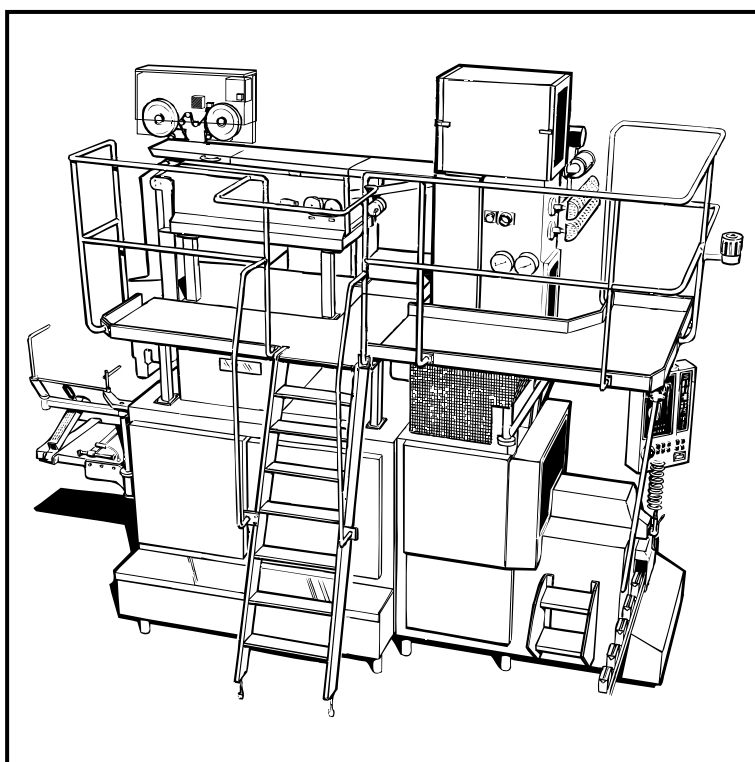


OM

Operation Manual

TBA/9 140V
ASSU/8/9 010V



2.282289012.fro

This document is valid for:

--

Series No/ Machine No

Sign.

OM

Operation Manual

Tetra Brik Aseptic
TBA/9
648152-140V

Equipment included:

Automatic Strip Splicing Unit
ASSU/8/9
C-1260536-010V

Doc No. OM-82289-0102

Issue 9705

Tetra Pak
Tetra Brik Packaging Systems

Introduction	1
Safety precautions	5
General description	21
Control panel	33
Preparation after weekly care	49
Preparation after daily care	59
Start	83
Production checks	89
Package checks	93
Strip supply	111
Packaging material supply	115
Stop	121
Daily care	139
Weekly care	153
Sterilisation liquid	169
Technical data	175

This page intentionally left blank

2.282289012TOC

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 liquid food products.

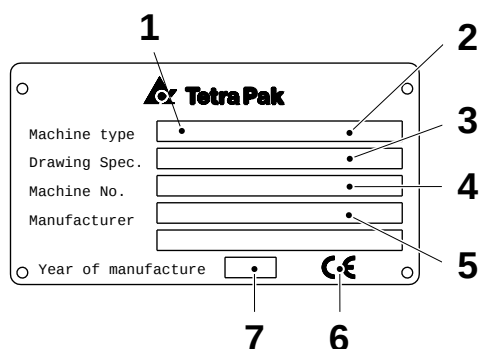
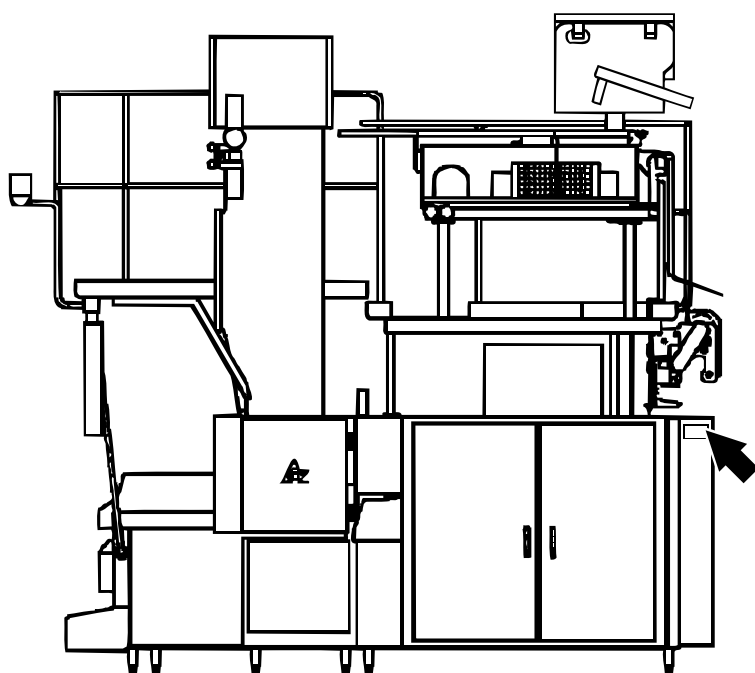
Manufacturer

This Tetra Pak equipment has been manufactured by:

Tetra Brik Packaging Systems AB
Ruben Rausing's gate
221 86 LUND
Sweden

or by:

Tetra Brik Packaging Systems S.p.A.
Via Delfini 1
411 00 MODENA
Italy



- 1 Machine type
- 2 Volume
- 3 Drawing specifications
- 4 Machine serial number
- 5 Manufacturer
- 6 CE mark
- 7 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 182 pages.

Copyright © 1997**Tetra Brik Packaging Systems**

All rights reserved. No parts of this document may be reproduced or copied in any form or by any means without written permission from Tetra Brik Packaging Systems.

This page intentionally left blank

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

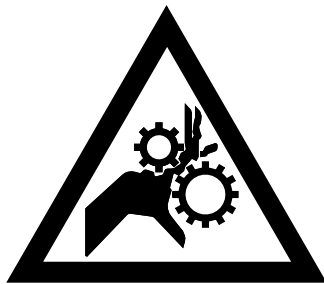


Disinfect
hands/gloves

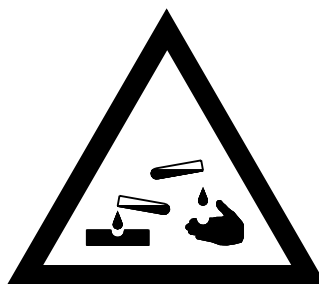
2.282289012.sp

Danger and warning signs

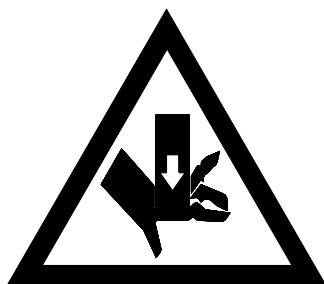
Risk of entanglement!



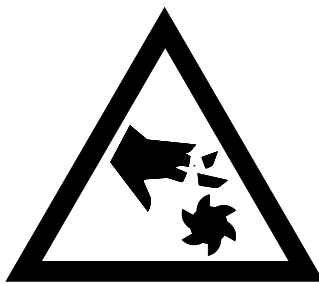
Risk of corrosion!



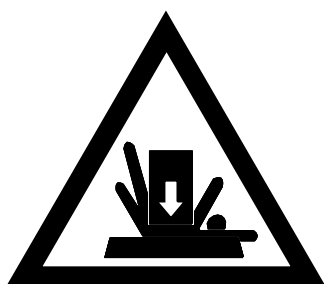
Risk of crushing!



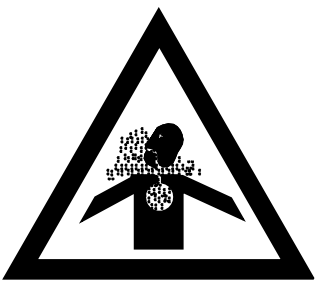
Risk of cutting/ amputation!



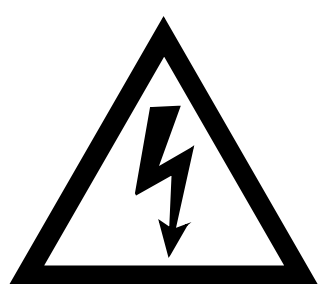
Risk of crushing!



Risk of intoxication!



Risk of electrocution!



Risk of falling!



(cont'd)

Danger and warning signs

	Risk of burns! 
	Risk of personal injury! (general)

2.282289012.sp

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. Before carrying out maintenance or repair work, switch the equipment off at the mains power and padlock the switch.

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 60204.3,55 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

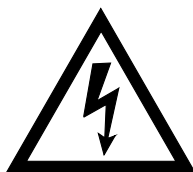
It is important to keep hands and/or gloves clean.



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.



High voltage

Work with parts marked with this symbol must be performed by skilled or instructed persons only.

Make sure that the mains power is disconnected before starting any work on electrical equipment marked with this symbol.

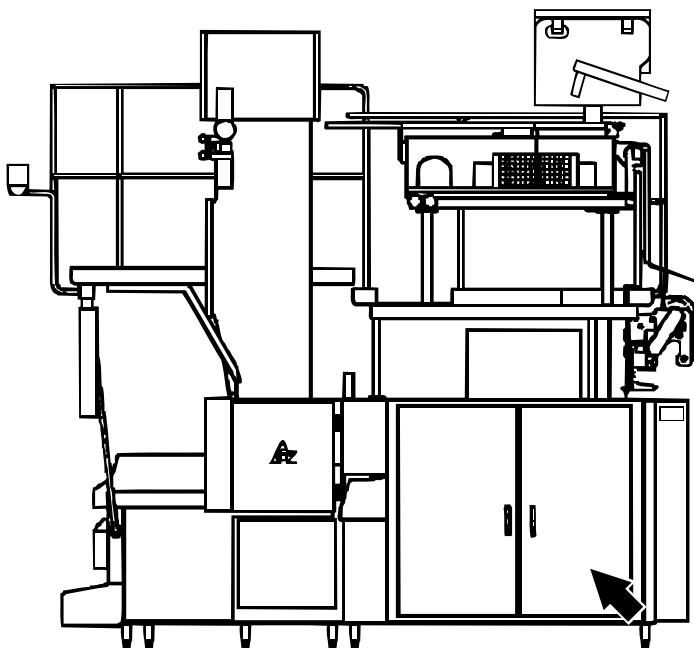
In case of accident, call for medical attention immediately.



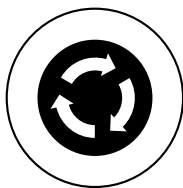
Electrical cabinet

There is high voltage in the electrical cabinet (up to 400 V). 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.



2.282289012.sp



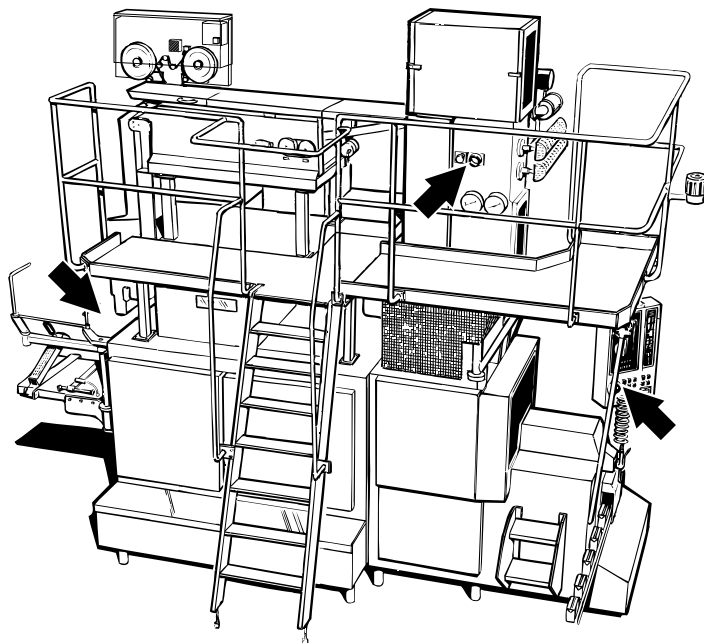
Machine safety devices

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.



2.282289012.sp



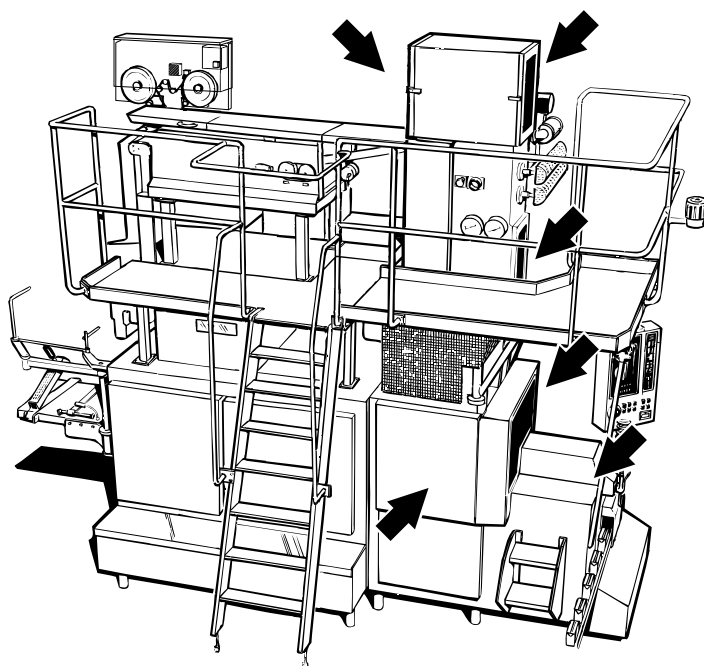
Doors, covers and guards

Make sure that all doors, covers and guards are in place and functioning before operating the equipment. The equipment may perform a reciprocating movement during the first few seconds after a stop. Some equipment parts may also 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.



2.282289012.sp



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. 779130-102
- **Apron**, TP No. 90303-5
- **Shoes** made of PVC, PE plastic or rubber
- **Protective gloves** made of neoprene, TP No. 90303-4

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 you accidentally **swallow** chemical products, drink large amounts of lukewarm water.

If you get splashes or vapour from chemical products in your **eyes**, wash your eyes thoroughly with lukewarm water for 15 minutes (keeping eyelids wide apart).

If chemical products comes into contact with **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 you experience irritation or pain due to having **inhaled** chemical products vapour:

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



Hydrogen peroxide

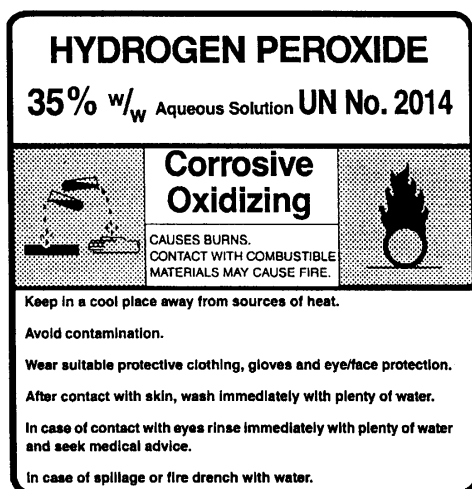
The liquid for sterilising the packaging material consist of 35% hydrogen peroxide (H_2O_2).

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

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.





Ink

Risk of personal injury!

Ink is inflammable and can be harmful if it comes into contact with the eyes or skin. Carefully follow the instructions on the container label.

Ink container

- INFLAMMABLE
- Avoid direct contact with the product
- Use gloves and goggles
- Care for good ventilation
- Propylene glycol mono methyl ether >30%
- Ethanol 1-5%
- SHAKE BEFORE USE



**BLACK MARKFLEX
MF 7011
INFLAMMABLE**

Avoid direct contact with
the product
Use gloves and goggles
Care for good ventilation

Propylene glycol mono
methyl ether >30%
Ethanol 1 - 5%

Manufacturer:
G-man AB
tel. 0410-59200
Trelleborg
SWEDEN

TP No. 90299-72

SHAKE BEFORE USE



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.

This page intentionally left blank

2.282289012.sp

General description

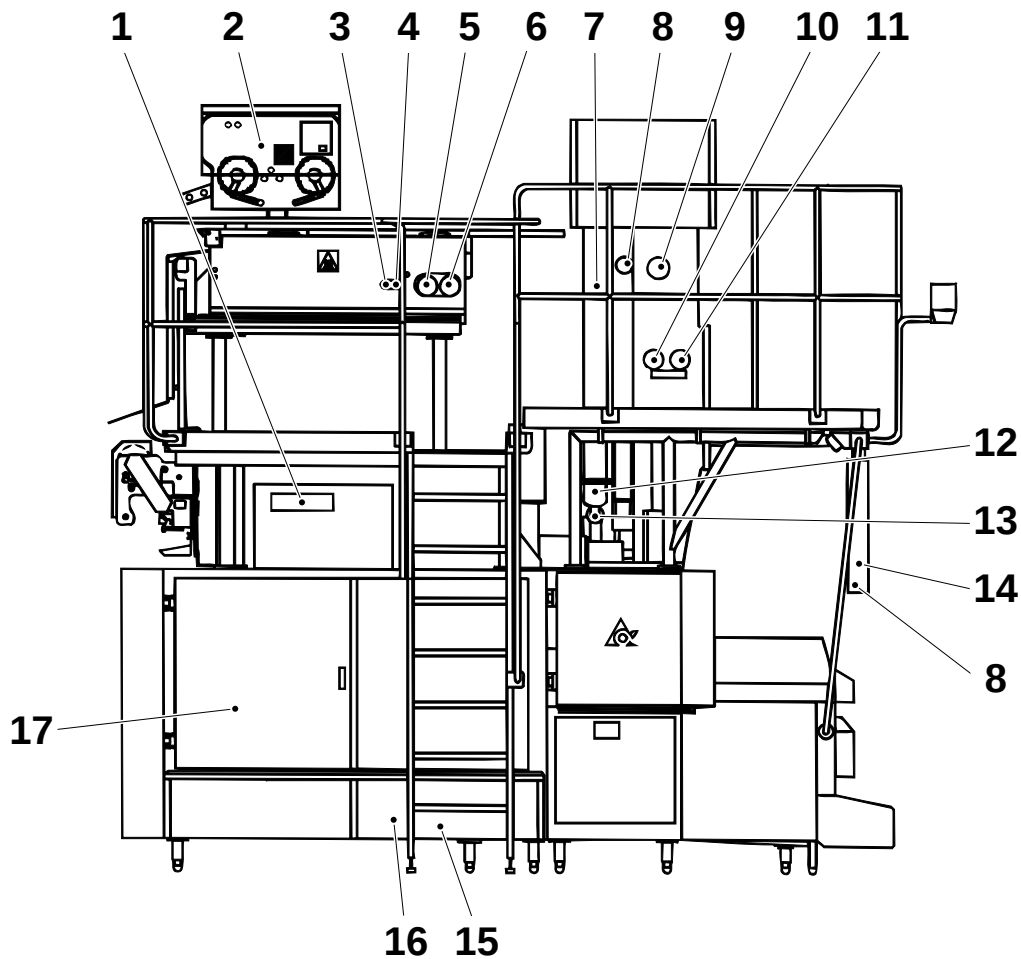
To ensure maximum safety, always read this section and the *Safety precautions* carefully before doing any work on the equipment or making any adjustments.

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

Abbreviations

	Description
ASSU	Automatic Strip Splicing Unit
CIP	Cleaning In Place
LS	Longitudinal Seal(ing)
SA	Strip Applicator
TBA/...K	Packaging material
TPIH	Tetra Pak Induction Heating
TPMC	Tetra Pak Machine Controller
TS	Transversal Seal(ing)

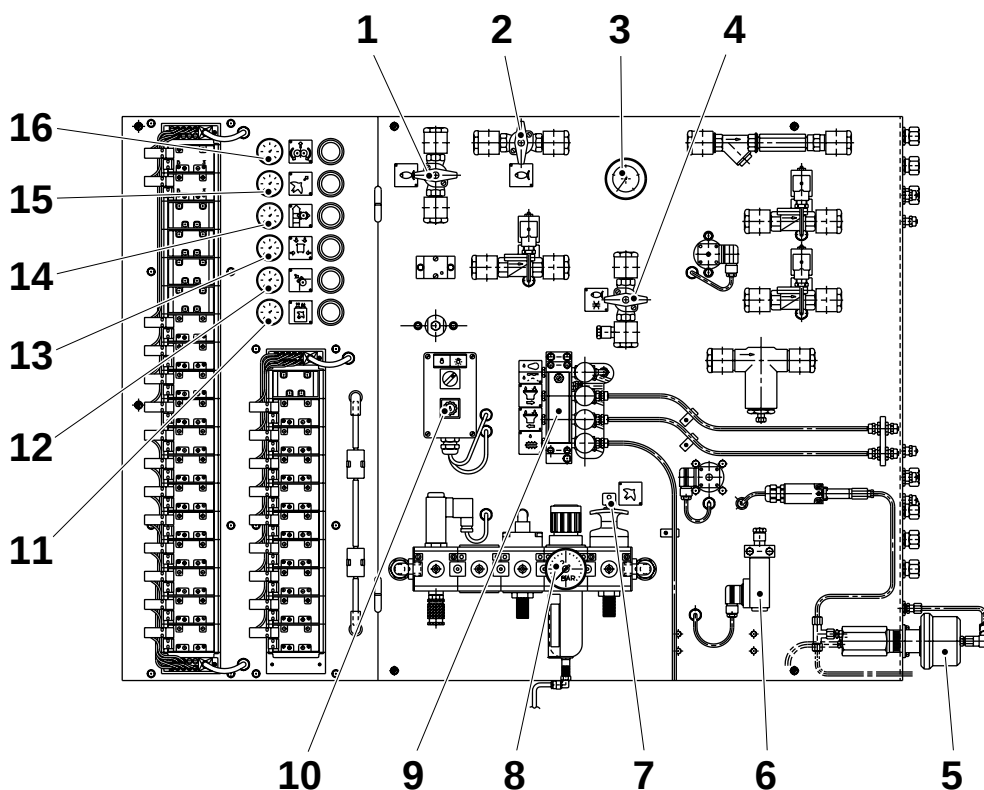
LH side



2.2TB042892.en

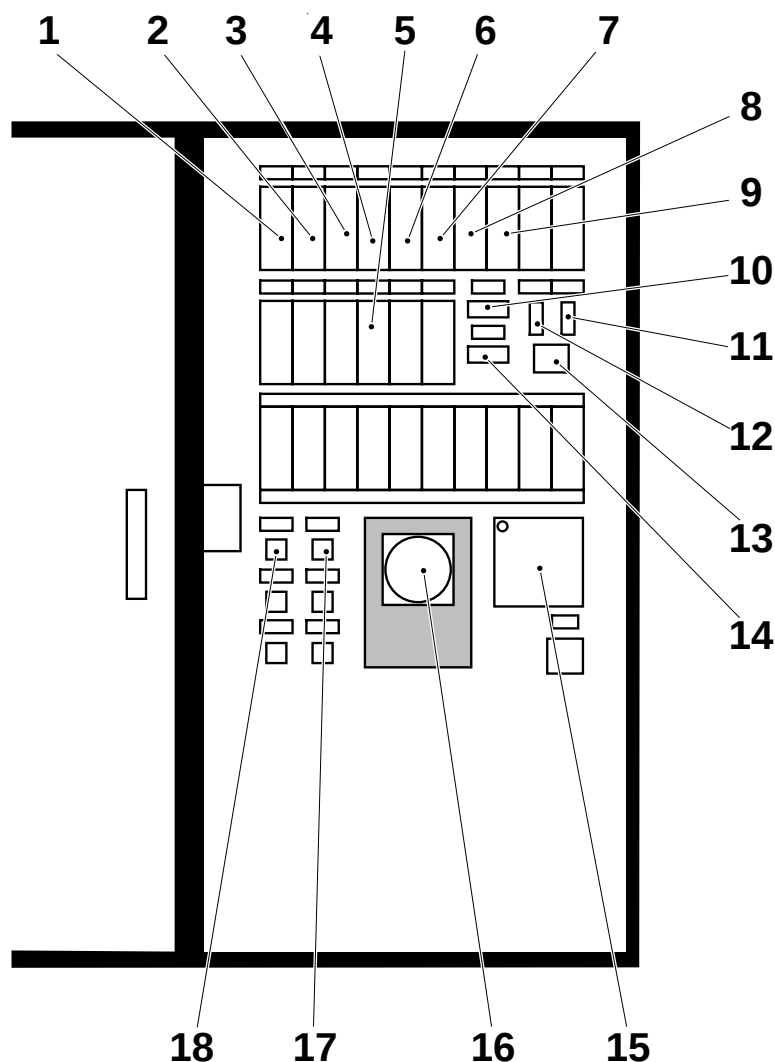
- | | |
|---|------------------------------------|
| 1 Alarm display, induction heating TS | 11 Air pressure, LS short stop |
| 2 ASSU | 12 Water bath level |
| 3 Discarding package with strip splice | 13 Peroxide bath roller |
| 4 Short stop , button | 14 Package ejector , button |
| 5 Air pressure, SA | 15 Jaw pressure |
| 6 Air pressure, SA short stop | 16 Cutting pressure |
| 7 Refilling of the water bath | 17 Door to valve panel |
| 8 Emergency stop , button | |
| 9 Knob for adjusting the movable tube support | |
| 10 Air pressure, LS | |

Valve panel



- | | |
|---|---|
| 1 Hot water inlet | 10 Machine lighting. Manual lubrication push button |
| 2 Cooling water inlet | 11 Air to photocell, design correction |
| 3 Input cooling water pressure | 12 Paper guide roller and brake, power feed roller |
| 4 Cooling water for TS, folding rail and oil cooler | 13 Flap sealing |
| 5 Central lubrication pump | 14 Design correction |
| 6 Pressure switch | 15 Air to spray container |
| 7 Input air | 16 Squee-gee roller |
| 8 Input air pressure | |
| 9 Push buttons for cooling water flow meters | |
| - Zone heater (extra equipment) | |
| - RH jaw | |
| - LH jaw | |
| - Final folder | |

Electrical cabinet

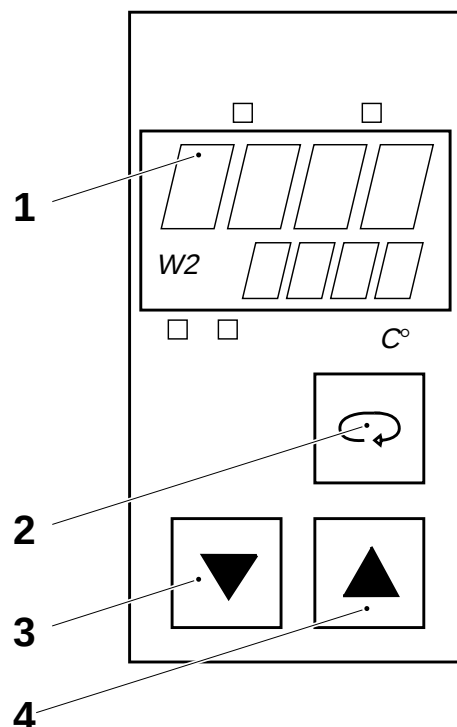


- 1 Temp. monitor, pre-sterilisation valve
- 2 Temp. controller, sterilisation bath (water)
Temp. controller, sterilisation bath (water),
preheating (SP2H)*
- 3 Temp. monitor, LS
Temp. controller, LS tube sealing (SP2H)*
- 4 Temp. monitor, air super heater
Temp. monitor, air super heater, preheating
(SP2H)*
- 5 Temp. controller, ASSU
- 6 Temp. monitor, air knife
- 7 Temp. controller, steam
- 8 Temp. monitor, sterilisation bath (peroxide)
- 9 Temp. controller, SA

- 10 Selector, fill entrance 0 = earlier, 1 = later
- 11 Capacity control TPIH, right hand TS
- 12 Capacity control TPIH, left hand TS
- 13 Hour meter
- 14 Package counter
- 15 Process recorder (extra equipment)
- 16 Production recorder
- 17 Key switch, service (security off). Only to be used
by instructed service personnel
- 18 Key switch, cleaning steam barrier space

*Two functions, see Temperature regulators in this section

Electrical cabinet - temperature regulators



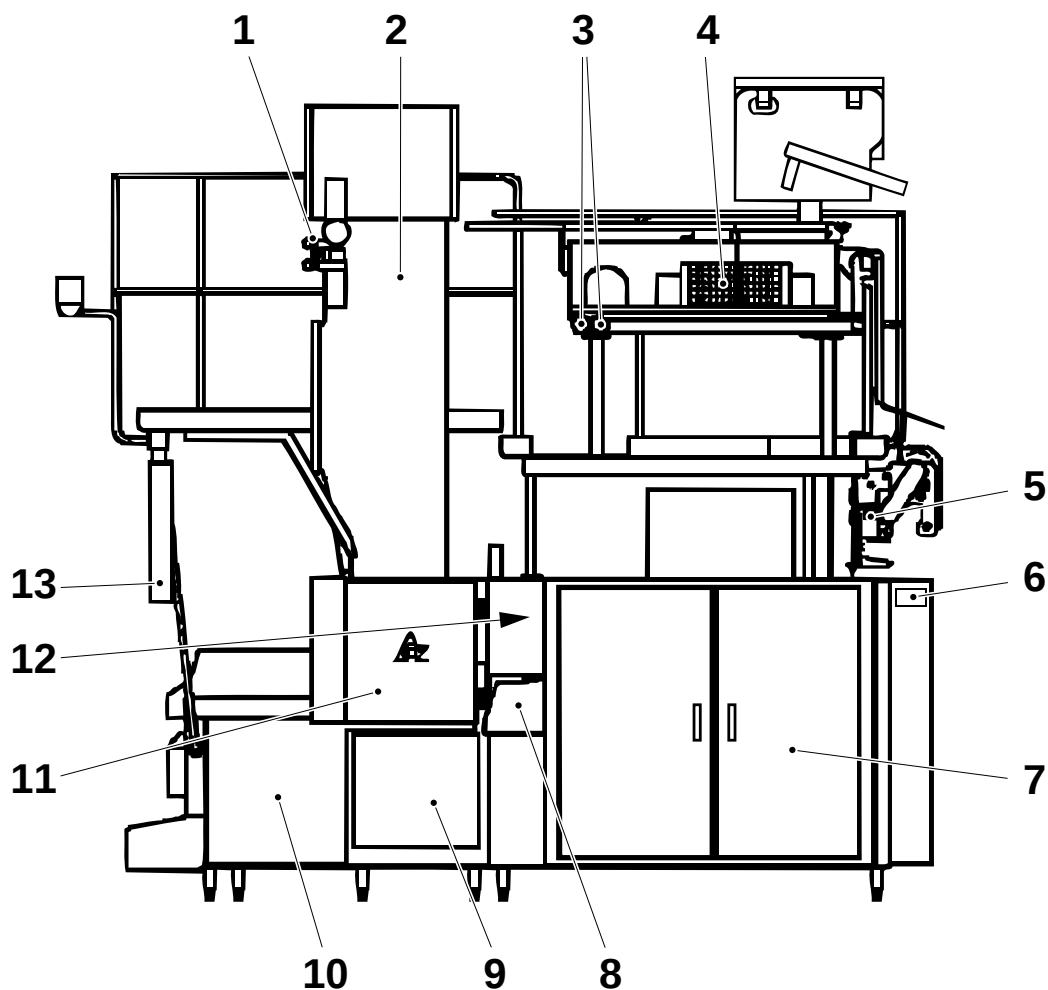
- 1 Display, actual value
- 2 Menu button
- 3 Decrease value button
- 4 Increase value button

Set the required temperature by means of the increase/decrease value buttons (3,4).

