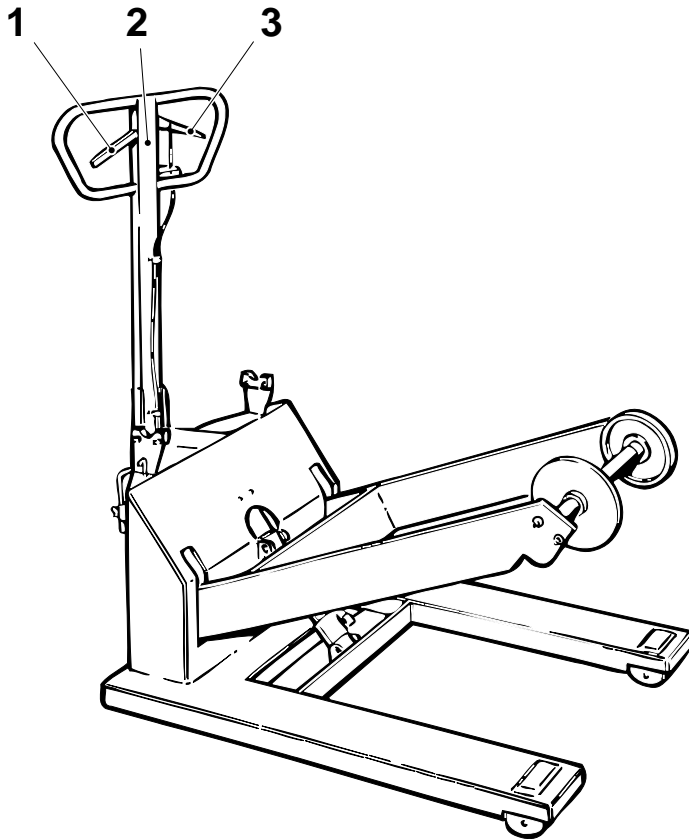


3

Pull out the reel holder catch to release the spring-loaded lugs.

### Note!

Check that the lugs have expanded to lock the reel holder to the reel.



## 4

Place the packaging material reel on the trolley.

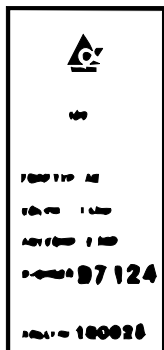
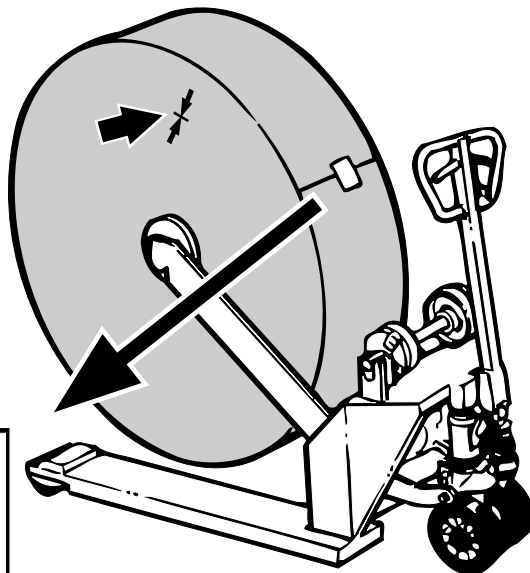
### **Note!**

Make sure that the reel is placed in the correct direction of rotation.

Lift the reel by pressing down the lever (1) and pumping the handle (2).

Pull up the lever (1) to lower the reel.

The lever (3) operates the brake.



## 5

Remove the plastic wrapping from the reel.

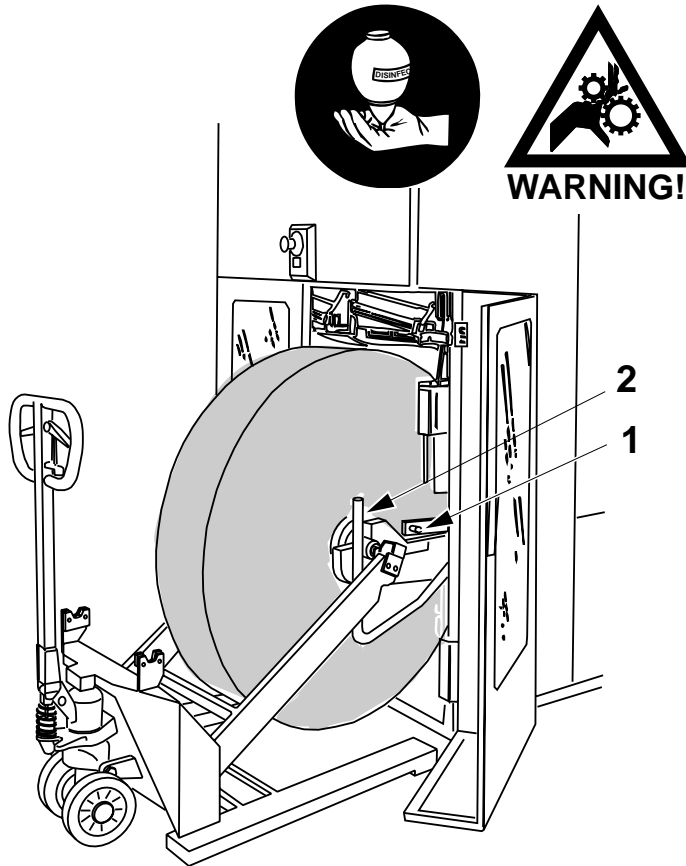
Remove and keep the P-order tag.

### **Note!**

The arrow marks on the side of the reels indicate where there are factory splices. The packages carrying a factory splice will be discarded automatically.

Always check the packages after a factory splice, see the *Package checks* section.

If any packaging material must be discarded, see the *TPOP display* section.



## Splicing preparation

**1**

### Risk of entanglement!

During production there are moving parts in the compartment.

Open the ASU door behind the empty packaging material reel.

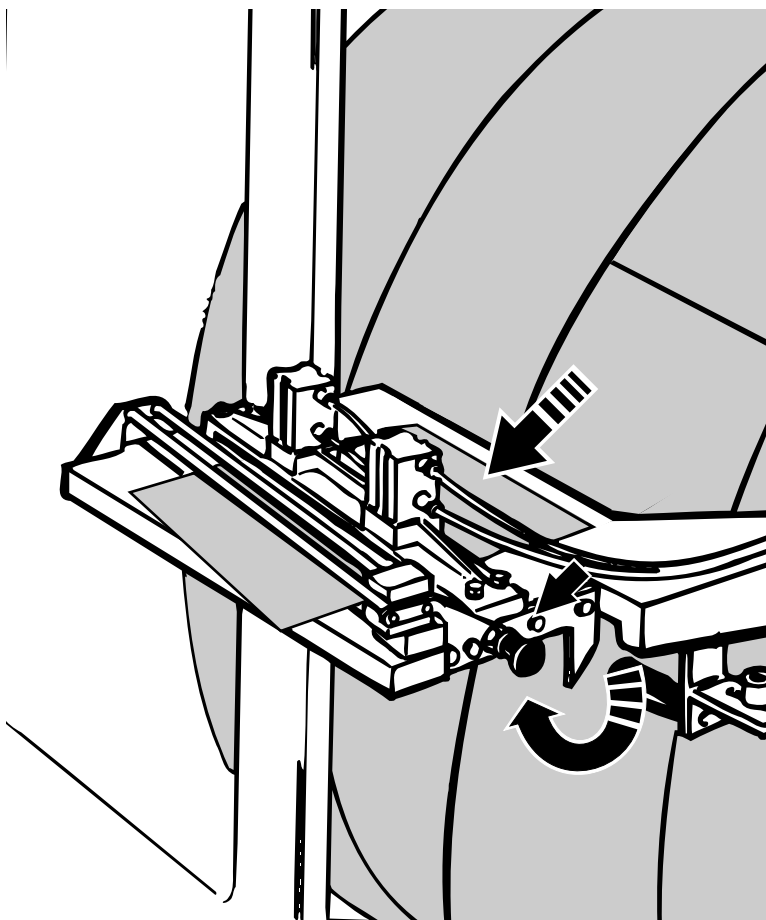
Lift the lever (1) and pull the paper reel handler lever (2) fully until the lever (1) locks into place.

Remove the empty reel holder.

Transfer the new reel from the trolley on to the paper reel handler.

Lift the lever (1) and push paper reel handler lever (2) fully until the lever (1) locks into place.

2.2TB125254en.fm



**2**

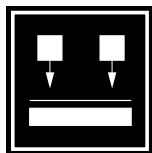
Pull down the material holder.

Pull out the pin and open the cutting table.

**3**

Press the **Material Locking** button to release the material catches.

Remove the old web of packaging material from the material holder.

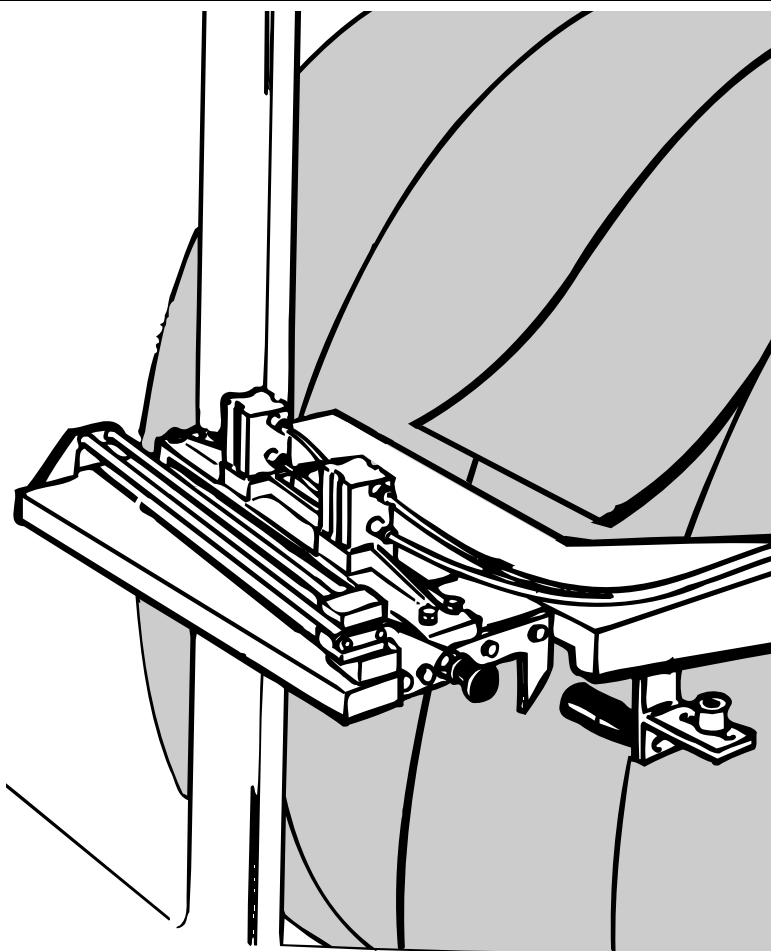


**4**

Clean the cutting table with a wet sponge.

Disinfect the cutting table.

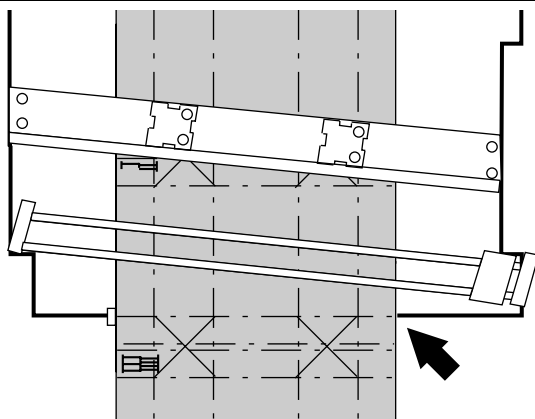
Use cleaning compound code G. See the *Technical data* section.

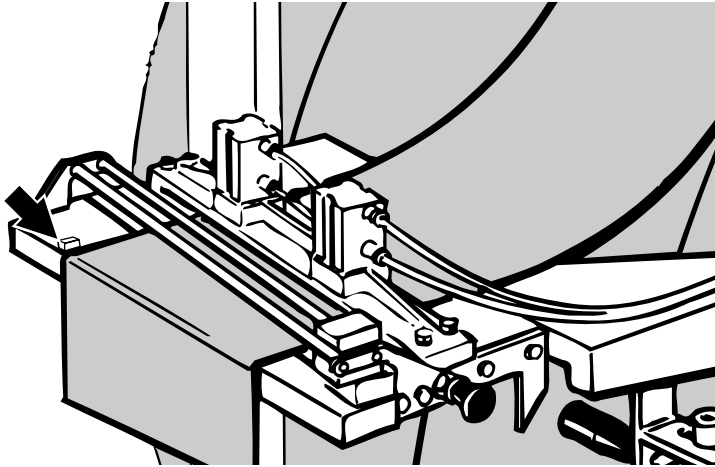


**5**

Thread the packaging material through the cutting table.

First fold the packaging material upwards along the **top crease**, then downwards, in order to obtain a sharp crease.



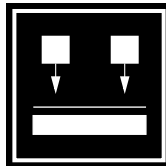


**6**

Line up the top crease with the edge of the cutting table and push the packaging material against the guide pin (arrow).

**7**

Keep the packaging material in this position and press the **Material Locking** button.



**8**

Cut the packaging material by means of the knife.

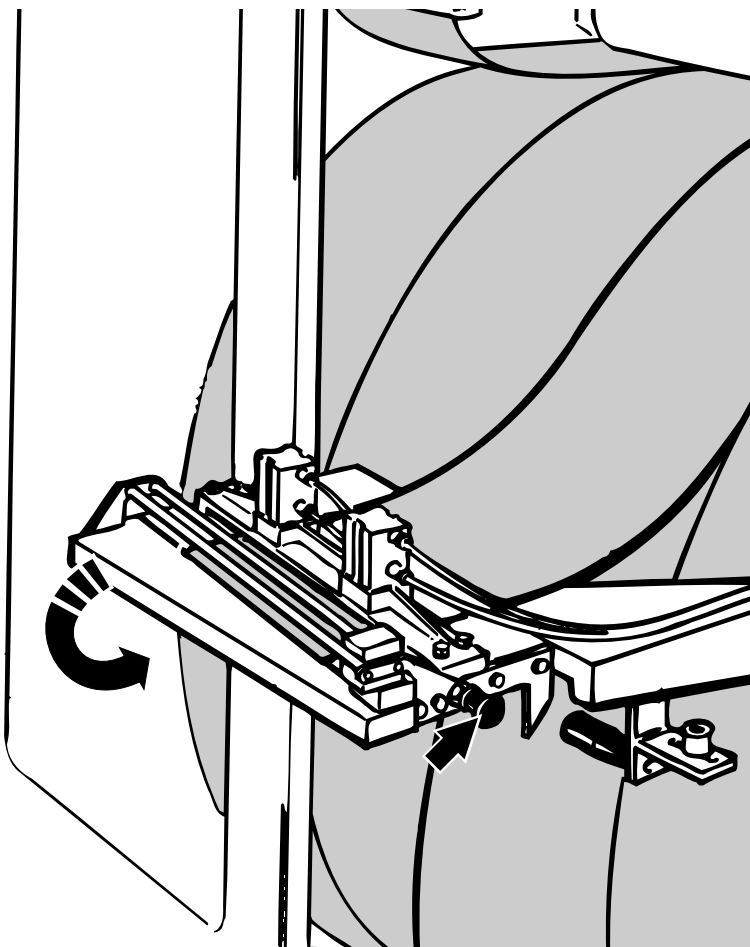
**Note!**

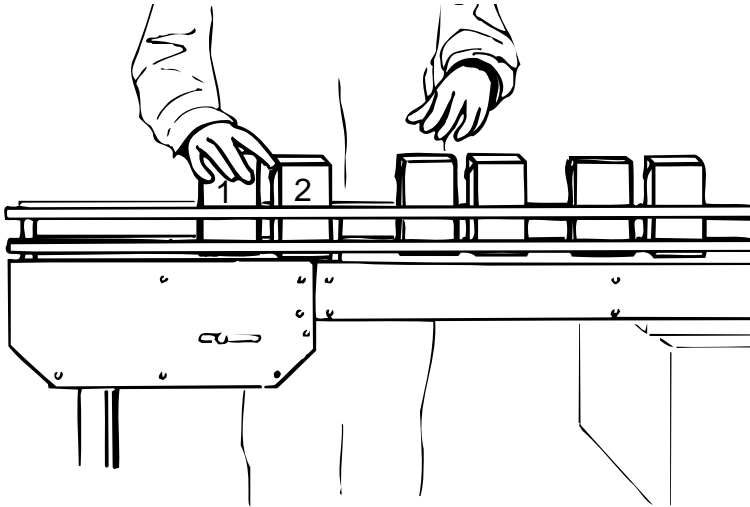
Leave the knife in its **RH position** after the cut.

Pull out the pin and close the cutting table.

Fold up the material holder to production position.

Close the ASU door.



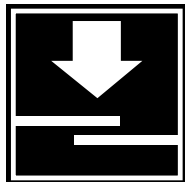


## Checking packages

Pick out and check the first **two** packages after the splice, see the *Package checks* section.

### Note!

Remember to register the number of packages taken for destructive checks. See the *Control panel* section.



## Manual web splice

Press the **Manual web splice** button.

When the machine has performed the splice, open the ASU door behind the packaging material reel **not** in use.

Follow the instructions from item 2 on page 155.

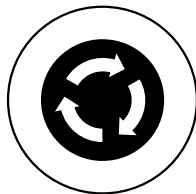
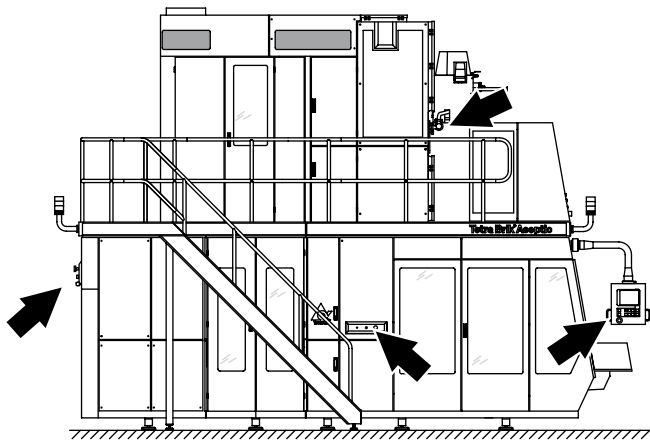
### Caution!

The machine should normally be stopped in a **Short stop** or a **Normal stop** during production.

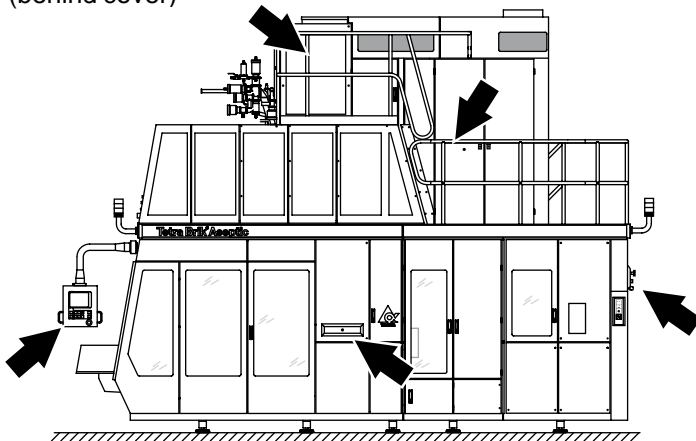
# Stop

This section describes how to stop the machine in:

- **Emergency stop**
- **Short stop**
- **Missing patch/tab stop**
- **Normal stop**
- **Production finished stop.**



(behind cover)



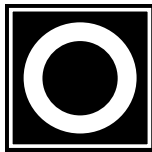
## Emergency stop

When there is a risk of **serious danger to people or to the machine**, press any of the emergency stop buttons (arrows) as quickly as possible.

- All machine movements and functions stop **instantly**.
- The pneumatic system de-pressurizes with some exceptions. See the *Safety precautions* section.
- The machine program step down to **Step Zero**.

Take the following actions:

- a) Eliminate the cause of the stop.
- b) Reset the **Emergency stop** button.
- c) Empty the tube from any remaining product residue by cutting it open.
- d) Register the cause and number of lost packages in the collect system. See the *TPOP Display Panel* section.
- e) Clean the machine according to *Daily care*.
- f) Restart production. See the *Preparation after daily care* section.



## Short stop

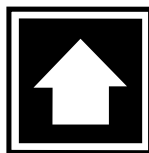
### 1

Use **Short stop** button to stop the machine for 15 minutes or less.

- a) Select whether to stop the LH or the RH pair of jaws in open position by turning the selector switch.
- b) Press **Short stop** button and the machine stops in design with the selected jaw pair in open position. (A time bar is displayed on the TPOP showing the time left since the **Short stop** button was pressed.)
- c) Register the stop reason in the collect system. See the *TPOP Display* section.

### Caution!

If the crank is inserted while the machine is in **Short stop**, the machine automatically resets to **Emergency stop**.



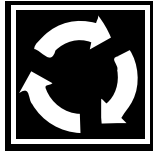
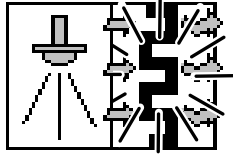
### 2

- a) Press the **Program up** button to restart the machine.
- b) Pick up some packages to check the LS seal. Discard any packages with a defective LS seal. See the *Package checks* section.
- c) Pick out packages and carry out the destructive checks. See the *Package checks* section.
- d) Register the number of packages taken to check the LS seal and for destructive checks. See the *TPOP Display* section.

## 3

### Short stop time exceeded

If the machine has been stopped for more than 15 minutes, the machine program steps down to step **Drying**.



#### Caution!

Make sure to inch the machine to empty the product from the tube.

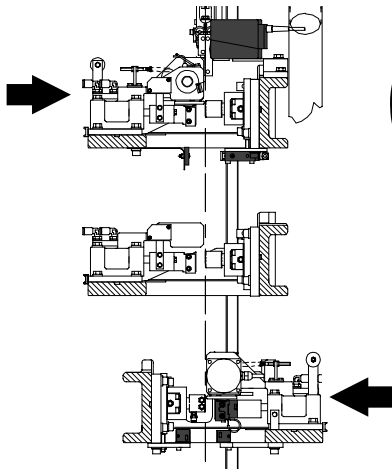
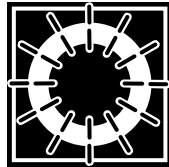
Restart the machine as usual. See the *Start* section.