For temperature regulators with both monitoring ranges connected, push the menu button (2) and keep it depressed for approx. 5 sec until SP2H is shown on the display (1).

Then adjust the temperature with the increase/decrease value buttons (3,4).

RH side

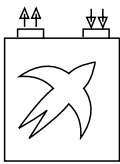
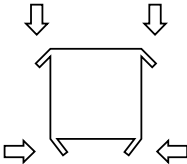
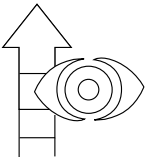
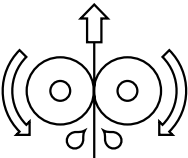
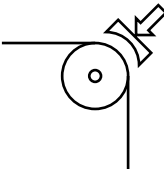
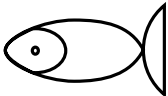
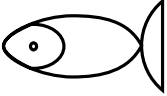
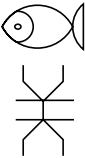
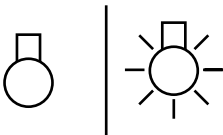
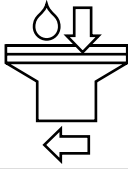
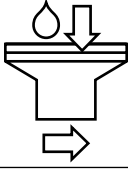
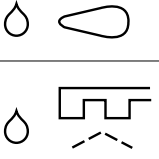
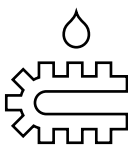


- | | |
|---|--|
| 1 Product pressure | 10 Final folder |
| 2 Aseptic chamber | 11 Jaw system |
| 3 Sterile air pressure | 12 Main switch |
| 4 SA | 13 Control panel, see the <i>Control panel</i> section |
| 5 Dating unit | |
| 6 Machine sign with machine identification data | |
| 7 Electrical cabinet | |
| 8 Air pressure, peroxide container | |
| 9 Drive unit | |

2.2TB042892.en

Symbols

On valve panel

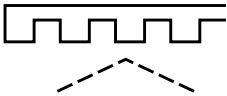
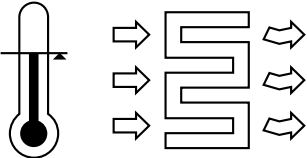
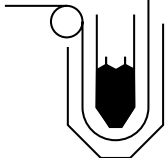
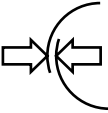
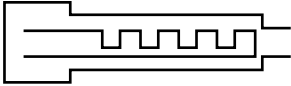
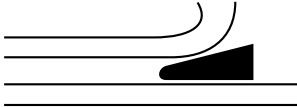
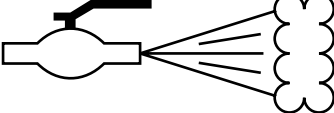
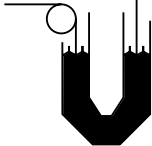
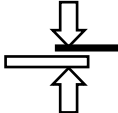
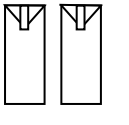
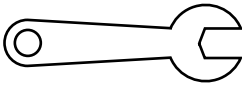
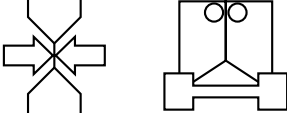
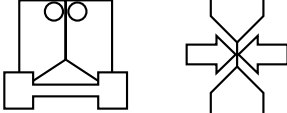
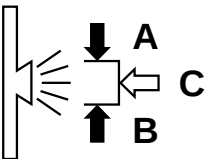
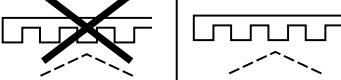
	Air pressure, photocell unit		Air pressure, flap sealing
	Air pressure, design correction		Air pressure, spraying
	Air pressure, squee-gee rollers		Air pressure paper guide roller and brake, power feed roller
	Cooling water (blue)		Hot water (red)
	Cooling water transversal seal		Light machine (off/on)
	Lubrication		Air
	Cooling water flow meter, LH jaw		Cooling water flow meter, RH jaw
	Cooling water flow meter, zone heater (extra equipment)		Cooling water flow meter, final folder

2.2TB042892.en

General description

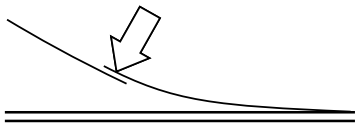
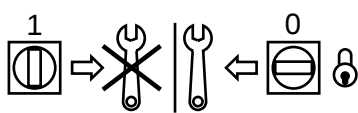
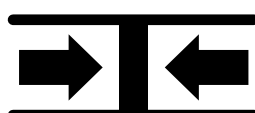
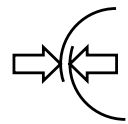
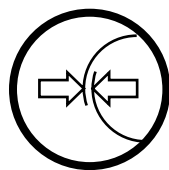
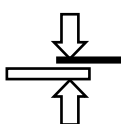
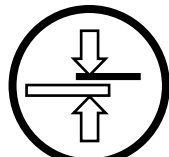


(cont'd)

	Zone heater (extra equipment)
In electrical cabinet	
	Temperature, pre-sterilisation valve
	Temperature, water bath
	Temperature, LS
	Temperature, air super heater
	Temperature, air knife
	Temperature, steam
	Temperature, peroxide bath
	Temperature, SA
	Selector, fill entrance
	Service switch
	Power, LH TS
	Power, RH TS
	Cleaning steam barrier space
	Zone heater (extra equipment) off/on

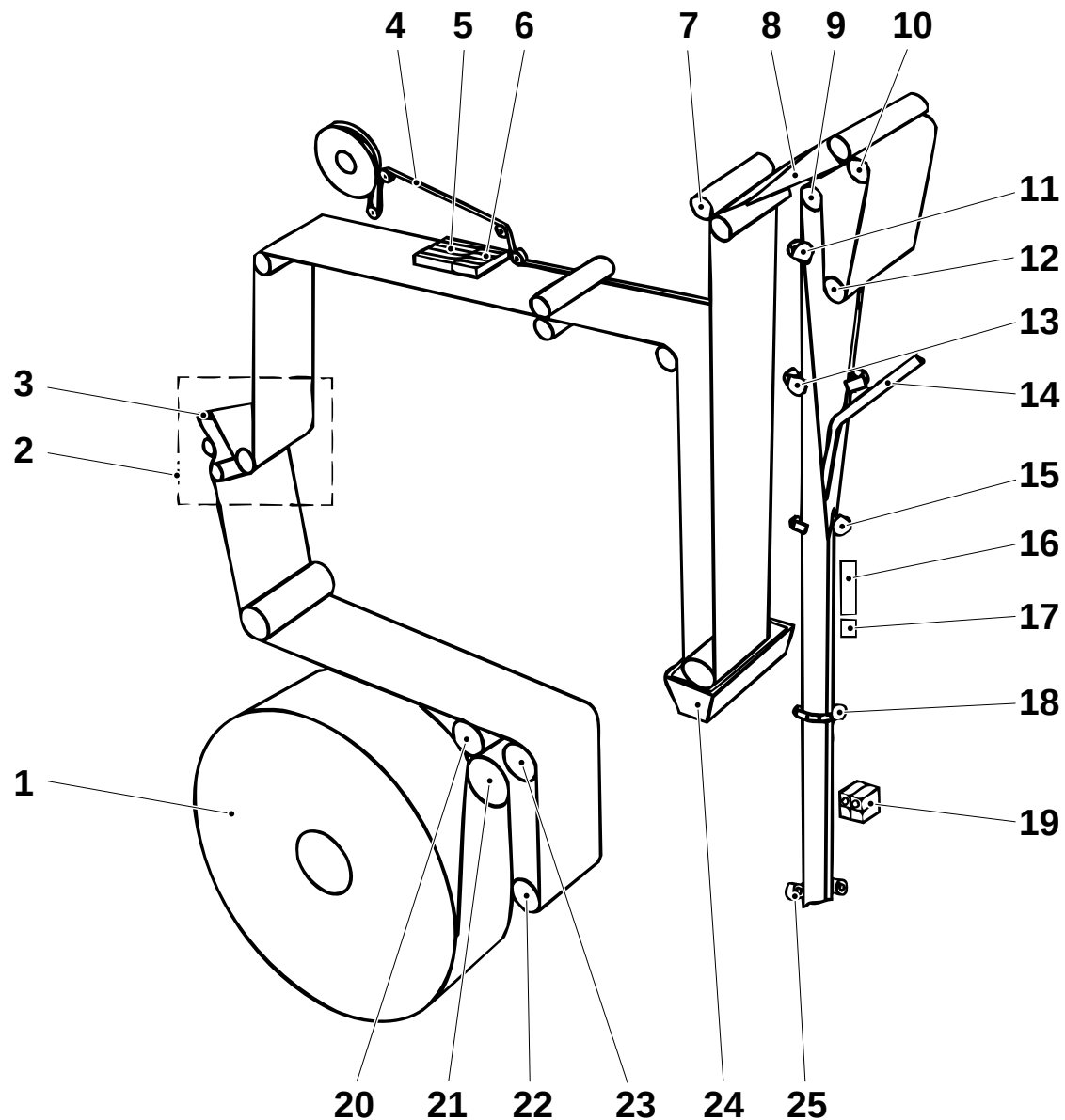
2.2TB042892.en

(cont'd)

	Temperature, strip splicer
On equipment	
	Jaw pressure 
Air pressure, LS 	Air pressure, LS short stop 
Air pressure SA 	Air pressure SA short stop 
Cutting pressure 	

2.2TB042892.en

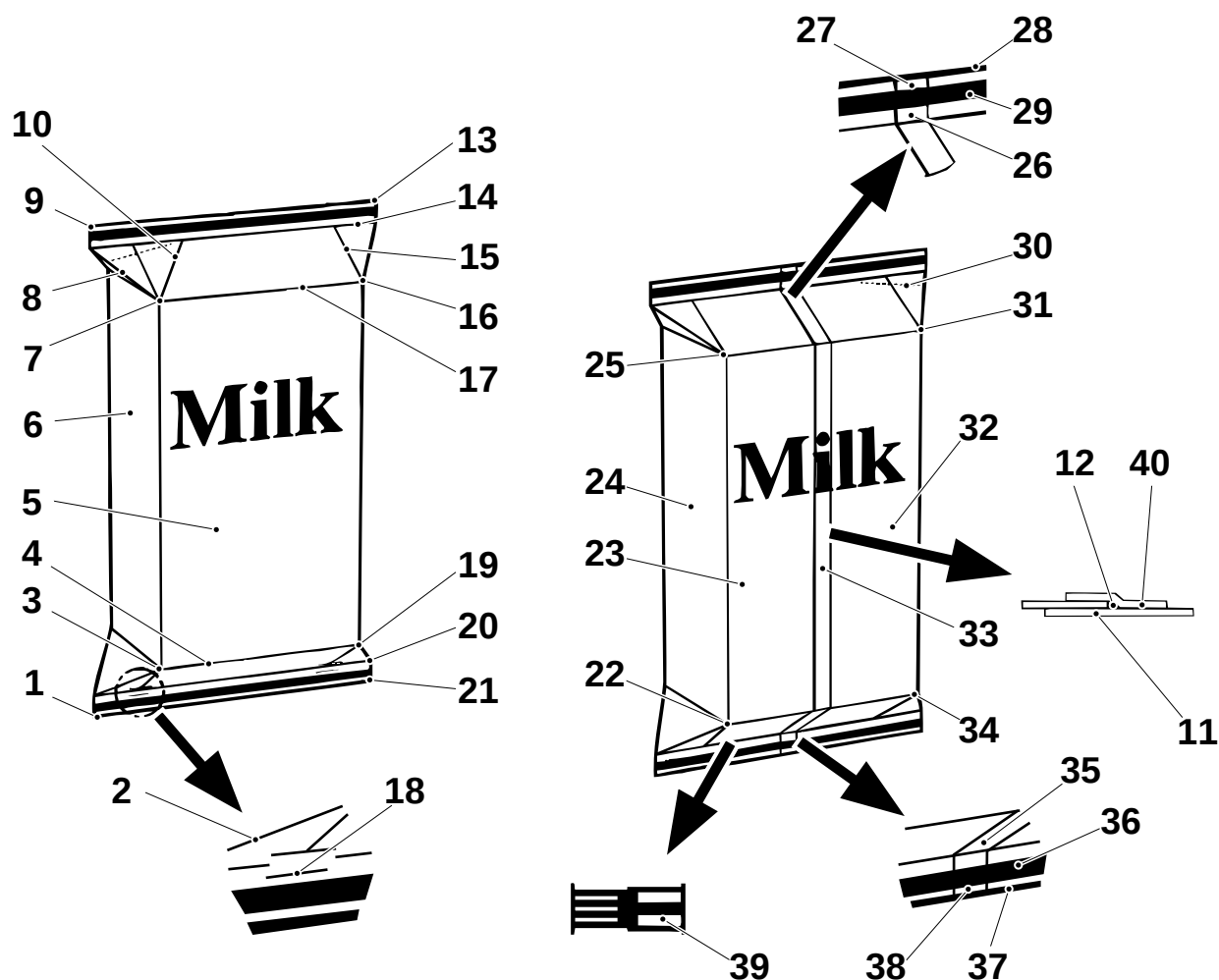
Packaging material web



- | | |
|--------------------------------|---------------------------------|
| 1 Reel of packaging material | 14 Filling pipe |
| 2 Dating unit | 15 Divided forming ring |
| 3 Dating unit crease wheel | 16 LS heating nozzle |
| 4 LS strip | 17 LS short stop heating nozzle |
| 5 SA heating nozzle | 18 Lower forming ring |
| 6 SA short stop heating nozzle | 19 Photocell unit |
| 7 Squee-gee rollers | 20 Paper guide roller |
| 8 Air knife | 21 Power feed roller |
| 9 Driven bending roller | 22 Dancer roller |
| 10 Bending roller | 23 Bending roller |
| 11 Upper tube support | 24 Peroxide bath |
| 12 Crease roller | 25 Tube support rollers |
| 13 Movable forming ring | |

2.2TB042892.en

Package terms



2.2TB042892.en

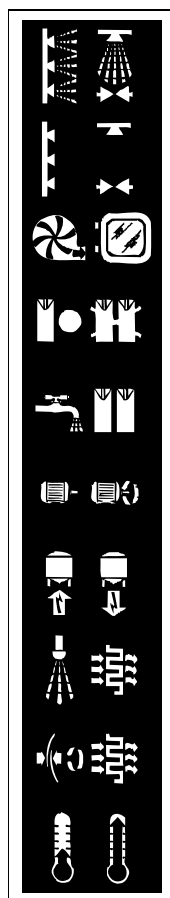
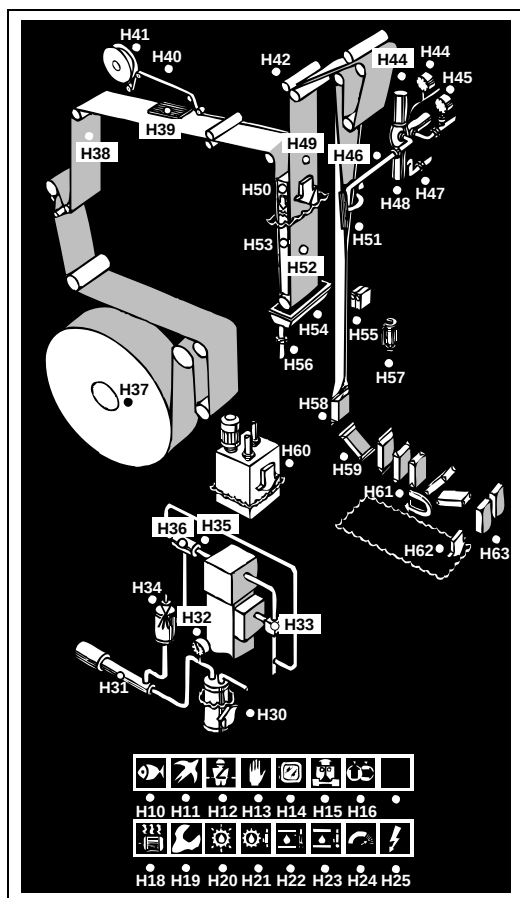
- 1 Bottom left fin corner
- 2 Bottom flap crease
- 3 Bottom front left corner
- 4 Bottom crease
- 5 Front side of package/panel 3
- 6 Left side of package/panel 2
- 7 Top front left corner
- 8 Top flap creases
- 9 Top left fin corner
- 10 Spout crease
- 11 LS overlap
- 12 Air gap
- 13 Top right fin corner
- 14 Top fin crease
- 15 Longitudinal crease
- 16 Top front right corner
- 17 Top crease
- 18 Double creases
- 19 Bottom front right corner
- 20 Bottom fin crease

- 21 Bottom right fin corner
- 22 Bottom rear right corner
- 23 Rear side of package/panel 5
- 24 Right side of package/panel 4
- 25 Top rear right corner
- 26 Top inner cross
- 27 Top outer cross
- 28 Top cutting line
- 29 Top transversal seal
- 30 Perforation
- 31 Top rear left corner
- 32 Rear side of package/panel 1
- 33 LS
- 34 Bottom rear left corner
- 35 Bottom inner cross
- 36 Bottom transversal seal
- 37 Bottom cutting line
- 38 Bottom outer cross
- 39 Register code
- 40 LS strip

This page intentionally left blank

Control panel

This section contains information about the controls on the operator panel, the program steps and the alarms that may occur while running the equipment.



Control

PS1 **Emergency stop**

PS2H **Inching**

Flashes when inching is possible.
Slow flashing: inching at low speed
Fast flashing: inching at high speed

PS3H **Program up**

PS4H **Program down**

PS6H **Short stop**

PS7 Selector switch has four different functions, depending on current machine step.

With the selector switch turned to left:

- 1) Step 0: Next step is **Preheating SA**
- 2) Inching at low speed when PS2H is flashing
- 3) During **Production - Short stop**. LH jaw pair stops in open position
- 4) After production - **External cleaning**

With the selector switch turned to right:

- 1) Step 0: Next step is **Preparation for CIP or Preparation for external cleaning**
- 2) Inching at high speed when PS2H is flashing
- 3) During **Production - Short stop**. RH jaw pair stops in open position
- 4) After production - **CIP** (Cleaning in place of product line and valve)

PS11H **Alarm reset**

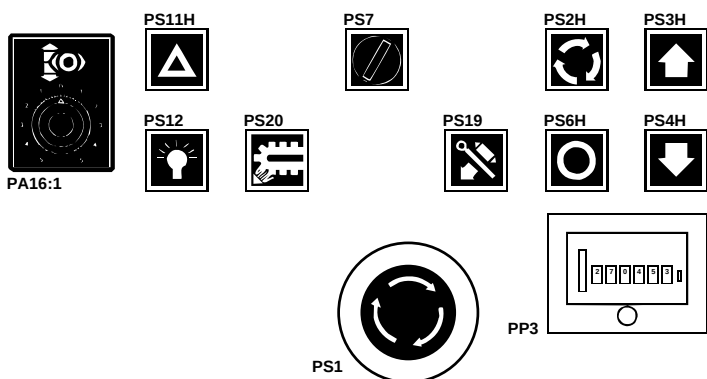
PS12 **Lamp test**

PS19 Drop chute in position **off**

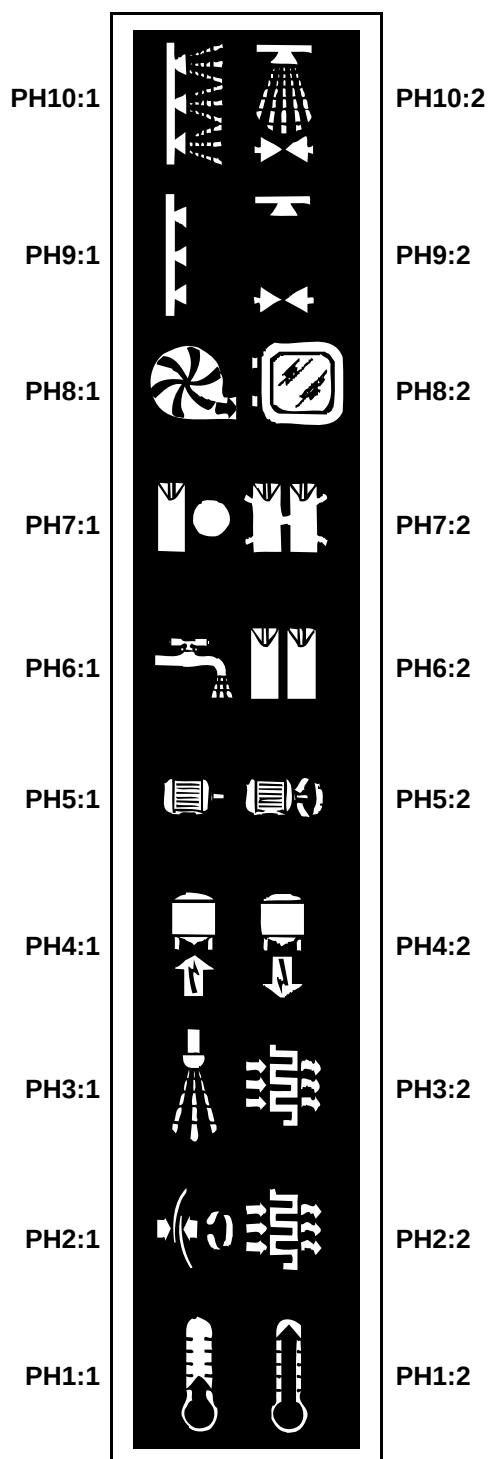
PS20 Final folder flushing.
Flushing takes place automatically during start and **External cleaning**

PP3 Package counter

PA16:1 Printed design correction. Turn the knob counter-clockwise to move the creases downwards on the package

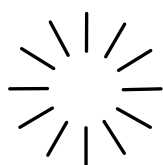


Program steps

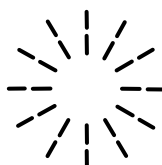


PH10:2	CIP
PH10:1	External cleaning
PH9:2	Preparation for CIP
PH9:1	Preparation for external cleaning
PH8:2	Venting aseptic chamber finished
PH8:1	Venting aseptic chamber
PH7:2	Production finished
PH7:1	Short stop
PH6:2	Production
PH6:1	Filling
PH5:2	Motor start , machine running without filling
PH5:1	Ready for production
PH4:2	Signal from steriliser
PH4:1	Signal to steriliser
PH3:2	Drying
PH3:1	Spraying
PH2:2	Preheating, sterile air system
PH2:1	Tube sealing
PH1:2	Preheating machine
PH1:1	Preheating SA

2.2TB052892.en



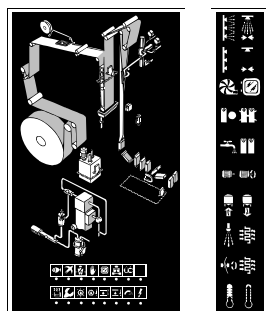
Fixed light



Flashing light

Fixed light means that this is the current program step.

Flashing light means that the machine is ready for that program step.



Alarms

1

If some form of action is required, the warning beacon and a signal lamp on the monitor panel start to flash.



2

Risk of personal injury!

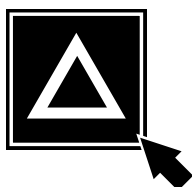
Before taking any action, make sure that the appropriate protective equipment is used. Follow the *Safety precautions*.

Push **Alarm reset**.

If the signal lamp remains lit up, take appropriate actions, see the following pages.

Note!

If no action is required immediately, the signal lamp and the beacon go out.

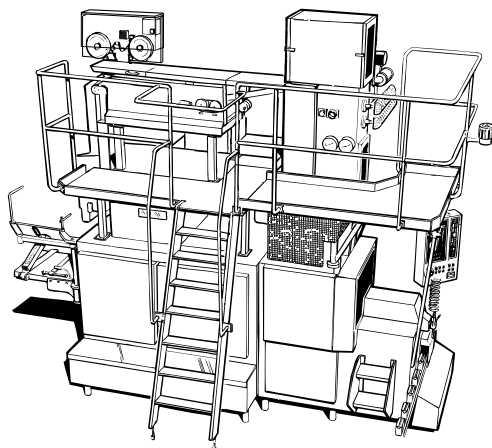


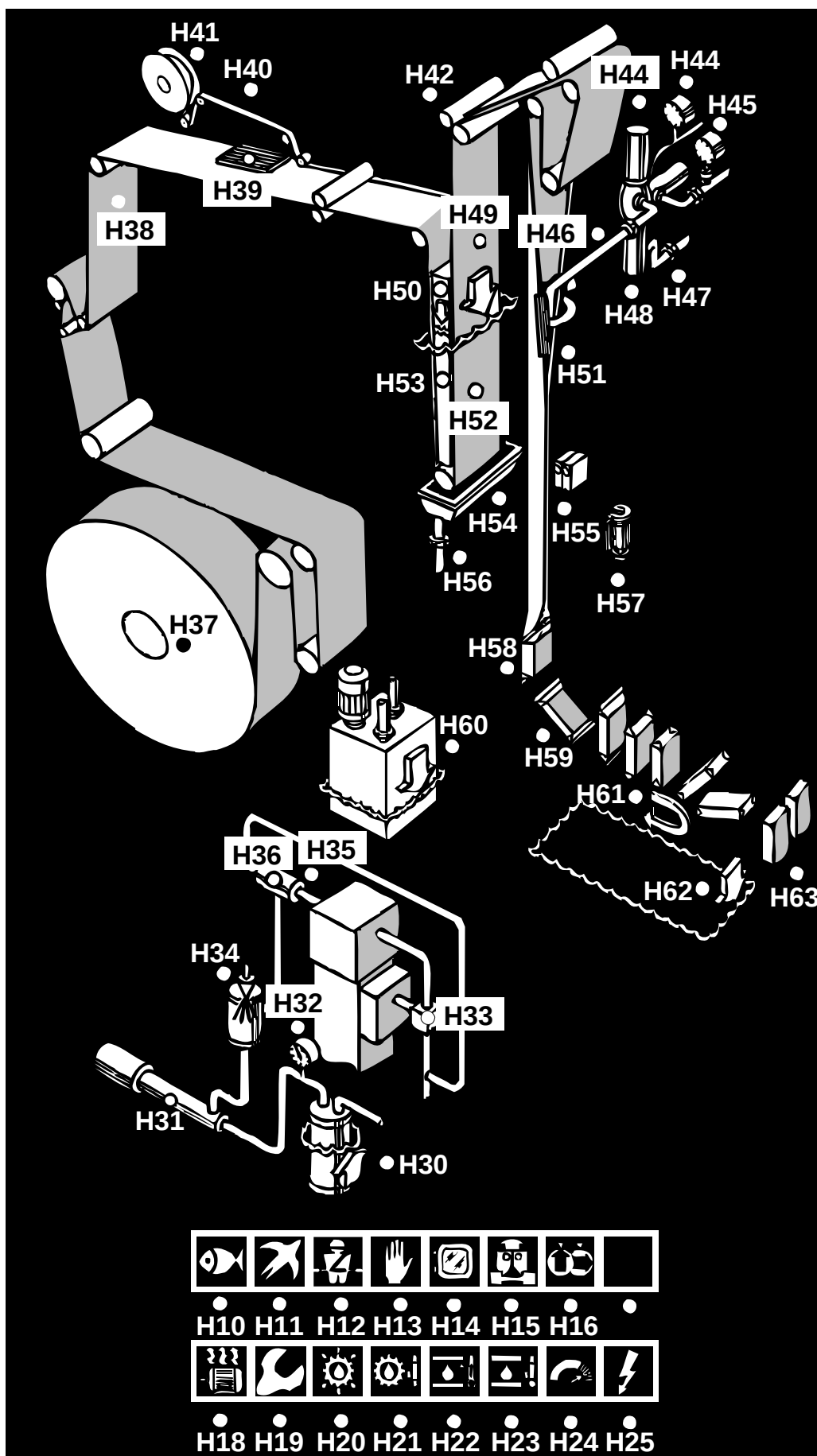
3

When the cause of the alarm has been eliminated, the beacon and the signal lamp will go out.

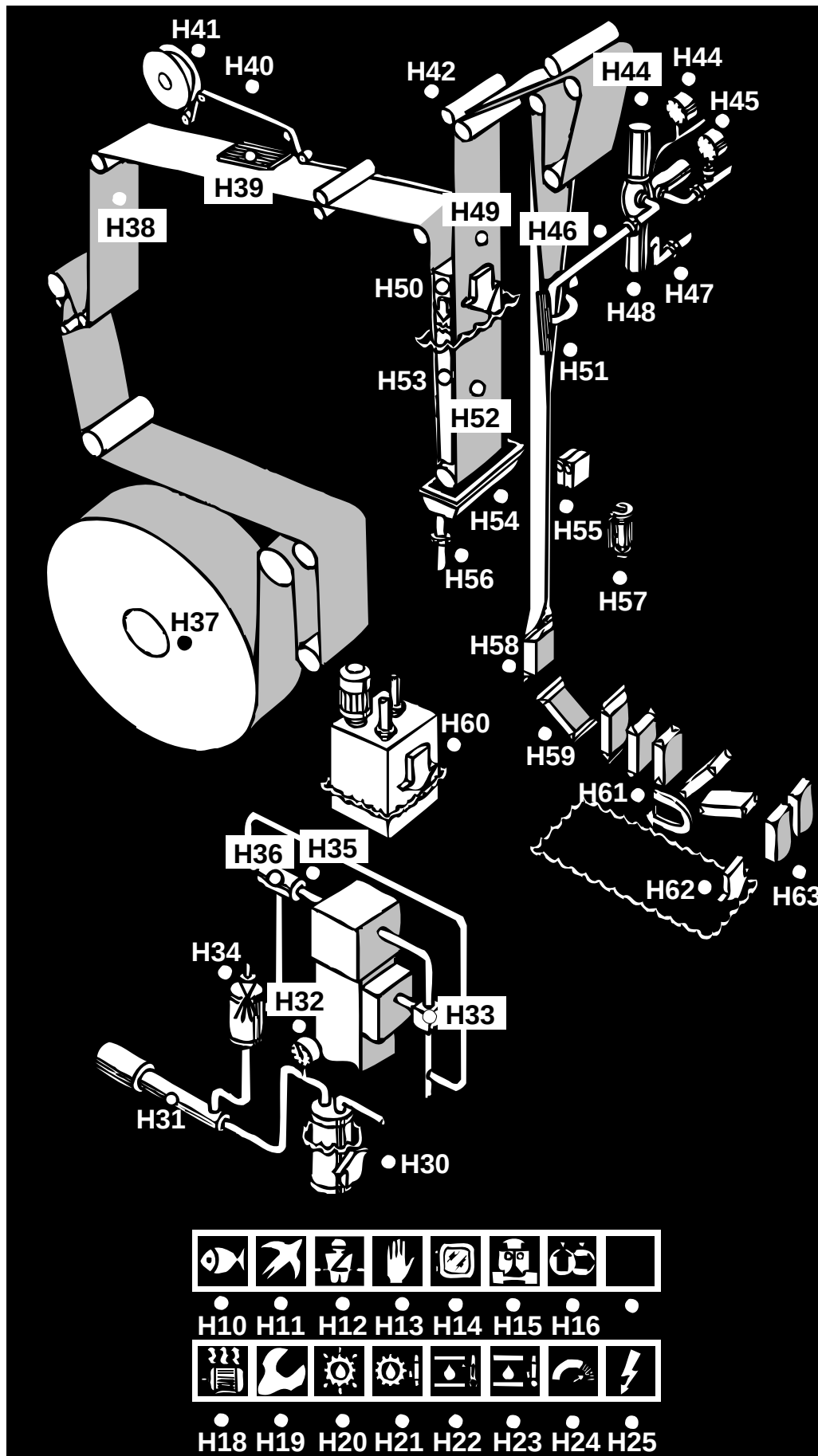
Note!

Whenever a fault recurs or remains, call a technician.

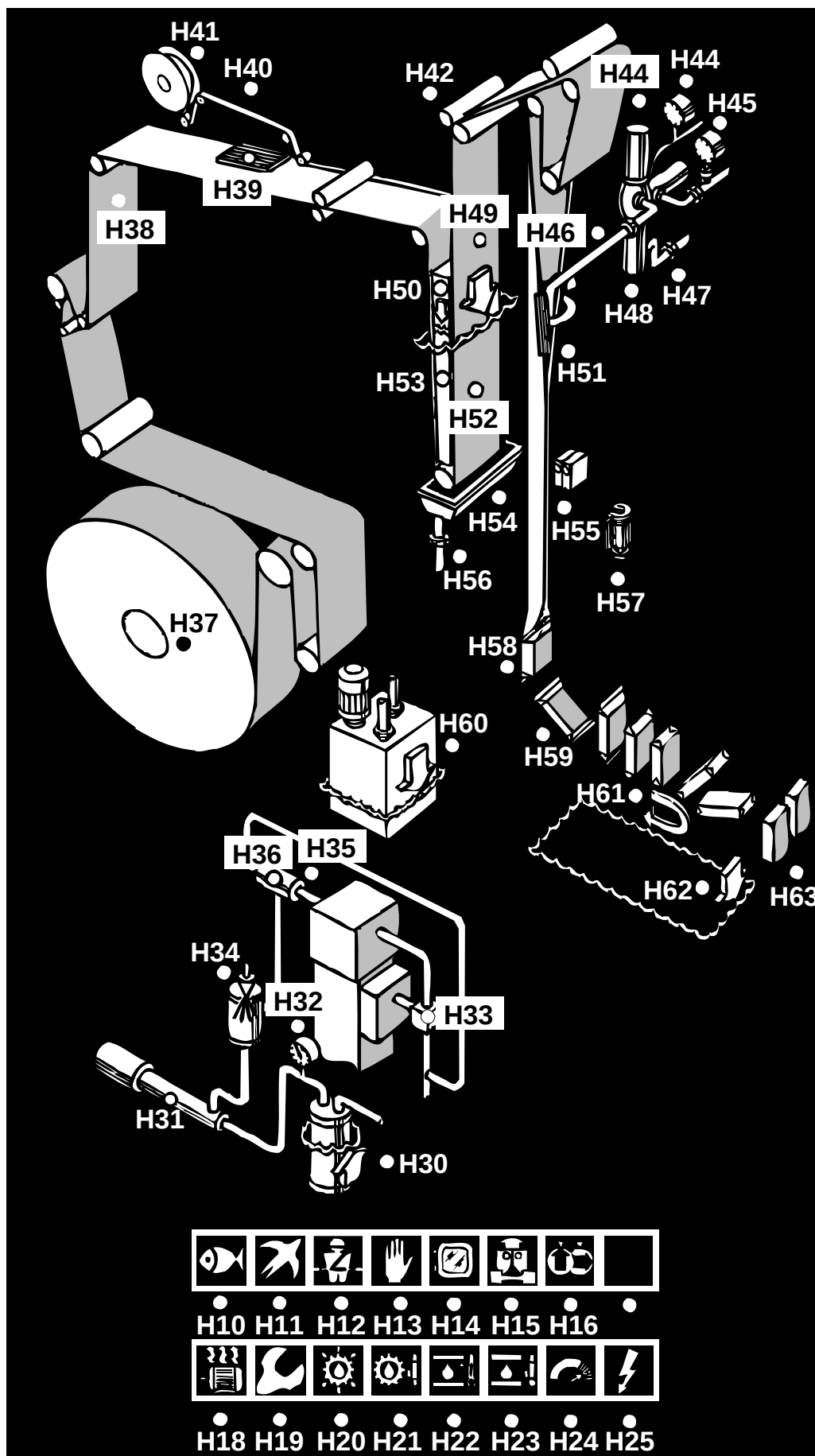




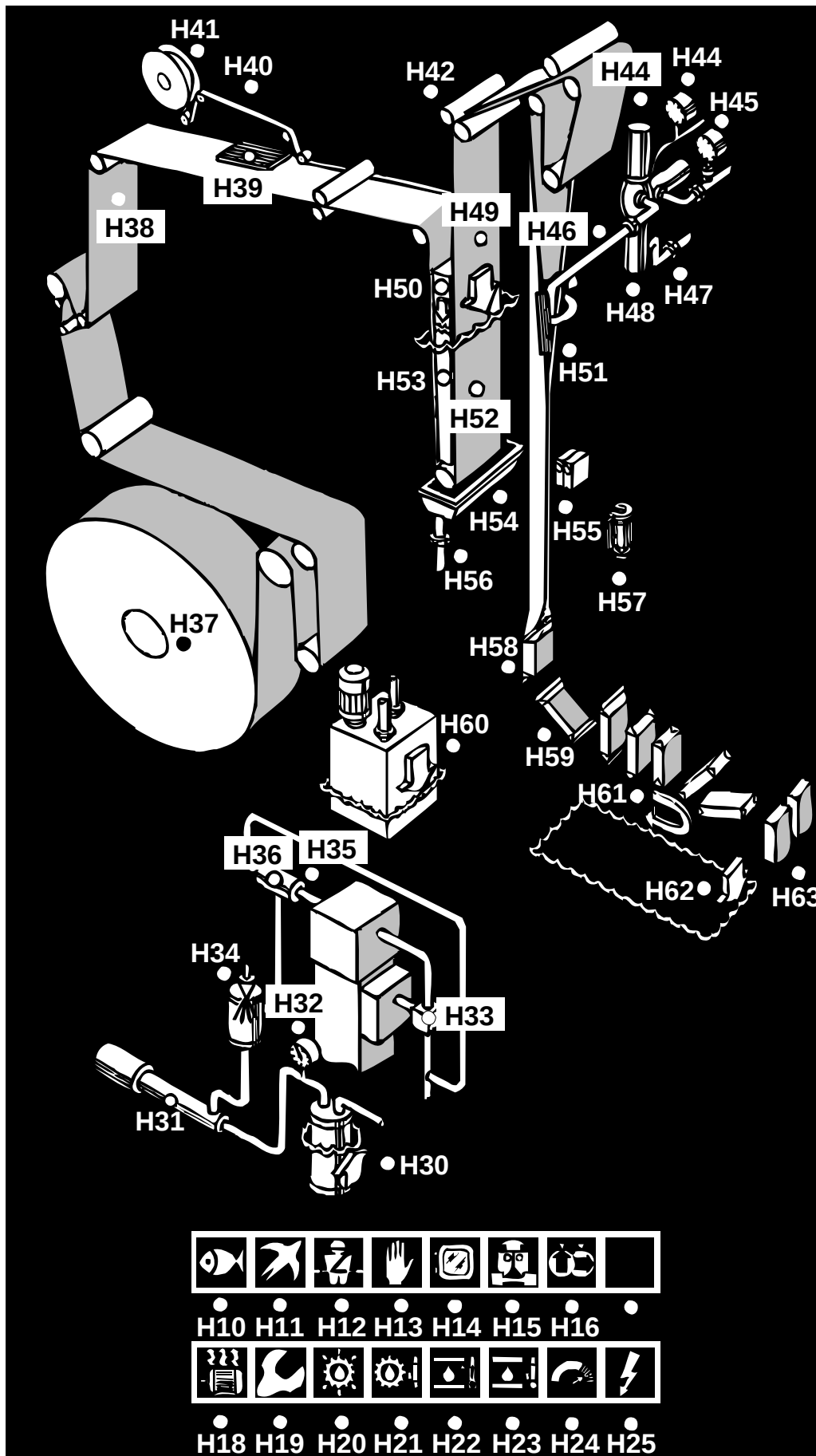
Pos	Alarm	Cause	Instruction
H10	Cooling water	Low pressure	Step Preheating SA is blocked. During Production - alarm after 20 sec. Call a technician
H11	Main air supply	Low pressure	Machine resets to Zero position. Call a technician
H12	Safety switch	Door or cover with safety switch open	Security stop. Machine motors are blocked. Check doors and covers. Follow instructions in the <i>Stop</i> section
		Crank in cranking position	Security stop. Reset crank switch. Follow instructions in the <i>Stop</i> section
H13	Emergency stop	Emergency stop button activated	Machine resets to Zero position. Check emergency stop buttons. Follow instructions in the <i>Stop</i> section
H14	Door monitor of aseptic chamber	Door open	If in step Spraying or higher steps, Security stop. Follow instructions in the <i>Stop</i> section. If in lower steps, close door and continue
H15	Jaw system	Overload	Security stop. Call a technician
H16	Synchronisation	Final folder not synchronised	Security stop. Call a technician
H18	Overload	Motor overload	Short stop. Call a technician
H19	Service state	Service key switch activated	May only be used by service personnel



Pos	Alarm	Cause	Instruction
H20	Lubrication	Low pressure	Short stop. Press Manual lubrication button. If alarm recurs, call a technician
H21	Lubrication	Low level	Fill up, see the <i>Weekly care</i> section. Press Manual lubrication button. Short stop after one hour if low level remains
H22	Hydraulic oil	High temperature	Short stop. Call a technician
H23	Hydraulic oil	Low level	Short stop. Fill up, see the <i>Weekly care</i> section
H24	Machine speed	Speed too high	Security stop. Call a technician
H25	TPMC	Battery voltage low / Scanning time too long	Alarm. Call a technician
H26	Not in use	-	-
H27	Not in use	-	-
H28	Not in use	-	-
H29	Not in use	-	-
H30	Separator	High water level	Machine resets to Zero position. Call a technician
H31	Sterile air	Incorrect temperature	Machine resets to Zero position. Call a technician

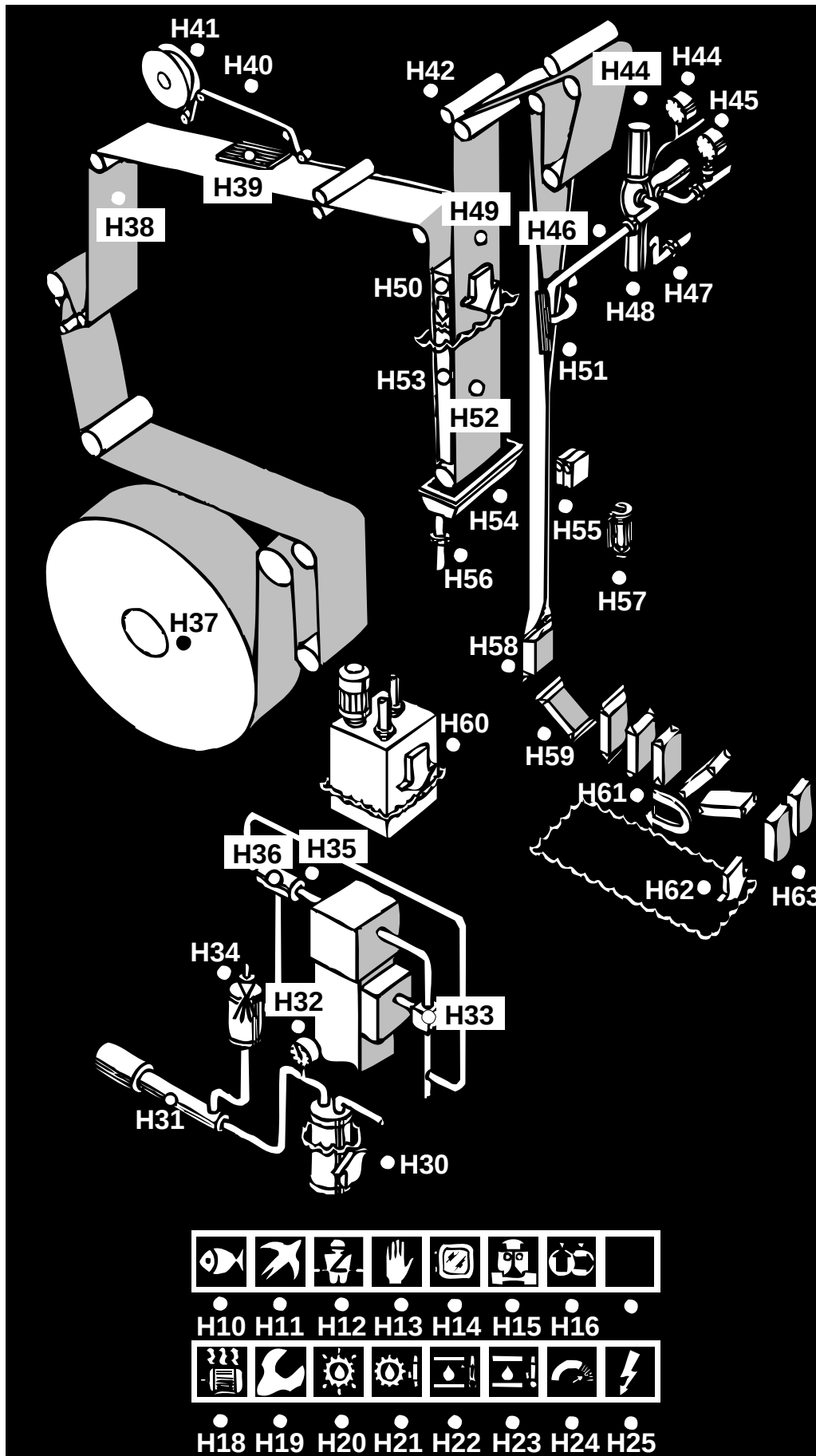


Pos	Alarm	Cause	Instruction
H32	Sterile air compressor	Low pressure	Machine resets to Zero position. Call a technician
H33	Suction valve	Incorrect position	Machine resets to step Drying . Call a technician
H34	Spray system	Filling up failure	Reset the alarm and step up the program
		Spraying failure	Machine resets to step Venting aseptic chamber (venting time 15 minutes). Follow instructions in the <i>Preparations after daily care</i> section (“ <i>If necessary to open a door</i> ”).
H35	Air knife	Incorrect temperature	Short stop. Call a technician
H36	Air inlet valve	Incorrect position	Machine resets to Zero position. Call a technician
H37	Packaging material	Supply low	Alarm. Splice in new packaging material. If no action is taken, Short stop
H38	Packaging material web	Web broken inside the aseptic chamber	Security stop. Push Program down once. Follow instructions in the <i>Stop</i> section (“ <i>If the crank switch is activated during Short stop</i> ”).
		Web broken before it has entered the aseptic chamber	Security stop. Splice web and inch out packaging material with splice. Follow instructions in the <i>Stop</i> section (“ <i>If any of the side doors...</i> ”).
		Roller in cassette in high position	Slacken packaging material web to reset roller

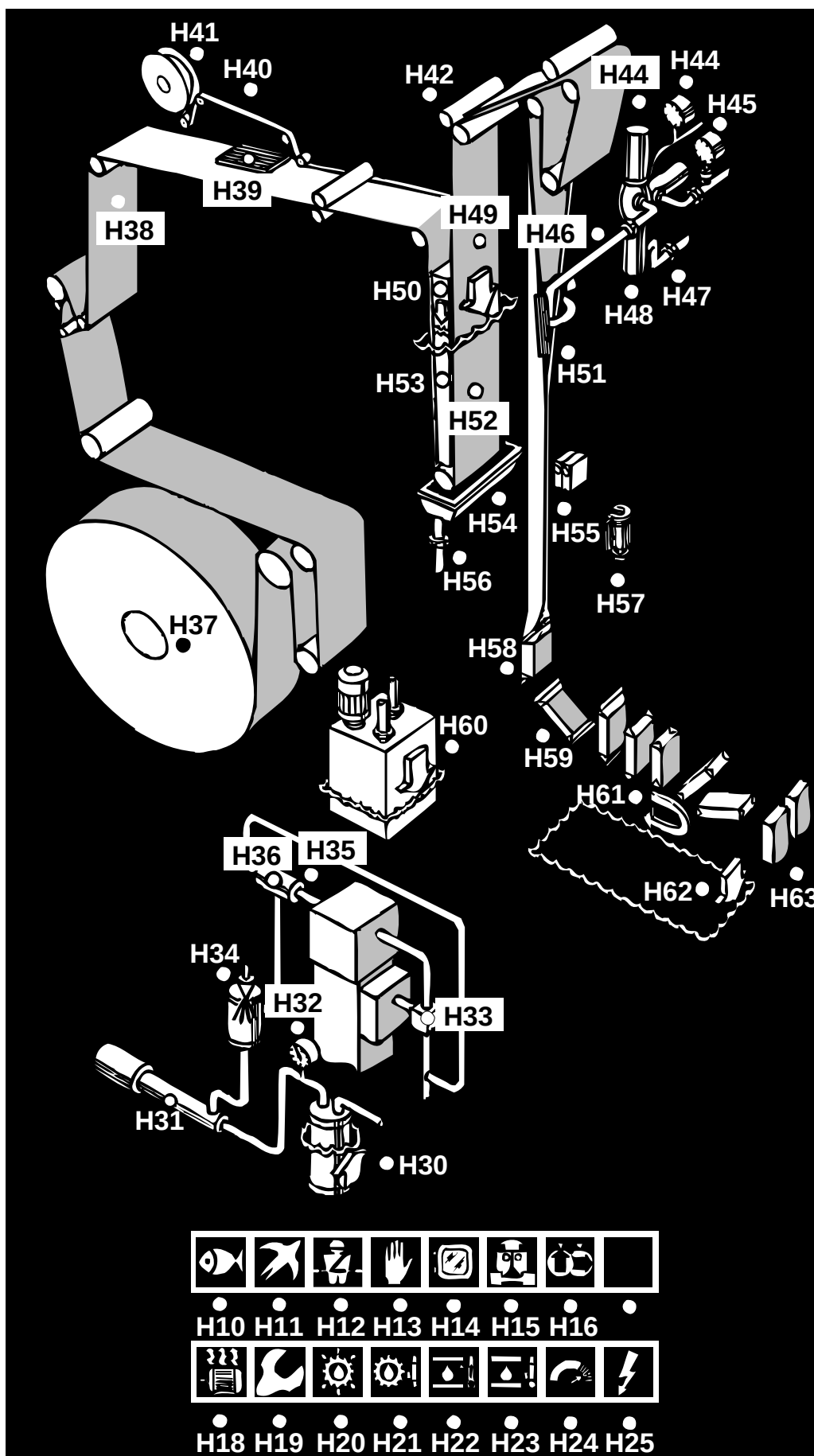


Pos	Alarm	Cause	Instruction
H39	SA	Low temperature	Check the SA air pressure and temp. controller setting. In higher steps, call a technician
H40	LS strip	Strip broken / Splice failure	Machine resets to step Drying . Call a technician
H41	Supply LS strip	Strip supply low	Alarm. Change reels. Short stop when supply finishes
H42	Squeegee roller / Air knife	Incorrect position	Short stop . Check air pressure
H43	Steam	Incorrect temperature	From step Spraying until Production start: Machine resets to Zero position. Check supply from plant steam system
			During Production : Alarm. Check supply from plant steam system
H44	Steam barrier	Key switch in cleaning position	Alarm. If cleaning of steam barrier space is to take place, no action
H45	Product valve (A-valve)	After Drying : Product set values OK button has not been pressed	Press Product set values OK and continue
		During Production : no product from steriliser	Machine resets to step Drying . Contact your production manager for restart confirmation
		During Security Stop	See <i>Stop</i> section

2.2TB052892.en



Pos	Alarm	Cause	Instruction
H46	Product pipe / Sterile air pipe	Incorrect position	Machine resets to step Venting aseptic chamber . Machine resets to step Preparation for CIP Check position of product pipe and sterile air pipe
H47	Cleaning pipe for CIP	Incorrect position	Check position of cleaning pipe
H48	Sterile air valve (B-valve)	Incorrect position	Machine resets to step Venting aseptic chamber . Call a technician
H49	Sterilisation bath	Low hydrogen peroxide level	During Production, Short stop . Call a technician
H50	Sterilisation bath	Low water level	Short stop . Fill up
H51	LS	Incorrect temperature	Machine resets to step Drying . Call a technician.
H52	Sterilisation bath	Low hydrogen peroxide temperature	Short stop . Call a technician
H53	Sterilisation bath	Low water temperature	Machine resets to step Drying . Call a technician
H54	Lid of sterilisation bath	Incorrect position	Machine resets to Zero position. Check position of lids
H55	Design correction photocells	After two photocells signal missing	Alarm. Check for dirt on lenses
		After five photocells signal missing	Machine resets to step Drying . Check that photocells are in production position



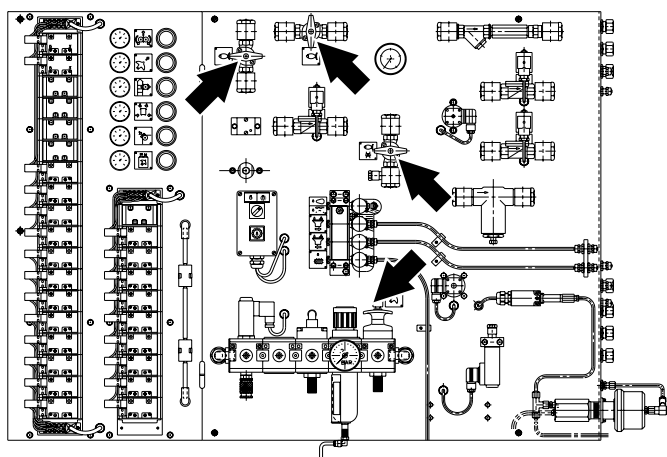
Pos	Alarm	Cause	Instruction
H56	Peroxide pipe	Incorrect position	Machine resets to Zero position. Check pipe
H57	Cleaning cup for CIP	Incorrect position	Make sure that cleaning cup is in correct position
H58	Induction heating TS	Fault in IH unit, cable or inductor	Machine resets to step Drying . Call a technician
H59	Drop chute	Congestion	During Production, Short stop . Remove all damaged packages and remnants of packaging material
H60	Hydrogen peroxide tank	Low level	Alarm. Replace hydrogen peroxide container. Short stop after five minutes if no action is taken
		High level	During Production - Short stop Immediately lift the arm off the hydrogen peroxide container. Call a technician
H61	Final folder	Overload	Machine resets to step Drying . Immediately remove all damaged packages and remnants of packaging material from final folder. Call a technician
H62	External cleaning	Fault in filling up tray	Machine resets to Ready for external cleaning . Call a technician
H63	Conveyor (extra equipment)	Packaging queue	Short stop . Check distribution equipment

This page intentionally left blank

Preparation after weekly care

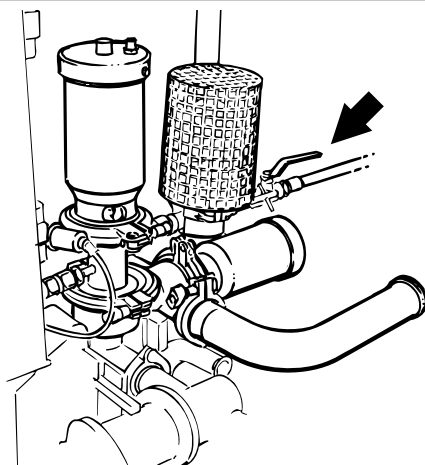
These preparations have to be carried out before starting the machine after *Weekly care*.

When starting after *Daily care*, go the *Preparation after daily care* section.



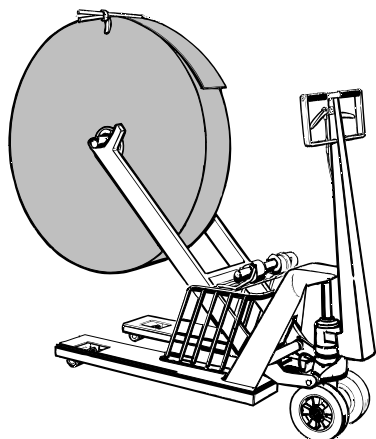
1

Turn off input air and input water.



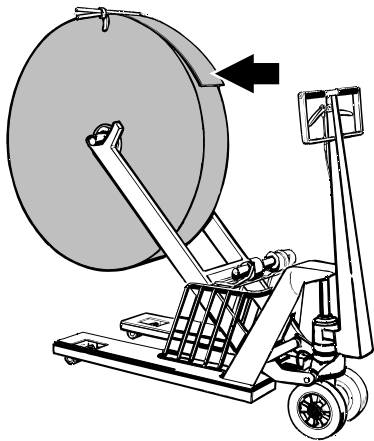
2

Open for steam.



3

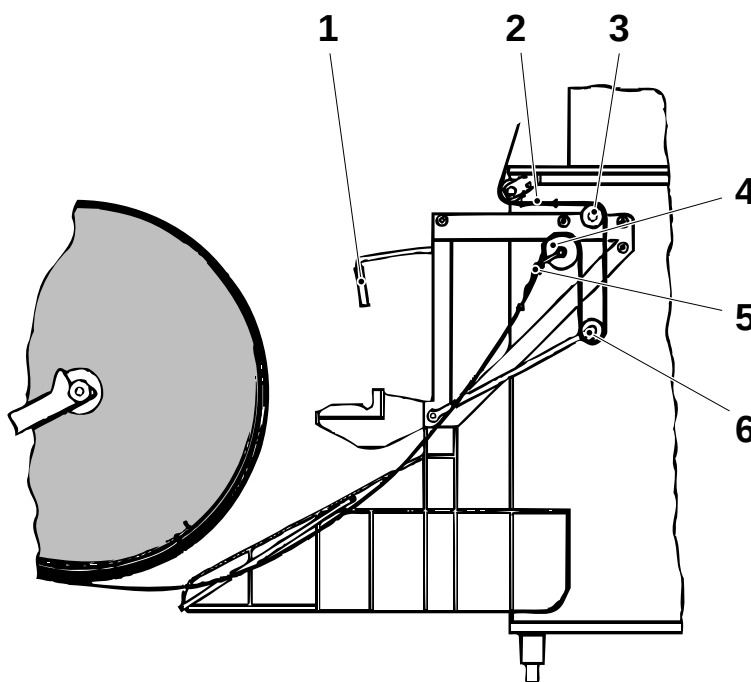
Prepare the packaging material reel and place it on the trolley, see the *Packaging material supply* section.



4

Remove the plastic wrapping from the packaging material reel.

Cut the packaging material so that the tip is rounded.



- 1 Paper magazine
- 2 Guide
- 3 Bending roller
- 4 Feed roller
- 5 Guide
- 6 Dancer roller

5

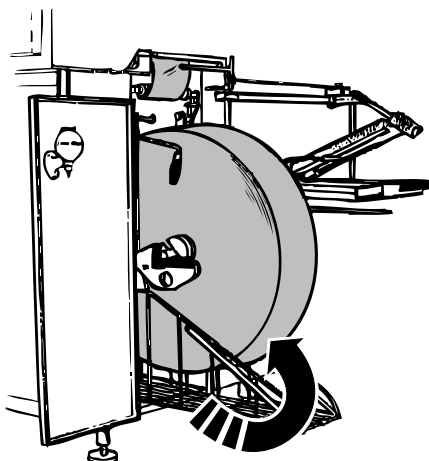
Release the catch and lower the cassette cover to the **intermediate** position (1).

Pull out the paper magazine.

Thread the packaging material web through the paper guide (5). Pull it around the power feed roller (4).

Thread the web under the dancer roller (6) and directly up over the bending roller (3).

Thread the web through the guide (2), and out from the paper magazine.



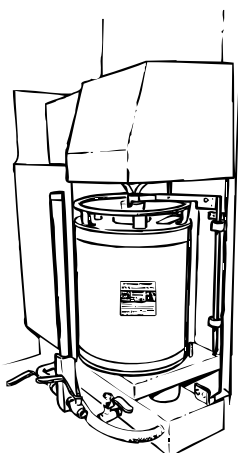
6

Push in the paper magazine. Release the stop and lower the cover to its **lowest** position. Place the packaging material reel in the cassette.

Note!

Make sure that the packaging material does not touch the floor.

Close the cassette door.



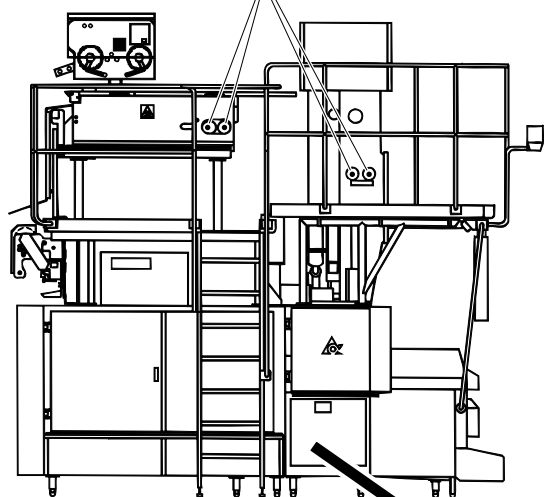
7

Hydrogen peroxide!