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## Missing patch/tab stop

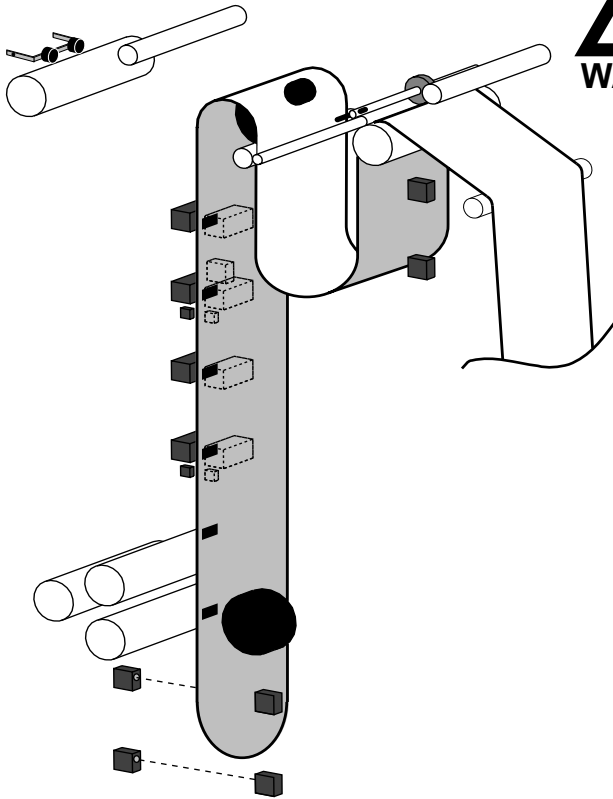
### 1

When the machine stops in **Short stop** due to a missing patch or tab, open the PullTab door.



### 2

- Remove any jammed strip from the patch feeder.
- Remove any jammed strip from the tab feeder.
- Carefully remove any plastic residue from the sealing plates and knives.

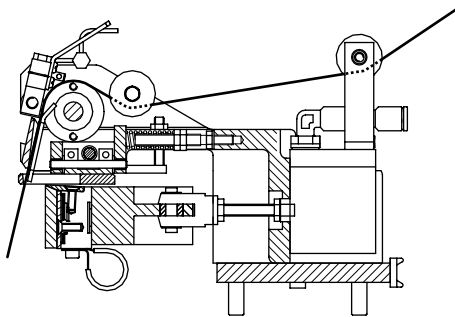


### 3

On the non-printed side of the packaging material, use black tape to cover all the open holes.

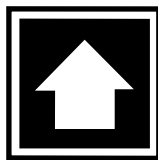
#### Note!

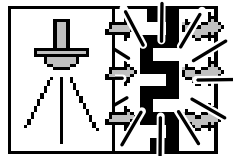
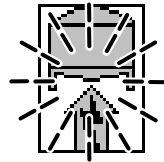
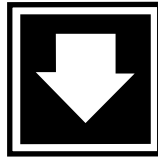
See the *Technical data* section for the correct type of black tape.



### 4

- a) If required, thread the patch strip.  
See the *Strip supply* section.
- b) If required, thread the tab strip.  
See the *Strip supply* section.
- c) Close the PullTab door.
- d) Restart the machine by pressing the **Program up** button.





## Normal stop

To stop the machine during production, press the **Program down** button.

The machine program steps down to **Drying**.

The **Signal to sterilizer** symbol and the **Drying** symbol are lit.

The machine continues until the product is emptied from the tube and then stops.

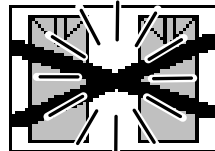
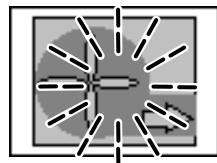
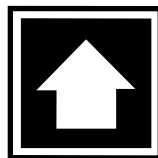
Register the stop reason in the collect system. See the *TPOP Display* section.

Restart the machine as usual. See the *Start* section.

### Note!

If the machine has been stopped more than 20 minutes, inch the machine to renew the material tube in the aseptic chamber.

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## Production finished

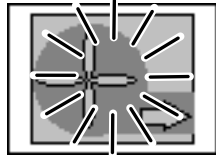
To stop the production run, press the **Program up** button.

The machine program steps up to **Production ended**.

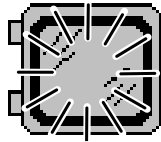
As soon as the tube is empty, there is a pause for two minutes.

### Note!

To interrupt the automatic sequence see *Interrupting the automatic sequence* on page 165.



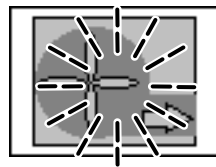
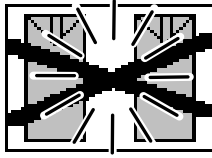
After the pause the machine program steps to **Venting Aseptic Chamber** for 10 minutes. A time bar on the TPOP display shows the remaining time.



After the step **Venting Aseptic Chamber**, the machine automatically proceeds to step **Doors Aseptic Chamber**.

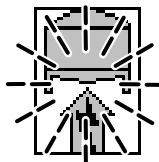
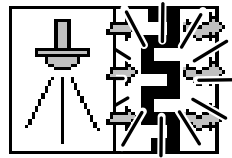
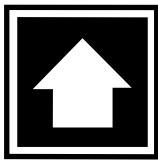
The peroxide fumes are exhausted, the compressor stops, and the aseptic chamber doors can be opened.

Perform maintenance. See the *Daily care* section.



Go immediately to  
**Venting Aseptic Chamber**

Return to **Production**



## Interrupting the automatic sequence

During the two minute pause before the program steps to **Venting Aseptic Chamber**, is possible to proceed straight to step **Venting**, or return to **Production**.

- To step to **Venting Aseptic Chamber**, press the **Program up** button for three seconds.
- To return to **Production** press the **Program down** button.
  - The program steps to **Drying**.
  - The **Signal to sterilizer** symbol and the **Program up** button start to flash.
  - Press the **Program up** button and restart the machine as usual. See the *Start* section.

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## Daily care

### Caution!

Use only Tetra Pak recommended cleaning compounds when cleaning parts which may come into contact with hydrogen peroxide. Cleaning with not recommended compounds may cause explosion!

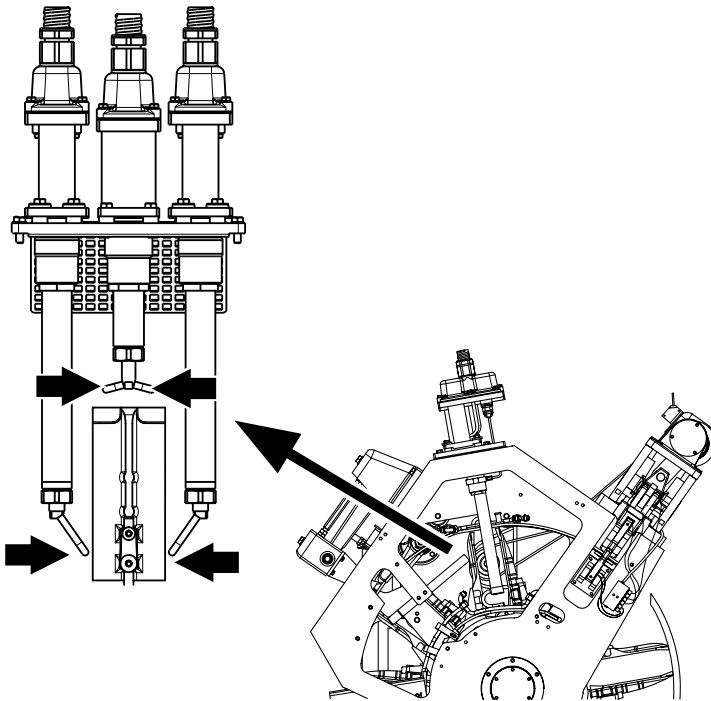
This section describes what to do after each production run or at least every 24 operating hours.

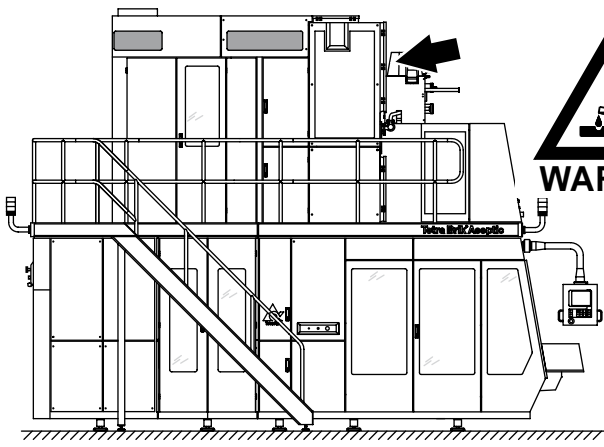


**1**

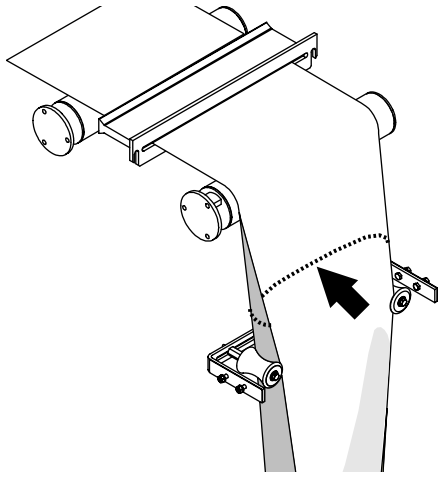
Clean the four heating nozzles of the flap heater (arrow) in the final folder with a **brass wire brush**. Check that the air holes on the nozzles are not clogged after the cleaning.

Blow clean with compressed air.

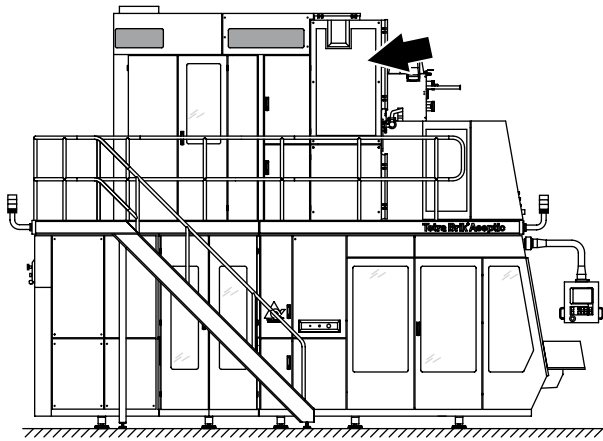




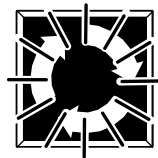
**2**  
**Hydrogen peroxide!**  
Follow the *Safety precautions*.  
Open the upper aseptic chamber door.



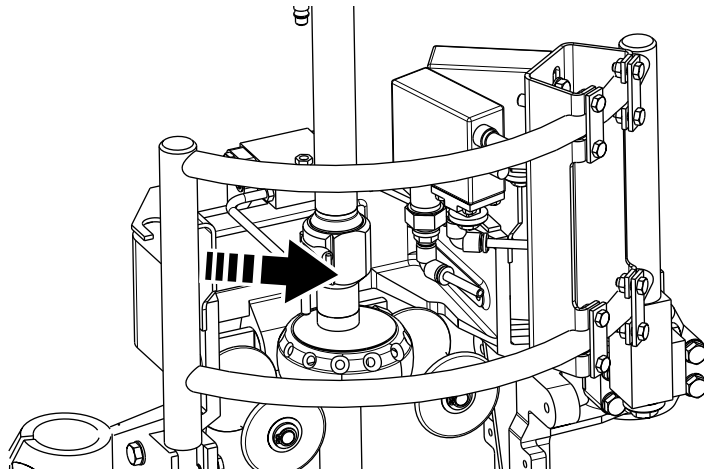
**3**  
Cut off the packaging material as shown.



**4**  
Close the upper aseptic chamber door.

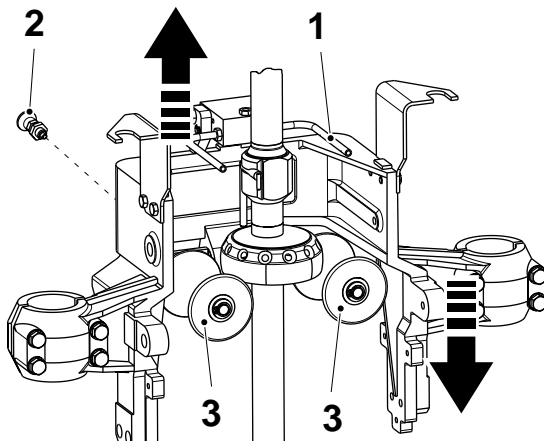


**5**  
Press the **Inching** button until the packaging material tube has been fed out.



**6**

Pull the bow clamp outwards.



**7**

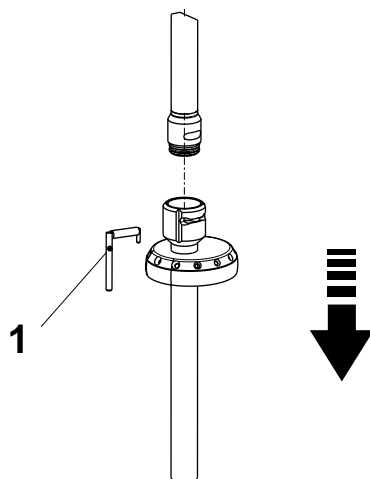
Lift the sprinkler (1) to cleaning position.

Pull out the rear catch (2) and turn the tube support rollers (3) to cleaning position. Clean and if required remove lime deposits from the sprinkler nozzle holes.

**Caution!**

Make sure that the rollers lock in position.

2.2TB165254en.fm



**8**

Remove the pin (1) to remove the lower part of the filling pipe. Remove the O-ring and check for wear or damage, change as required.

**Note!**

Make sure that these parts are cleaned after CIP and external cleaning have been started.

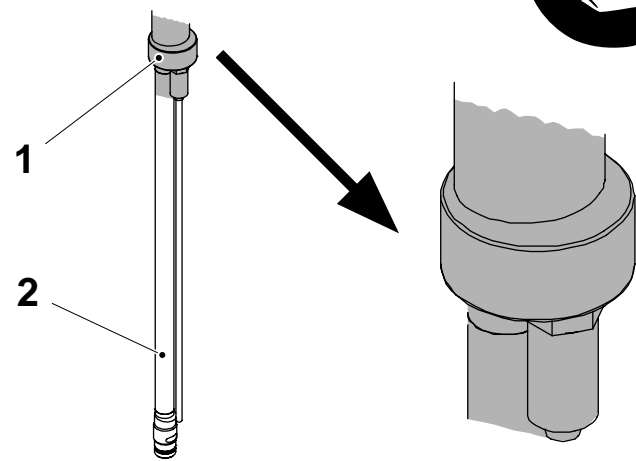
Wipe off any product residue on the cleaning sleeve flange and the lower part of the filling pipe with a sponge. Use water and cleaning compound code G - H.



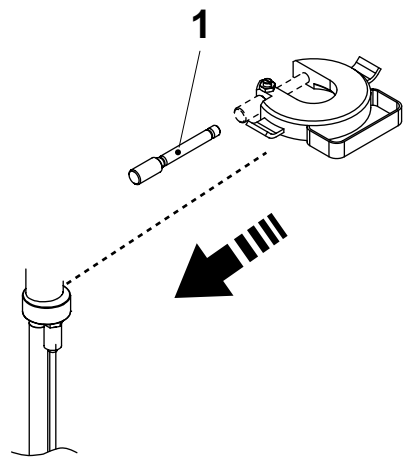
**9**  
**Risk of serious production fault!**  
 Take care to remove all visible product residue from the pipe. Sterilisation is effective on clean surfaces but may not be effective on product residue.



Wipe off any product residue on the cleaning sleeve flange (1) and the lower part of the filling pipe (2) with a sponge.  
 Use water and cleaning compound code D. See *Technical data* section.  
 Rinse with drinking water.

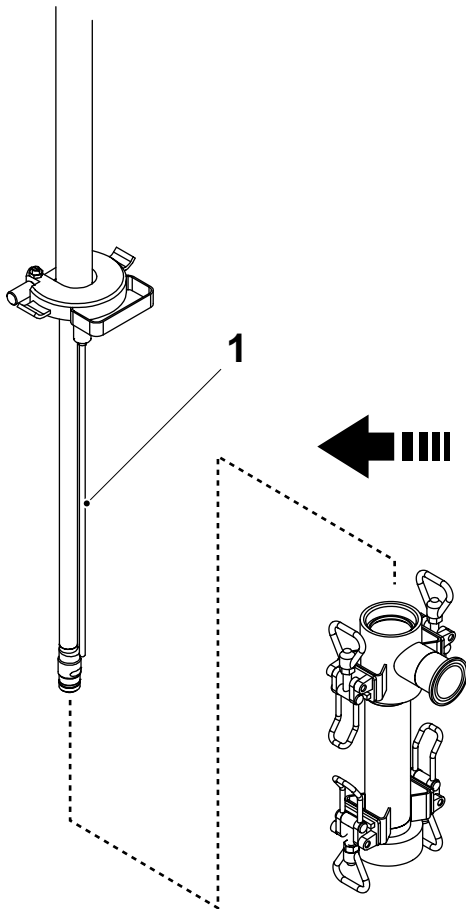


Spray a small quantity of disinfectant code G3, on the filling pipe covering entirely the sleeve flange area (1), shown shaded in the picture.  
 See *Technical data* section.



**10**  
 a) Remove the pin (1) from the cleaning sleeve flange.  
 b) Place the cleaning sleeve flange on the flange of the filling pipe. Secure with the pin (1).

2.2TB165254en.fm



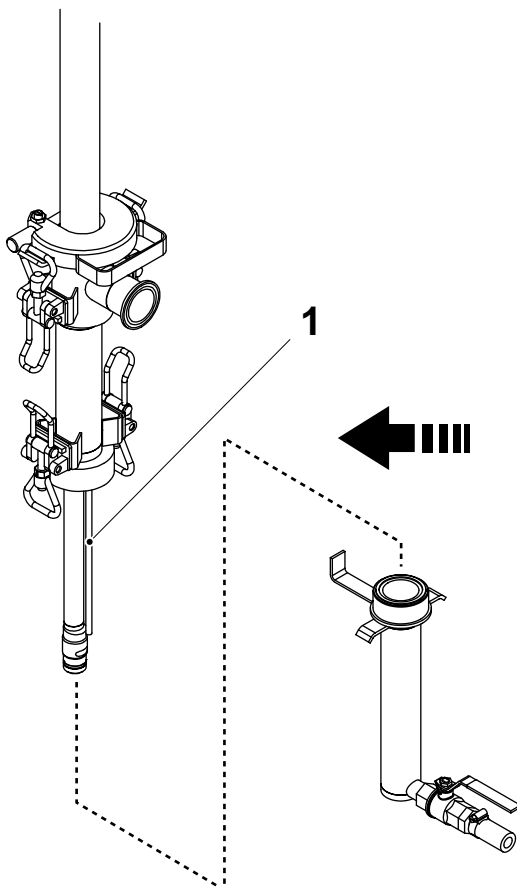
## 11

### Caution!

Take care not to hit the level probe (1) and not to damage the fitting when inserting the cleaning sleeve.

- a) Check the gaskets on the upper cleaning sleeve and change as required.
- b) Connect the upper cleaning sleeve and secure it with the two catches (Crank the jaw system to move it away from where the sleeve is being connected).

2.2TB165254en.fm



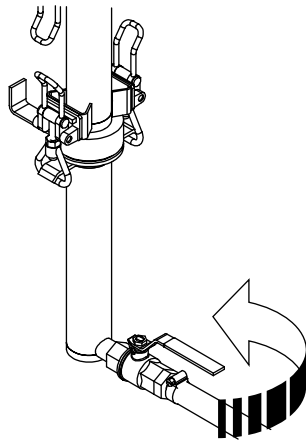
## 12

### Caution!

Take care not to hit the level probe (1) when fitting the cleaning sleeve.

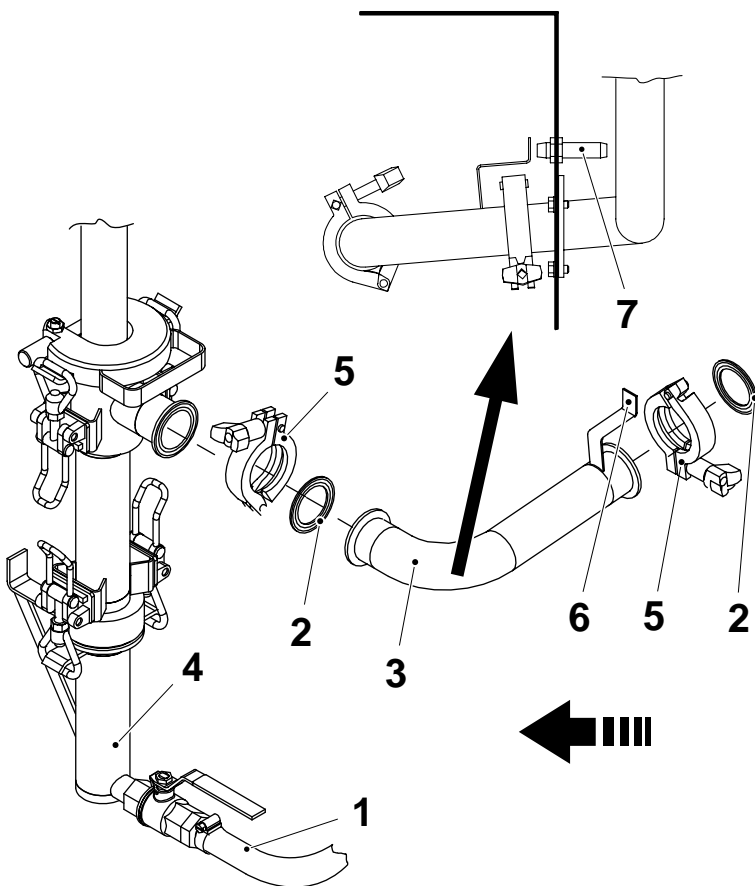
Risk of equipment damage if the draining hose interferes with machine movements.

- a) Check the gaskets on the lower cleaning sleeve and change as required.
- b) Connect the lower cleaning sleeve and secure it with the two catches.



## 13

Close the valve on the lower cleaning sleeve.



## 14

Place the draining hose (1) safely away from the jaws or from the final folder movements.

Check and change as required the gaskets (2) on the return pipe (3).

Fit the return pipe (3) and its gaskets (2) to the cleaning sleeve (4) and to the machine body frame by means of the clamps (5).

**Note!**

Make sure that the sensor plate (6) is aligned with the sensor (7).