Follow the *Safety precautions*.

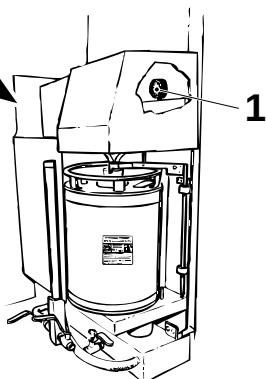
Fit a fully filled hydrogen peroxide container, see the *Sterilisation liquid* section.

1



8

Make sure that all pressure gauges (1) indicate zero.

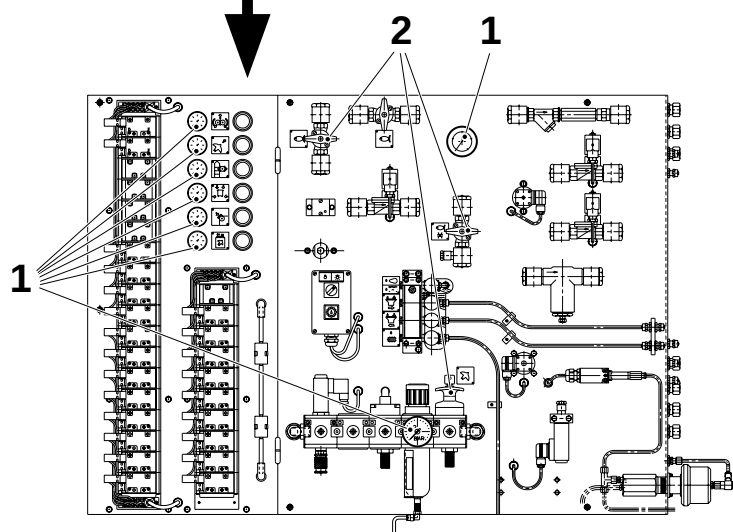
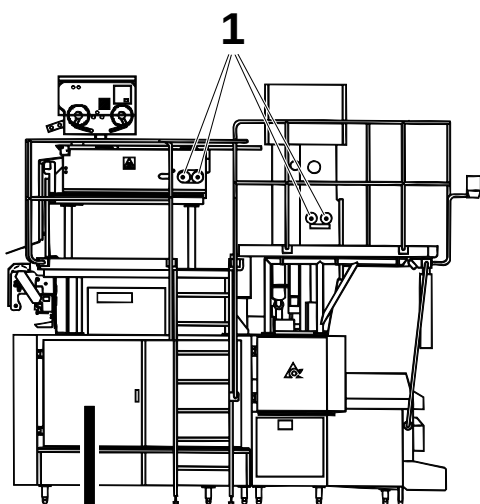
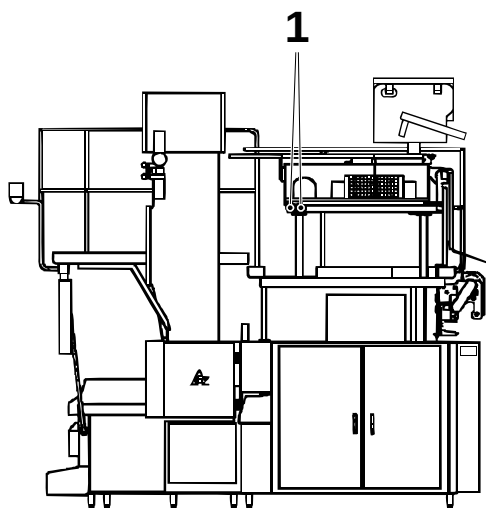


1 Pressure gauge

9

Make sure that all pressure gauges (1) indicate zero.

Make sure that the input air and the input cooling water valves (2) are open.



1 Pressure gauge

2 Valve

10

Turn the **Selector** switch on the control panel to the left.

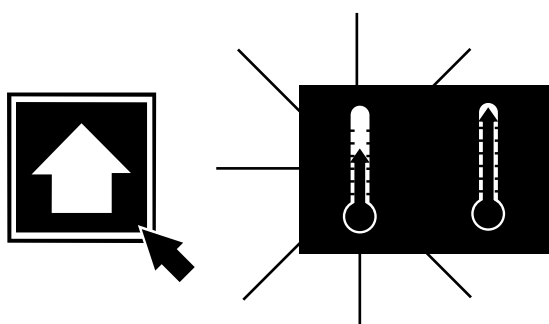


11

Press **Program up** until it goes out.

The **Preheating SA** symbol light becomes fixed and preheating of the water bath starts.

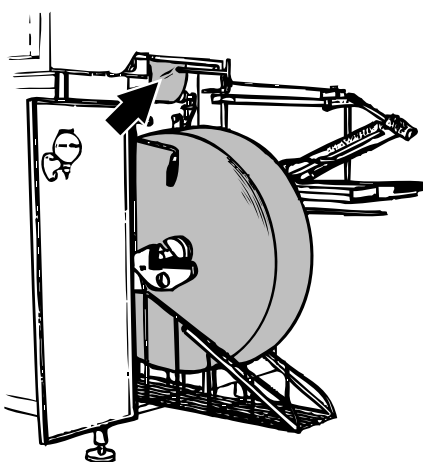
Filling of the hydrogen peroxide bath starts.



12

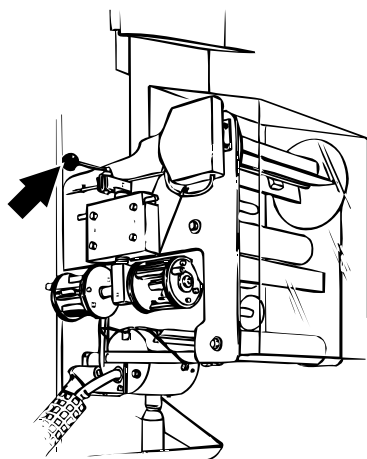
Pull the web under the bending roller and up to the dating unit.

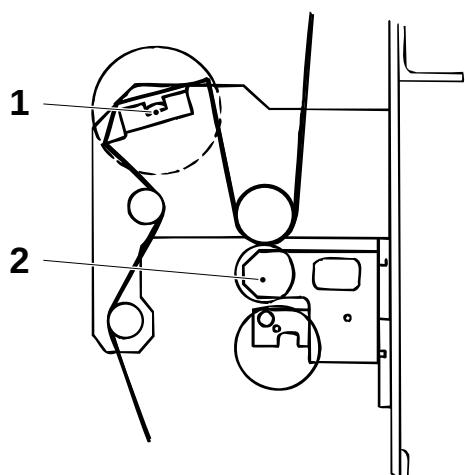
Pull out enough packaging material to pull it through the dating unit.



13

Swing out the date printing unit.





14

Unreel enough packaging material so that it can be threaded through the dating unit.

Open the cover over the dating unit.

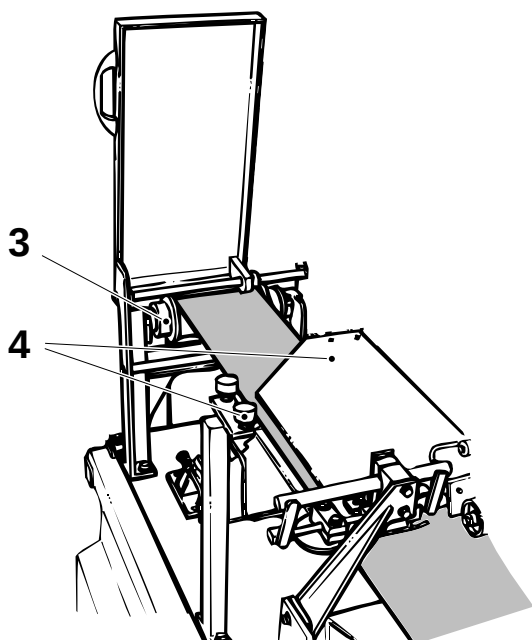
Thread the material web over the dating unit crease wheel (1) and through the dating unit (2).

Close the cover over the dating unit.

Thread the web over the bending rollers (3) and out of the strip applicator.

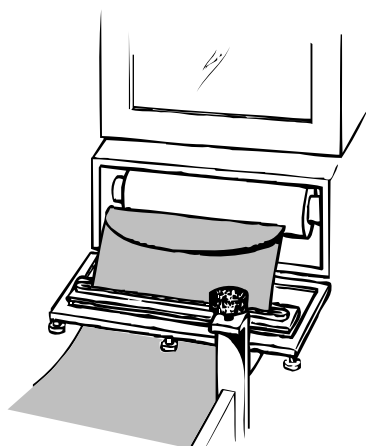
Check that the web is correctly threaded at the guides (4).

Fit the cover above the dating unit.



- 1 Crease
- 2 Dating unit
- 3 Bending roller
- 4 Guide

2.2TB062892.en

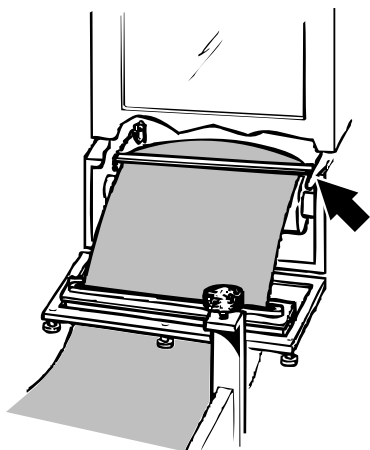


15a

Hydrogen peroxide!

Follow the *Safety precautions*.

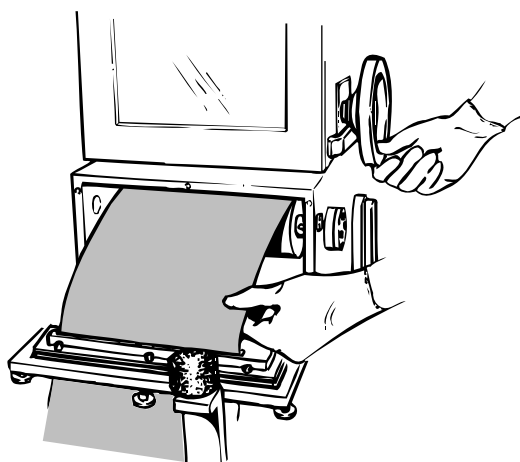
Open the lid to the suction box and thread the packaging material web through it.



15b

Fold the packaging material web and put it under the carrier between the chains of the peroxide bath.

The carrier is in its start position, just above the bending roller (arrow).

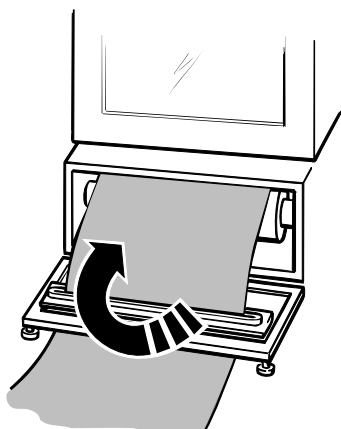


15c

Crank the packaging material web through the sterilisation bath.

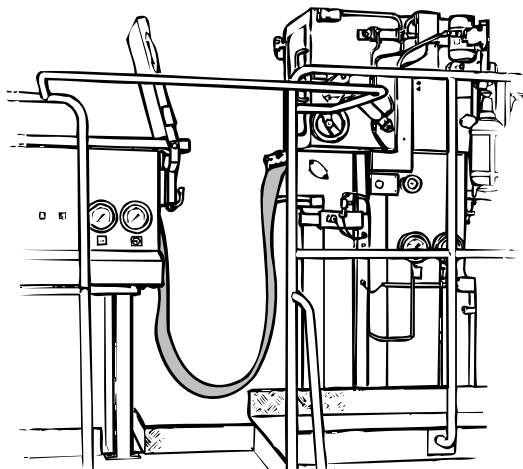
When the edge of the packaging material comes out, open the doors of the aseptic chamber.

Remove the packaging material web from the carrier and **immediately crank the carrier back to its starting position.**



16

Close the lid of the suction box.



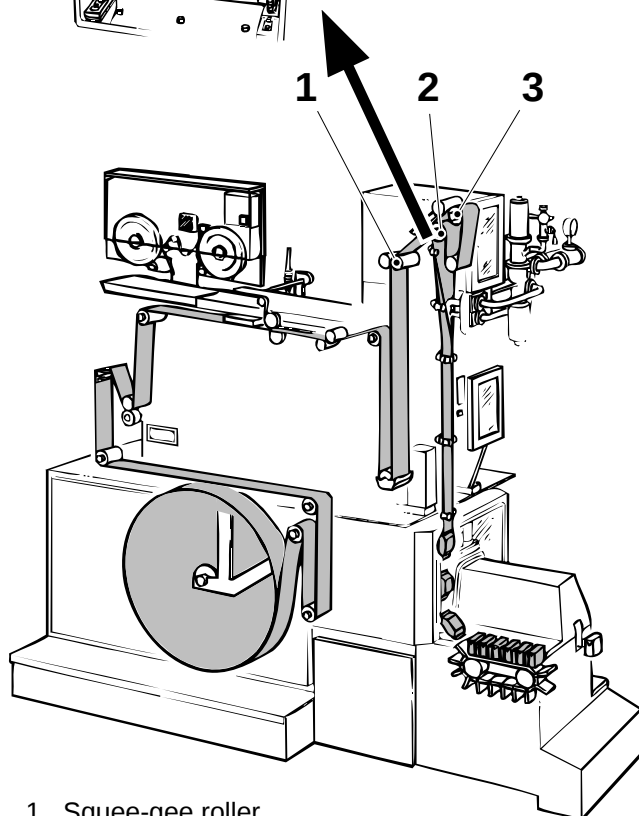
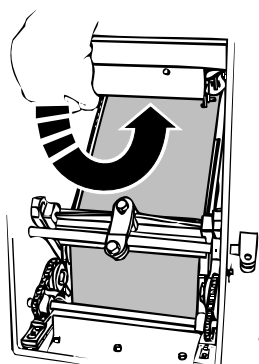
17

Hydrogen peroxide!

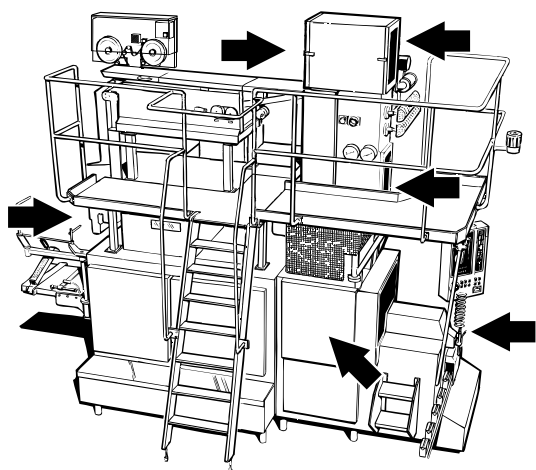
Follow the *Safety precautions*.

Unreel enough packaging material so that it can be threaded through the aseptic chamber.

Thread the packaging material web between the squeeze-gee rollers (1), through the air knife (2), and up over the bending roller (3).



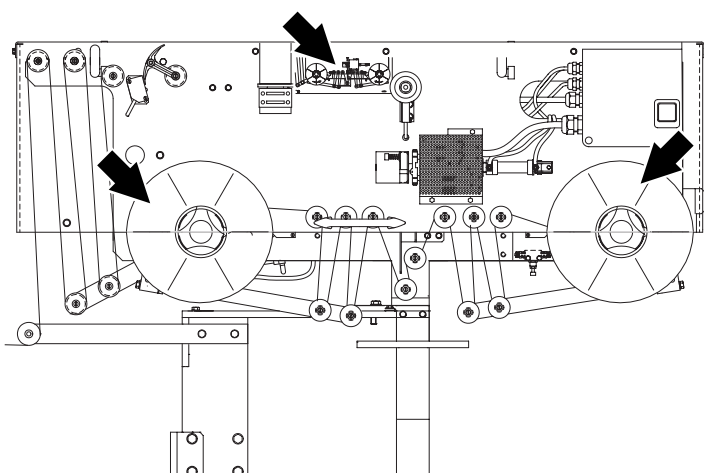
- 1 Squeeze-gee roller
- 2 Air knife
- 3 Bending roller



18

Close all covers and doors.

Make sure that the **Safety monitor** symbol is off.



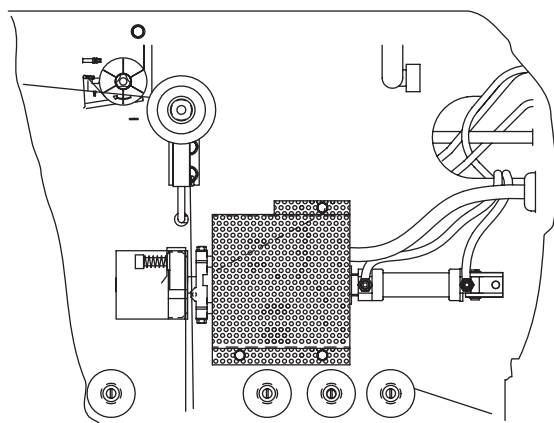
19a

LS strip threading through the ASSU

Fit the new LS strip reels and thread the strips according to the diagram on the ASSU.

Caution!

Make sure the strip runs properly over the rollers.

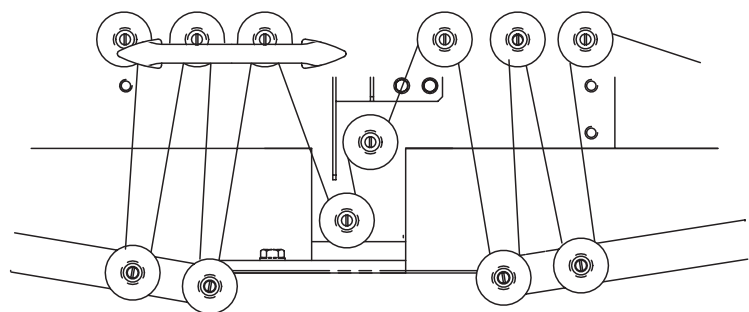


19b

Thread the strip around the splicing block and engage the catch.

Caution!

Make sure the strips are in tension.



19c

Check that the strip is threaded correctly in take-up arm assembly.

20

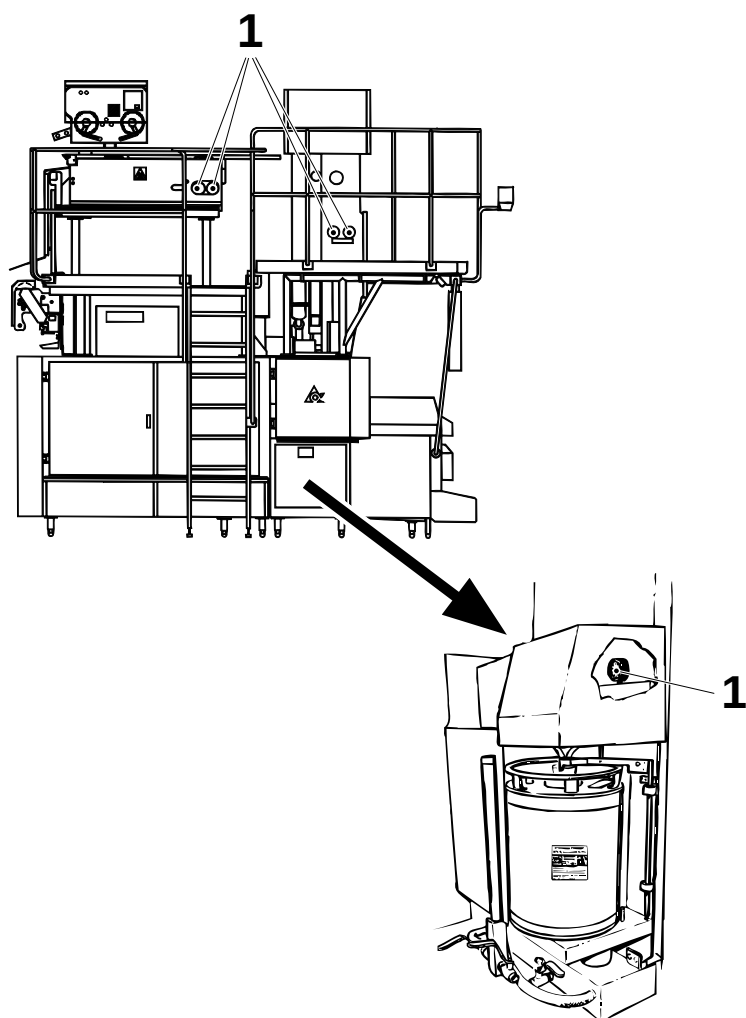
Now continue with *Preparations after daily care*.

Preparation after daily care

Start with these preparations when starting the machine after *Daily care*.

These preparations are also to be made after the preparations described in *Preparations after weekly care*.

2.2TB072892.en



1

Note!

If *Preparations after weekly care* have been carried out, continue with *item 3*.

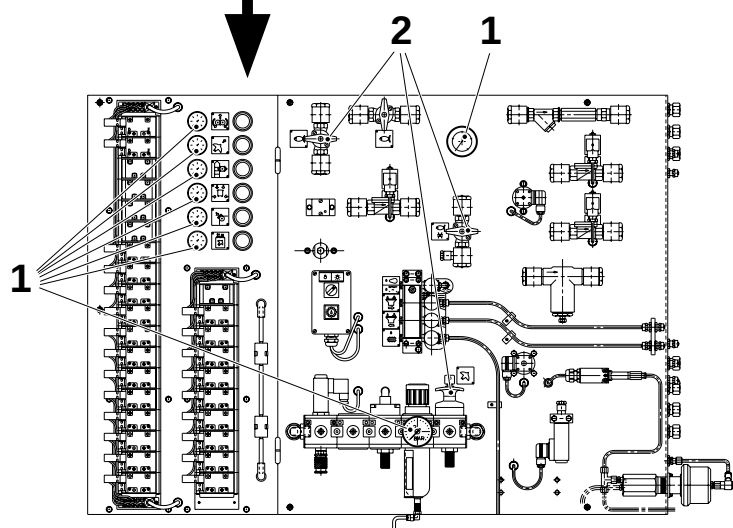
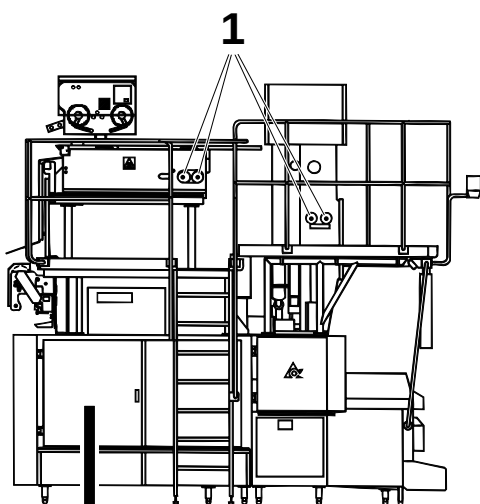
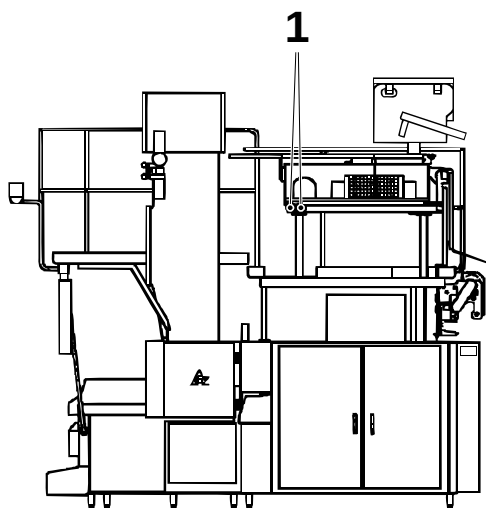
Make sure that all pressure gauges (1) indicate zero.

1 Pressure gauge

2

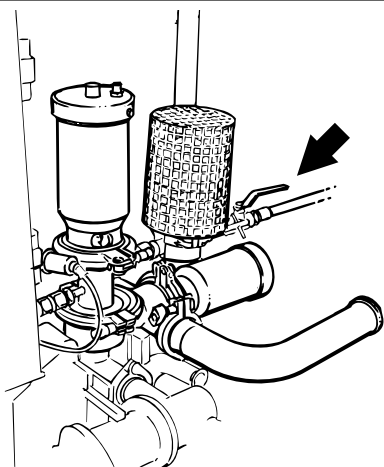
Make sure that all pressure gauges (1) indicate zero.

Make sure that the input air and the input cooling water valves (2) are open.



1 Pressure gauge

2 Valve



3

Make sure that the steam valve is open.

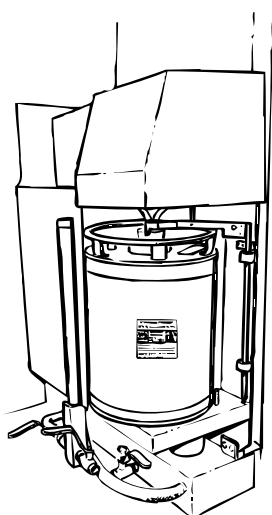


4a

Hydrogen peroxide!

Follow the *Safety precautions*.

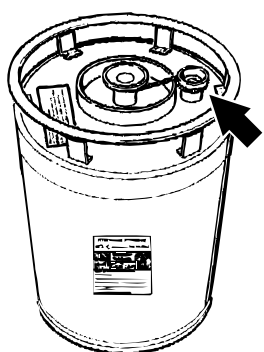
Check the hydrogen peroxide concentration, see the *Sterilisation liquid* section.

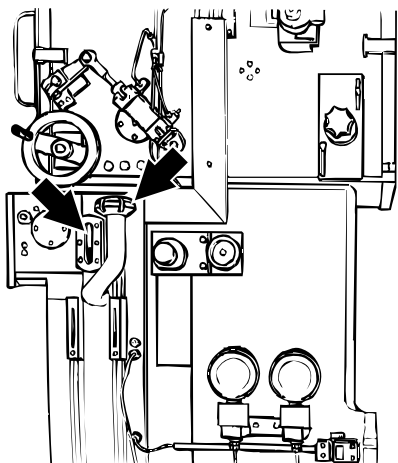


4b

Check the hydrogen peroxide level in the can on the level glass (arrow). The can should be full or almost full.

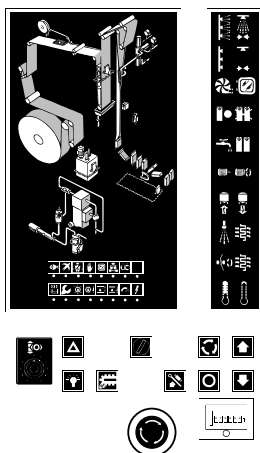
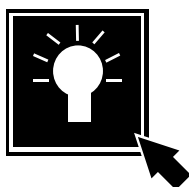
If required change the hydrogen peroxide can, see the *Sterilisation liquid* section.





5

Check the level in the water tank. If the level is low, top up with distilled water.



6

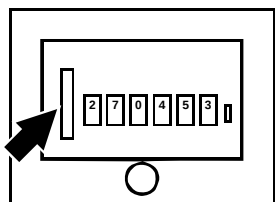
Press **Lamp test**.

All signal lamps on the monitor panel and the warning beacon are to light up.

If not, call a technician.

7

Zero the package counter.



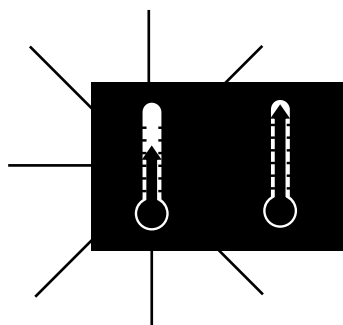
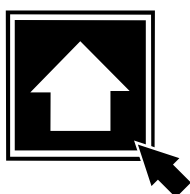
8

Note!

This has been done during *Preparations after weekly care*. If it has already been done, continue with next item.

Press **Program up**.

The **Preheating SA** symbol light becomes fixed.



9

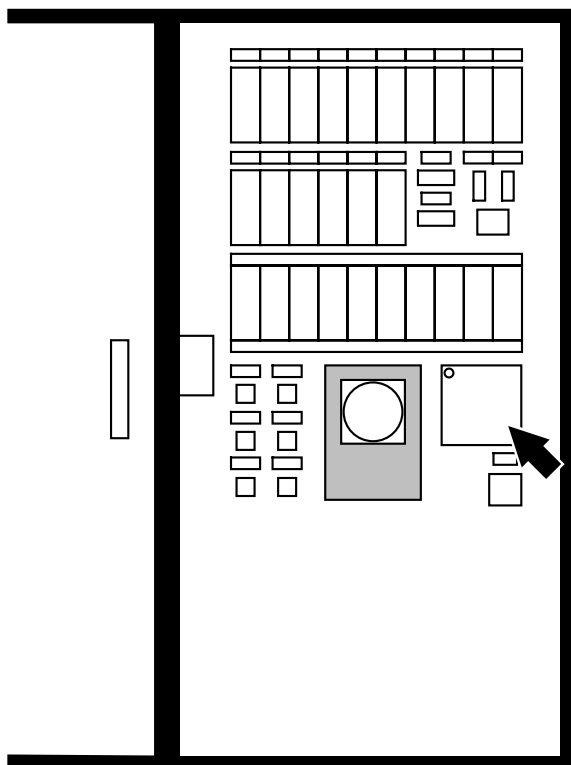
If the machine is equipped with a process recorder

Make sure that there is enough chart paper in the process recorder for at least one day of production. If required, load chart paper according to the instructions below.

Every time the machine is started for **Production**, the following information must be specified on the side of the record:

- Date
- Machine number
- Product, volume
- Operator's name
- Production code
- Time mark

To change the ribbon cassette, see item 10a.

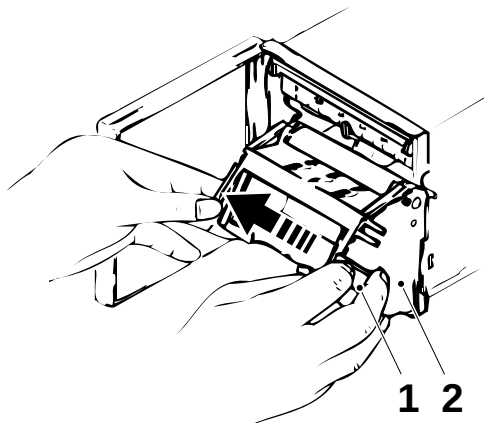


10a

Loading chart paper

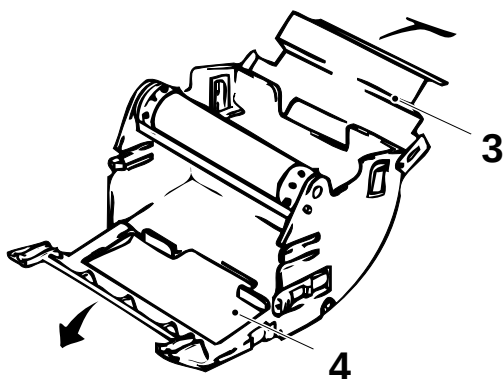
To load the chart paper open the process recorder cover.

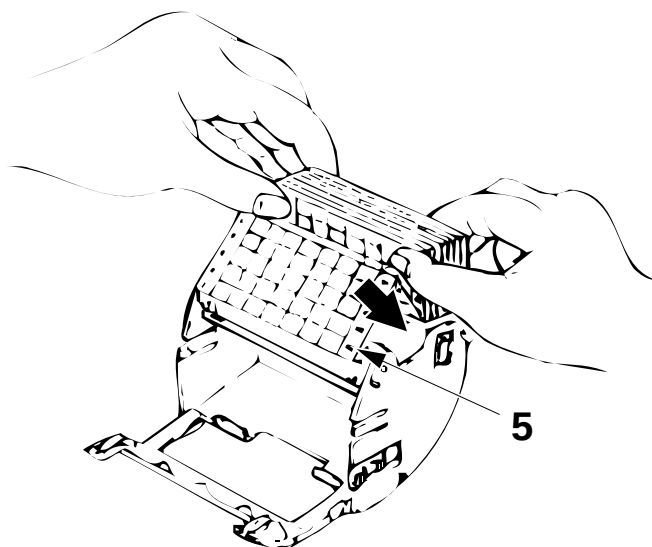
Press the lock tab (1) in the direction of the arrow. Remove the chart paper compartment (2).



10b

Swing up the guide plate (3) and swing down the front guide (4).





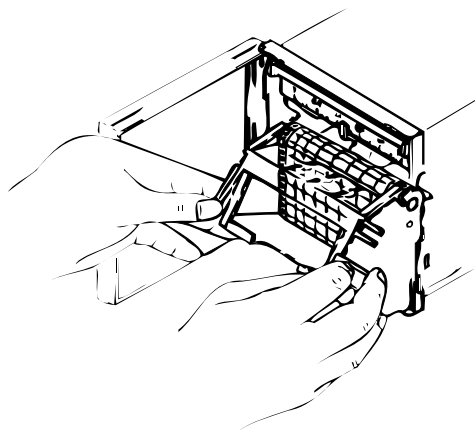
10c

Date the new chart paper.

Load it into the recorder.

The oval perforation holes (arrow) must be located to the right and must be properly engaged in the sprocket teeth (5).

Place the guide plate and put the front guide back into position.

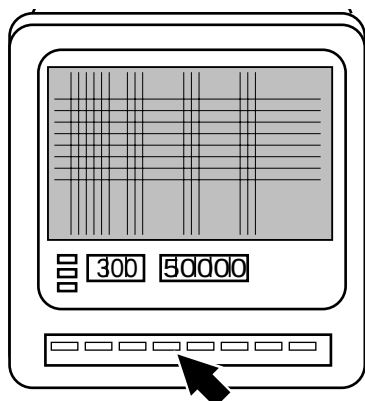


10d

Refit the chart paper compartment.

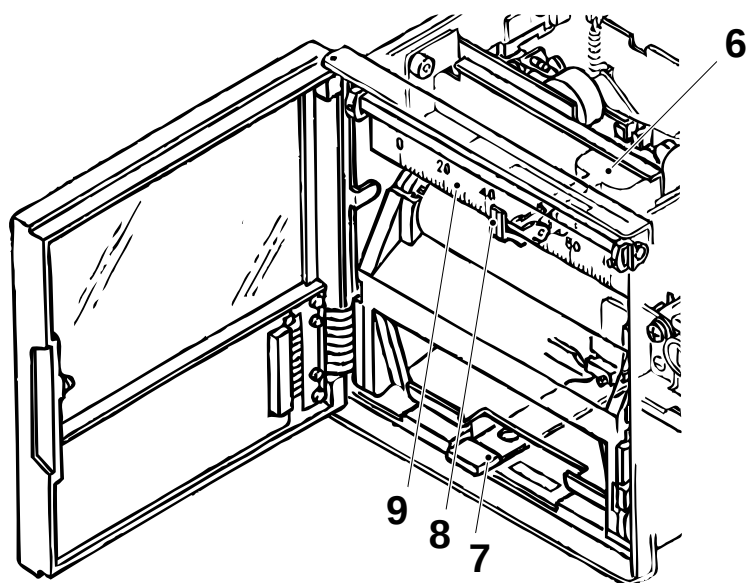
Note!

The lock tab must click locked.



10e

Press the feed key and confirm that the paper is fed continuously.



11a

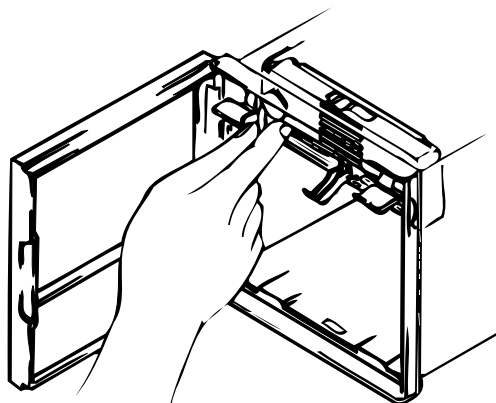
Ribbon cassette replacement

To change the ribbon cassette, turn off the power switch (7).

Remove the chart paper compartment.

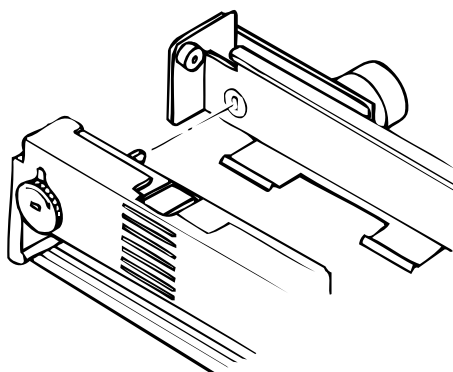
Move the carriage (6) to the right end.

Swing down the flag (8) and swing up the scale (9).



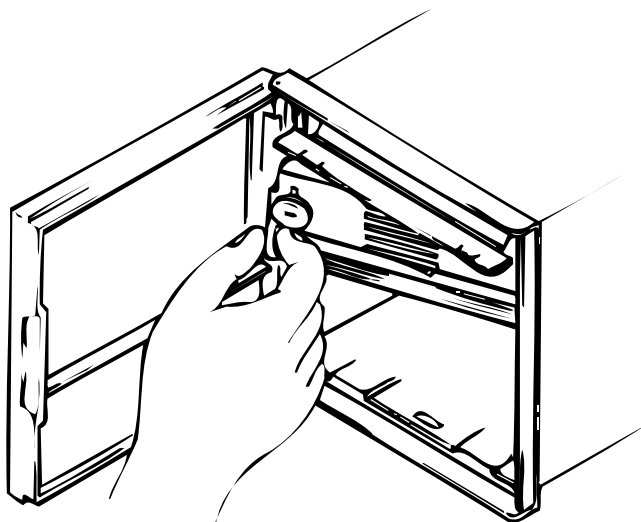
11b

Pull out the cassette by means of the cassette holder arm.



11c

Align the cassette winding axle with the axle hole when inserting the new cassette.



11d

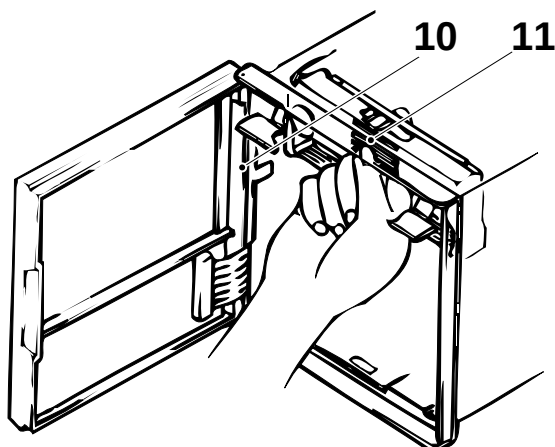
First insert the **RH** side of the cassette, then the LH side.

Grasp the centre portion and push until the ribbon cassette clicks locked.

Swing down the scale and swing up the flag.

Note!

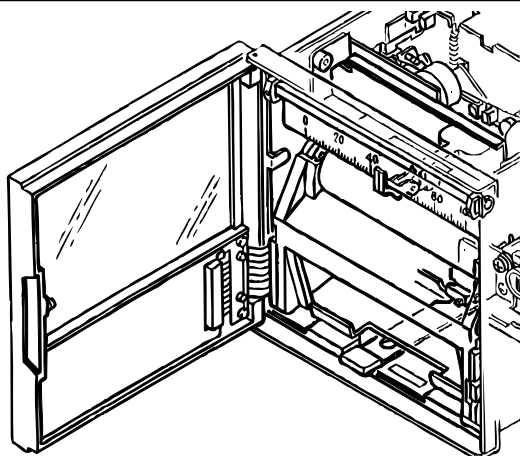
When the scale becomes dirty, wipe clean with a soft cloth. Do not use solvent.



11e

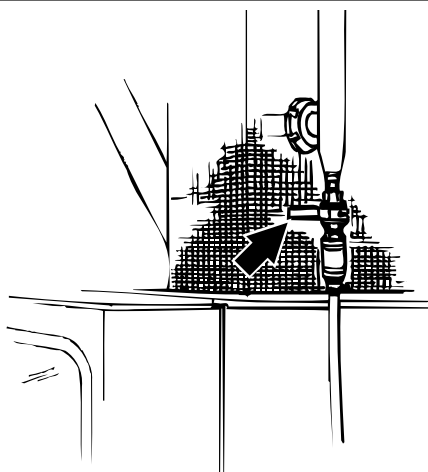
To set the cassette press the centre portion (11) and turn the knob (10) clockwise more than one half turn.

To adjust the ribbon turn the knob (10) clockwise until the ribbon is under tension.



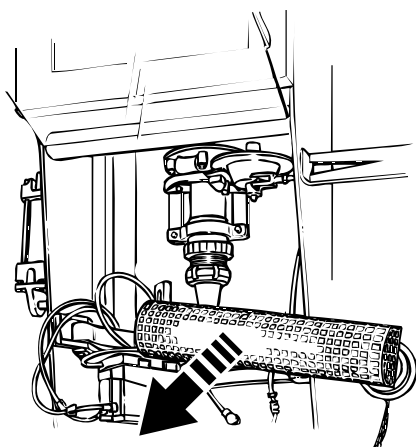
11f

Reinstall the chart paper compartment.



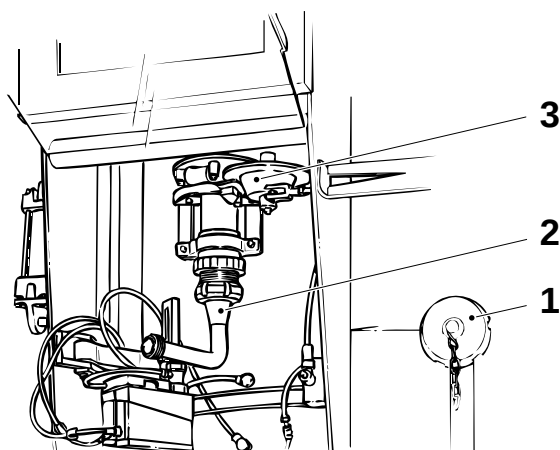
12

Open the valve and drain the cleaning pipe.
Close the valve properly.



13

Remove the product pipe.

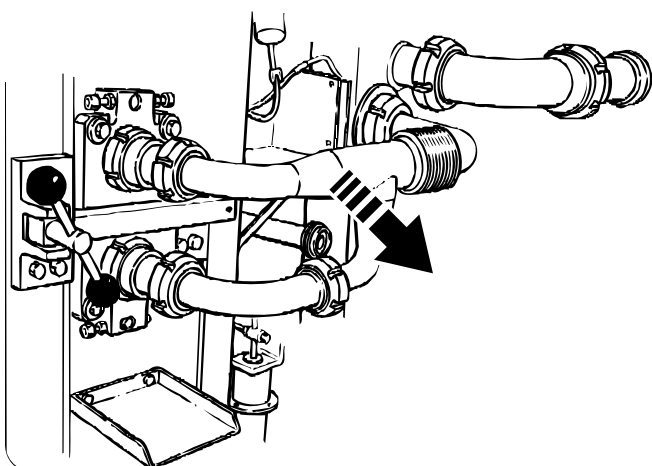


14

Put on the cap (1).

Lift the clamp ring (3) and turn out the arm with the proximity switch.

Loosen the nut and remove the cleaning attachment (2).



15

Remove the cleaning pipe.

Remove the gaskets from the pipe fittings.

Check the gaskets and, if required, change them.



16

Chemical products!

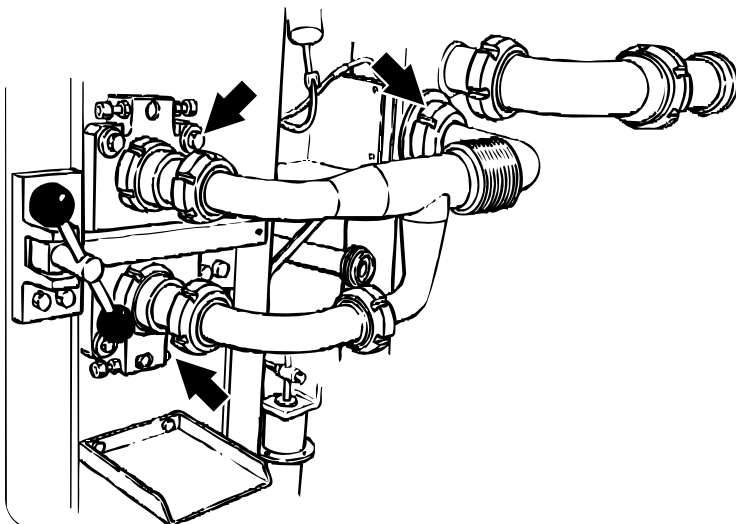
Disinfectant. Follow the *Safety precautions*.

Clean the gaskets and the gasket grooves with a hydrogen peroxide based disinfectant.

Fit the gaskets.

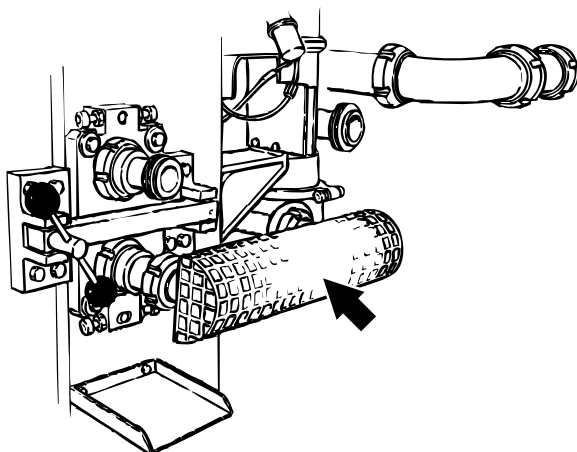
Note!

Make sure that the gaskets are fitted in the correct position!



17

Fit the sterile air pipe.

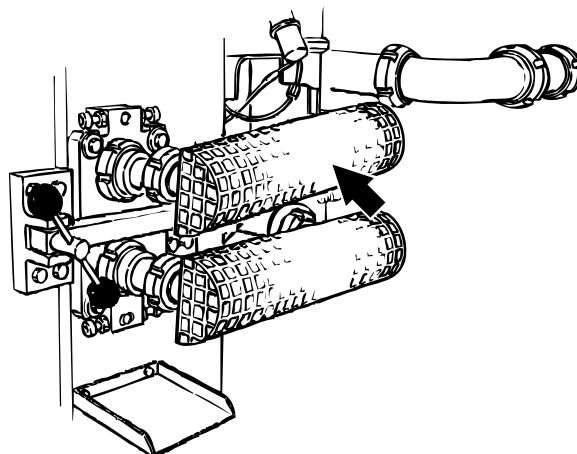


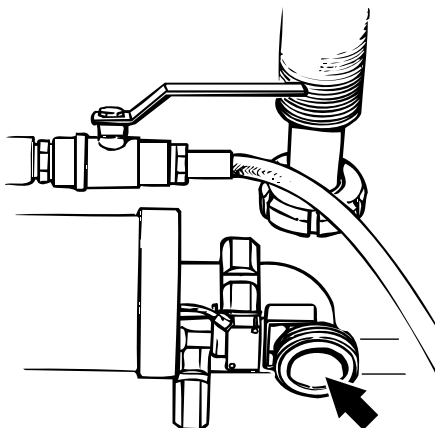
18

Fit the product pipe.

Note!

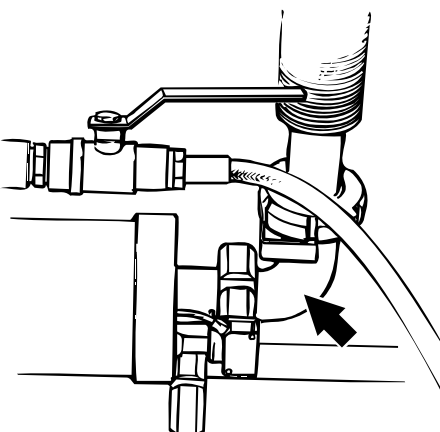
Make sure that the clamping pieces are properly tightened.





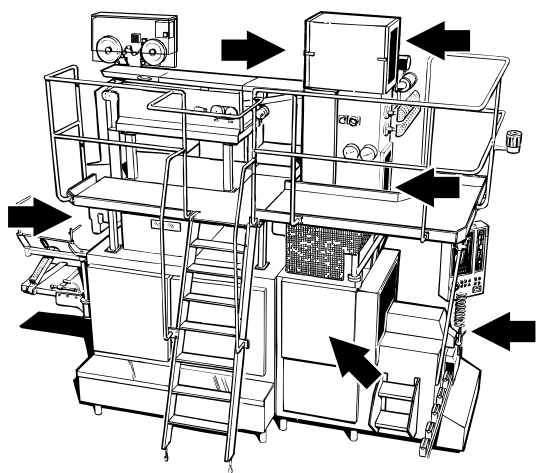
19

Disconnect the incoming cleaning pipe.



20

Connect the elbow pipe to the sterile air pipe.



21

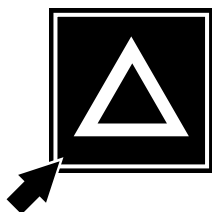
Close all covers and doors.

Make sure that the **Safety monitor** symbol is off.



22

Push **Alarm reset**.





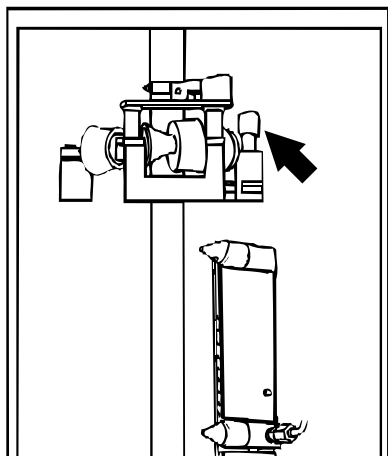
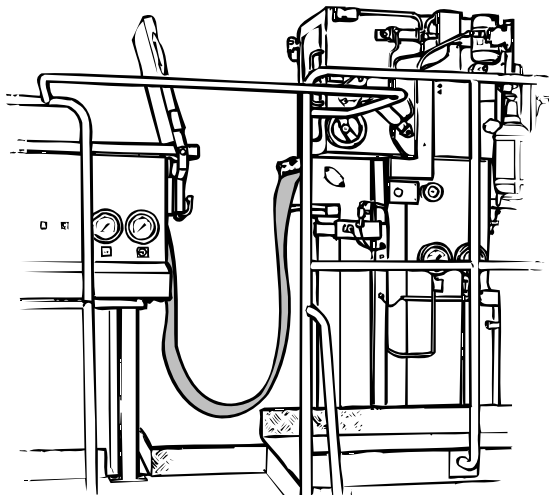
23

Open the door of the aseptic chamber.

Swing out the crease roller and thread the packaging material web **slowly** over the bending roller and down through the aseptic chamber.

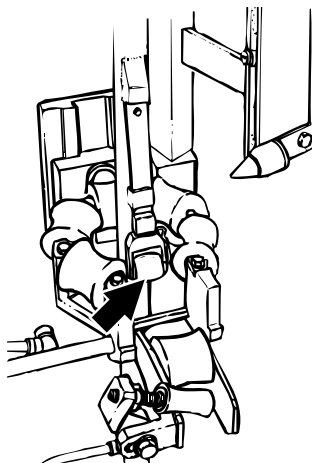
Pull down the packaging material web and place it around the crease roller.

Swing in the crease roller and close the door of the aseptic chamber.



24

Open the lower door of the aseptic chamber and open the divided forming ring.



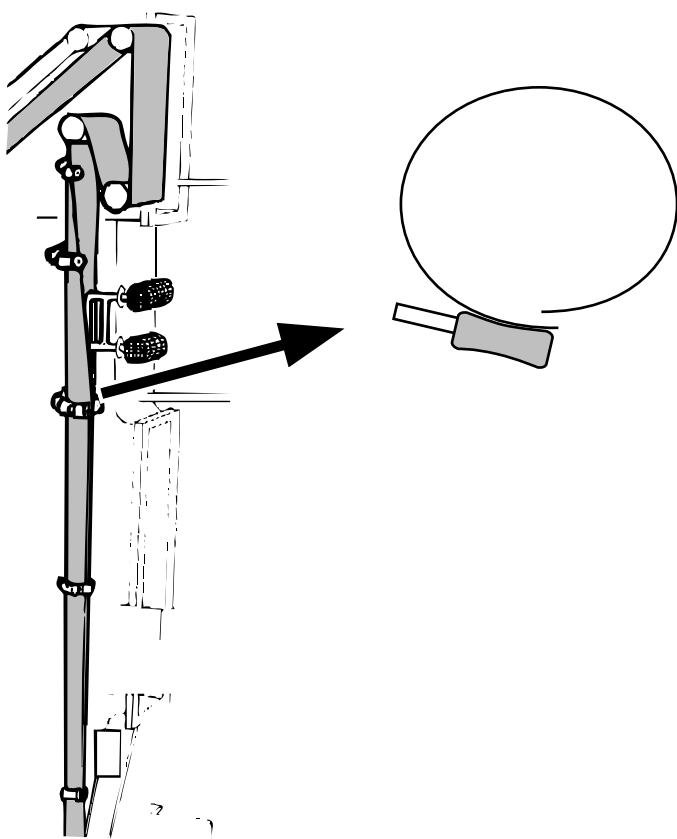
25

Make sure that the LS pressure roller is clean and without defects.

26

Pull down the web through the divided forming ring and the lower forming ring.

Make sure that the guide roller in the lower forming ring is lowered and that the web passes on the correct side of it.



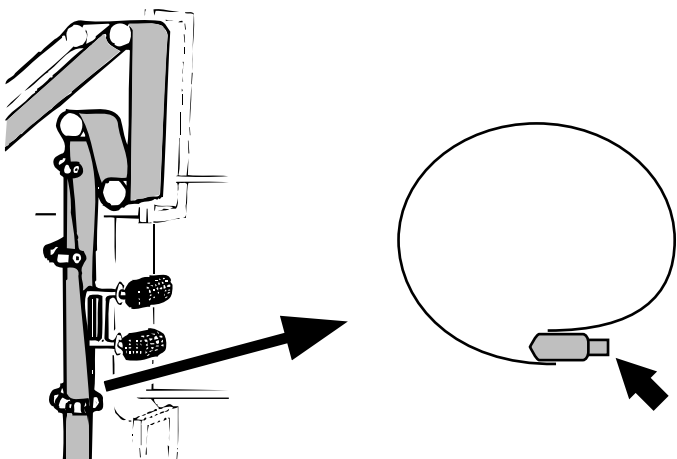
2.2TB072892.en

27

Close the divided forming ring.

Not valid for 125 S and 200 S:

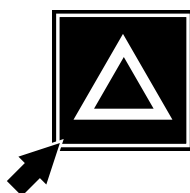
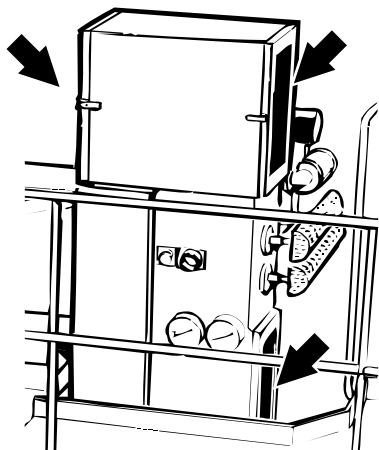
Make sure that the guide roller is lowered and that the packaging material passes on the right side of it.

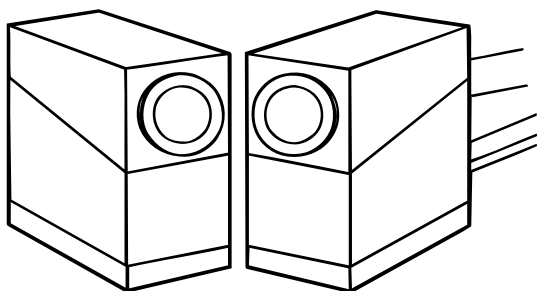


28

Close the door of the aseptic chamber.

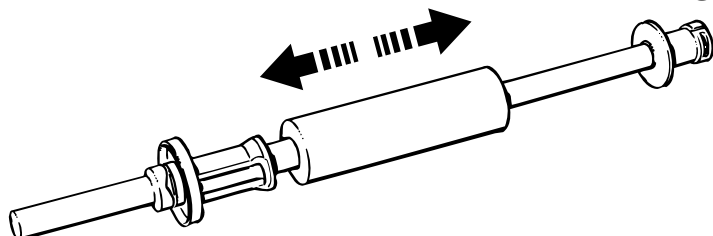
Push **Alarm reset**.





29

Swing out the photocell unit to make it easier to thread the packaging material web.

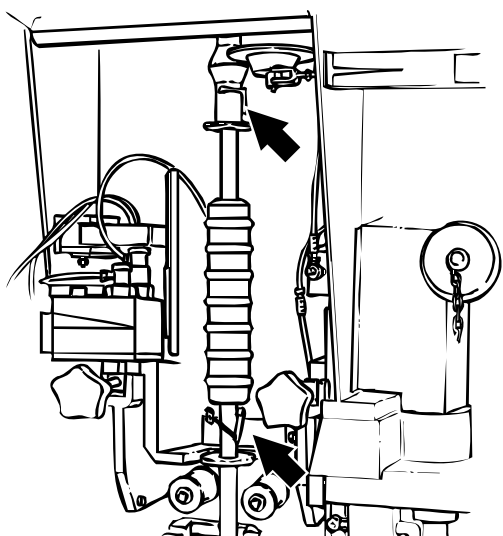


30

Chemical products!

Cleaning compound. Follow the *Safety precautions*.

Make sure that the floater of the lower filling pipe moves freely.



31

Fit the lower filling pipe without rinsing it. Make sure that it is fitted properly.

Note!

Turn the locking finger ends downwards.

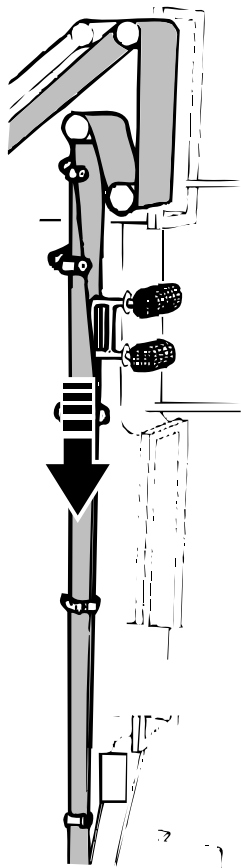
Chemical products!

Cleaning compound. Follow the *Safety precautions*.

Spray the lower filling pipe with cleaning compound code G, see the *Technical data* section.

32

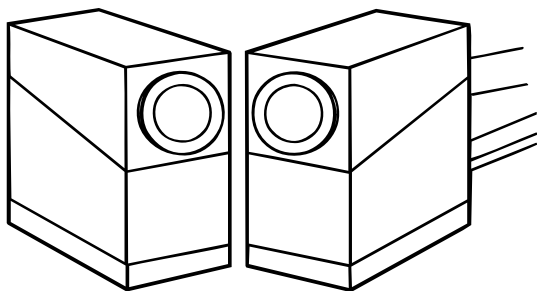
Pull down the packaging material to the jaws.



33

Wipe the photocells with a dry cloth.

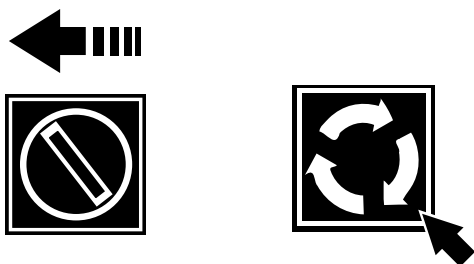
Swing back the photocells to production position.



34

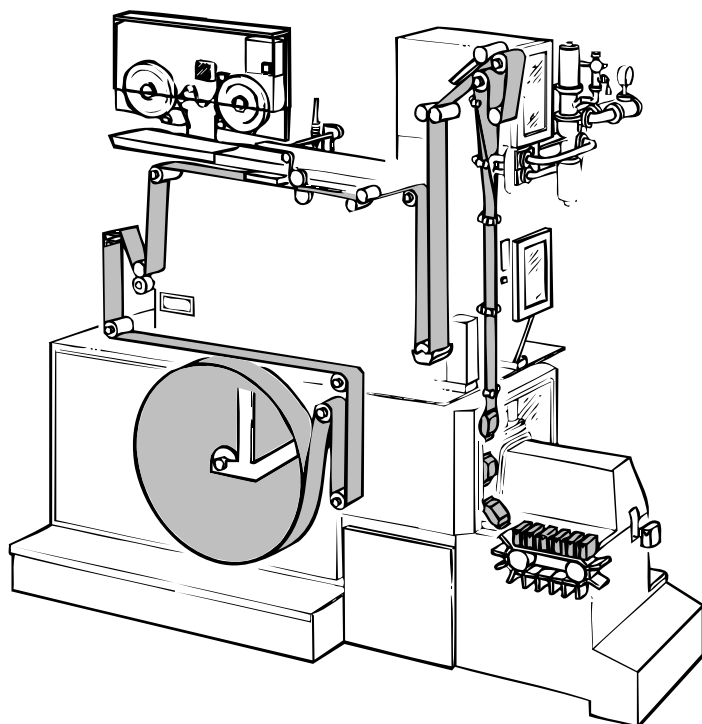
Select **Slow inching**.