2.2TB165254en.fm

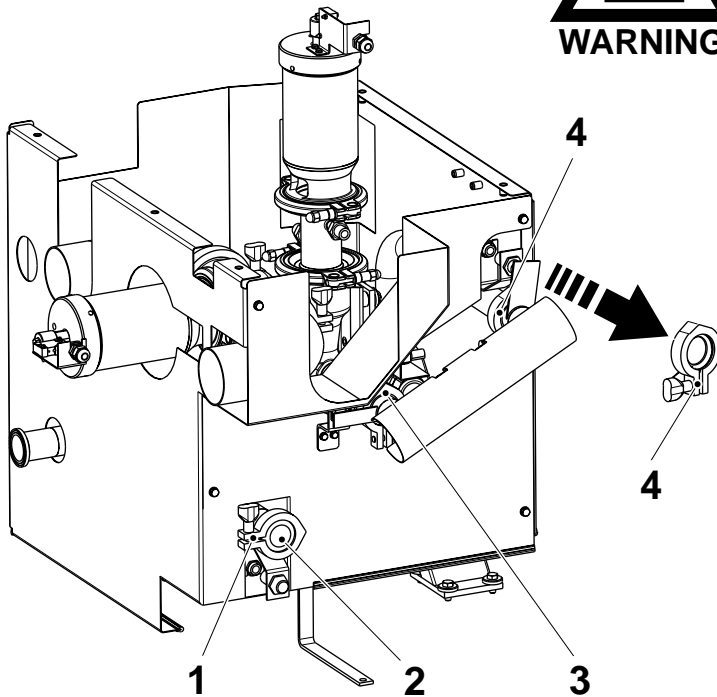
- 1 Draining hose
- 2 Gasket
- 3 Cleaning sleeve
- 4 Return pipe
- 5 Clamp
- 6 Sensor plate
- 7 Sensor



## 15

### Risk of personal injury!

The components may be hot.  
Wear heat-resistant protective gloves.



Loosen the clamp (1) and remove the blank-off flange (2) from the cleaning pipe.

Loosen the clamp (3) and (4).

Remove the clamp (4) and check the gaskets for wear and/or damage.  
Change as required.

- 1 Clamp
- 2 Blank-off flange
- 3 Clamp
- 4 Clamp

2.2TB165254en.fm

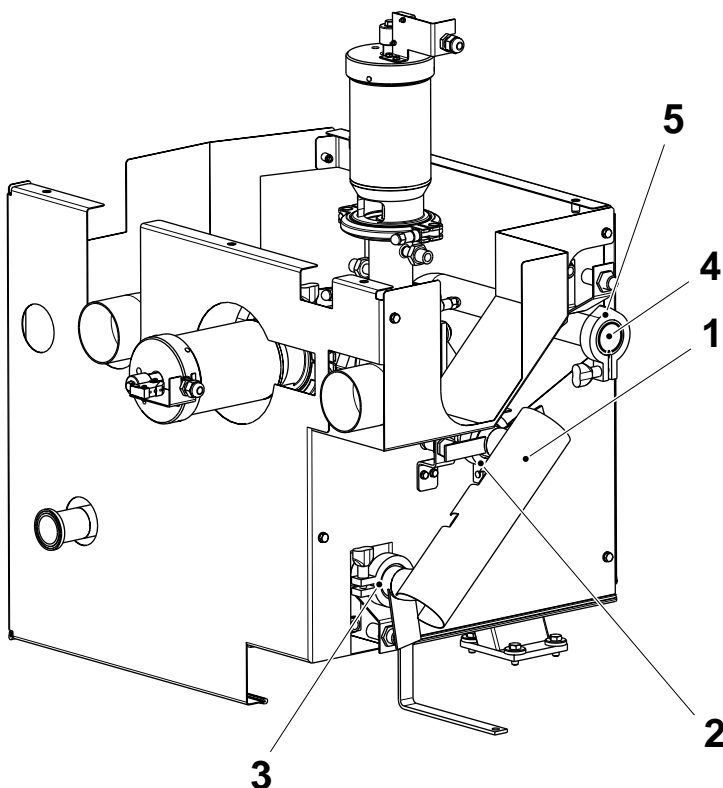
## 16

Turn and fit the switch-over pipe (1) to cleaning position by means of the clamp (3). Tighten the clamps (2) and (3).

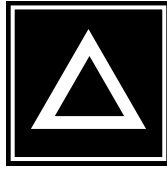
Fit the blank-off flange (4) to the production pipe and tighten the clamp (5).

### Note!

Make sure that the sensor plates are aligned with the sensors.



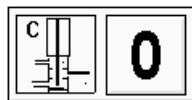
- 1 Switch-over pipe
- 2 Clamp
- 3 Clamp
- 4 Blank-off flange
- 5 Clamp



## 17

Close all covers and doors on the machine and reset the alarms on the TPOP display.

If an alarm is present, take the appropriate measures or call a technician.



## 18

Touch the **CIP-program** button to select CIP cleaning. The **Final cleaning** symbol appears on the TPOP display.

Decide which CIP method to use:

- Use intermediate cleaning only after an unplanned stop during production (such as an emergency stop) and when production needs to be started immediately after cleaning. All parts of the machine filling system, except the C-valve, are cleaned.

Go to item *18a*.

- Use final cleaning after every production run while the line is also being cleaned. The entire machine filling system, including the C-valve, is cleaned.

Go to item *18b*.

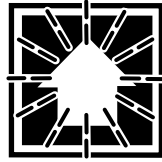
### Caution!

Intermediate cleaning is the default setting. Intermediate cleaning does not clean the C-valve. There is a severe risk of product contamination during any idle time between cleaning and production.

Do not use intermediate cleaning if there will be idle time between cleaning and production.

Do not use intermediate cleaning as a replacement for final cleaning.

Follow the instructions in *18b* step to clean the C-valve (final cleaning).



## 18a

### Cleaning compounds!

Chemical products. Follow the Safety precautions. Do not open any doors during cleaning.

### Caution!

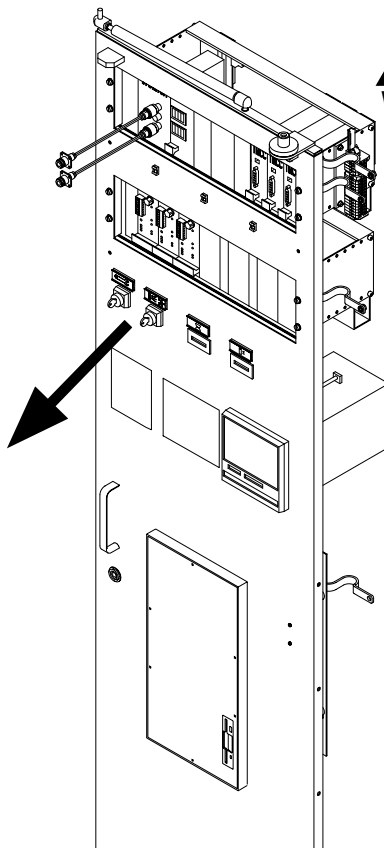
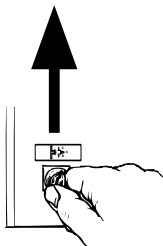
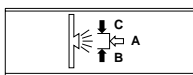
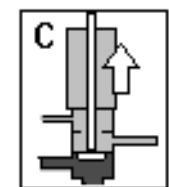
Do not open any doors during cleaning. There is a risk that the customer equipment and the filling machine could be damaged. An open door sets an alarm and causes the valves to close immediately (cleaning fluid flows at 8,000 l/hour).

Press the **Program up** button to start the CIP cleaning.

### Note!

To interrupt the cleaning procedure see page 44.

2.2TB165254en.fm



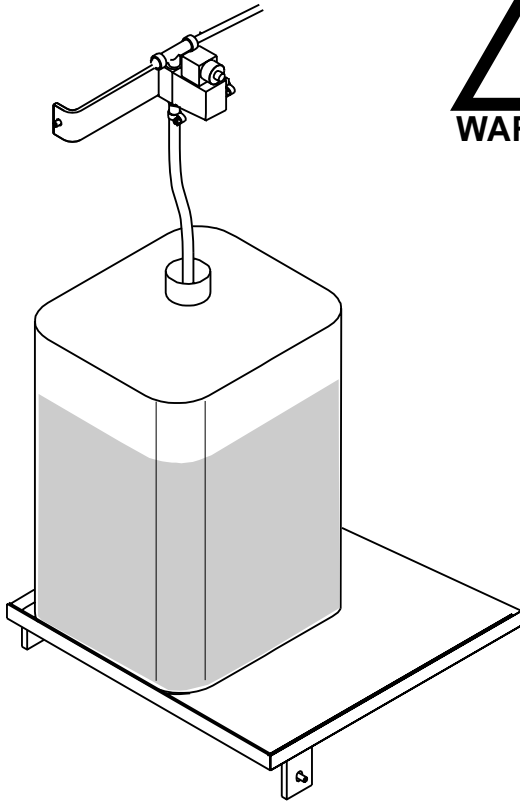
## 18b

### Risk of product contamination!

Final cleaning must only be done after the product line has been emptied.

For final cleaning, turn the non-locking key switch to the RH position.

The final cleaning symbol on the TPOP lights up.

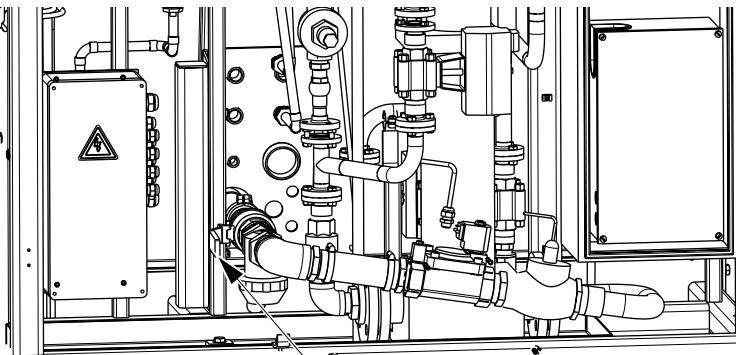


## 19

### Cleaning compound!

Chemical products. Follow the *Safety precautions*.

Check the detergent level in the container. If required, top up with the cleaning compound code C1. See the *Technical data* section.



1

## 20

Use the cleaning handle (1) to open the cleaning valve.



## 21

Touch the **External cleaning** button.



## 22

When the **Program up** button begins to flash, press it to start the cleaning.

A time bar is displayed on the TPOP showing the remaining time.

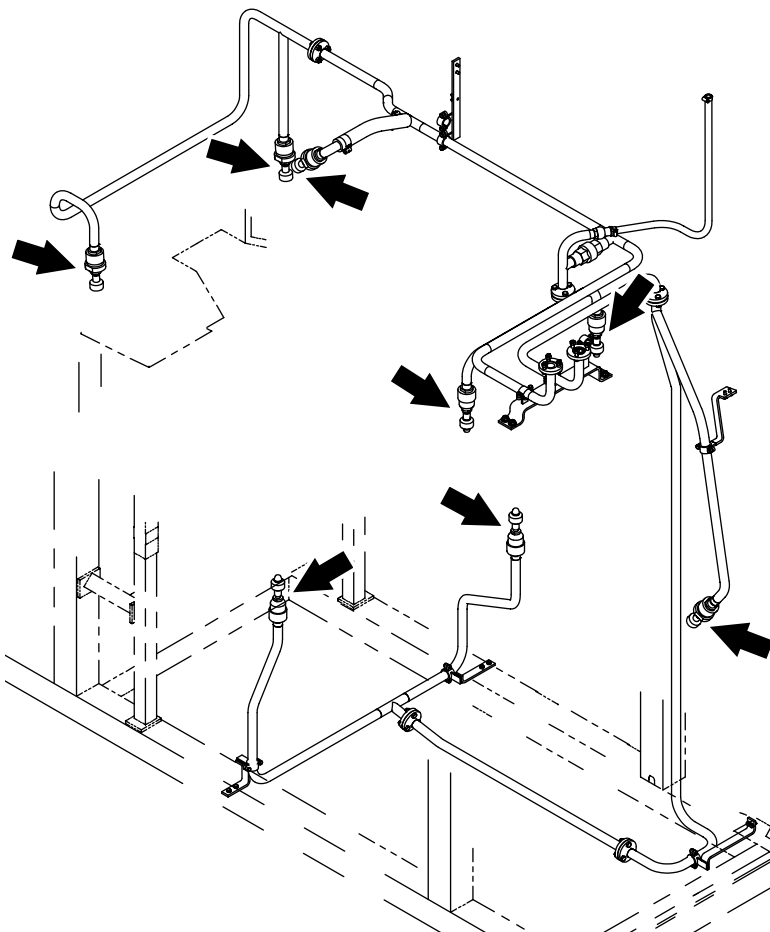
### Caution!

Do not open the doors during cleaning.  
Do not turn off the compressed air and the water supply until CIP cleaning and external cleaning have been completed.

### Note!

For details on how to interrupt the cleaning procedure see page 44.

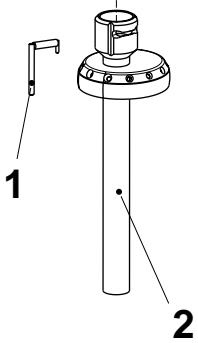
2.2TB165254en.fm



## 23

Check visually through the glass that the cleaning nozzles are functioning properly. Ensure the foam is evenly distributed over all areas.

Call a service technician if any nozzle does not rotate.

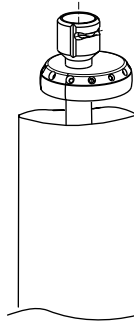


## 24

### Risk of serious production fault!

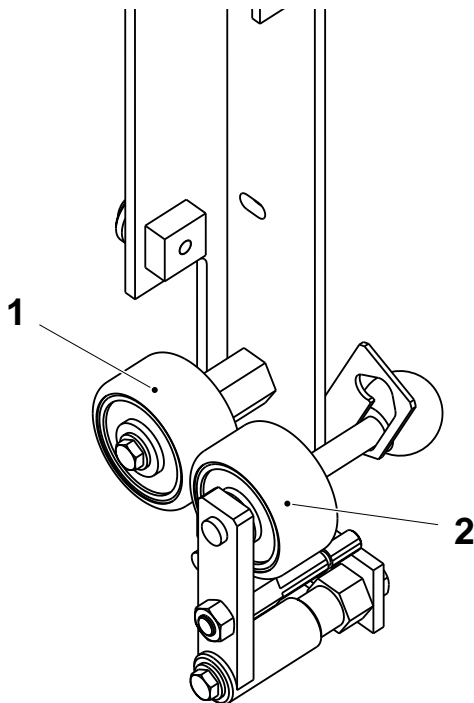
Take care to remove all visible product residue from the pipe. Sterilisation is effective on clean surfaces but may not be effective on product residue.

Clean the pin (1), and the lower filling pipe (2) separately by hand. Use water and the cleaning compound code D. See the *Technical data* section. Rinse with drinking water.



## 25

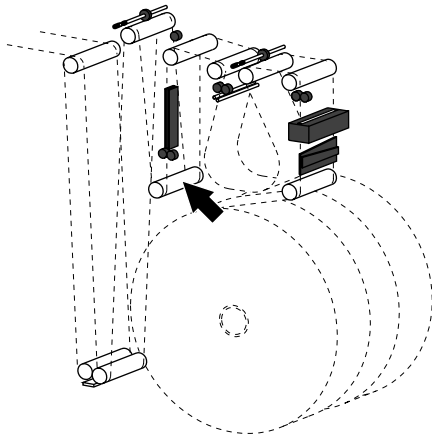
Store the cleaned lower filling pipe into an appropriate tank/container. Use the cleaning compound code F. See the *Technical data* section.



## 26

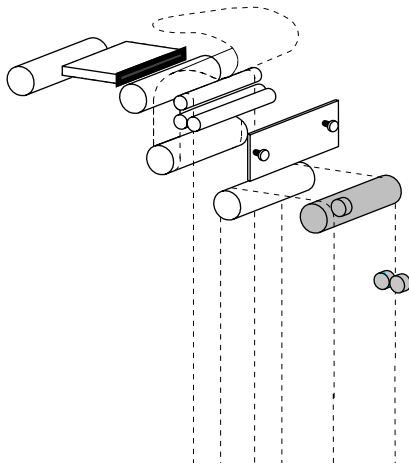
On the strip applicator, blow clean the counter roller (1) and pressure roller (2).

Clean the counter roller (1) and pressure roller (2) with a sponge. Use cleaning compound code G1 or G2. See the *Technical data* section.



## 27

Clean the roller (arrow) with a sponge.  
Use cleaning compound code G1 or G2.  
See the *Technical data* section.

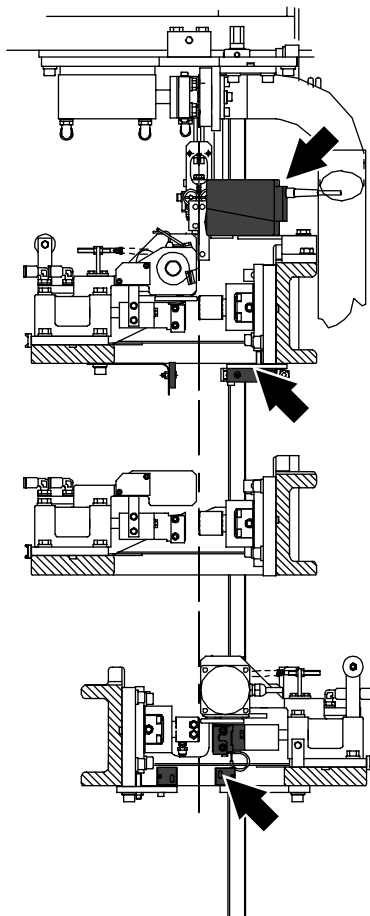


## 28

Clean all rollers shown in grey in the picture, the bending roller, the web guide and the splice guard with a sponge.  
Use cleaning compound code G1 or G2.  
See the *Technical data* section.

Wipe dry with a clean cloth

2.2TB165254en.fm

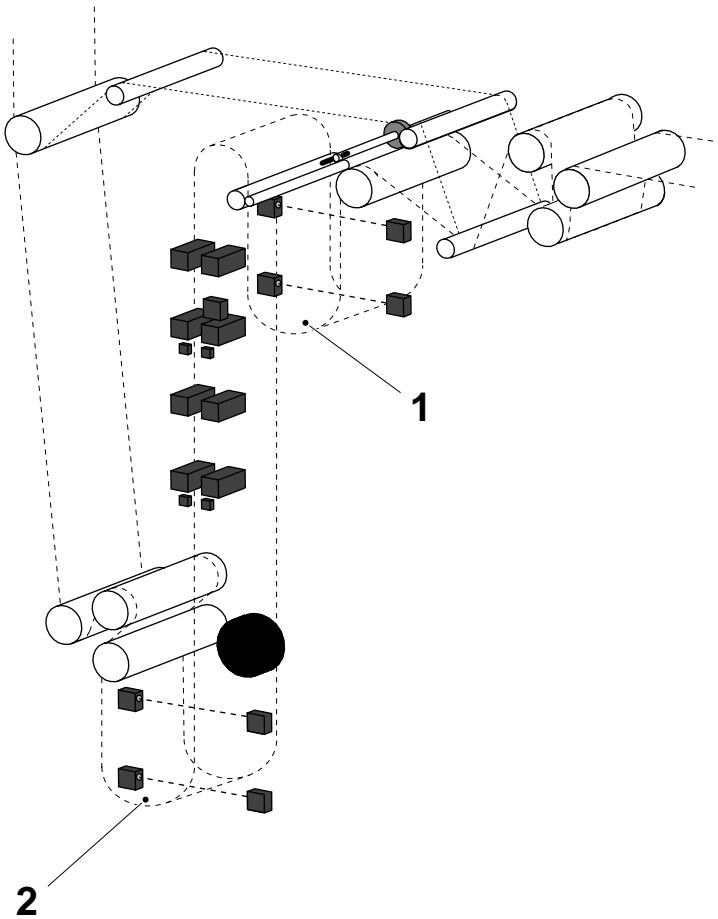


## 29

Clean the PullTab photocell lenses shown by the arrows and the reflectors with a clean dry cloth.

### Note!

A dirty lens causes reading errors which can affect production.

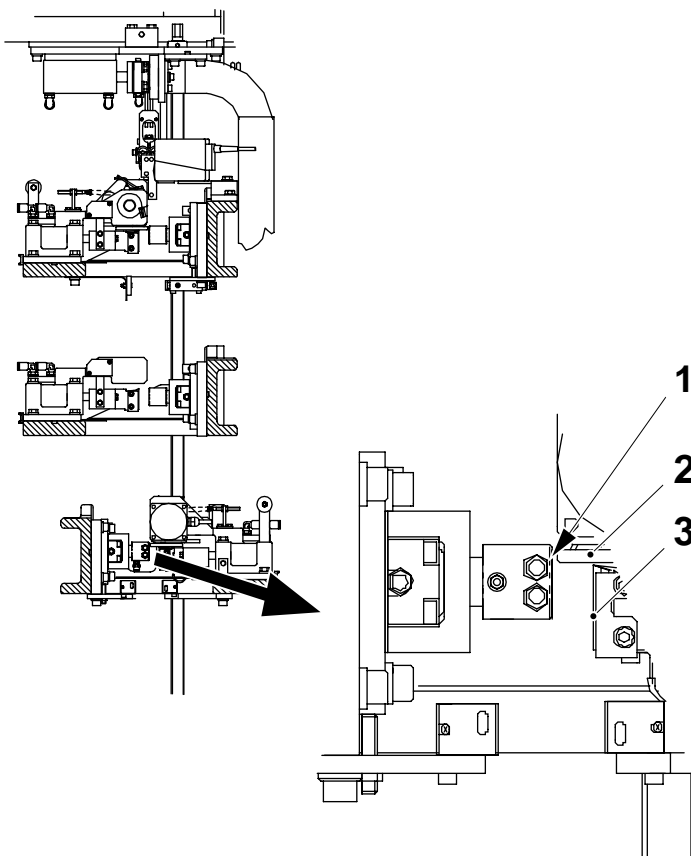


## 30

Clean the PullTab photocell lenses at the infeed loop (1), the outfeed loop (2) and the reflectors with a clean dry cloth.

A dirty lens causes reading errors which can affect production.