Inch until the jaws grip the packaging material web and pull it down.



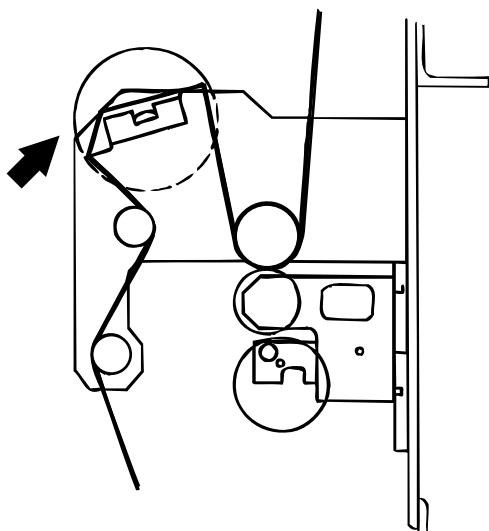
35

Make sure that the packaging material web runs correctly through the machine.



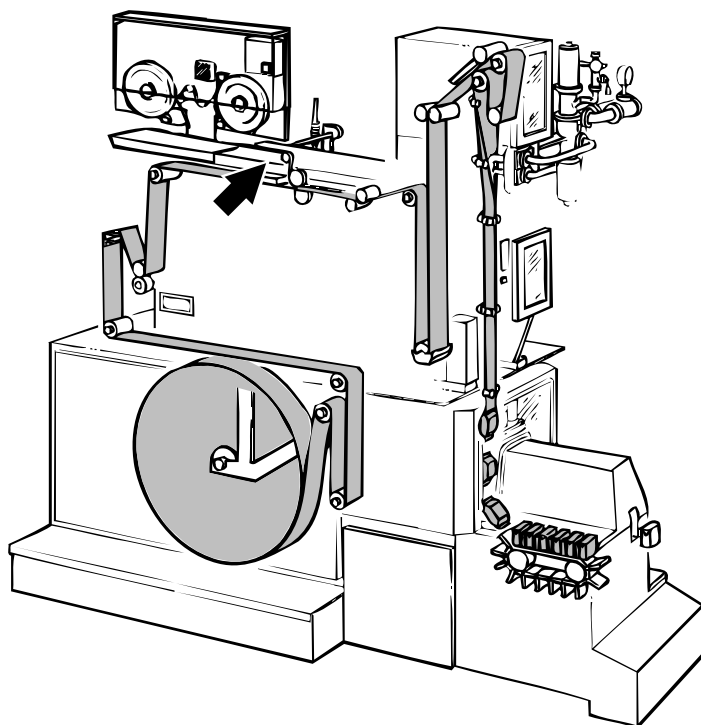
36

Make sure that the top creases of the packaging material match the short edge of the dating unit crease wheel.



37

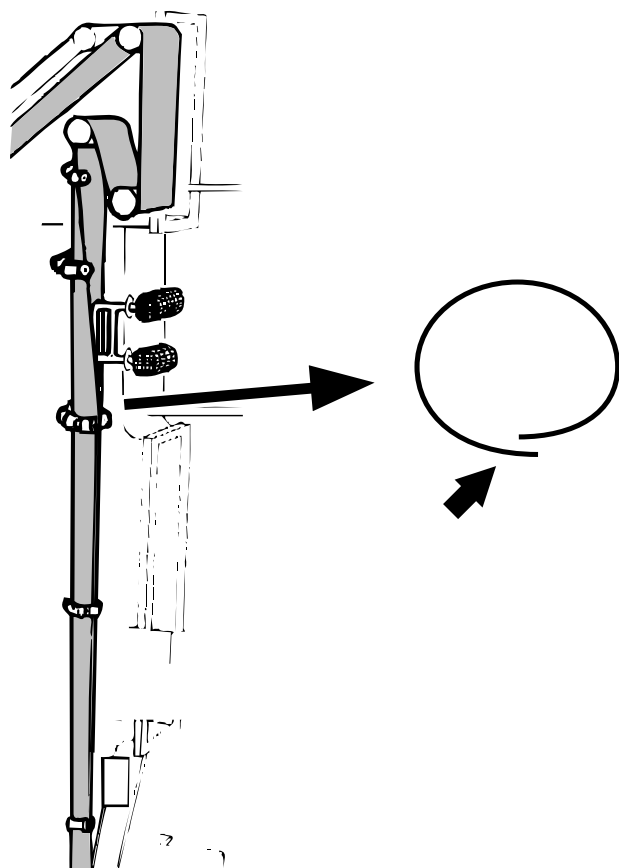
Make sure that the packaging material web is correctly positioned at the strip guide.



2.2TB072892.en

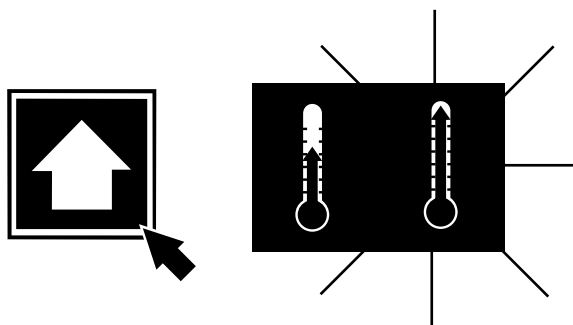
38

Make sure that the LH edge of the packaging material web overlaps the RH edge.



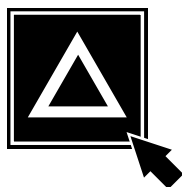
39

Press **Program up** until the **Preheating machine** symbol light becomes fixed.



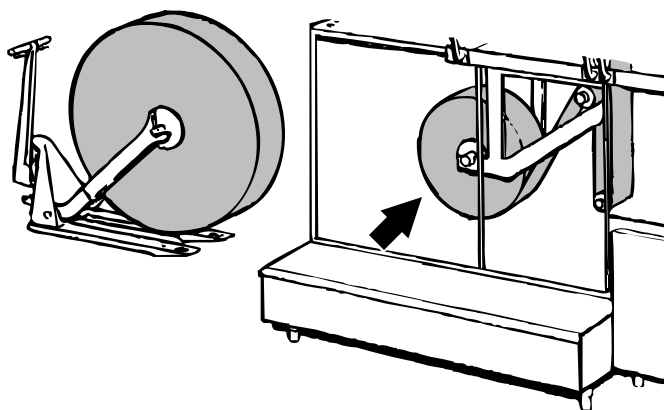
40

Push **Alarm reset**.



41

Make sure that there is packaging material for at least 10 minutes of production (to avoid changing reel during start-up).

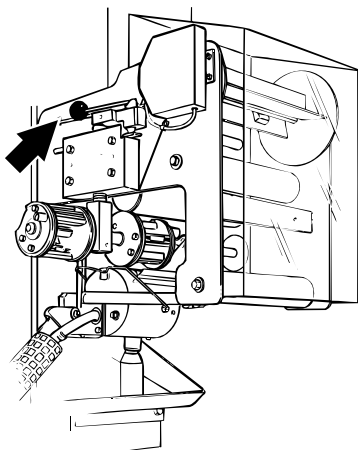


42

Put inserts into the printing wheel of the dating unit.

Place the prepared printing wheel on its axle.

Turn the printing wheel into operating position and lock it by means of the handle.





43

Ink!

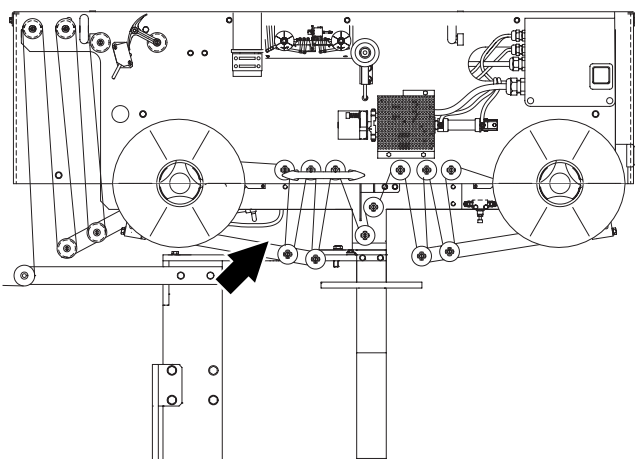
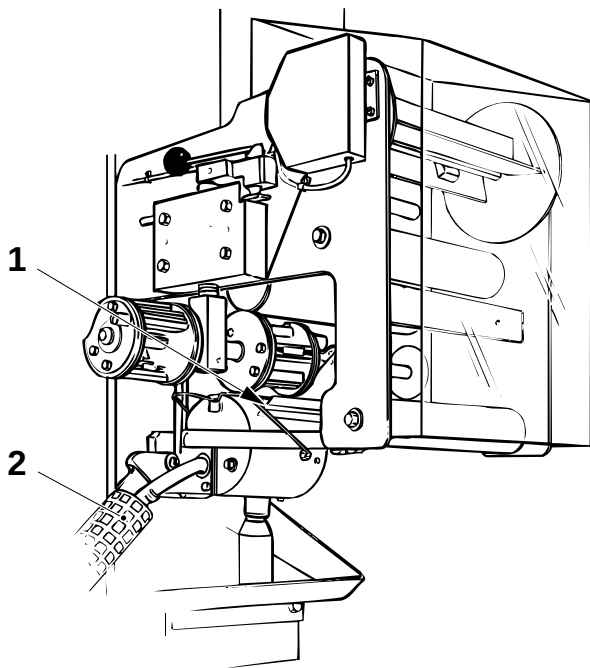
Follow the *Safety precautions*.

Check that the ink bottle (2) is at least 1/3 full.

An ink bottle holds enough ink for about three days of production. Make sure that the cap is not damaged.

Make sure that the ink transfer roller (1) rotates freely.

Shake the ink bottle, put it in position and raise it to production position.

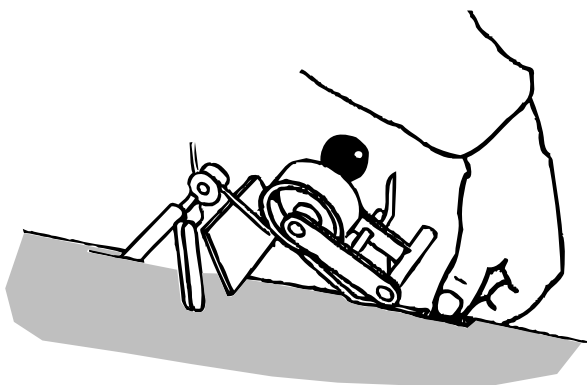


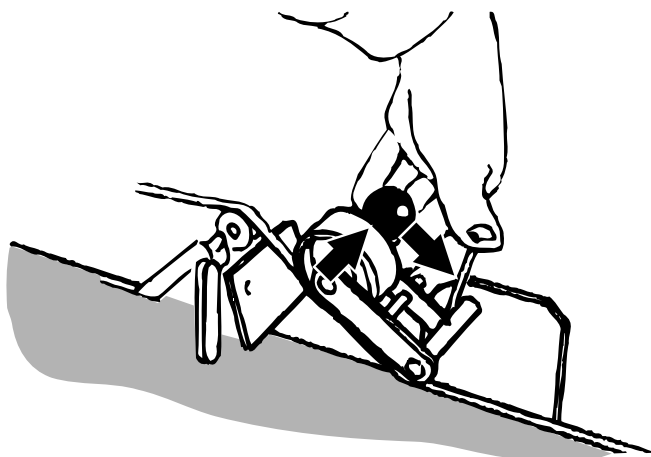
44

Thread the LS strip, see the *Strip supply* section.

45

Tape the LS strip to the edge of the packaging material.

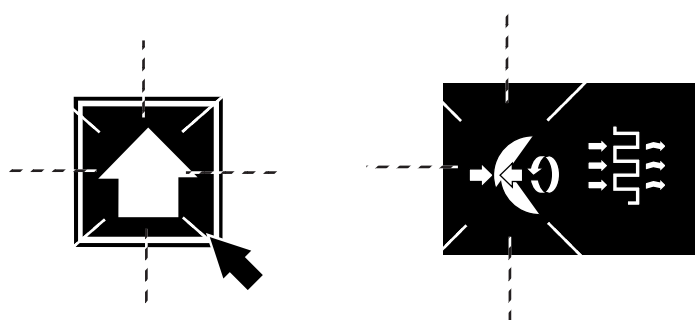




46

Engage the SA pressure roller by lifting the roller and releasing its catch.

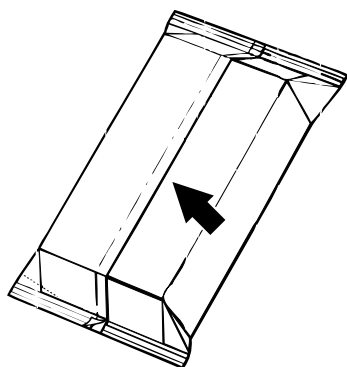
Lower the roller carefully.



47

When the **Tube sealing** symbol and the **Program up** button start to flash, push **Program up**.

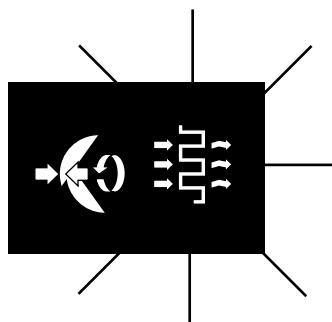
The machine now inches forward without stopping until the packaging material tube is sealed with the LS strip.



48

Pick out the last package discarded from the machine.

Check that the LS strip is correctly positioned and properly sealed, see the *Package checks* section.

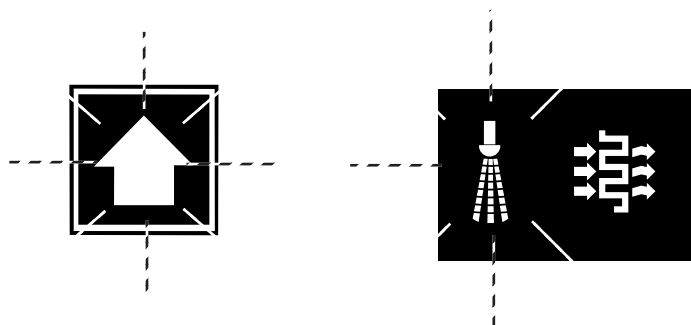


49

When the packaging material tube is sealed, the **Preheating, sterile air system** symbol light becomes fixed.

50

When the pre-sterilisation temperature has been reached, the **Spraying** symbol and the **Program up** button start to flash.



51

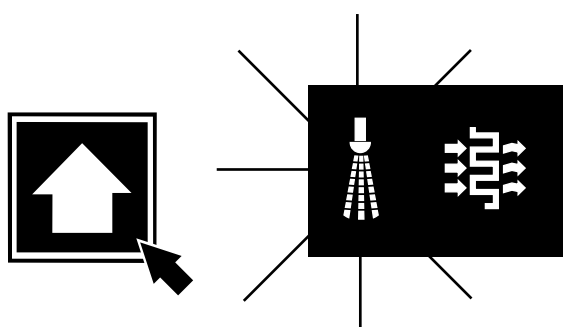
Push **Program up**.

The **Spraying** symbol light becomes fixed.

Caution!

From now on, the doors of the aseptic chamber **must not** be opened unless the machine has gone through the **Venting sequence**.

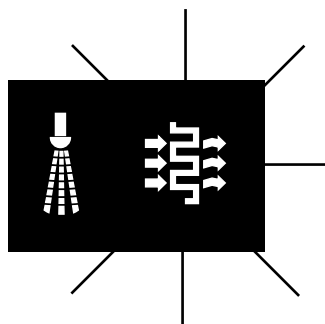
Follow the instructions in *58a on page 81*.



52

After spraying, the **Drying** symbol lights up.

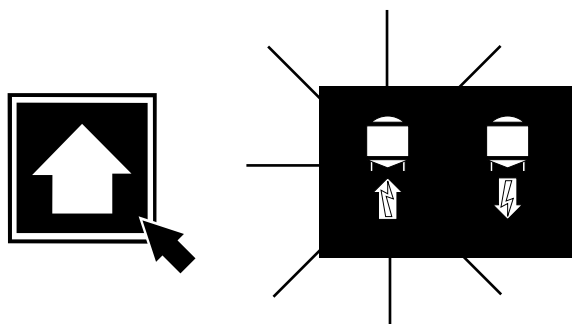
The drying time is 20 minutes.

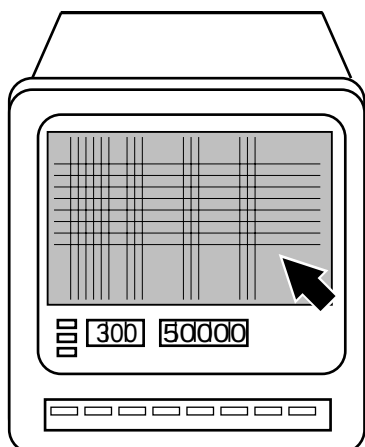


53

When the **Signal to steriliser** symbol and the **Program up** button start to flash, push **Program up**.

The **Signal to steriliser** symbol light becomes fixed.



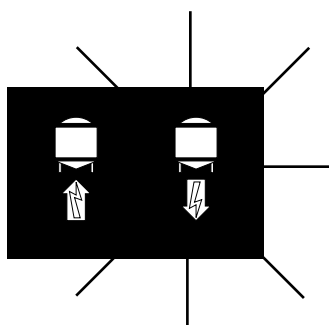


54

If the machine is equipped with a process recorder

On the air knife channel (channel 3), check that the machine has been sterilised.

At least two items which represent 60 seconds should be over 200 °C.



55

When the steriliser is ready for production, the **Signal from steriliser** symbol light becomes fixed.

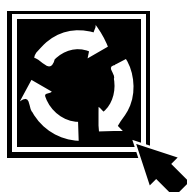
Proceed according to the *Start* section.

56

After 20 minutes

Caution!

If the machine cannot be brought to step Production within 20 minutes, inch the machine to renew the packaging material web from the SA down to the jaws (to eliminate the risk of web tearing).



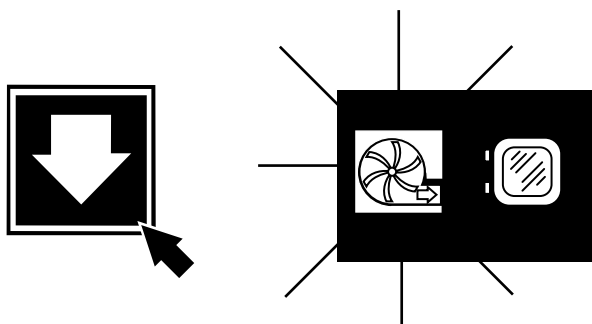
57 a

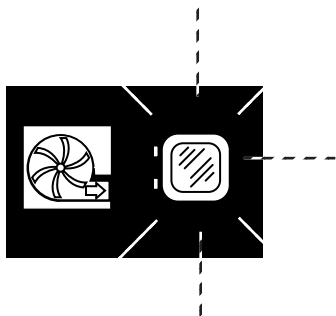
After 40 minutes

Caution!

If the machine cannot be brought to step **Production** within 40 minutes, push **Program down** twice.

The program resets to step **Venting aseptic chamber**.





57 b

Hydrogen peroxide!

Follow the *Safety precautions*.

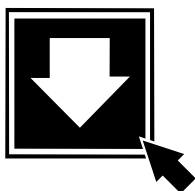
After 15 minutes, the **Venting aseptic chamber finished** symbol starts to flash. Open one of the doors of the aseptic chamber. Close again.

57 c

Push **Program down**.

The machine resets to **Zero** position.

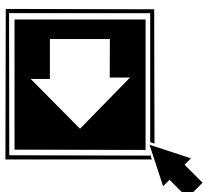
Restart following the steps described earlier in this section.



58 a

If necessary to open a door

If the doors of the aseptic chamber must be opened during or after the spraying sequence, push **Program down**.

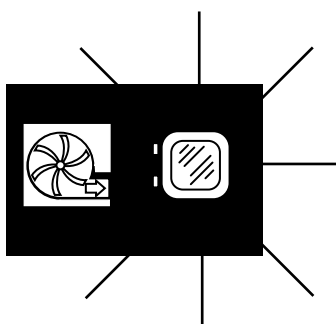


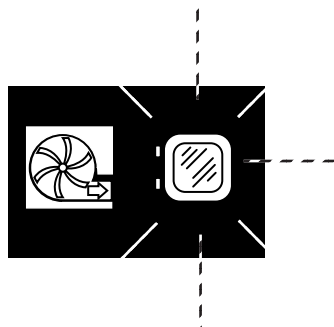
58 b

The **Venting** symbol light becomes fixed.

Hydrogen peroxide!

The doors of the aseptic chamber **must not** be opened until the Venting aseptic chamber sequence has been finished.





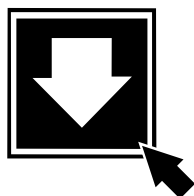
58c

After 15 minutes, the **Venting aseptic chamber finished** symbol starts to flash and the doors may be opened.

58d

Push **Program down**.

Restart following the steps described earlier in this section.



Start

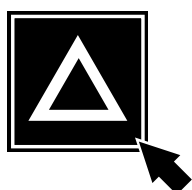
This section describes how to start the machine after *Preparations after daily care*.

Start after stop, see the *Stop* section.

1

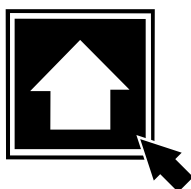
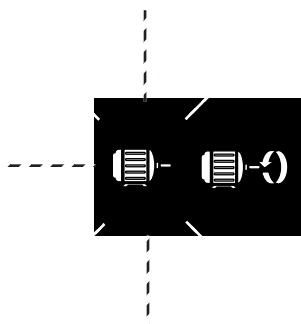
Push **Alarm reset**.

Make sure that all signal lamps on the monitor panel go out.



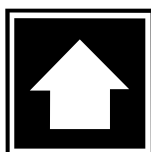
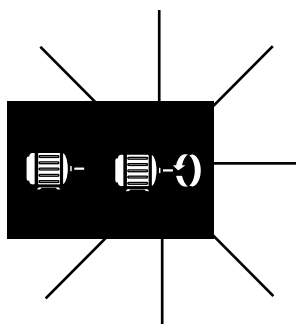
2

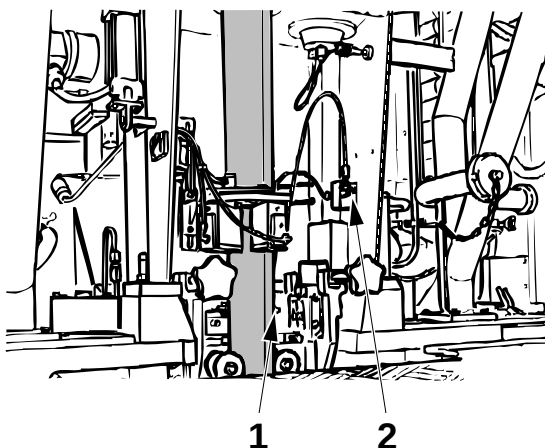
When the **Ready for production** symbol and the **Program up** button start to flash, press **Program up**.



3

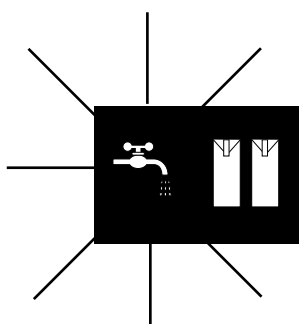
Release the **Program up** button when the **Motor start** symbol light becomes fixed.





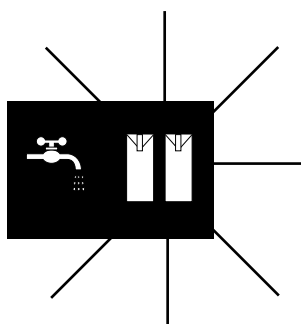
4

Check that the valve (1) for the tube flushing water is open and that the tube flushing (2) functions.



5

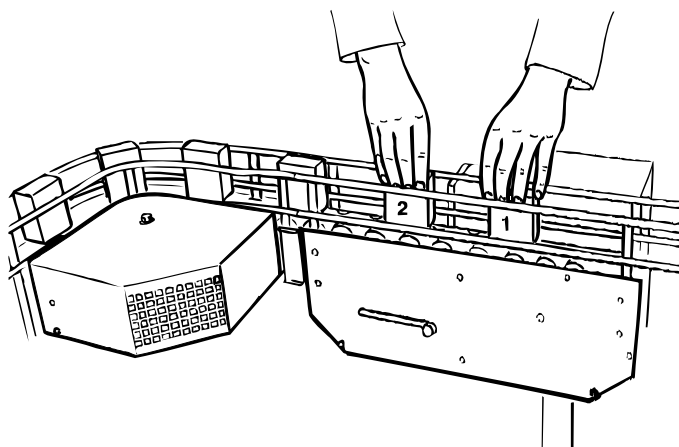
After a while, the **Filling** symbol light becomes fixed.



6

When the printed design is in correct position, the **Production** symbol light becomes fixed.

2.2TB082892.en



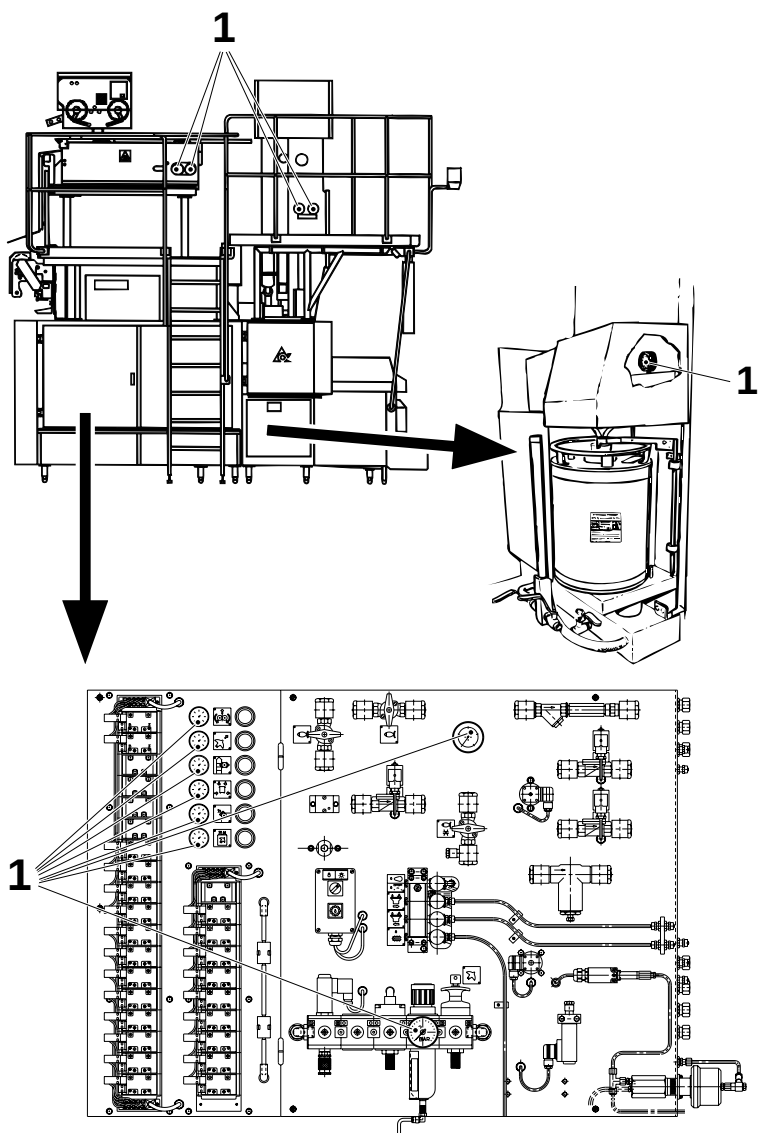
7

Pick out the first two packages discharged from the final folder and number them.

Check the packages, see the *Packages checks* section.

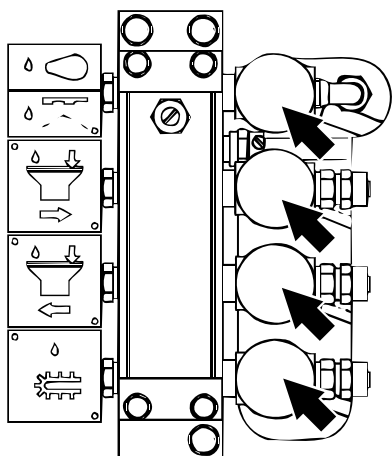
8

Check that all pressure gauges (1) indicate the correct settings.



2.2TB062892.en

1 Pressure gauge

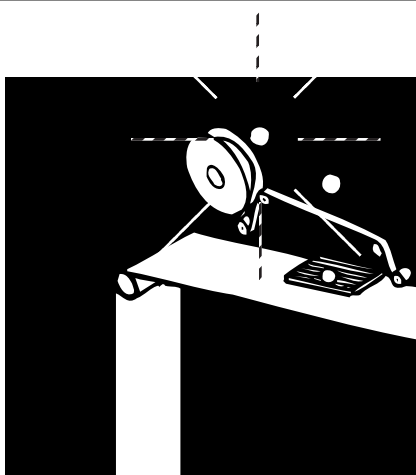


9

Check the cooling water flow rates on the flow meters.

Flow rates, see the *Technical data* section.

If incorrect, call a technician.



Low strip supply (one reel finished)

1

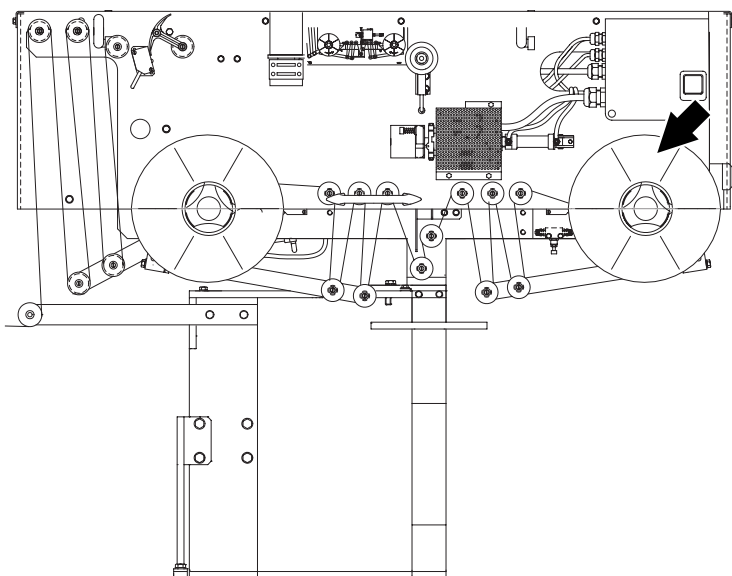
The LS strip reel change alarm starts.