2.2TB165254en.fm



## 30a

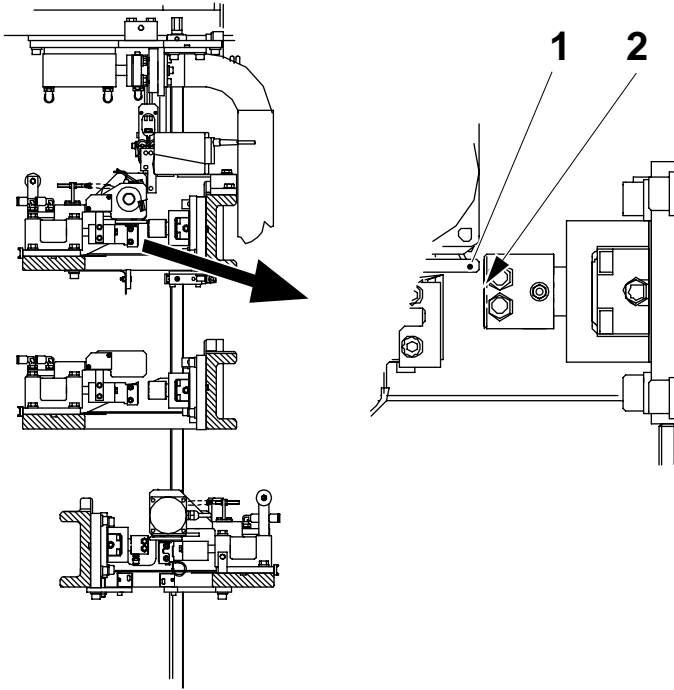
### Note!

The surface of the sealing plate (3) is covered by a special plastic layer. Make sure not to damage this surface.

Remove any dry residue from the plastic block (1) and from the sealing plate (3) using a rigid plastic tool.

Carefully remove any plastic residue from the sealing plate (3) using ethanol and a rigid plastic tool. Call a technician for the replacement.

Carefully remove dry residue from the window knife (2) using a knife. Call a technician for the replacement.



## 30b

Check the Teflon™ tape on the surface of the inductor (2). Call a technician for the replacement.

Carefully remove dry residue from the window knife (1) using a knife. Call a technician for the replacement.

2.2TB165254en.fm

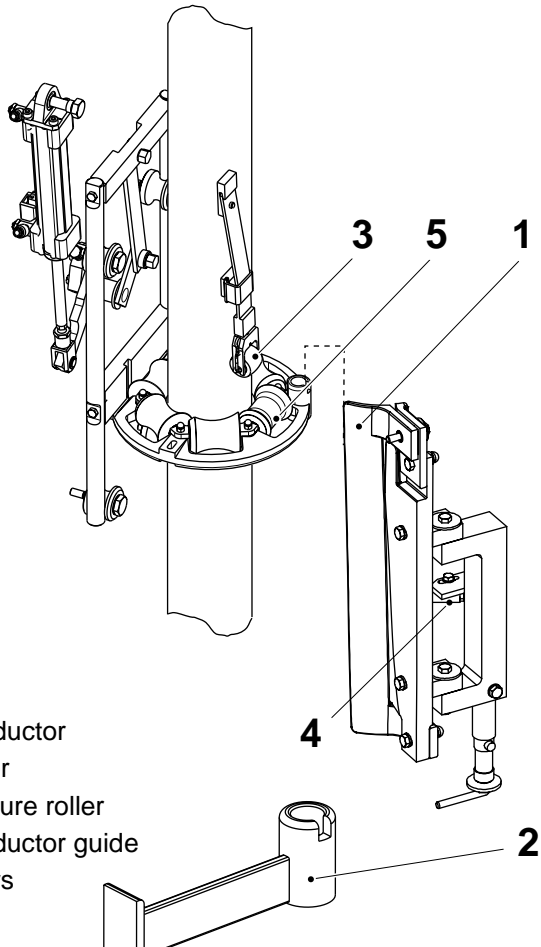
## 31

### Cleaning recorder

Check that the printing on the cleaning recorder is correct on all the channels. If not, call a technician.

Cleaning recorder channels

Channel	Colour	Function
AN 4	Blue	Concentration
AN 5	Brown	Flow
AN 6	Black	Temperature



- 1 LS inductor
- 2 Holder
- 3 Pressure roller
- 4 LS inductor guide
- 5 Rollers

### 32

Carefully remove the LS inductor (1) and place it on the provided holder (2) into the aseptic chamber.

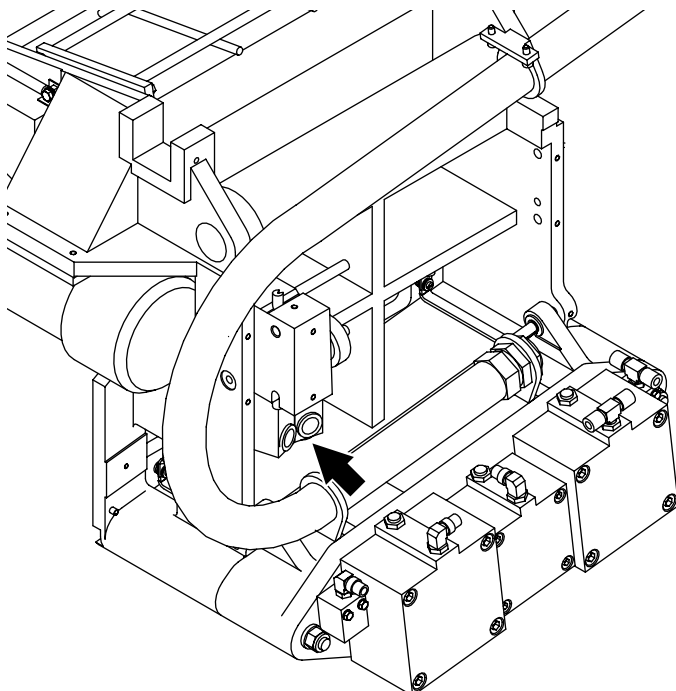
Check the rotation and condition of LS pressure roller (3) and LS-inductor guide roller (4). If required, call a service technician.

Check that all rollers (5) in the forming ring rotate freely. If required, call a service technician.

Taking care not to damage the surface, carefully remove all residue from

- the rollers (3) and (5), especially the front roller
- the inside of the LS inductor (1)

Assemble in the reverse order.



### 33

Blow clean the photocell lenses in the splicing unit with compressed air.

**Note!**

A dirty lens causes reading errors which can affect production.

2.2TB165254en.fm

## 34

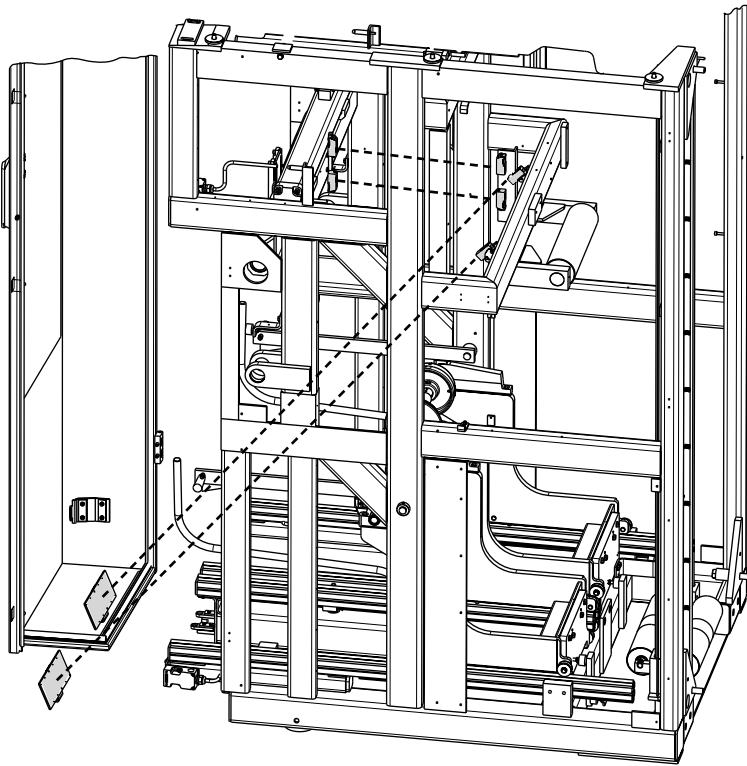
**Note!**

Photocells are mounted on a moveable bracket. When cleaning, take care not to change the setting of the photocell.

Clean the eight photocell lenses in the ASU packaging material compartment with a clean dry cloth.

**Note!**

A dirty lens causes reading errors which can affect production.



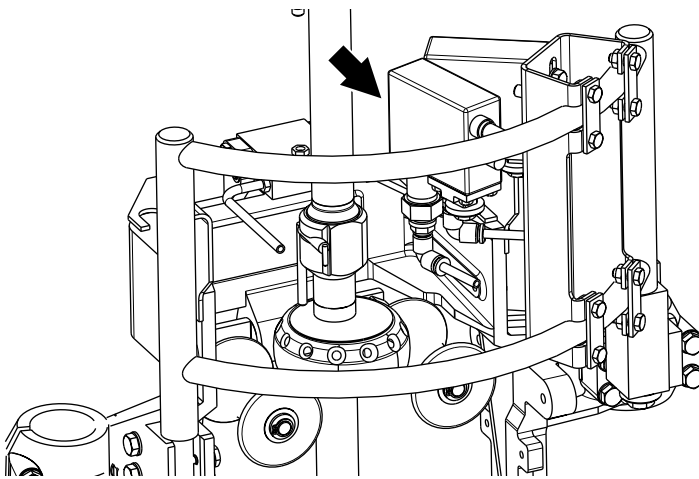
2.2TB165254en.fm

## 35

Clean the photocell lenses on the design correction unit with a clean dry cloth.

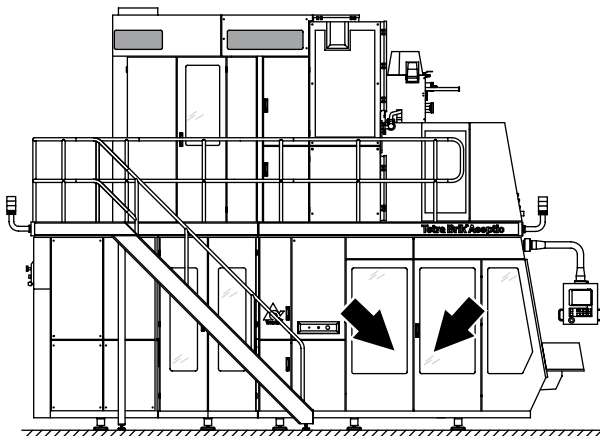
**Note!**

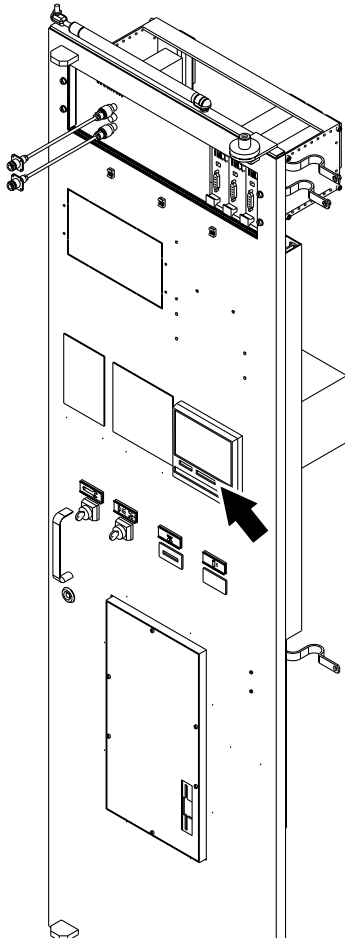
A dirty lens causes reading errors which can affect production.



## 36

Wipe down all the rubber seals on the doors to the jaw system and final folder area with a sponge to avoid water residue.





**37**

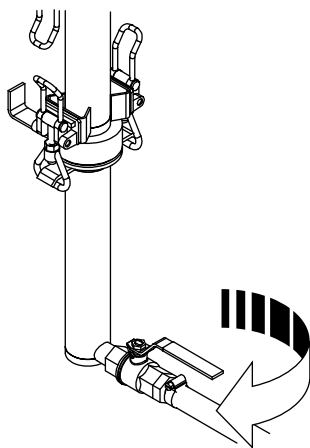
**Process and cleaning recorders(OE)**

When the CIP and the external cleaning are finished, press the **Feed** key on both recorders to feed some chart paper.

Open the recorders and tear off the process report and the cleaning report.

Check the print quality on each report.  
If required, change the ink wheel.  
See item 6 on page 99.

Give the reports to the person responsible for evaluation.



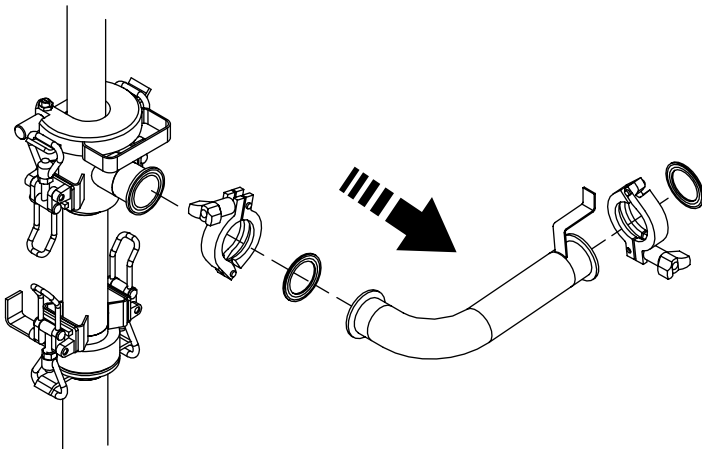
**38 a**

**Chemical products!**

Cleaning compound. Follow the *Safety precautions*.

Empty the CIP line by opening the valve on the lower cleaning sleeve.

2.2TB165254en.fm



**38 b**

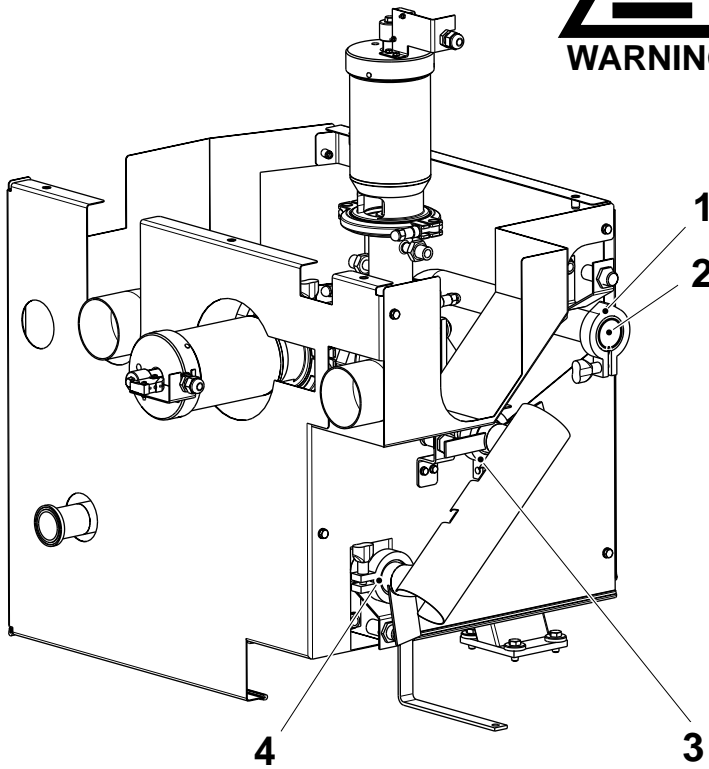
Disconnect the return pipe and remove it from the machine.



## 39

### Risk of personal injury!

The components may be hot.  
Wear heat-resistant protective gloves.



Loosen the clamp (1) and remove the blank-off flange (2) from the production pipe.

Loosen the the clamp (3) and (4).

Remove the clamp (4).

Check the gaskets for wear and/or damage.  
Change as required.

- 1 Clamp
- 2 Blank-off flange
- 3 Clamp
- 4 Clamp

2.2TB165254en.fm

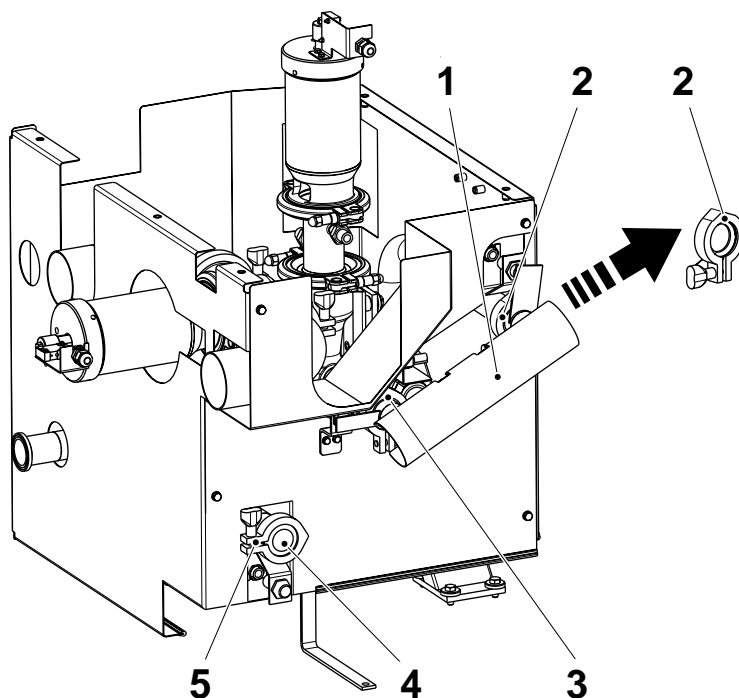
## 40

Turn and fit the switch-over pipe (1) to production position by means of the clamp (2). Tighten the clamps (2) and (3).

Fit the blank-off flange (4) to the cleaning pipe and tighten the clamp (5).

### Note!

Make sure that the sensor plates are aligned with the sensors.



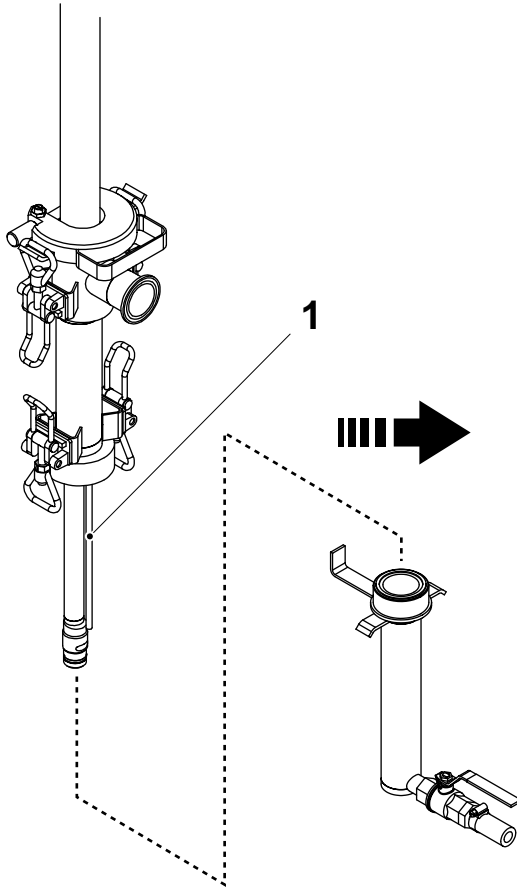
- 1 Switch-over pipe
- 2 Clamp
- 3 Clamp
- 4 Blank-off flange
- 5 Clamp

## 40a

### Caution!

Take care not to hit the level probe (1) when removing the cleaning sleeve.

Release the two catches and disconnect the lower cleaning sleeve.

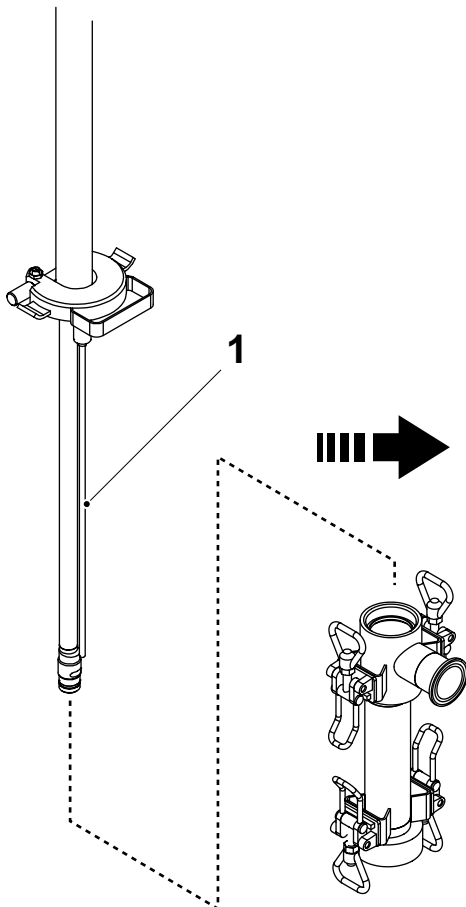


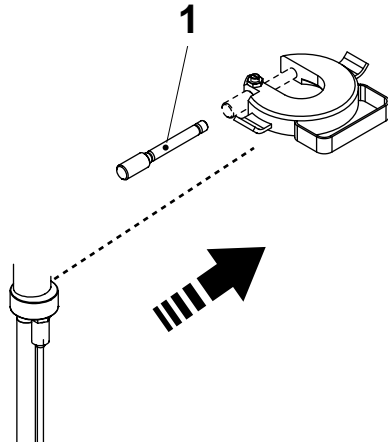
## 41

### Caution!

Take care not to hit the level probe (1) when removing the cleaning sleeve.

Release the two catches and disconnect the upper cleaning sleeve. (Inch the jaw system to move it away from where the sleeve is being disconnected.)



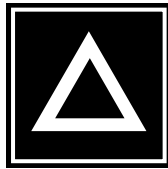


## 42

- a) Remove the pin (1) from the cleaning sleeve flange.
- b) Remove the cleaning sleeve flange.
- c) Insert the pin (1) into the cleaning sleeve flange.

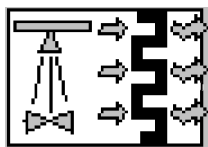
## 43

Close all covers and doors on the machine and reset the alarms on the TPOP display.



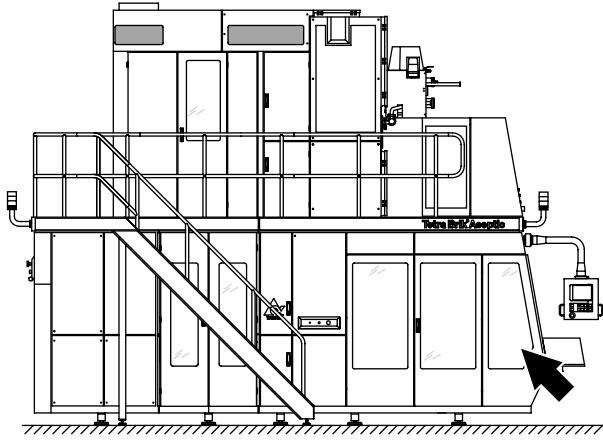
## 44

Press the **Program up** button to step up to step **CIP drying**.

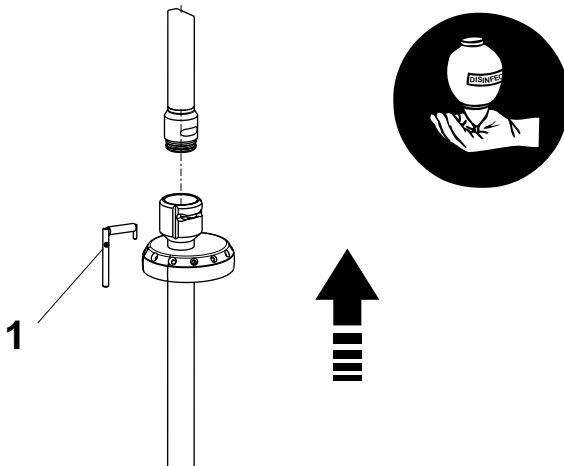


## 45

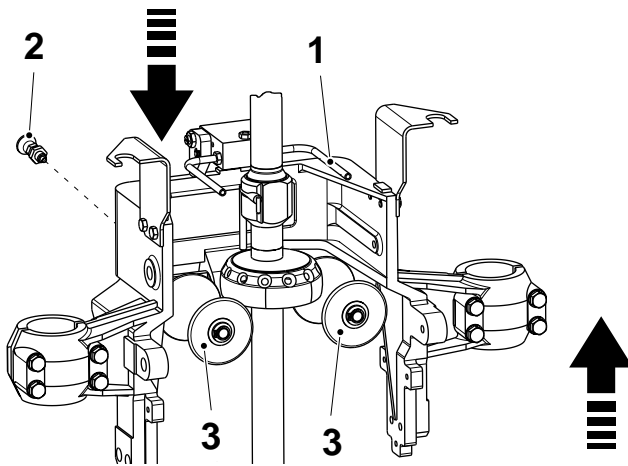
The machine will step automatically to **Step Zero** after 9 minutes when the **CIP drying** step is completed.



**46**  
Open the final folder unit door.

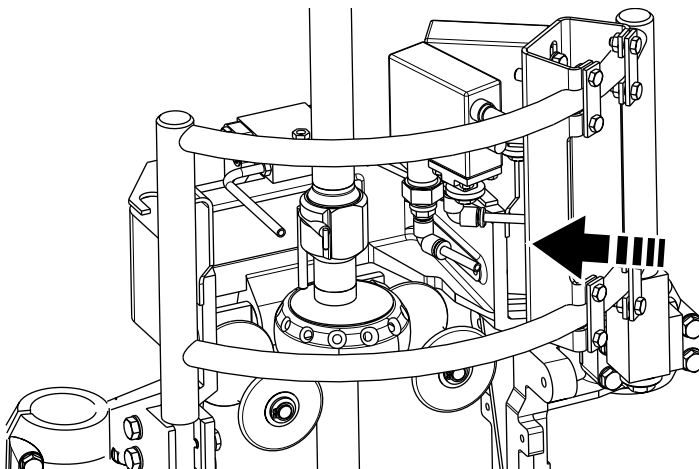


**47**  
Fit the O-ring, and the lower part of the filling pipe.  
Secure in place with the pin (1).



**48**  
a) Lower the sprinkler (1) to production position.  
b) **Pull out the rear catch (2)** and turn the tube support rollers (3) to production position.

**Caution!**  
Make sure that the rollers lock in position.



**49**  
Push the bow clamp inwards.

2.2TB165254en.fm

## 50

Daily care has now been completed.

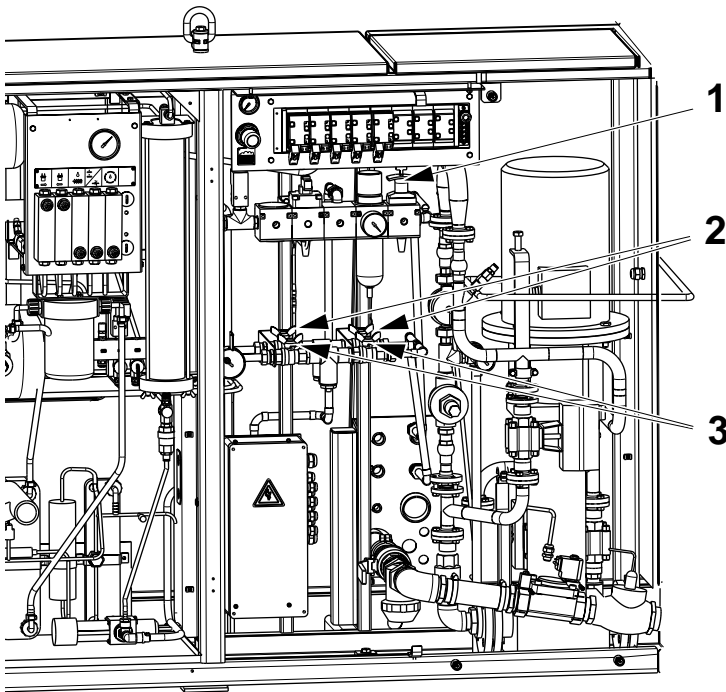
When resuming production, start from the *Preparation after daily care* section.

## 51

To perform weekly care go to section *Weekly care*.

If weekly care or production is not scheduled ensure that the air supply (1) is **Off** and the cooling water supply (2) and (3) is **Off**.

2.2TB165254en.fm



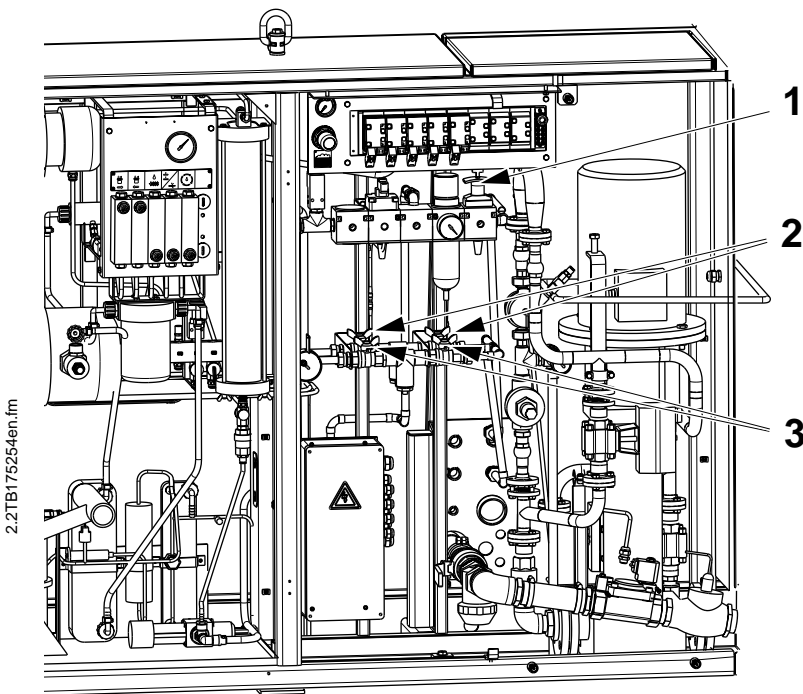
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# Weekly care

## Caution!

Use only Tetra Pak recommended cleaning compounds when cleaning parts which may come into contact with hydrogen peroxide. Cleaning with not recommended compounds may cause explosion!

This section describes what to do once a week or at least every 120 operating hours.



**1**

If daily care has just been carried out, continue with item 2.

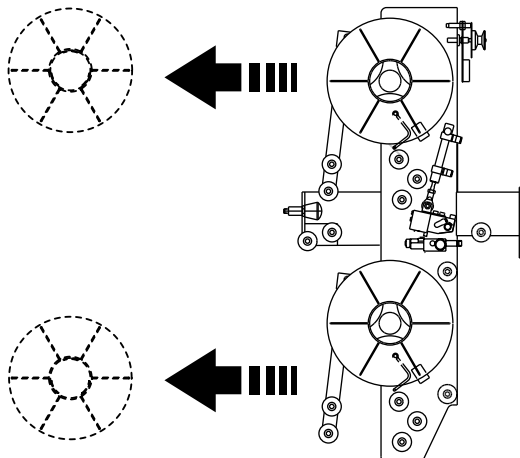
Otherwise,

- Turn **On** the air supply (1),
- Turn **On** the cooling water (2) or (3) depending on which filter is in use.

**1**

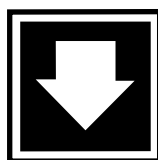
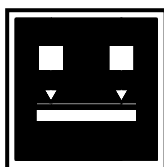
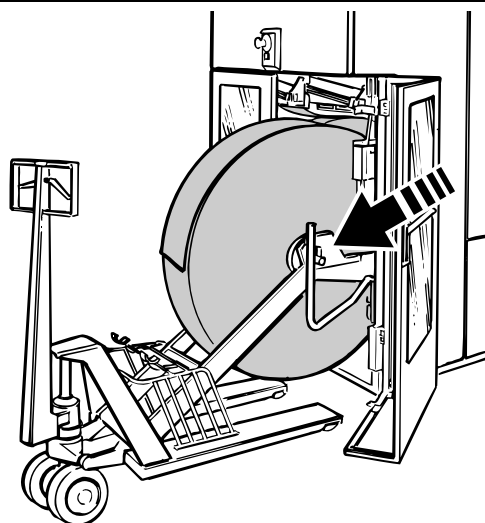
**2**

**3**



**2**

Cut the LS strip away from the packaging material. Rewind both LS strips back onto the reels and remove them from the machine.



### 3

Cut off the packaging material under the material holder and remove the packaging material reel/reels from the ASU.

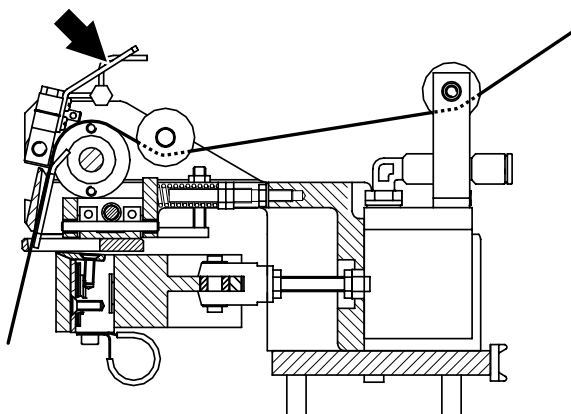
Secure the end of the reel with tape.

Close all the doors and reset the alarms on the TPOP display.

Step up to step **Preparation**.

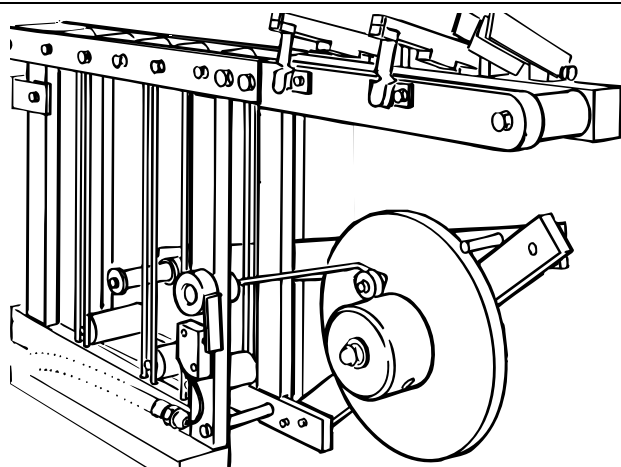
Press the **Material locking** button to release the packing material in the ASU.

Step down to **Step Zero**.



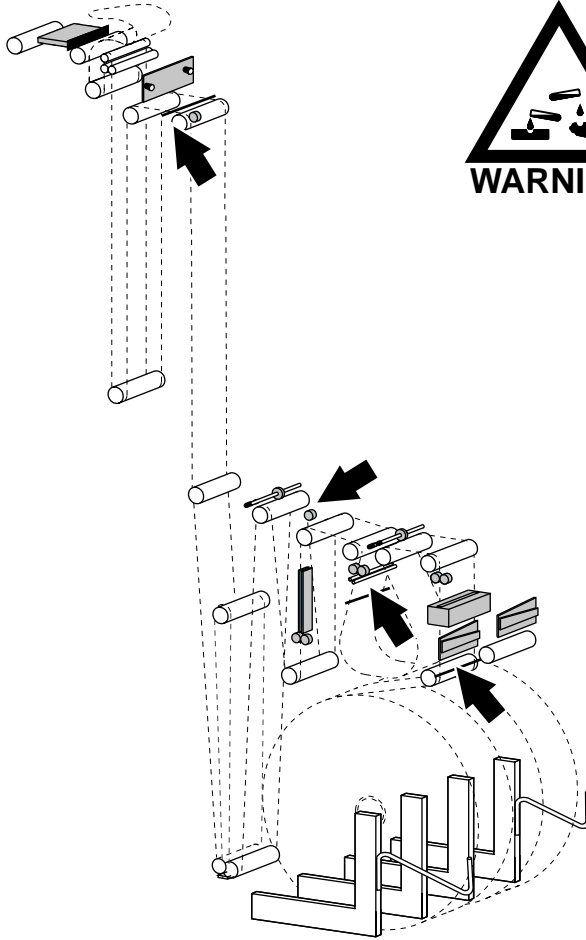
### 4

To release the strips on both the IS patch feeder and the tab feeder in the PullTab, press down the lever to lift the counter roller and pull the strip back.



### 5

Rewind both the patch and the tab strip back on to the reels. Remove the reels from the machine.



## 6

### Hydrogen peroxide!

Risk of hydrogen peroxide residue on the packaging material when removing it from the hydrogen peroxide bath. Follow the *Safety precautions*.

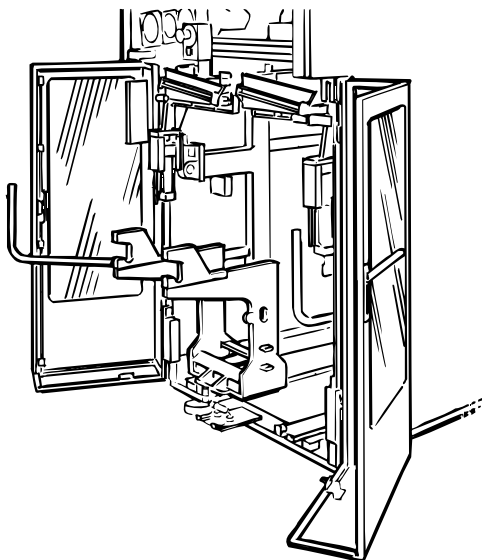
Cut the packaging material at the places shown by the arrows. By hand remove all the packaging material from the filling machine.

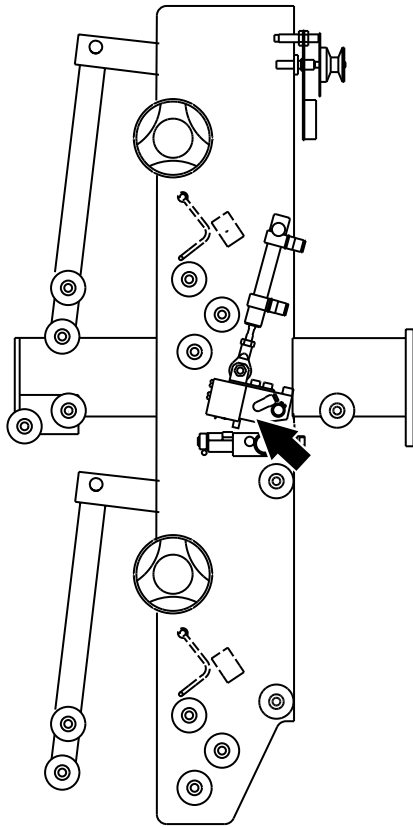
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## 7

Blow clean the inside of the ASU with compressed air





**8**

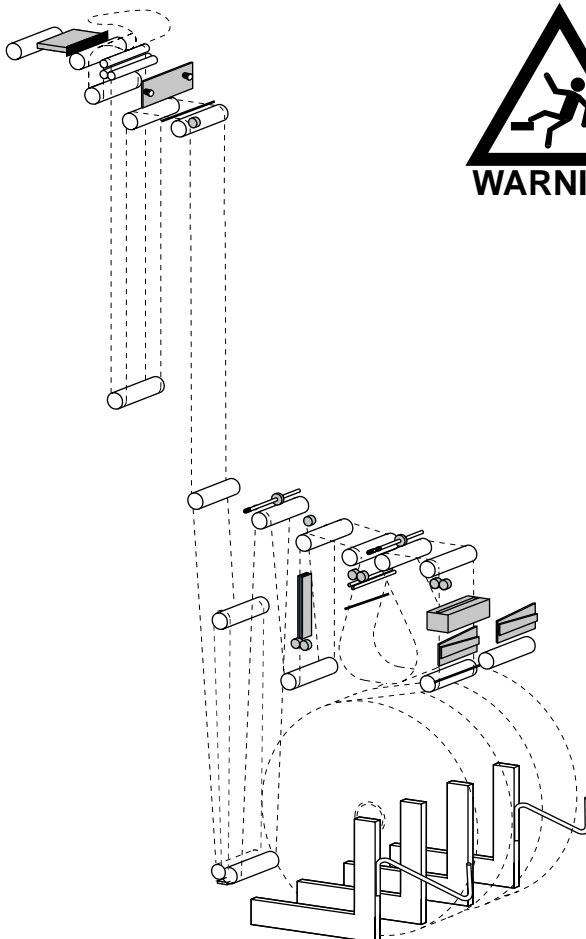
Blow clean the ASSU sealing unit with compressed air.

Clean all the rollers on the strip applicator with a sponge. Use cleaning compound code G1 or G2. See the *Technical data* section.

Wipe dry with a clean cloth.

Clean the heating device with a sponge. Use cleaning compound code G1 or G2. See the *Technical data* section.

Wipe dry with a clean cloth.



**9**

**Risk of falling**

The material carriers in the ASU must be safely locked in either inner or outer position.

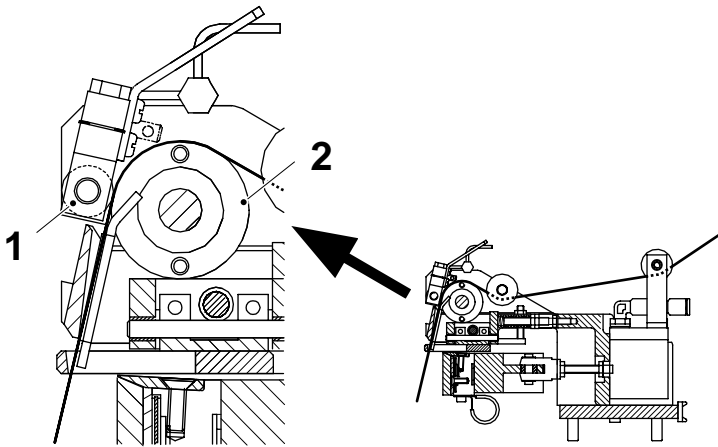
Clean all rollers and the material holders in the ASU with a sponge. Use cleaning compound code G1 or G2. See the *Technical data* section.

Wipe dry with a clean cloth.

Clean the packaging material compartment with a sponge. Use cleaning compound code G1 or G2. See the *Technical data* section.

Wipe dry with a clean cloth.

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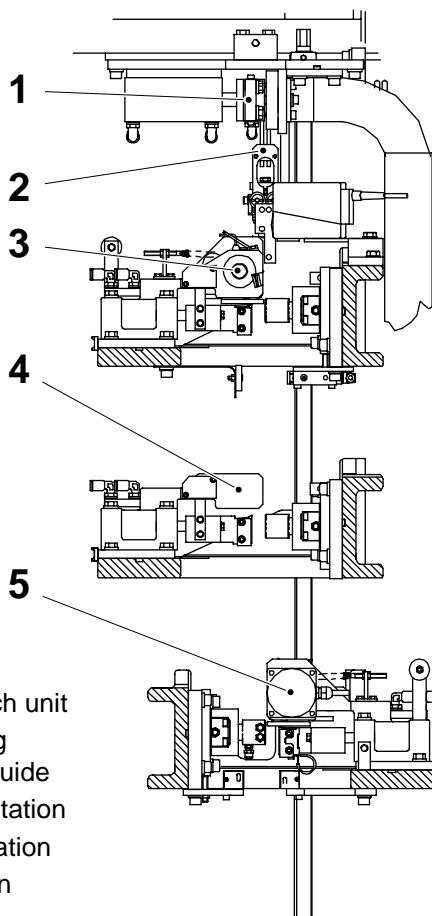


## 10

In the PullTab, check that the one-way roller (1) moves freely on the IS patch station and on the tab station.

Clean the surface of the rollers (1) and (2) using cleaning compound code G1 or G2. See the *Technical data* section.

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- 1 Hole punch unit
- 2 Packaging material guide
- 3 IS patch station
- 4 Reseal station
- 5 Tab station

## 10a

Clean the following components in the PullTab thoroughly with a sponge:

- the hole punch unit (1)
- the packaging material guide (2)
- the IS patch station (3)
- the reseal station (4)
- the tab station (5)

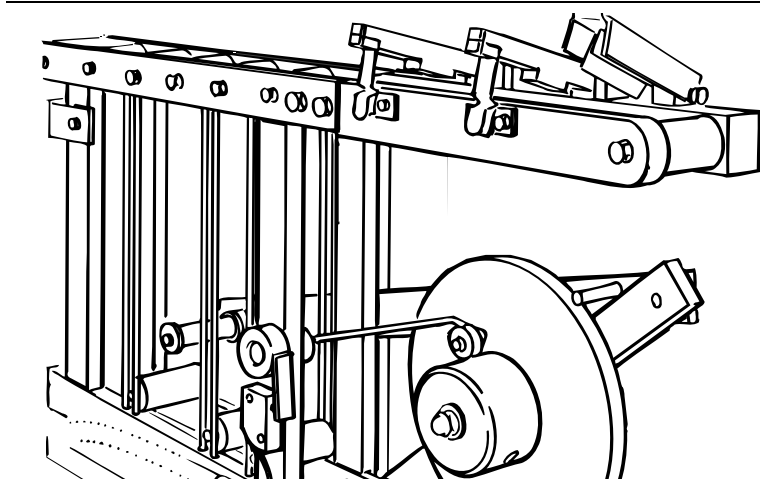
Wipe dry with a clean cloth.

## 10b

Clean all rollers in the PullTab with a sponge.

Use cleaning compound code G1 or G2.  
See the *Technical data* section.

Wipe dry with a clean cloth.