1a

Add a new LS strip reel.

Continue with item 2.



Start after LS strip splice failure

1

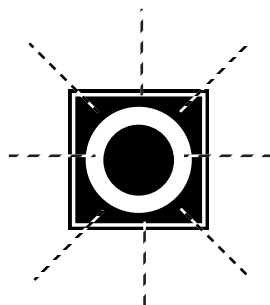
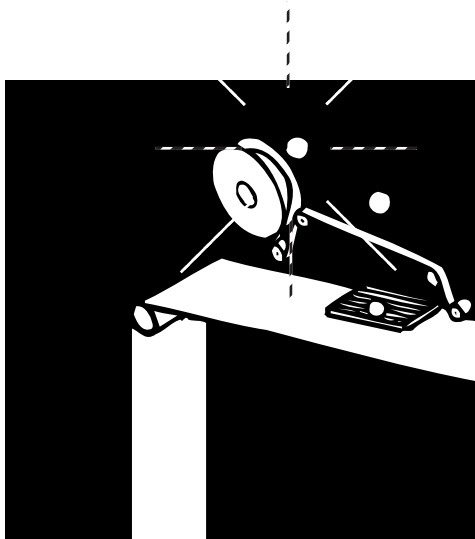
The **LS strip reel change** alarm starts.

The filling machine stops in **Short stop**. (Instructions in the *Stop* section).

See alarm 26 in *Control panel* section.

If the appropriate action takes more than 15 min. the filling machine goes in **Normal stop**. (Instructions in the *Stop* section).

When the appropriate action has been taken continue with item 2.

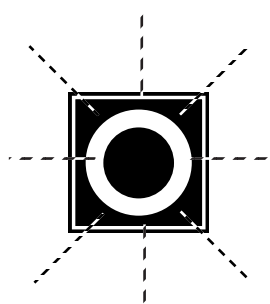
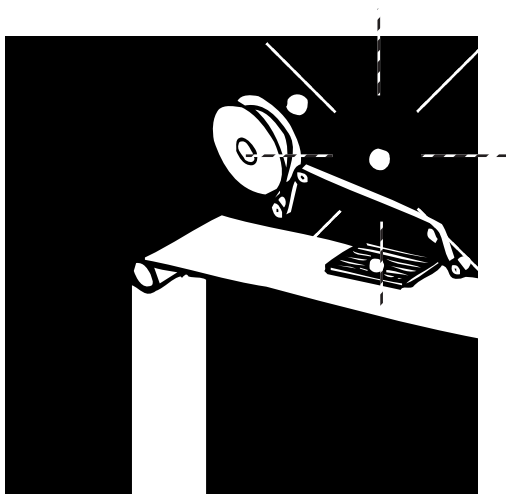


Start after LS strip broken

1

The **strip broken** alarm starts.

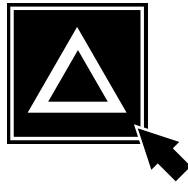
The filling machine stops in **Short stop**. (Instructions in the *Stop* section).



2

Thread the LS strip again, see the *Strip supply* section.

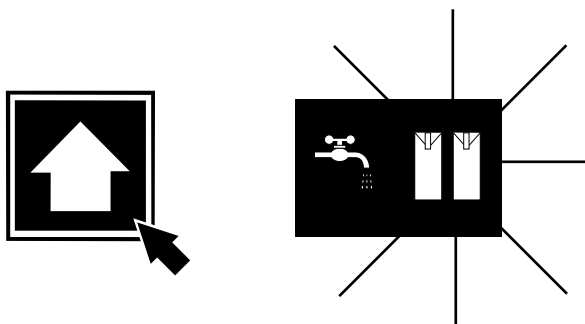
Push the **Alarm reset** button on the filling machine.



3

Restart the filling machine by pushing **Program up**. Keep the button pressed until the motor starts to run.

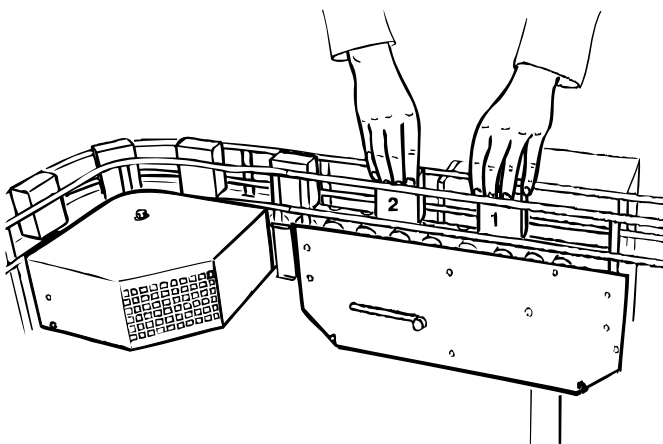
The **Production** symbol light becomes fixed.



4

Pick out the first two packages discharged from the final folder and number them.

Check the packages, see the *Packages checks* section.



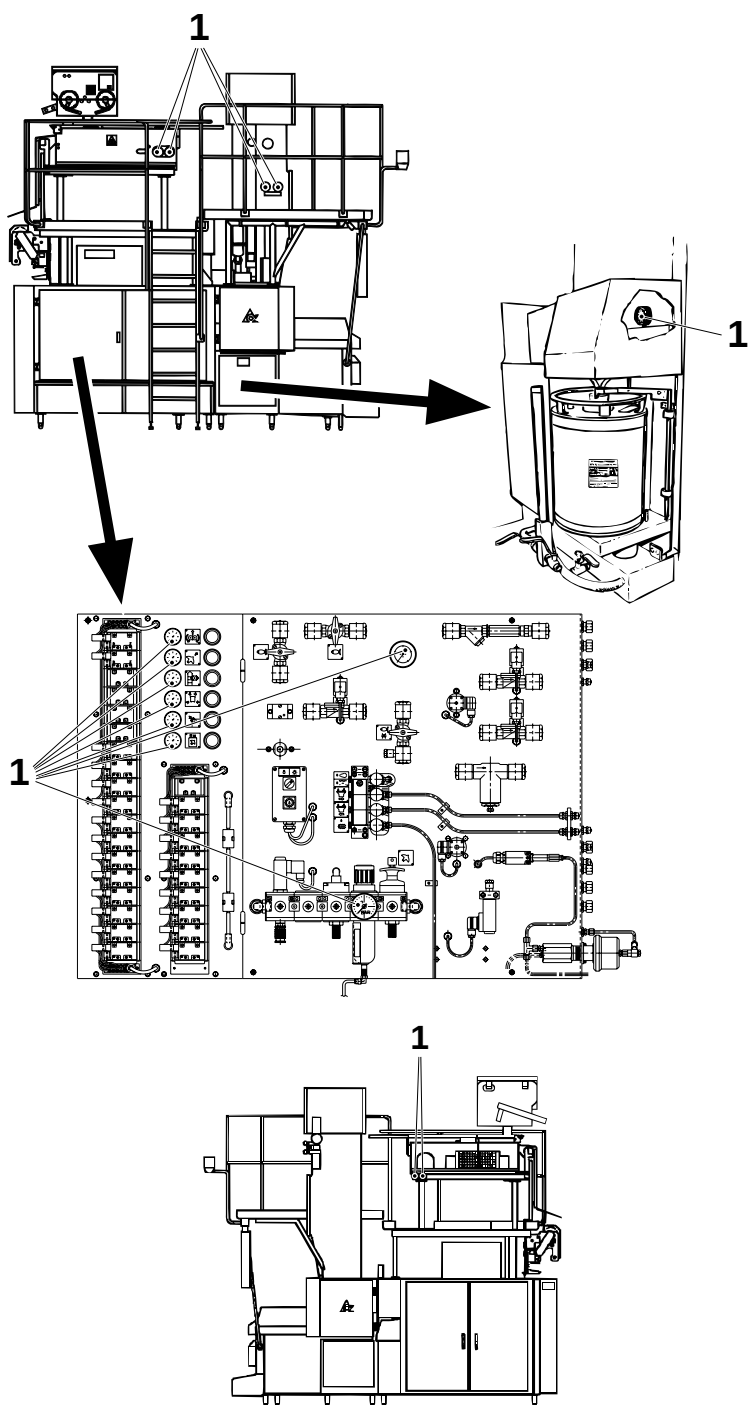
Production checks

These checks are to be made continually when the machine is in step Production.

The operator must stay close to the machine during Production.

When there is a fault or a fault cannot be eliminated, call a technician.

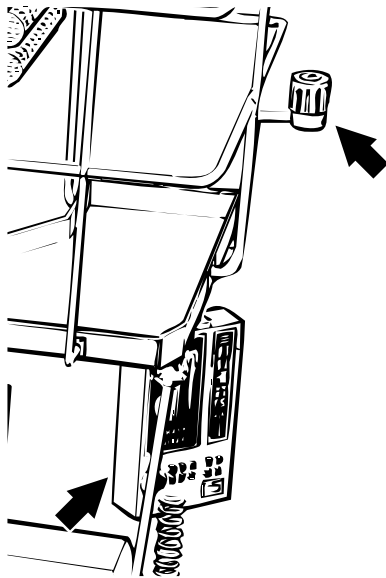
2.2TB092892.en



1

Check that all pressure gauges indicate the correct settings.

Setting data, see the *Technical data* section.

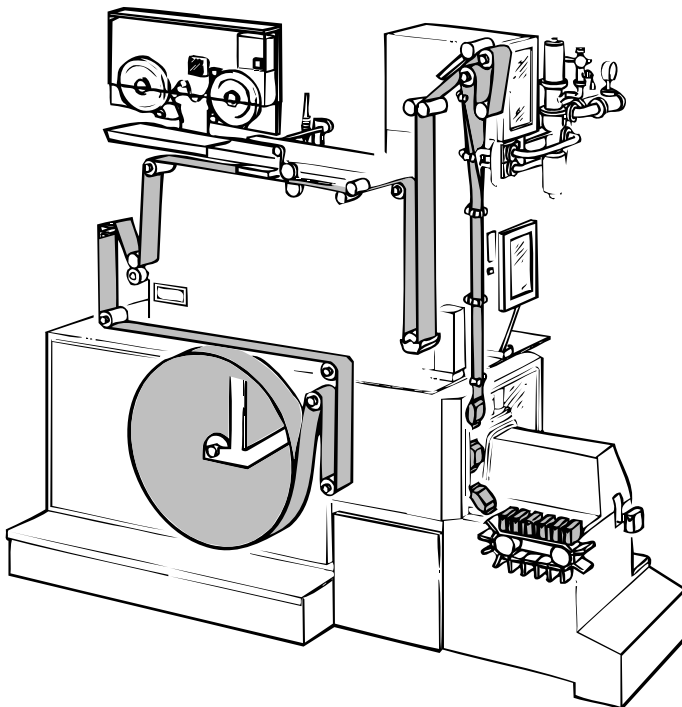


2

Check that the warning beacon is not flashing.

If it starts flashing, look at the monitor panel and take action indicated by the signal lamp.

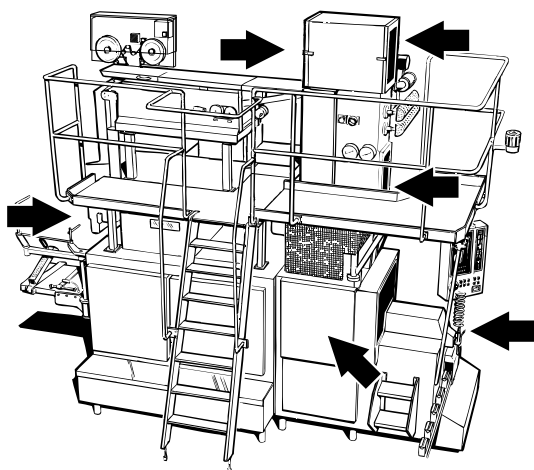
Actions, see the *Control panel* section.



3

Check that the packaging material web and the LS strip run correctly through the machine.

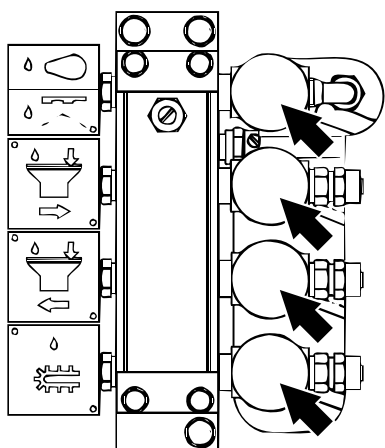
If required, make a **Short stop** and adjust the threading, see the *Preparation after weekly care* and/or *Preparation after daily care* section(s).



4

Check that all doors are closed and that all safety covers and guards are fitted.

The doors of the electrical cabinet must be closed to ensure sufficient cooling.

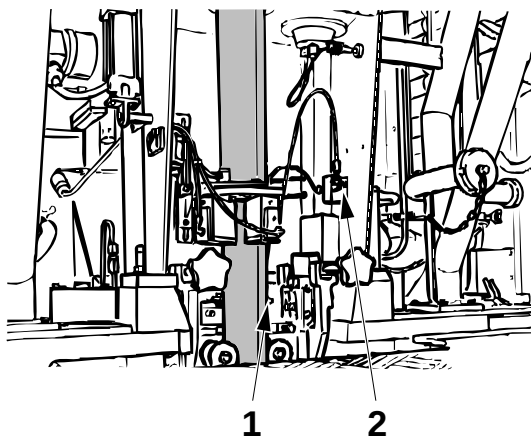


5

Check the cooling water flow rates on the flow meters.

Flow rates, see the *Technical data* section.

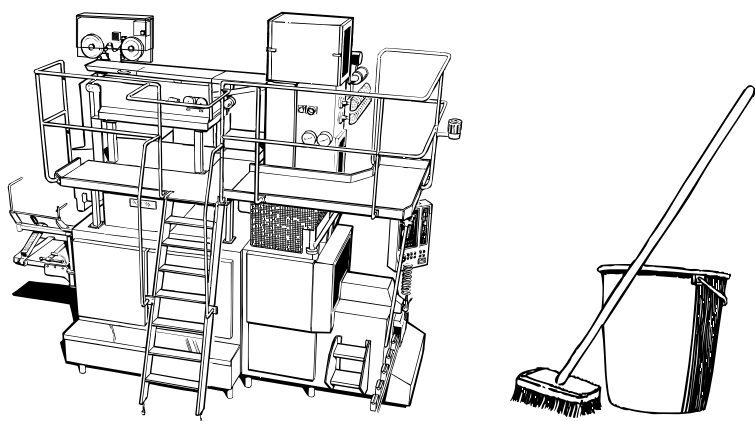
If incorrect, call a technician.



6

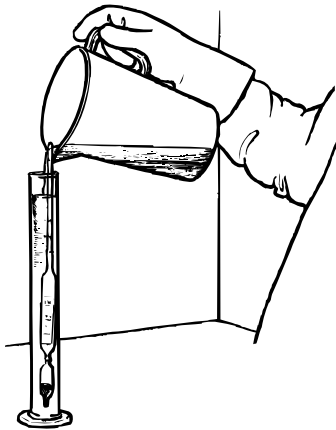
Check that the valve (1) for the tube flushing water is open and that the tube flushing (2) functions.

If required, adjust on the valve.



7

Make sure that the platforms, the ladder and the area around the machine are clean and free from loose objects.

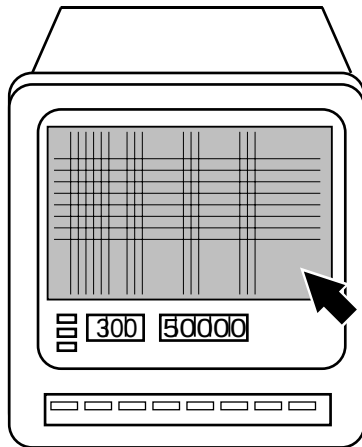


8

Hydrogen peroxide!

Follow the *Safety precautions*.

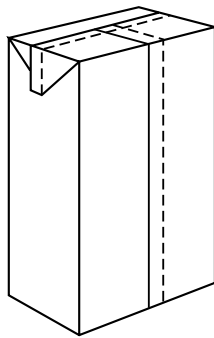
Check the hydrogen peroxide concentration **at least** every eight hours of operation, see the *Sterilisation liquid* section.



9

If the machine is equipped with a process recorder

Check that all six channels of the process recorder work correctly and that the paper is fed correctly.



10

Check the packages, see the *Package checks* section.

Use these checking methods as minimum requirement to establish that the machine is producing good sealed packages.

If there is the slightest hint of fault, pick out more packages for further checking.

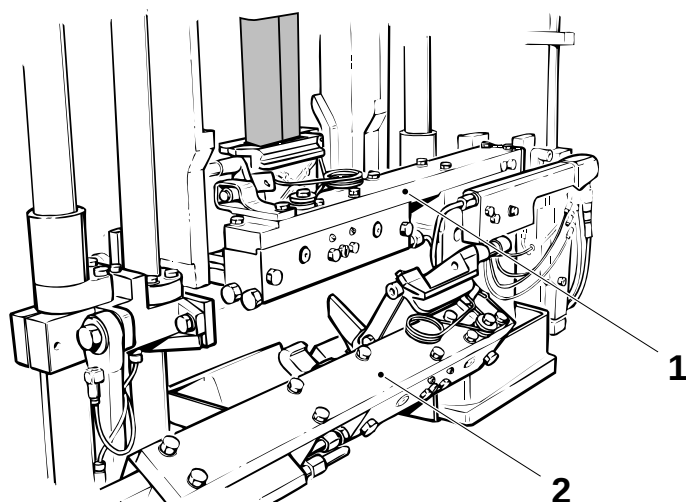
Whenever a fault cannot be eliminated, call a technician.

Packages should also be picked out for laboratory tests.

Package checks

This section is divided into:

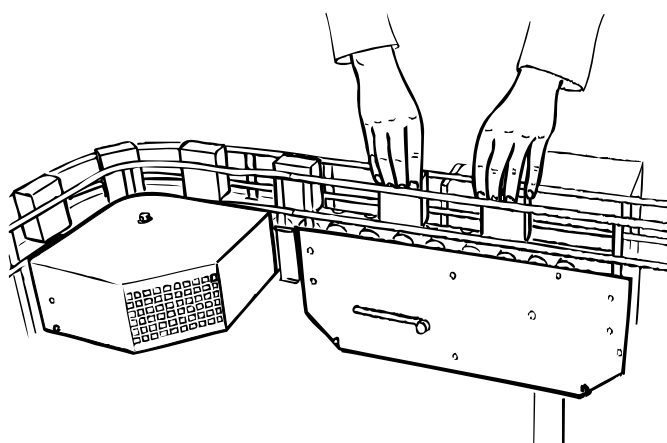
- Non-destructive checks
- Destructive checks
- Evaluation of TS
- Evaluation of LS



To distinguish the packages formed in the LH jaw pair (1) from the ones formed in the RH jaw pair (2), discard one package by the **Drop chute in position off** button.

If a package made in the RH jaw pair is discarded, the first package discharged after that was made in the LH jaw pair.

Mark each package to know by which jaw pair it was made.



Checking intervals

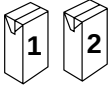
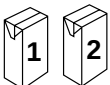
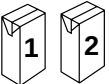
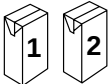
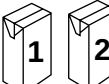
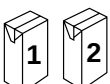
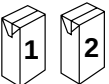
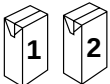
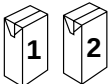
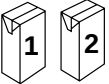
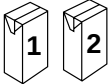
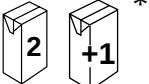
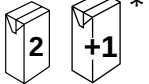
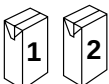
For both destructive and non-destructive checks, select the first two (consecutive) packages.

Mark each package to know by which jaw pair it was made.

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

Tools needed

A pair of scissors.

Phase Check	Start	Packaging material splice	LS strip splice
Non destructive checks			
1 Flaps			
2 Crease lines			
3 Overlap			
4 Cut open			
5 TS			
6 LS position	 *	 *	

2.2TB.102892.en

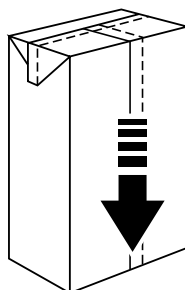
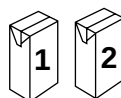
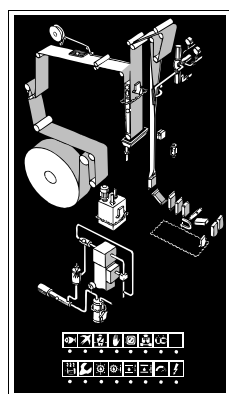
* If the machine is equipped with a zone heater.

Tools needed: Zonoscope, see section *Technical data*.

Non-destructive checks

Pick out and check the first two consecutive packages after:

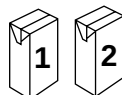
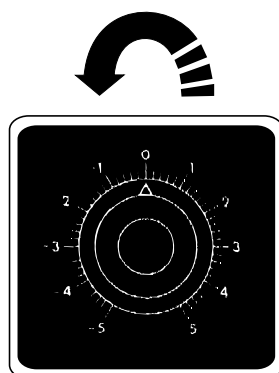
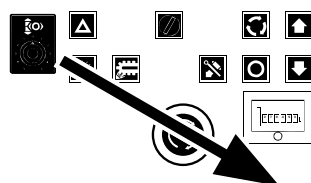
- every start
- splicing of packaging material



1

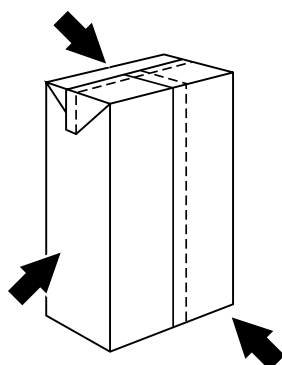
Check that the bottom creases are correctly positioned.

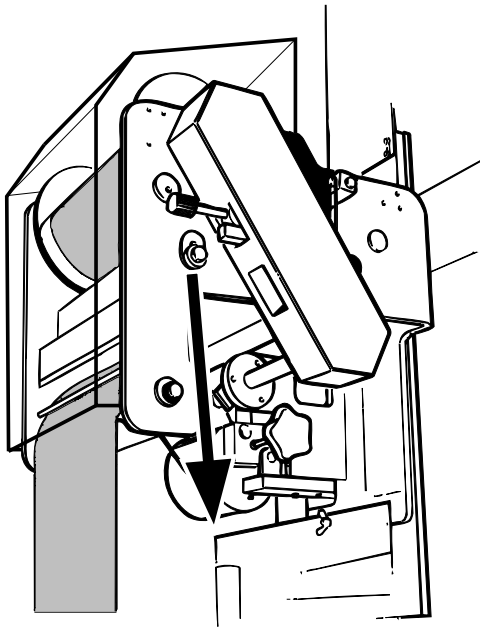
Turn the knob (arrow) counter-clockwise to move the creases **downwards** on the package.



2a

Check the shape of the packages, the date printing and the coding.

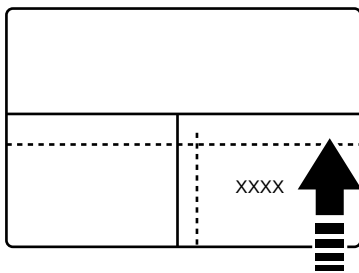
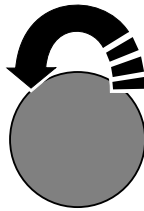




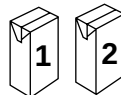
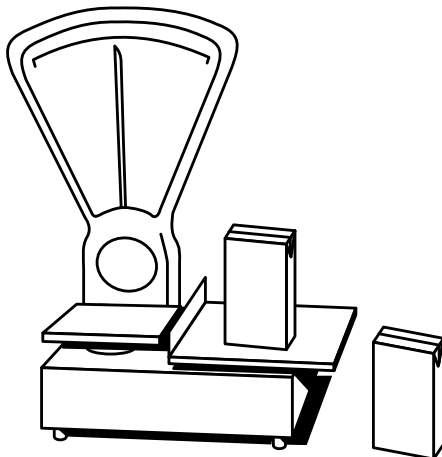
2b

If required adjust the date printing as follows:

Turn the knob counter-clockwise to move the date printing **upwards** on the package.



2.2TB.102892.en



3a

Weigh the packages, and record their weights and weight deviations.

3b

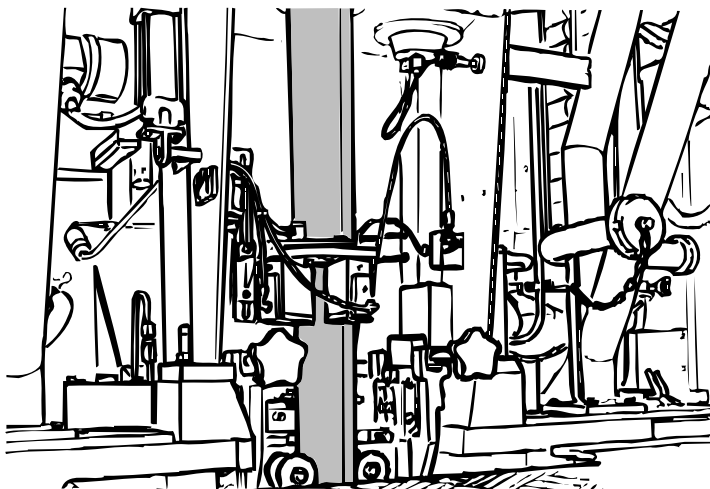
If required set the weight with the two knobs.

The LH knob actuates the RH jaw pair. Setting can be carried out during

Production.

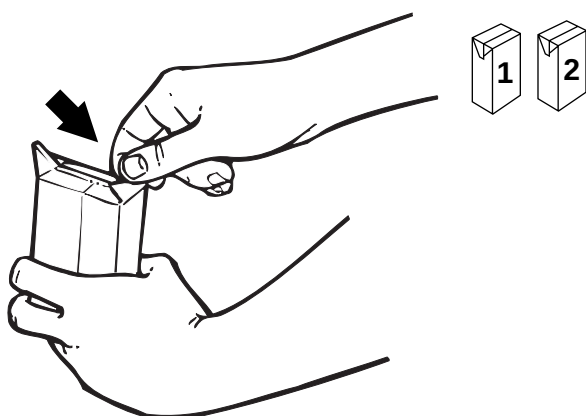
Turning the knob towards plus increases the amount of product in the package and hereby the package weight.

After setting, pick out new packages and check.



Destructive checks

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



1a

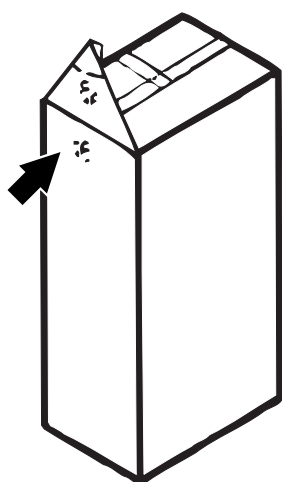
Flaps

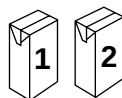
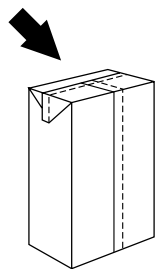
Check that the flaps are properly sealed.

1b

If the machine is equipped with a zone heater

Check that the sealing area for the flaps is not positioned over the perforation.

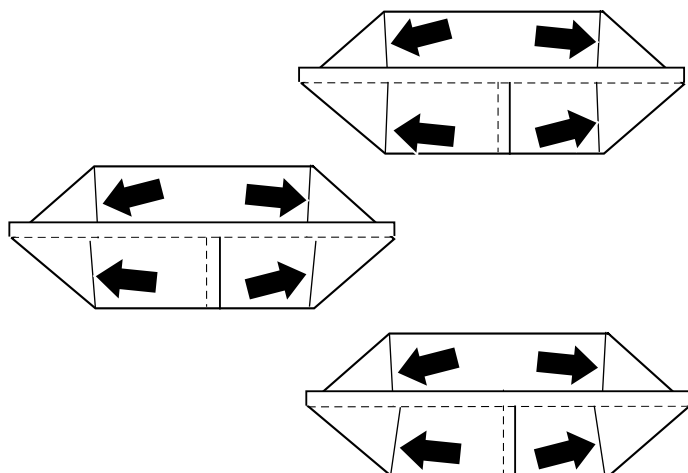




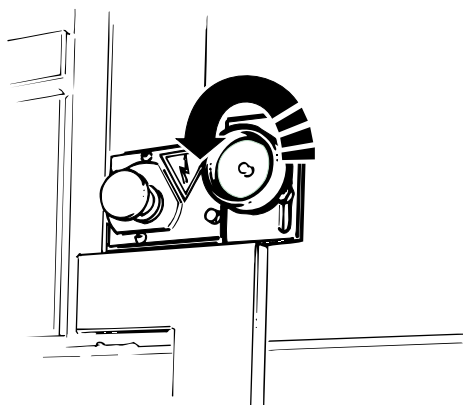
2a

Crease lines

Unfold the top flaps on the package and check that the crease lines marked with arrows are opposite one another or displaced symmetrically.



2.2TB.102892.en



2b

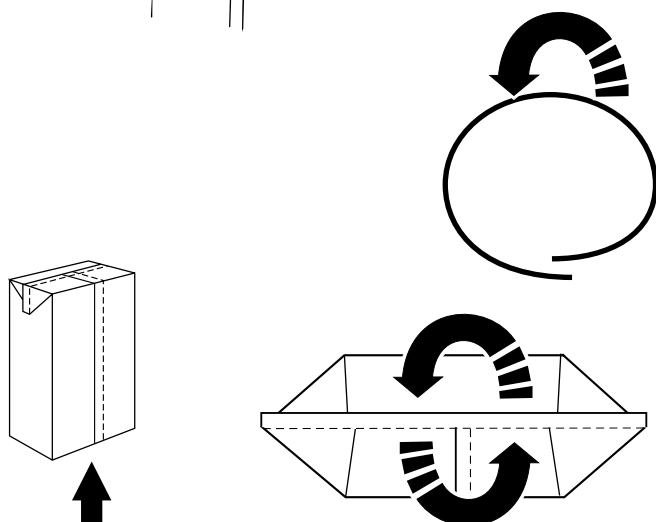
If required, adjust the crease position as follows:

Turn the tube

Turn the knob on the superstructure counter-clockwise to move the creases as illustrated.