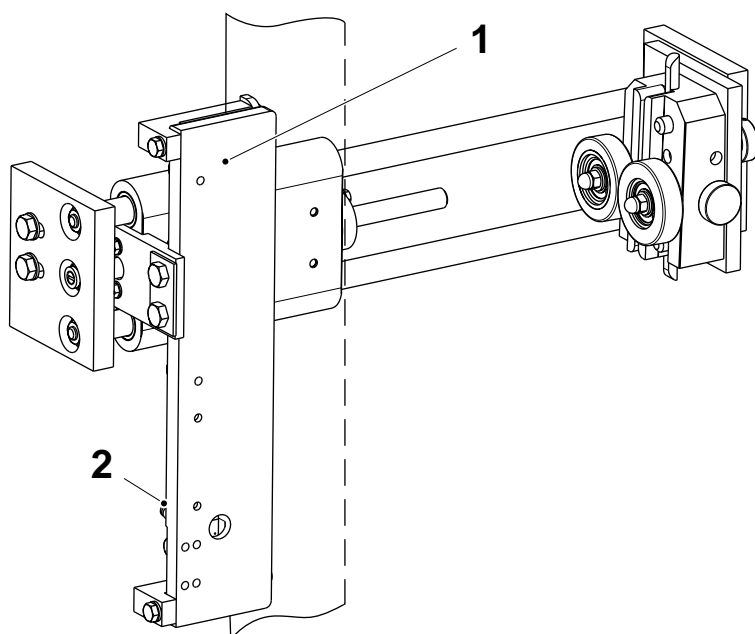
## 11

Clean the patch and the tab strip magazines and their rollers.

Use cleaning compound code G1 or G2.  
See the *Technical data* section.

Wipe with a clean cloth and clean water.

Wipe dry with a clean cloth to prevent the packaging material from sticking to the rollers.



## 12

Blow clean the tab folder device (1) with compressed air.

Check that the holes in the nozzle (2) are not clogged.



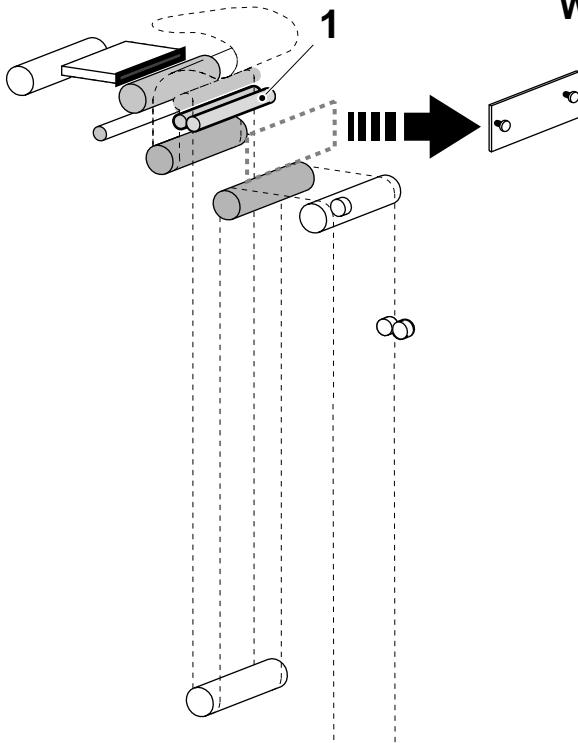
## 13

### Hydrogen peroxide!

Follow the *Safety precautions*.

Clean and check inside the aseptic chamber:

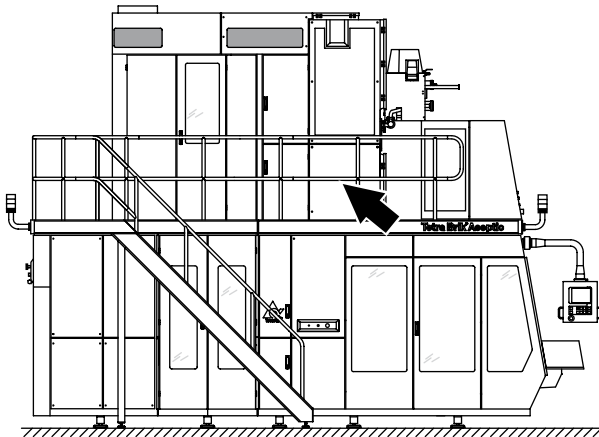
- a) Open the top aseptic chamber door and remove the hatch from the carrier compartment.
- b) Check that the surface on both the rollers (1) are smooth and intact.
- c) Using a sponge and **distilled water** only to clean these parts:
  - calender rollers (1)
  - the inside of the chamber and the rollers
  - the window of the top aseptic chamber door
  - the roller in the carrier compartment
- d) Close the top aseptic chamber door and fit back the hatch on the carrier compartment.

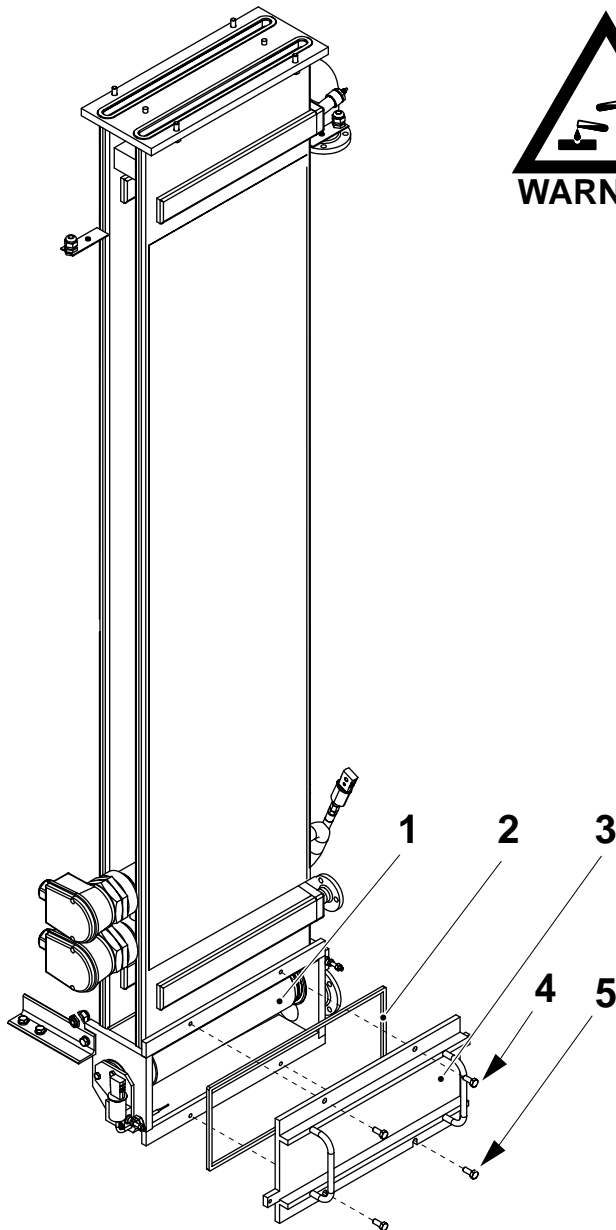


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## 14

Remove the cover shown by the arrow.





- 1 Peroxide bath roller
- 2 Gasket
- 3 Bottom lid
- 4 Screw
- 5 Screw



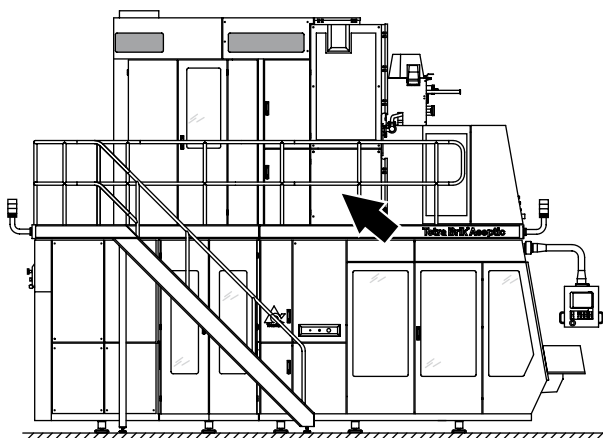
## 14a

### Hydrogen peroxide!

Follow the *Safety precautions*.

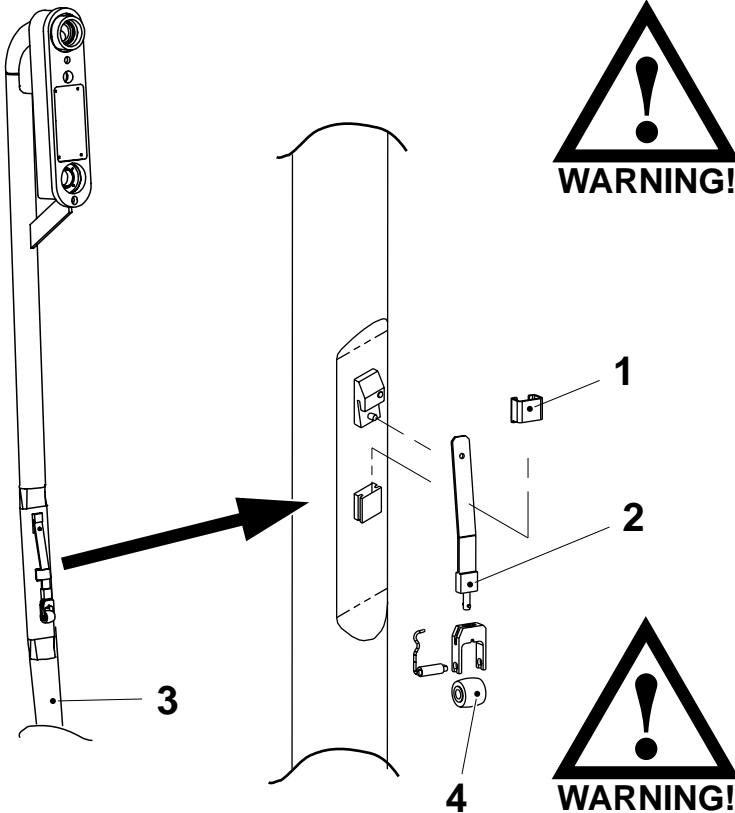
- a) Loosen screws (5).
- b) Remove screws (4) and lift to remove the bottom lid (3).
- c) Spin the peroxide bath roller (1) by hand to make sure it rotates easily.
- d) Check for pieces of LS strip and paper dust.
- e) Clean and rinse the peroxide bath roller (1) with a sponge and **distilled water** only.
- f) Check the condition of the gasket (2).
- g) Put the lid (3) back and tighten the screws (4) and (5).

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## 14b

Fit the cover shown by the arrow.



- 1 Hood
- 2 Spring
- 3 Filling pipe
- 4 Pressure roller

## 15

### Cleaning compound!

Chemical products. Follow the *Safety precautions*.

- a) Press on the LS roller spring (2) and lift the hood (1).
- b) Turn the spring (2) sideways until it can be removed from the filling pipe.
- c) Check the pressure roller (4) carefully. Use cleaning compound code G1 or G2, to clean all the parts. See the *Technical data* section.
- d) Change the roller as required.

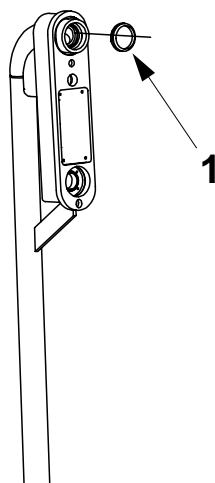
### Risk of serious production fault!

Take care to remove all visible product residue from the pipe. Sterilisation is effective on clean surfaces but may not be effective on product residue.

### Caution!

Clean the filling pipe in place. Once taken out, do not place the filling pipe back in the cleaning tank.

- e) Clean the filling pipe (3) with a sponge. Use cleaning compound code D. Rinse with drinking water. See the *Technical data* section.
- f) Assemble the parts in the reverse order.



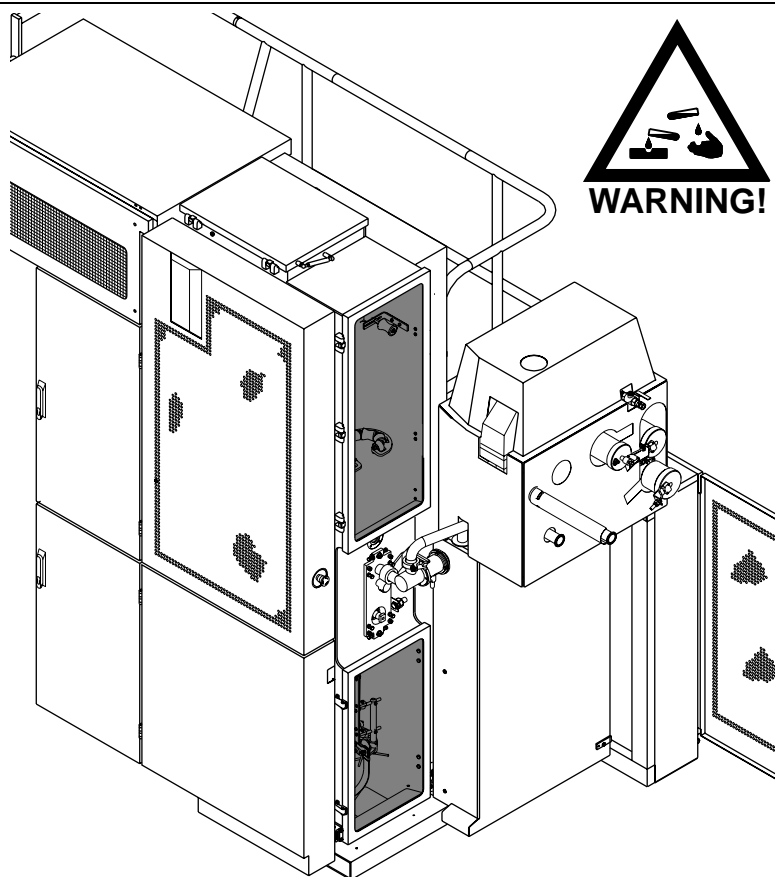
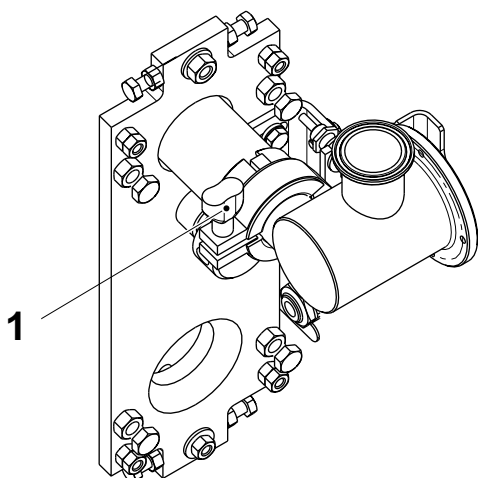
## 16

### Gasket replacement

Change the gasket (1) each time the regulating valve is removed from the filling pipe.

## 17

Make sure that the locking device (1) is tighten.



## 18

### Hydrogen peroxide!

Follow the *Safety precautions*.

Clean the inside of the aseptic chamber and the windows of the doors with a sponge. Use the cleaning compound code D. See the *Technical data* section.

Rinse with drinking water.

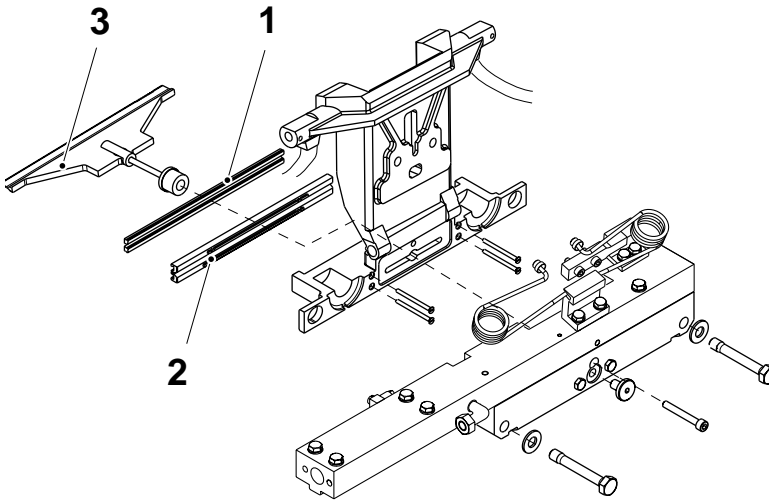


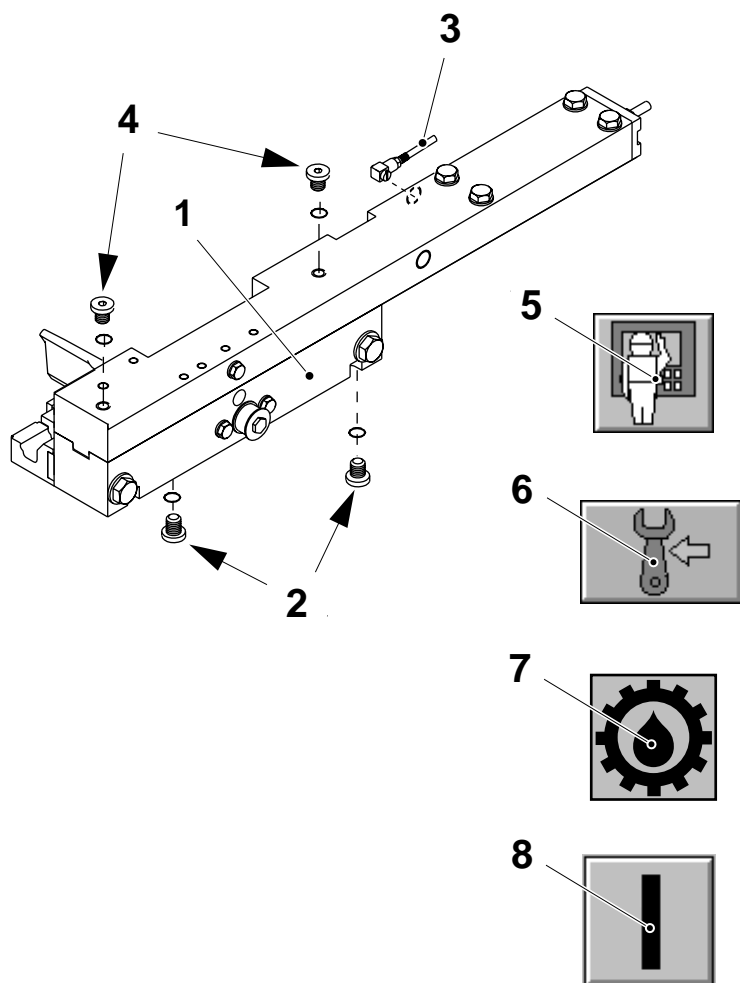
## 19

### Oil!

Chemical products. Follow the *Safety precautions*.

To change the dollies (1), the cutting rails (2) and the knife (3) call a technician.



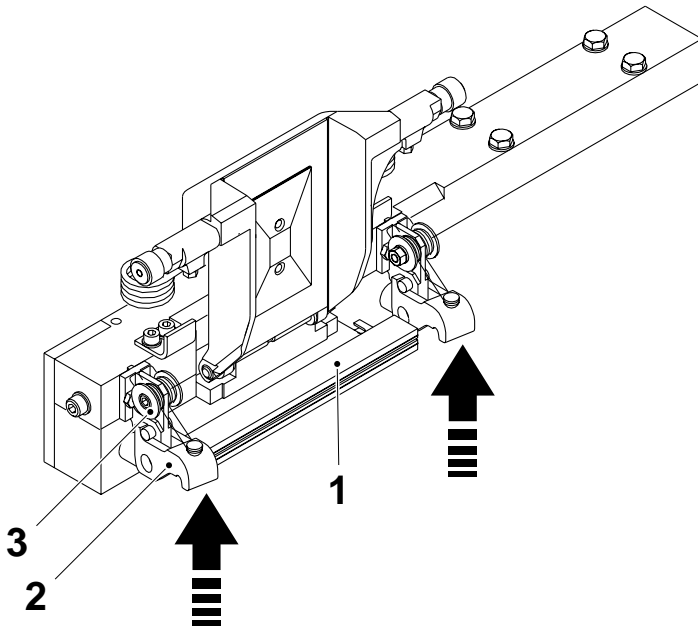


- 1 Bearing housing
- 2 Drain plug
- 3 Oil connection
- 4 Plug
- 5 Manoeuvre button
- 6 Maintenance service unit left button
- 7 Manual lubrication button
- 8 Start button

## 20

Perform the following work on both the cutting jaws.

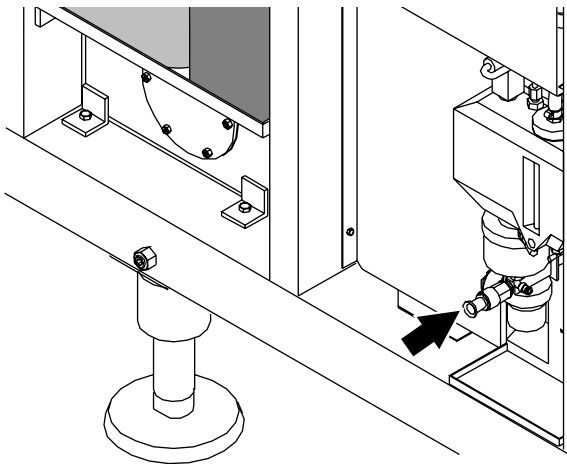
- a) Crank a jaw pair to the lower horizontal position.
- b) Drain the oil from the bearing housing (1) by removing the drain plugs (2) and the plugs (4).
- c) Fit back and tighten the drain plugs (2)
- d) Fill up the bearing housing (1) with oil. Use lubricant code H. See the *Technical data* section.
- e) Fit the filling plugs (4).
- f) Crank the jaw pair slightly to access and loosen the screw to remove the oil pipe connection (3).
- g) Step up to step **Preparation**.
- h) Touch the **Manoeuvre** button (5) on the TPOP display.
- i) Touch the **Maintenance service unit left** button (6).
- j) Touch the **Manual lubrication** button (7).
- k) Touch the **Start** button (8).
- l) Check that oil comes out from the oil pipe connection (3).
- m) Fit back the oil pipe connection (3).



## 21

- Clean the inductor (1) with a **brass** wire brush. Check for damage and/or wear that could affect sealing quality.
- Call a technician to change the inductor (1) as required.
- Check that the catches (2) and the catch return springs (3) are functioning: lift each catch (2) and release. The catch should return directly to the stop position.
- Clean the catches (2) and the catch springs (3).
- Call a technician to change the catches (2) and the catch springs (3) as required.

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## 22

### Oil!

Chemical products. Follow the *Safety precautions*.

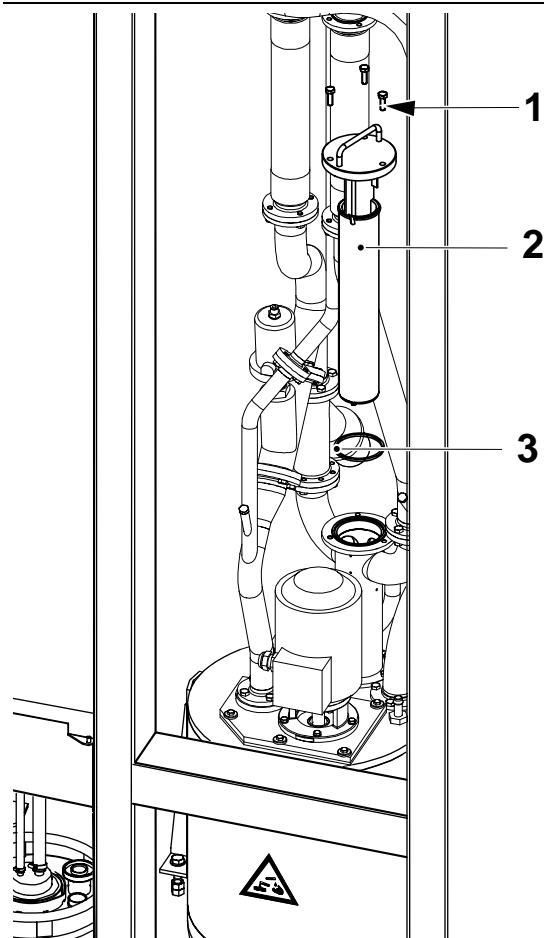
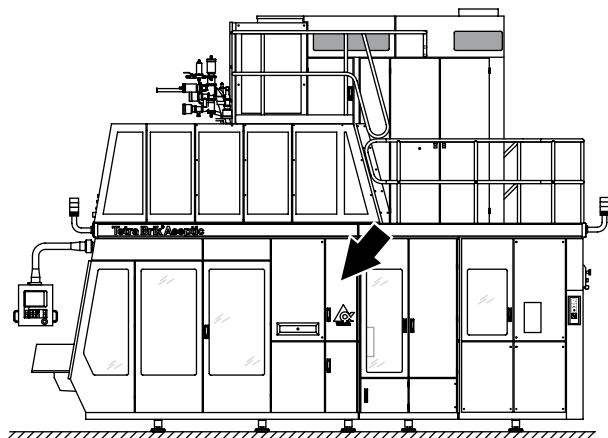
Check the oil level in the central lubrication tank. Top up if required. Use lubrication code H. See the *Technical data* section.

### Note!

Pump slowly as the level rises faster in the tank than in the level indicator.

## 23

Open the cover shown by the arrow.



### 23a

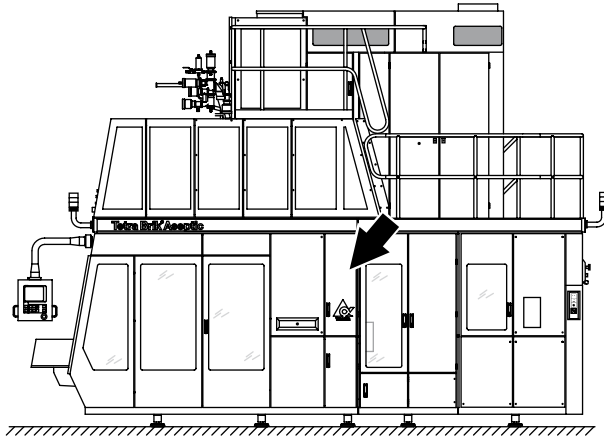
#### Hydrogen peroxide!

Follow the *Safety precautions*.

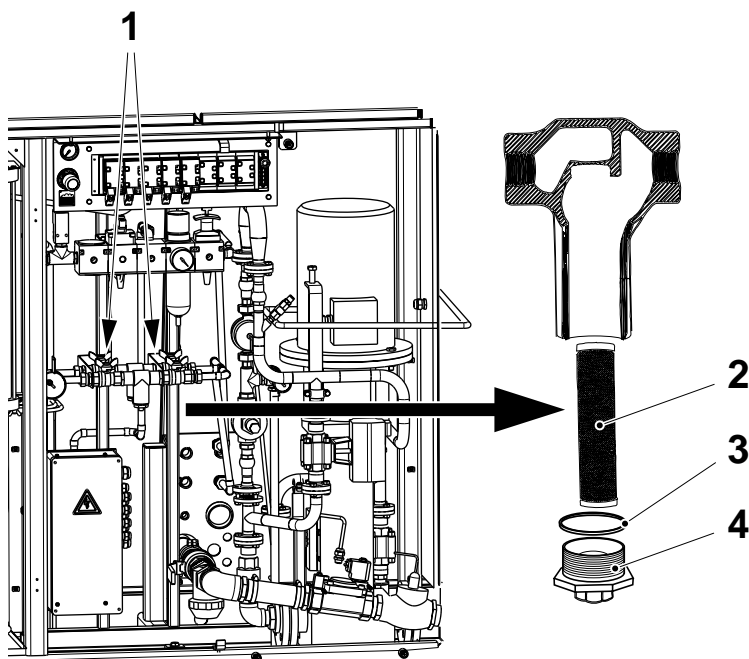
- a) Remove the screws (1).
- b) Lift out the filter (2).
- c) Clean the filter thoroughly in fresh water and, if required, blow dry with compressed air.
- d) Check the gasket (3) and change it as required.
- e) Put back the gasket and the filter.
- f) Fit and tighten the screws (1).

## 23b

Close the cover shown by the arrow.



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- 1 Water valves
- 2 Filter insert
- 3 Seal ring
- 4 Lid

## 24

- a) Close the water valves (1) on both sides of the filter.
- b) Unscrew the lid (4) and pull out the filter insert (2).
- c) Blow the insert clean with compressed air from the inside.
- d) Check the seal ring (3) for damage, and change it as required.
- e) Put back the filter insert (2), fit the seal ring and tighten the lid (4).
- f) Open the water valves (1) and make sure that there is no leakage.

Repeat the same procedure for the other filter.

## 25

Clean the platform floor with a brush.  
Do not use any water.

Clean the outer machine surfaces with a sponge.

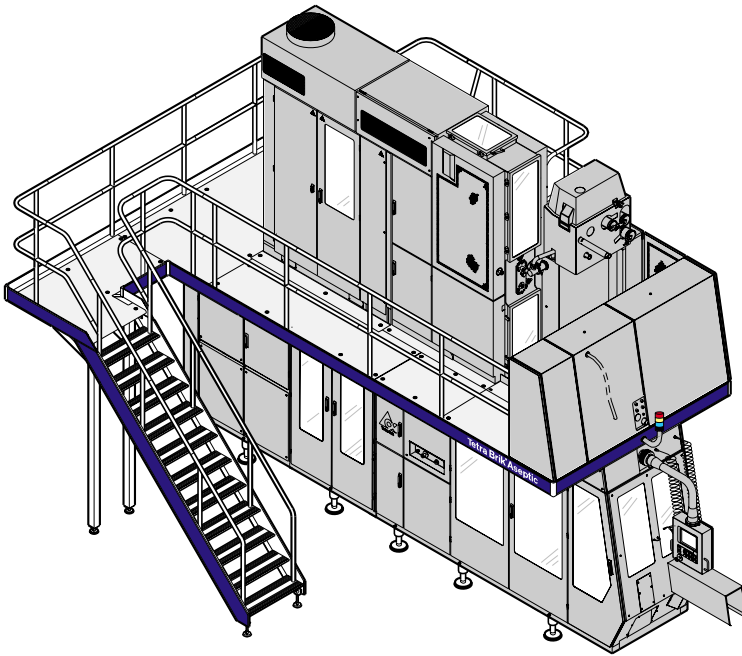
Use cleaning compound code G1 or G2.  
See the *Technical data* section.

Polish the stainless steel plating with paraffin oil.

Clean the windows on the machine with a sponge.

Use cleaning compound code G1 or G2.  
See the *Technical data* section.

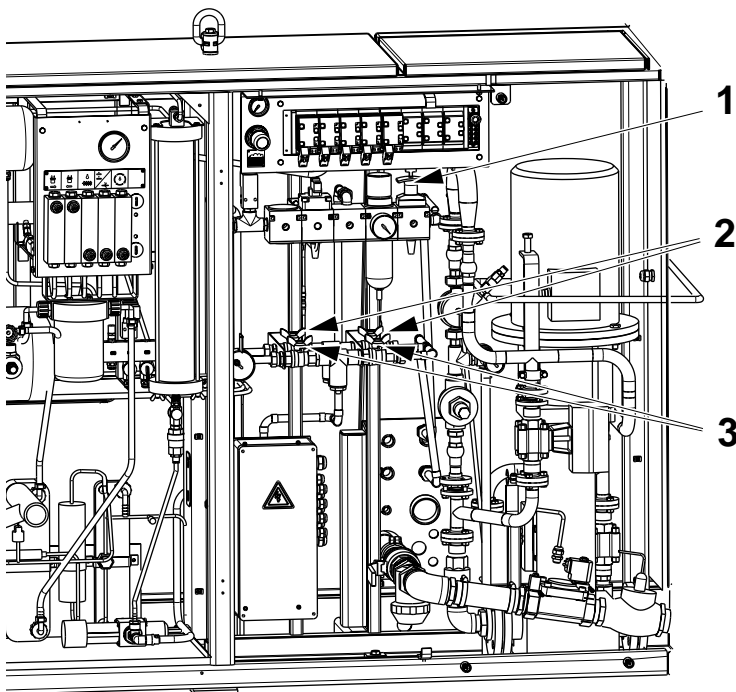
Wipe dry with a clean cloth



## 26

Weekly care is now complete. When resuming production after weekly care, start from *Preparation after weekly care*.

If production is not scheduled ensure that the air supply (1) and the cooling water supply (2) and (3) are **Off**.





**Hydrogen peroxide!**  
Follow the *Safety precautions*.

# Sterilisation liquid

This section contains information on how to handle hydrogen peroxide:

- Concentration check
- Hydrogen peroxide change
- Can change

## Concentration check

### 1

The following equipment is required:

- aerometer with thermometer
- graduated plastic cylinder with an inside diameter of 35 - 50 mm

### Caution!

The equipment must be thoroughly cleaned.

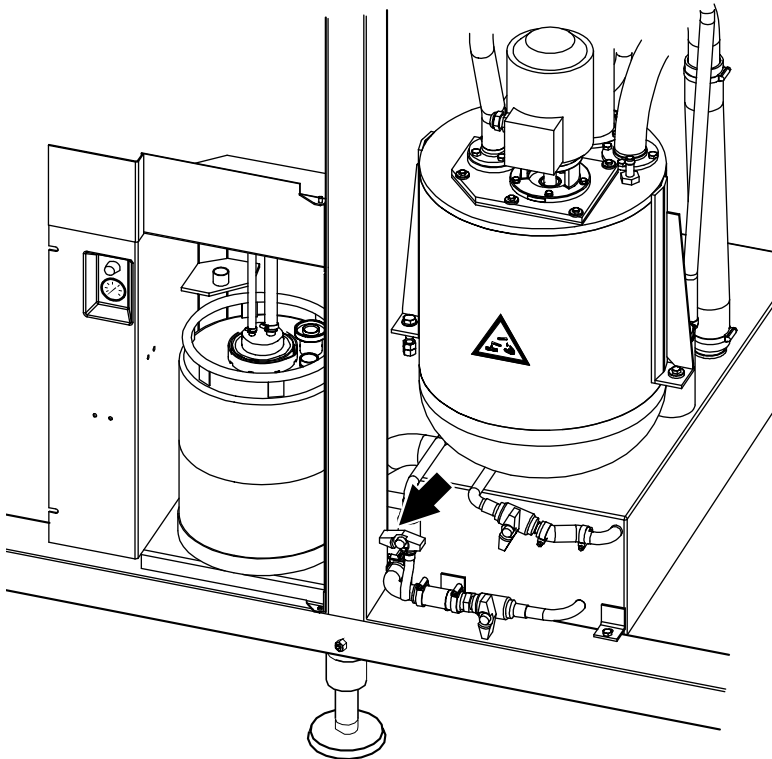
Open the valve (arrow) and draw approximately 250 ml of hydrogen peroxide from the tank into a clean vessel.

Pour a small amount of hydrogen peroxide into the graduated cylinder.

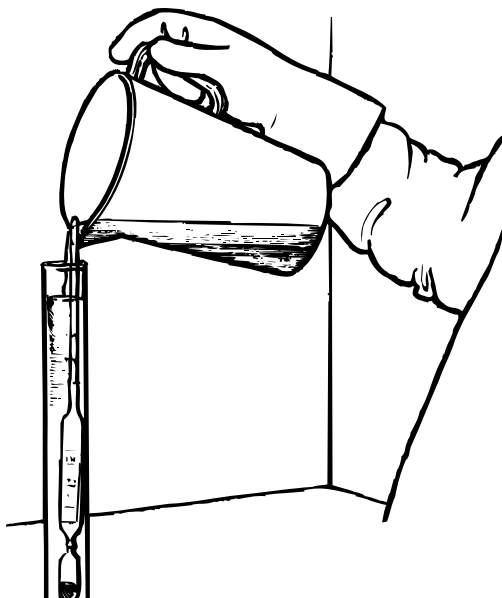
Lower the aerometer into the cylinder making sure that it contains enough liquid to float the aerometer.

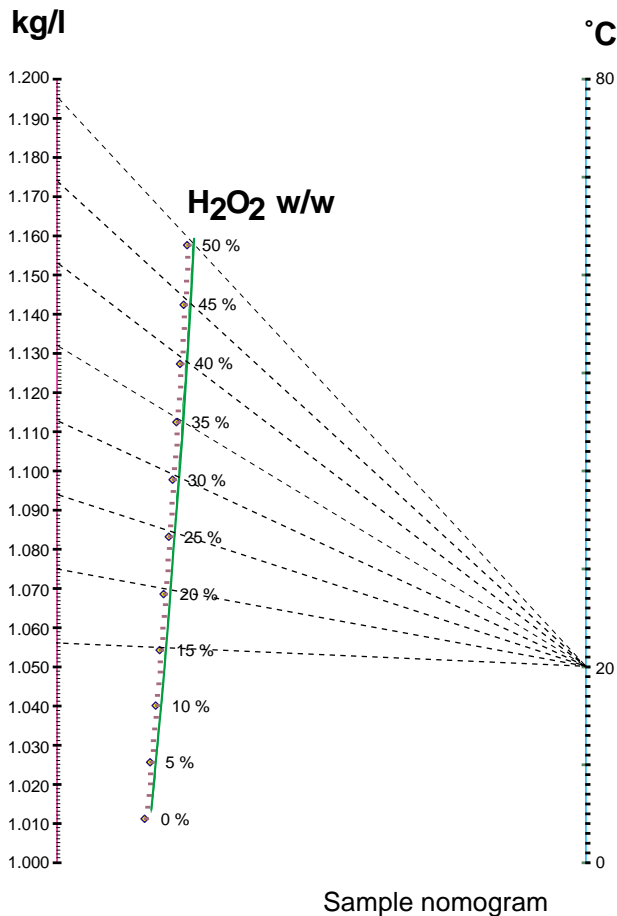
If there are air bubbles on the aerometer, stir gently until the bubbles disappear.

Read the density at the liquid level on the aerometer and **at the same time** read the temperature.



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## 2

Evaluate the hydrogen peroxide concentration (in terms of percent by weight) from the nomogram.

With a ruler, join the density value of the sample with the temperature value to get the hydrogen peroxide concentration.

### Note!

Photocopying and/or resizing the nomogram may distort its accuracy. This could lead to incorrect evaluation of the hydrogen peroxide concentration.

To check the accuracy of the nomogram, refer to the following table reporting the concentration and density values calculated at 20 °C:

°C	kg/l	% w/w
20	1.056	15
20	1.075	20
20	1.094	25
20	1.113	30
20	1.132	35
20	1.153	40
20	1.174	45
20	1.195	50

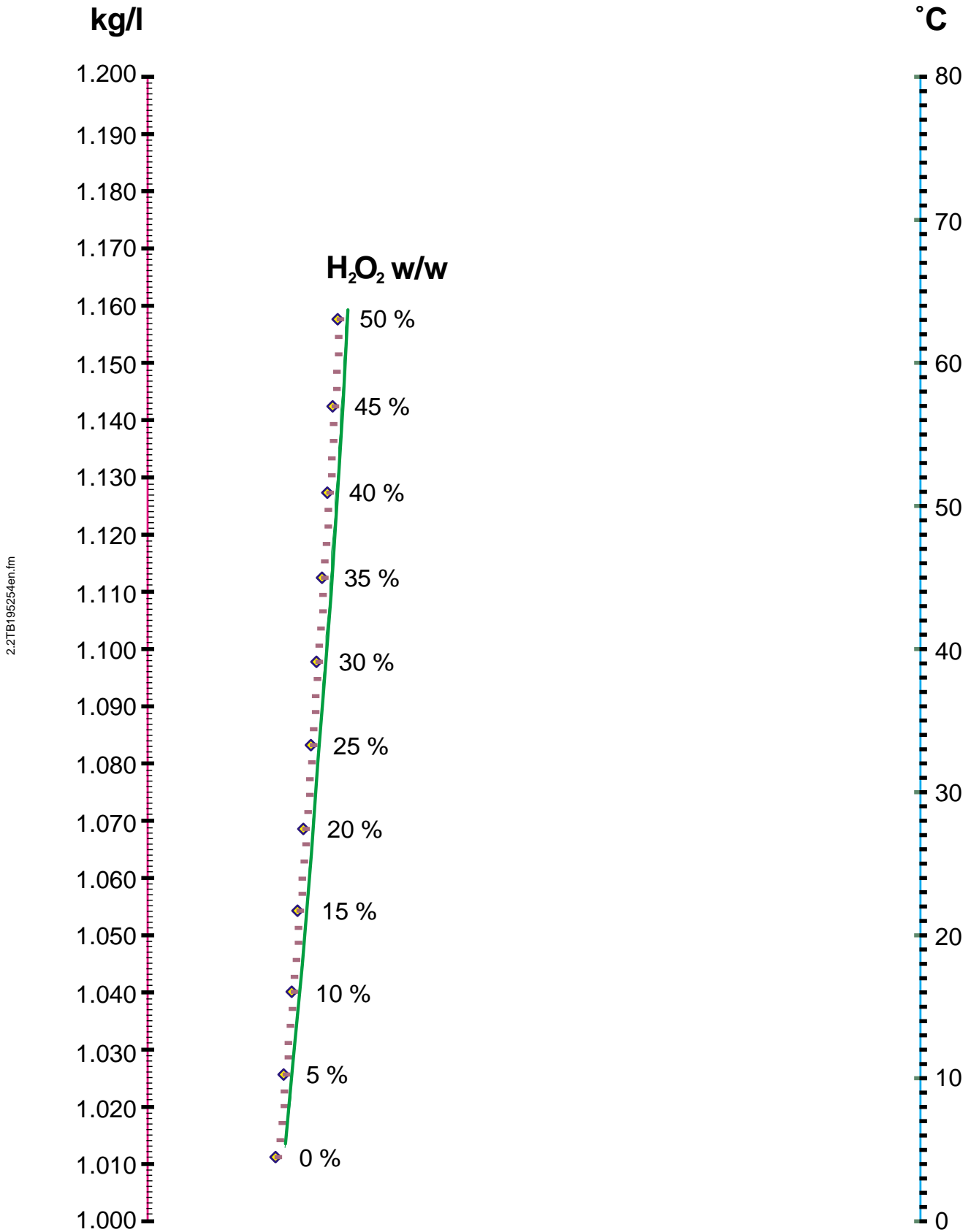
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If the concentration is **below 30% or above 50%**, change the hydrogen peroxide. See *Hydrogen peroxide change* in this section.

If the hydrogen peroxide concentration is **between 30% and 35%**, repeat the check every 30 min.

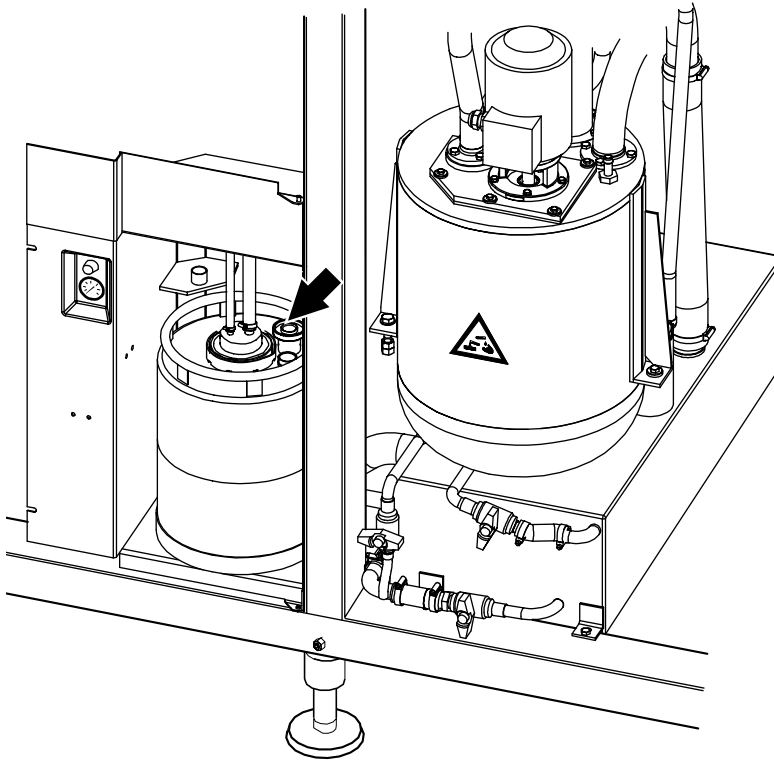
If the concentration decreases, stop the machine and call a technician.

## Hydrogen peroxide concentration (by weight)



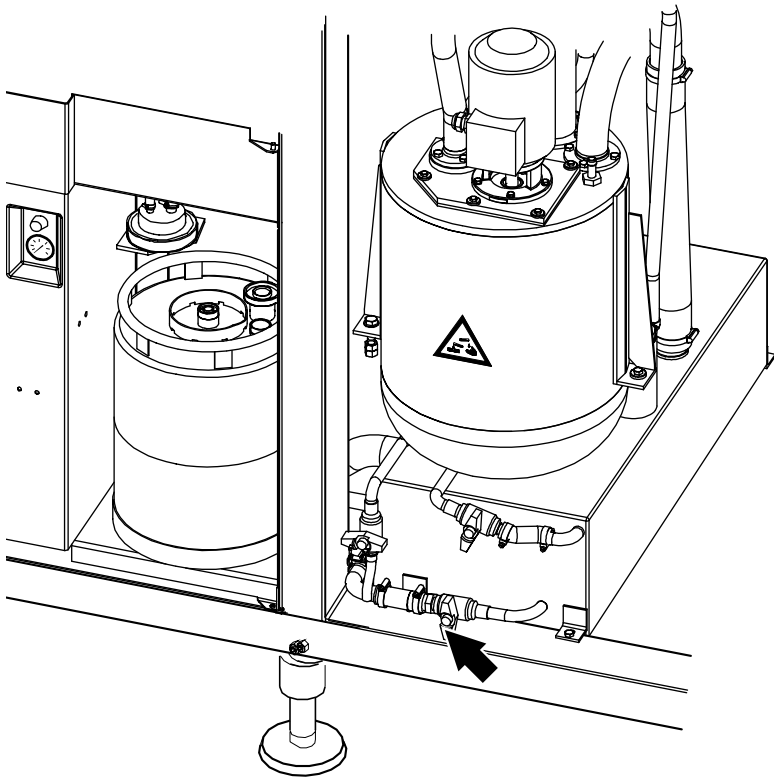
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## Hydrogen peroxide change 1

Lift the cap (arrow) to disengage the hydrogen peroxide can.



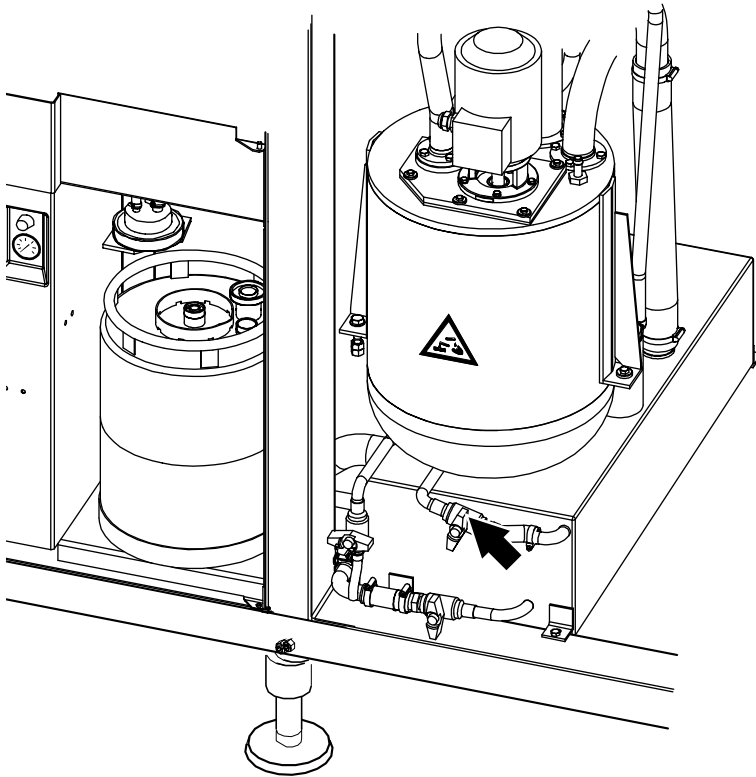
## 2

Open the valve (arrow) to empty the dilution tank. It takes approximately 5 minutes.

### Note!

When the machine has been in production for more than 24 hours, the hydrogen peroxide concentration in the dilution tank is less than 1%.

When the tank is empty, close the valve.

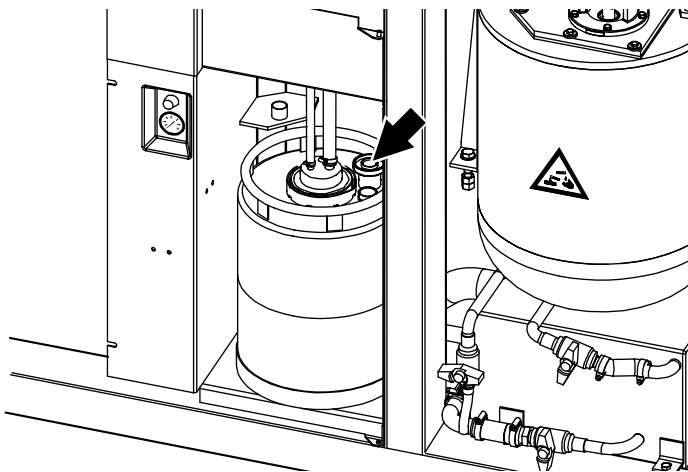


**3**

Open the valve (arrow) to drain the hydrogen peroxide from the tank into the dilution tank. It takes approximately 5 minutes.

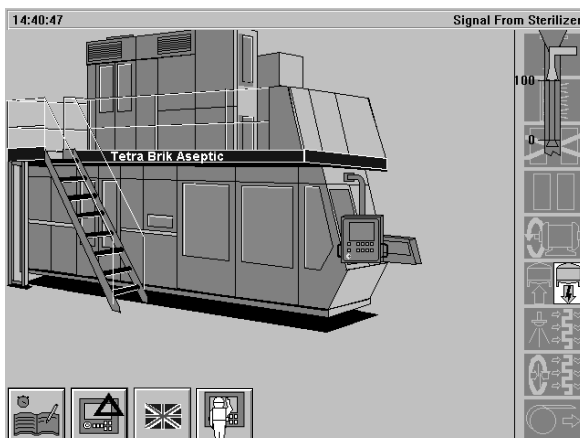
When the tank is empty, close the valve.

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**4**

Fit back the cap to engage the hydrogen peroxide can.

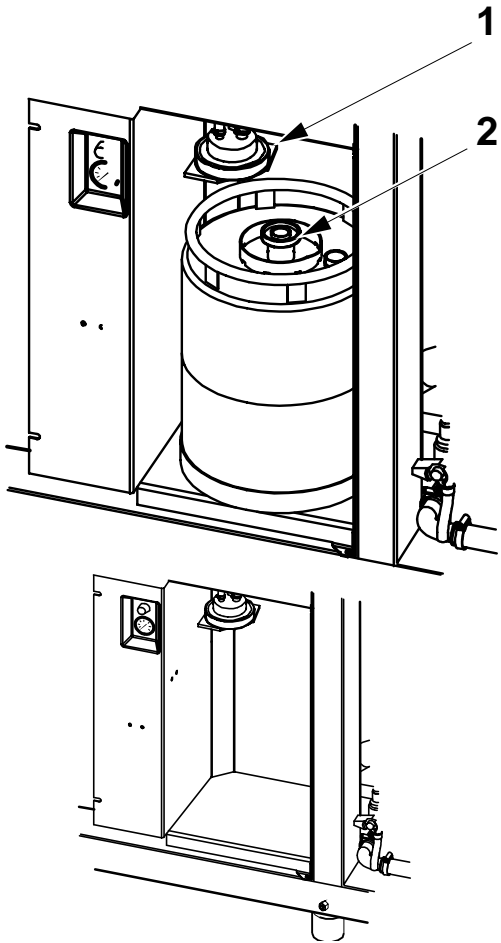


**5**

Follow the instructions on the TPOP when the alarm **Peroxide container level** lights up.

Change the hydrogen peroxide can. See *Can change* in this section.

It takes approximately three full cans to fill up the hydrogen peroxide tank.



## Can change

**1**

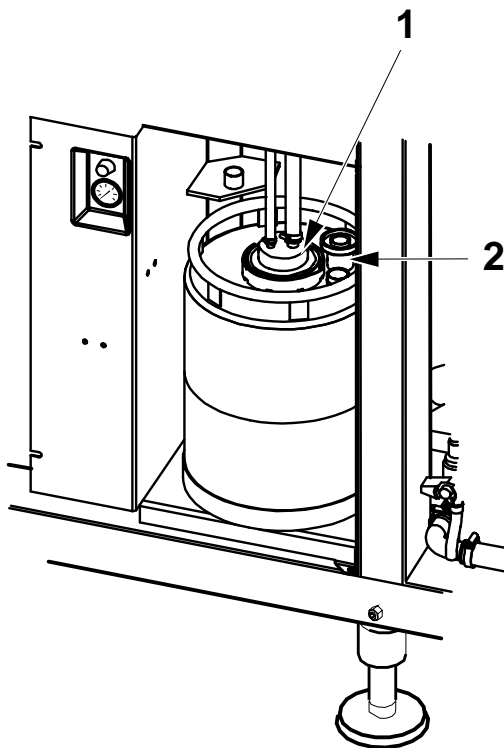
Lift the cap (1) to disengage the hydrogen peroxide can.

Put the lid (2) onto the connection and tighten it.

### **Caution!**

Always transport and keep the hydrogen peroxide cans stored with the lid (2) installed.

Remove the can from the machine.



**2**

Place a **full** can with 35% w/w hydrogen peroxide in the machine.

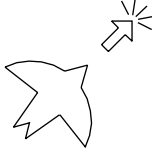
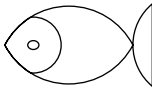
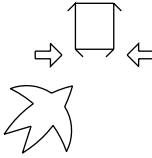
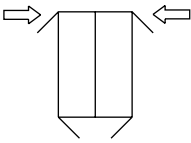
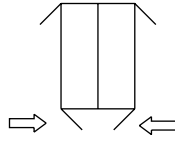
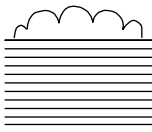
Remove the lid (2) and place it to one side.

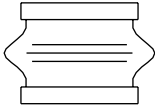
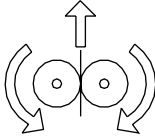
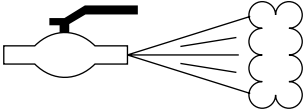
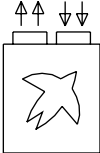
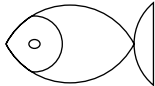
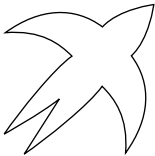
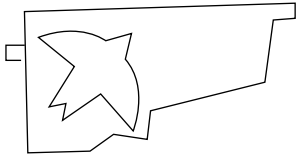
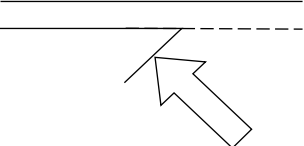
Fit back the cap (1) to engage the hydrogen peroxide can.

# Technical data

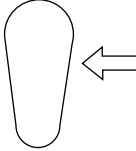
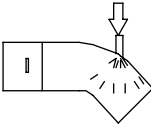
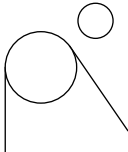
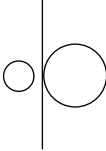
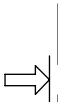
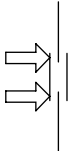
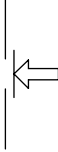
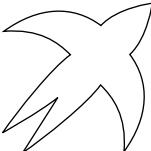
## Setting values

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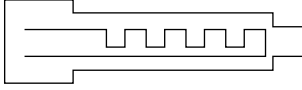
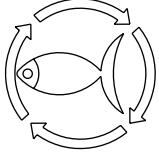
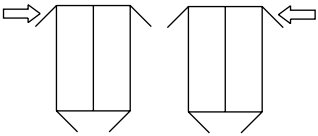
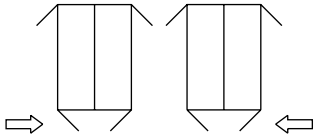
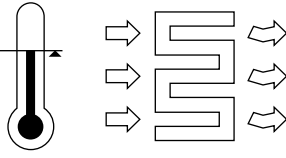
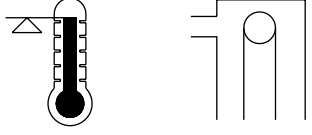
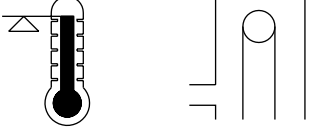
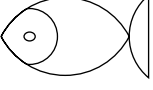
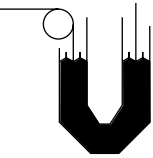
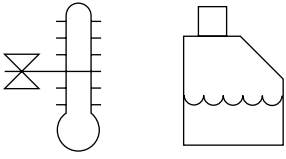
Pressure	Symbol	Value (kPa (bar) )
Air spray		400.0 kPa (4.0)
Central lubrication oil		3 000 (30)
Cold water		300 - 450 (3.0 - 4.5)
Cooling water system		200 (2.0)
Flap blowing		200-300 (2.0 - 3.0)
Flap sealing top left and right		150 (1.0 - 1.5)
Flap sealing bottom left and right		150 (1.0 - 1.5)
Foaming		500 (5.0)
<i>(cont'd)</i>		

Pressure	Symbol	Value (kPa (bar) )
Hold down device (bellows)		270 (2.7)
Peroxide tank filling		20 (0.2)
Product pressure (depends on product and local conditions)		50 - 250 ± 10 (0.5 - 2.5 ± 0.1)
Calender roller		200 (2.0)
Steam		170 ± 30 (1.7 ± 0.3)
Photocells, design correction, air blast		60 (0.6 bar)
Warm water (red)		300 - 450 (3.0 - 4.5)
Air		600 - 700 (6 - 7)
Overpressure final folder		10 - 20 (0.1 - 0.2)
- Tab folder (only ReCap version)		300 - 350 (3.0 - 3.5)

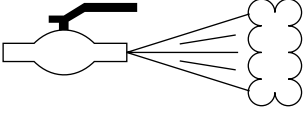
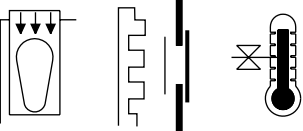
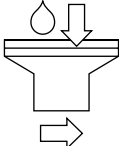
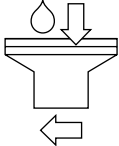
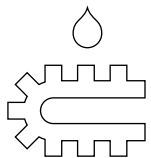
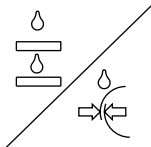
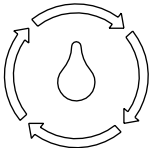
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Pressure	Symbol	Value (kPa (bar) )
PullTab Unit		
- Cap blowing		200 (2.0)
- Waste blowing		300 (3.0)
- Tension unit- pressure roller		200 (2.0)
- Drive motor - pressure roller		450 (4.5)
- IS patch counter jaw		250 (2.5)
- Reseal counter jaw		250 (2.5)
- Tab counter jaw		250 (2.5)
- PT21 main air inlet		500 (5.0)

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Temperature	Symbol	Value (°C)
Air superheater		360
Cooling water (compressor)		10 - 12
Cooling water		2 - 5
Flap heating, top (left and right)		420 ± 20
Flap heating, bottom (left and right)		530 ± 20
Heat sterilisation		280
Top aseptic chamber		95
Bottom aseptic chamber		(Not in use)
Warm water (red)		55 - 60
Peroxide bath		73
Peroxide tank		73

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Temperature	Symbol	Value (°C)
Steam		125
<b>PullTab Unit</b>		
- Tab sealing		180
Flow	Symbol	Value (l/m)
Cold water flow, TS right		0.8
Cold water flow, TS left		0.8
Cold water flow, final folder		2.0
Cold water flow, hydraulics		2.5
De-ionizing circuit		1.5

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Consumption	Unit	Value
Hydrogen peroxide	% w/w	35
	l/h	1.5 - 2.0
Alkali cleaning detergent	l/h	1.2
<b>Standard tools and Materials</b>		
Leak detection fluid (red ink)	TP No.	90298-26
Black tape		
– Patch and tab strip splice	TP No.	90144-52
– To cover holes	TP No.	90144-071
Process recorder		
– Ink wheel	TP No.	90332-324
– Fan fold chart	TP No.	90332-325
LS strip		
– LHL	TP No.	8893-952-01
– PPP	TP No.	8842-951-01
Tab strip TBA 1500 S		
– Recap2, hole 45	TP No.	8378-728-01
Tab strip TBA 1000B, TBA 1000S		
– Recap, hole 50	TP No.	8738-728-01
– Recap2, hole 45	TP No.	8738-728-01
– Recap3, hole 85	TP No.	8738-728-01
Tab position check TBA 1000 B	TP No.	1487236
Tab position check TBA 1000 S	TP No.	1487235
Tab position check TBA 1000 Sq	TP No.	1499183
Tab position check TBA 1500 S	TP No.	1499181
Tab position check TPA 1000 S	TP No.	1484509
IS strip TBA 1500 S		
– Recap2, hole 45	TP No.	8865-967-01
IS strip TBA 1000 B, TBA 1000 S		
– Recap, hole 50	TP No.	8865-963-01
– Recap2, hole 45	TP No.	8865-967-01
– Recap3, hole 85	TP No.	8865-967-01
<b>Miscellaneous</b>		
Noise declaration	See the IM for the equipment.	

## Cleaning compounds

### Caution!

Use only Tetra Pak recommended cleaning compounds when cleaning parts which may come into contact with hydrogen peroxide. Cleaning with not recommended compounds may cause explosion!

Comparable qualities from other suppliers may be selected in compliance with the technical requirements listed in the table.

All cleaning compounds must comply with local legal requirements.

The supplier recommendations for concentration and temperature should be followed.

When dosing the products automatically, their concentrations should be checked.

Cleaning	Code		Example			
			Type of product	Pure Chemicals	Formulated products	
					Henkel	DiverseyLever
Cleaning CIP	<b>A</b>		Alkali	NaOH 1.5%	P3-mip RC P3-N 421	VC13 (Soft water) VC7 (Hard water)
		<b>B</b>	<b>1</b>	Acid	HNO <sub>3</sub> 1%	P3-Horolith L31
		<b>2</b>	Acid	H <sub>3</sub> PO <sub>4</sub> 1%	P3-Horolith FPC P3-Horolith MSW	VA3 (2%)
		<b>3</b>	Acid	HNO <sub>3</sub> + H <sub>3</sub> PO <sub>4</sub>		VA4
External cleaning (Automatic)	<b>C</b>	<b>1</b>	Alkali foam		P3-Topax 12	VF9
Manual cleaning (Wiping)	<b>D</b>	<b>1</b>	Alkali solution		P3-mip FPC P3-FPC	VK12
		<b>E</b>	<b>1</b>	Acid solution	HNO <sub>3</sub> 0.5%	
		<b>2</b>	Acid solution	H <sub>3</sub> PO <sub>4</sub> 0.5%		VA3 (1%)
		<b>3</b>	Acid solution	Acetic Acid 0.5%		VF12
Manual disinfection (Immersion)	<b>F</b>	<b>1</b>	Low alkali foam		P3-Topax 99	VS1
		<b>2</b>	Low alkali solution		P3-Steril BG <i>KL-HC 34 UKES</i>	VT1
		<b>3</b>	Acid Solution	Hydrogen peroxide Peracetic acid	Oxonia Aktiv 30	VT6
Manual disinfection (Spray)	<b>G</b>	<b>1</b>	Alcoholic solution	Isopropanol 70%	Al-des Alcodes	VT10
		<b>2</b>	Alcoholic solution	Ethanol 70%		
		<b>3</b>	Acid Solution	Hydrogen peroxide Peracetic acid	Oxonia Aktiv 30	VT6
Hand disinfection	<b>H</b>				Spitacid	H4 H5

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## Lubricant recommendations

The table below lists only a selection of lubricants with their respective designations. Comparable lubricants from other suppliers may be selected with the aid of the lubricant specifications (document No in the table).

Lubricant specifications may be ordered from:

Tetra Pak ComTec AB

Ruben Rausing's gata - S-221 86 LUND, Sweden.

Lubricant code	Document No	Material No (internal TP designation for material type)	Part No (used when ordering from Tetra Pak)	Example	
				Supplier	Product designation 9510
<b>A</b> Motor oil	M 1251.122	51122-85	90 296-28	BP Esso Statoil Mobil  Shell Caltex/ Texaco Optimol	Vanellus FE 10W-30 Essolube XD-3 10W-30 PowerWay D2 10W-30 Delwac 1400 Super 10W-30  Myrina TX 10W-30 Ursa LA 10W-30  Non Plus Ultra 10W-40
<b>B</b> High-pressure oil	M 1254.322	54322-220	90 296-73 90 296-78	BP Esso Statoil Mobil Shell Caltex/ Texaco Imperial Kluber Optimol	Energol GR-XP 220 Spartan EP 220 LoadWay EP 220 Mobilgear 630 Omala oil 220 Meropa Lubricant 220  Tribol ET 280-220 Lamora 220 Optigear 5150 VG 220
<b>B</b> High-pressure oil		54322-150  For use in production plant with start temperature below 5°C	90 296-72  For use in production plant with start temperature below 5°C	BP Esso Statoil Mobil Shell Caltex/ Texaco Imperial Kluber Optimol	Energol GR-XP 150 Spartan EP 150 LoadWay EP 150 Mobilgear 629 Omala oil 150 Meropa Lubricant 150  Tribol ET 280-150 Lamora 150 Optigear 5120 VG 150
<b>C</b> Hydraulic oil	M 1252.122	52122-32	90 296-53	BP Esso Statoil Mobil Shell	Bartran HV 32 Univis N 32 HydraWay HV 32 DTE Oil 13 Tellus T 32

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Lubricant code	Document No	Material No (internal TP designation for material type)	Part No (used when ordering from Tetra Pak)	Example	
				Supplier	Product designation 9510
<b>D</b> Mist lubrication oil	M 1251-822	51822-37	90 296-80	BP Esso Statoil Mobil Shell Caltex/ Texaco	Autran GM-MP ATF Dextron TransWay DX II ATF 220 ATF Dextron II Texamatic fluid (DEXTRON II)
<b>E</b> Comp- ounded cylinder oil	M 1254.922	54922-460	90 296-77 90 296-2	BP Esso Statoil Mobil Shell Caltex/ Texaco	Energol AC-C460 Cylesso TK 460 CylWay FZ 460 600W Super Cylinder Oil Valvata Oil J460 Vanguard Cylinder Oil
<b>F</b> Lithium grease, EP type	M 1255.115	55115-20	90 296-68	BP Esso  Statoil Mobil Shell Kluber Optimol	Energrease LS EP 2 Esso MP Grease/ Beacon EP 2 UniWay EP 2 N Mobillux EP 2 Grease 1344 LiEP 2 Centoplex 2 EP Longtime PD 2
<b>H</b> High- pressure oil	M 1254.322	54322-320	90 296-75 90 296-76	BP Esso Statoil Mobil Shell Caltex/ Texaco Imperial Kluber Optimol	Energol GR-XP 320 Spartan EP 320 LoadWay EP 320 Mobilgear 632 Omala oil 320 Meropa Lubricant 320  Tribol ET 280-320 Lamora 320 Optigear 5180 VG 320

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