The picture shows the package seen from above.

After adjustment, pick out new packages and check.

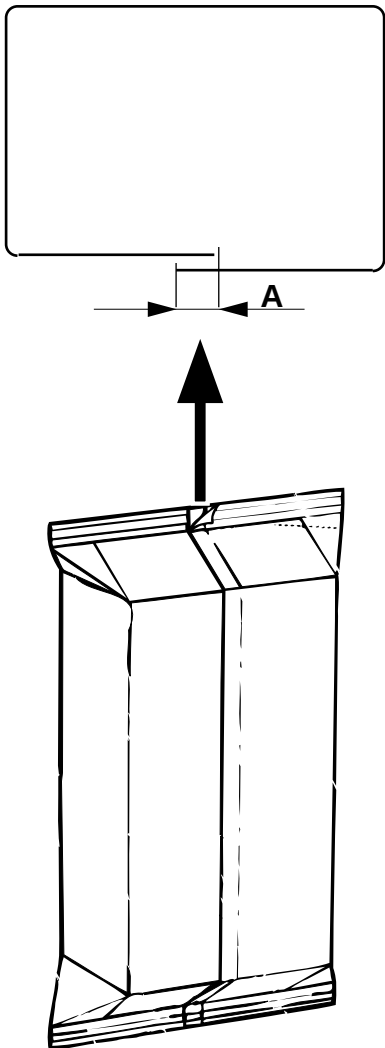




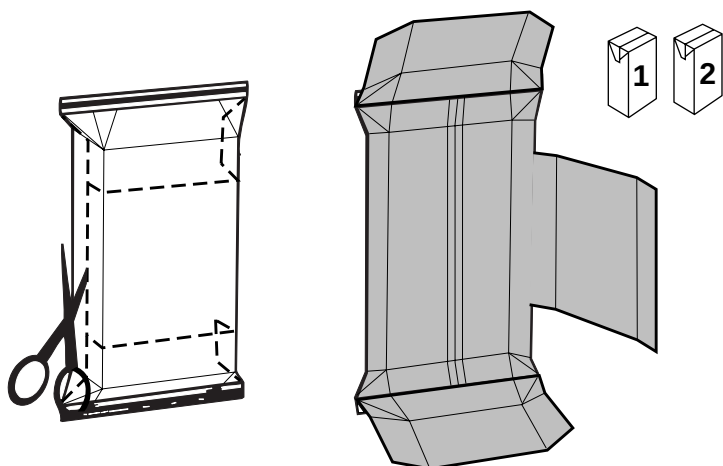
3

Overlap

Check the width of the overlap, distance A.



Package	A (mm)
125 S	3.5 - 4.5
200 S	3.5 - 4.5
250 S	5 - 7
180 B	7 - 9
284 B	7 - 9



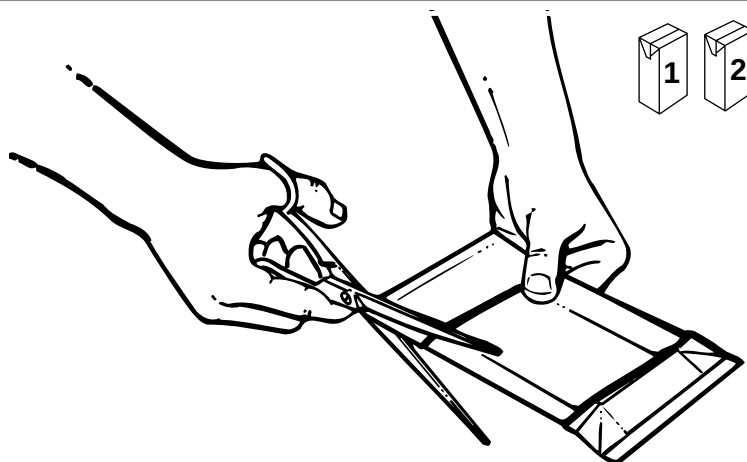
4

Cut open

Cut open the packages as illustrated.

Rinse and dry the packages.

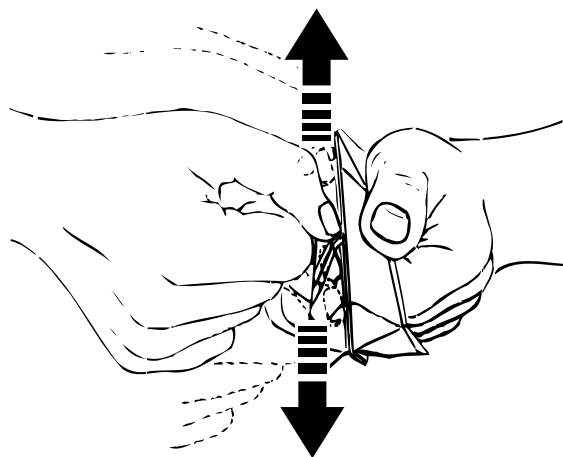
Check the outside and inside surfaces of the packages for scratches or other possible defects.



5a

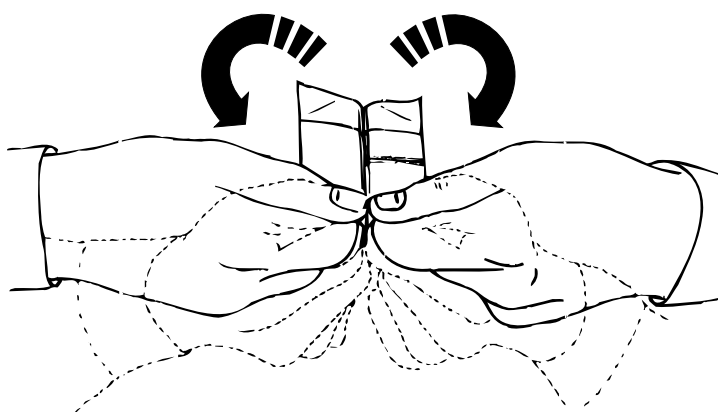
TS

Cut off about 1 mm at right angles to the TS on each side of the package.



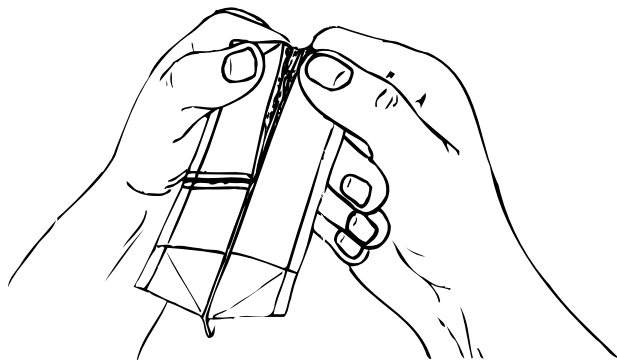
5b

Bend the TS and check that there are no lumps or ridges in the sealing area.



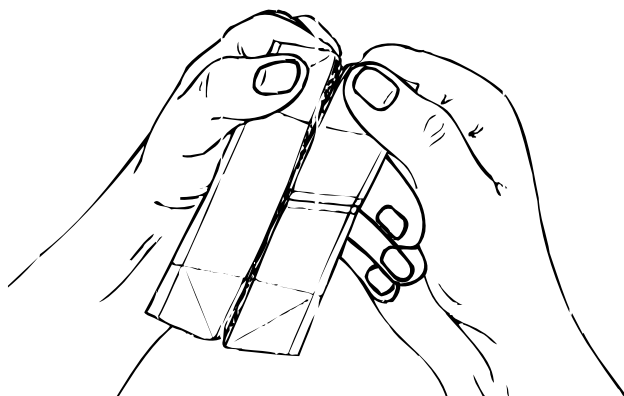
5c

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



5d

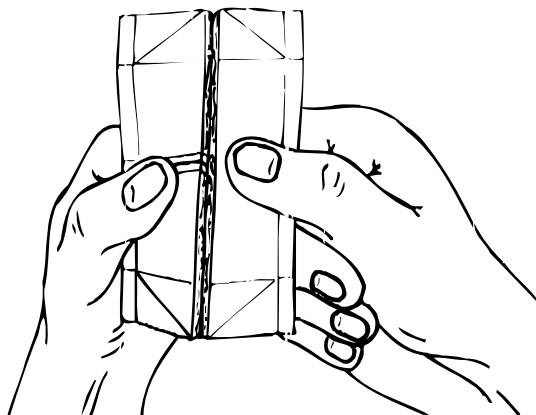
Pull approximately one third of the sealing length.



5e

Pull apart the seal from the other end.

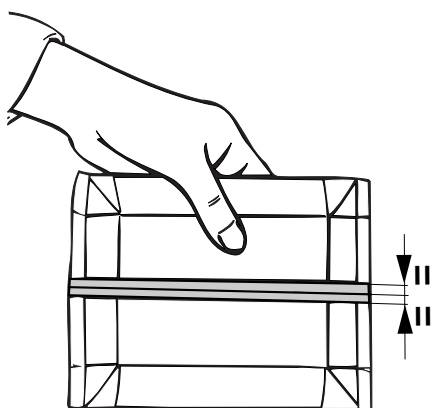
Pull approximately one third of the sealing length.



5f

Pull the point where TS and LS meet, that is the top cross and the bottom cross.

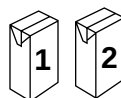
2.2TB.102892.en



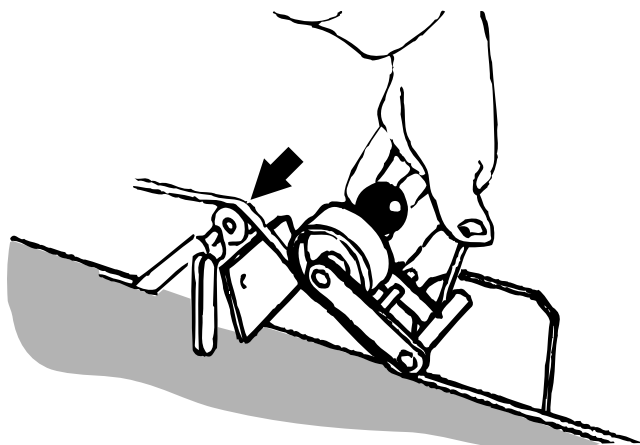
6a

LS strip position

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



After LS strip splice only, check two packages.

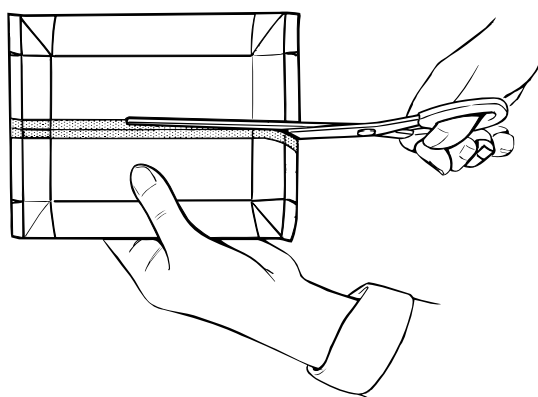


6b

Caution!

Stop the machine in **Short stop** before adjusting the strip position.

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

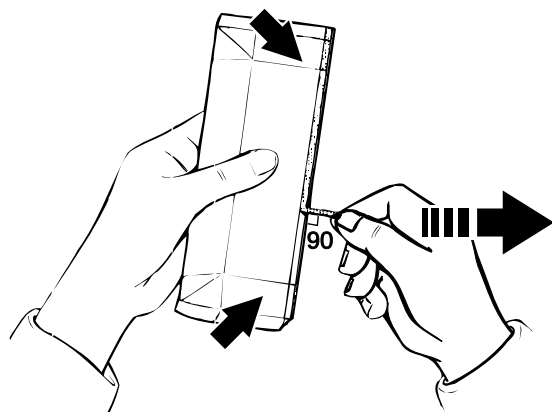


6c

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.

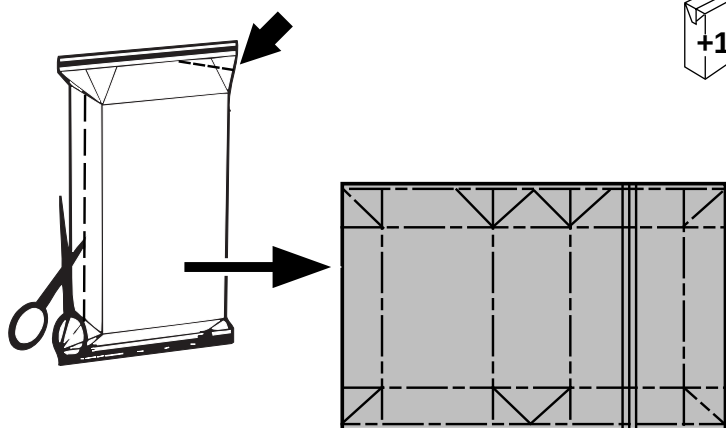


6d

Check the strip sealing by slowly pulling approx. 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.

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



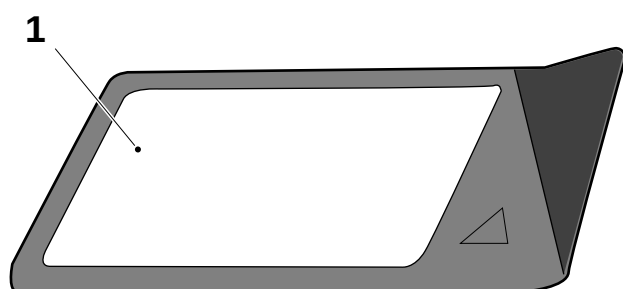
6e

If the machine is equipped with a zone heater

Empty and open the packages.

Cut on the opposite side of the perforation.

Rinse and blow dry.

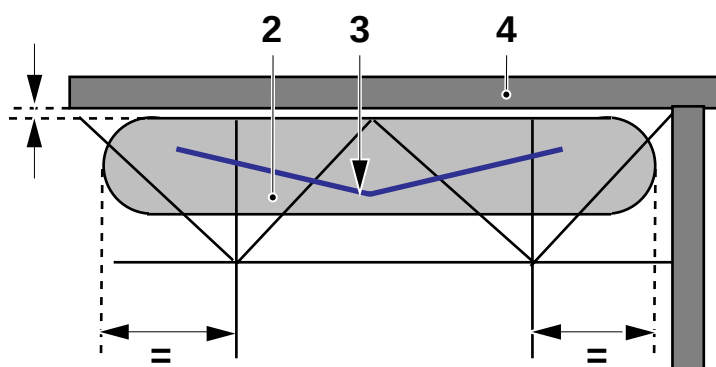


6f

The zonoscope (1) is marked on both sides. When checking the TBA/...K packaging material turn the sides with two circles upwards.

When checking other types of packaging material turn the side with two lines upwards.

Min 1 mm

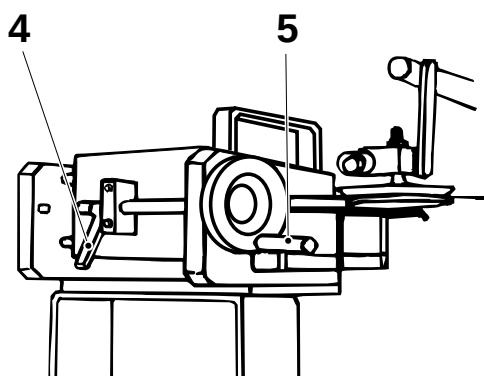


6g

Check that the heated zone (2)

- covers the perforation (3)
- does not interfere with the TS (4)

A dark blue or brown zone means that the power setting is correct.

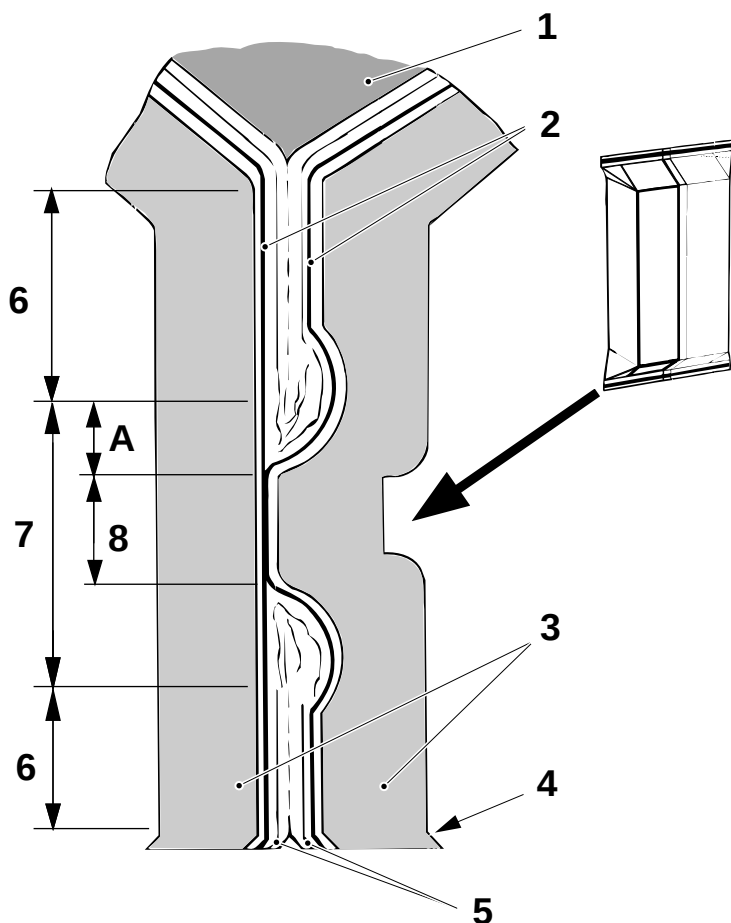


6h

If required, adjust in longitudinal direction as follows:

- release the catch (4)
- adjust by means of the hand wheel (5)

In case of other faults, call a technician.



Evaluation of TS

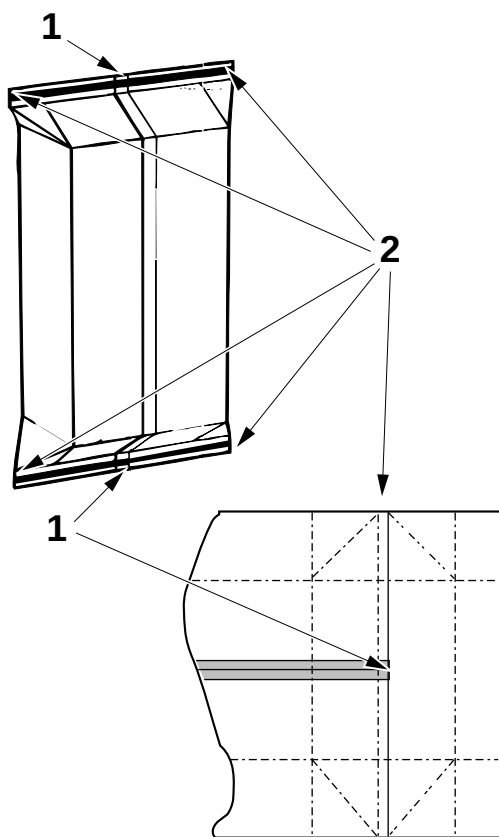
It is only the seal against the product side (area A) that is of importance.

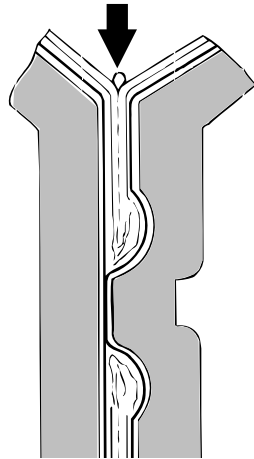
- 1 Filling product
- 2 Al-foil
- 3 Paper board
- 4 Cutting line
- 5 Plastic film, double layers
- 6 Blocked area
- 7 Sealed area
- 8 Ridge

2.2TB102892.en

Critical points of the TS are:

- the crosses (1), that is where the TS and the LS meet
- the corners (2)

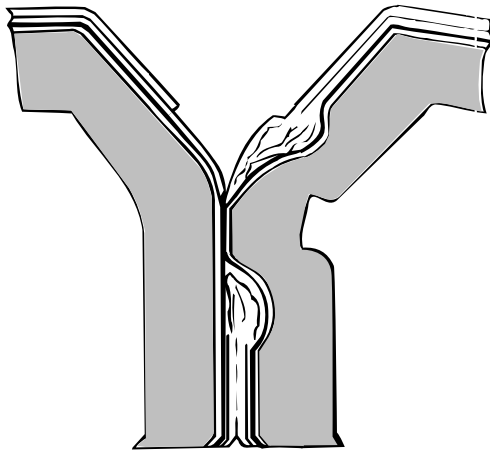




1

Check that there are no ridges or lumps in the seal.

If there are, the sealing is defective.

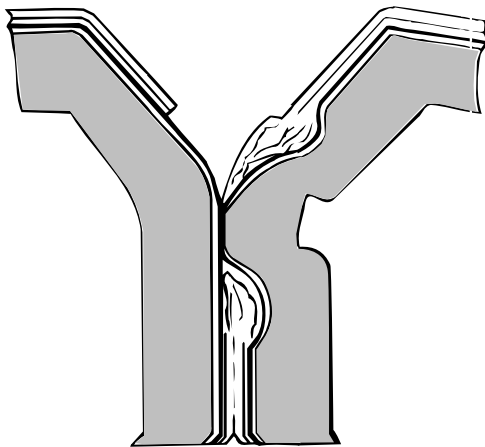


2a

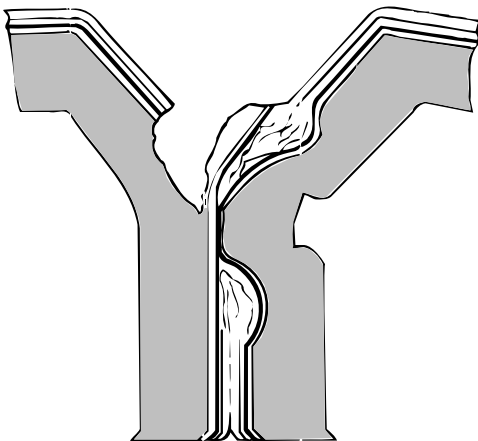
Pull the seal apart:

The sealing is acceptable if

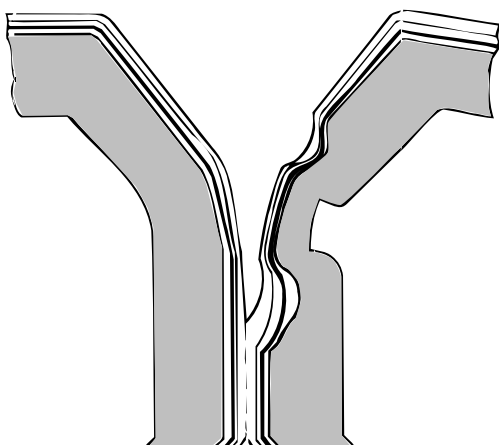
- the seal remains intact but a delamination between the two inner coatings takes place



- 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



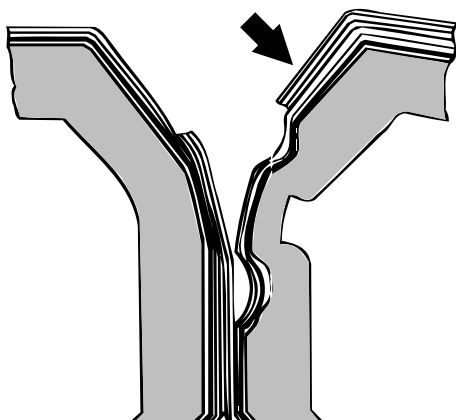
- the seal remains intact but a rupture takes place in the paper board layer



2b

The sealing is defective if

the seal is so weak that the two plastic layers separate without rupturing.

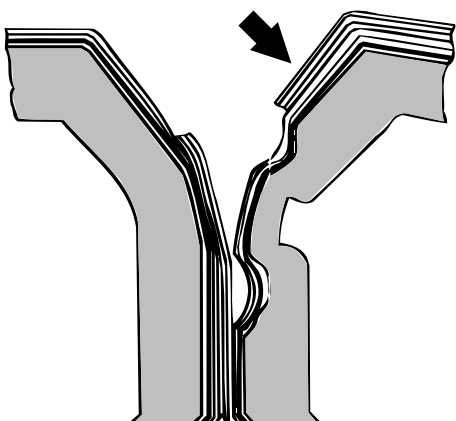


3a

Cross

What has been said about the evaluation of the TS also applies to the evaluation of the cross, that is the point where the LS and the TS meet.

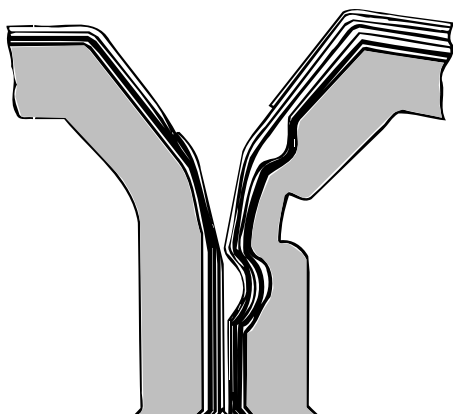
The strip (arrow) can be regarded as additional coating layers on the Al-foil.



3b

The sealing is acceptable if

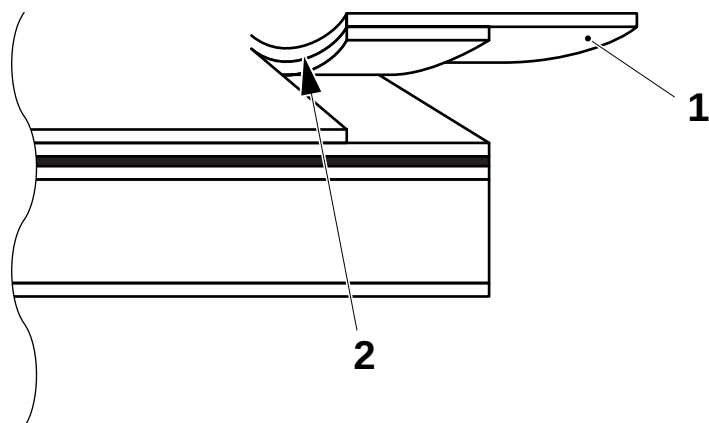
a rupture occurs in any of the layers



3c

The sealing is defective if

there is **no** rupture.



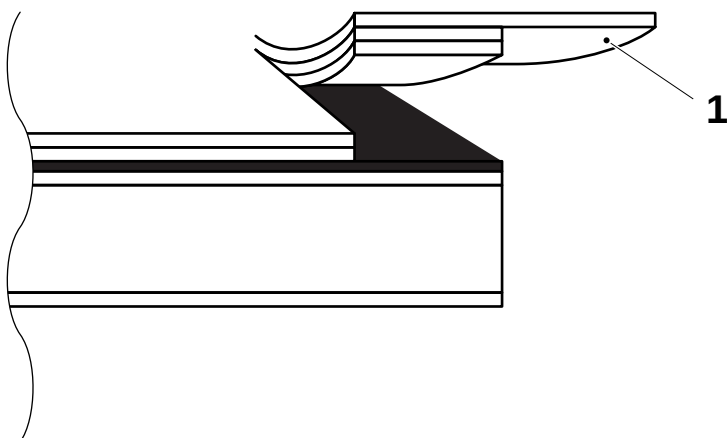
Evaluation of LS

1a

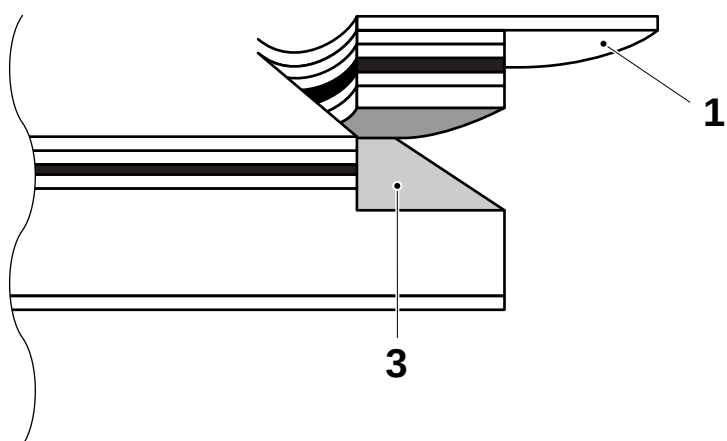
Pull the strip off.

The sealing is acceptable if

- one of the two inner coatings comes off with the strip (1), leaving a ruptured edge (2) along the seal

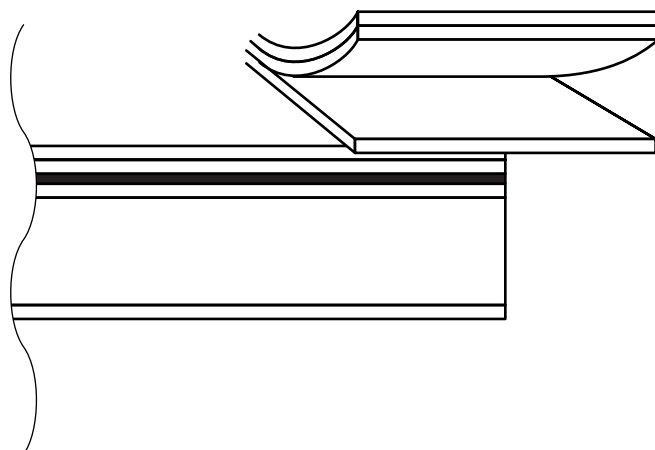


- both inner coatings come off with the strip (1), leaving the Al-foil laid bare

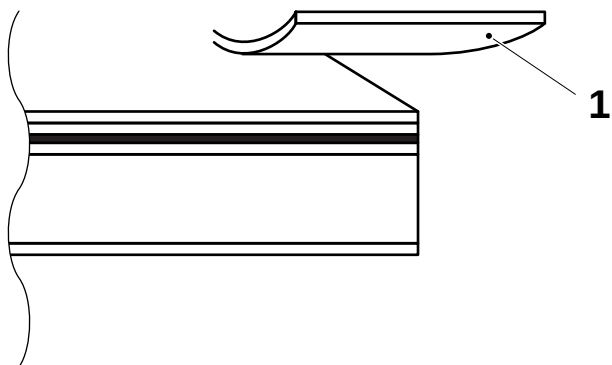


- all the inner layers including the Al-foil come off with the strip (1), although possibly leaving paper board fibres (3)

2.2TfB.102892.en



- the strip separates (delaminates), when it is pulled off



1b

The sealing is defective if the strip (1) comes off leaving the inner coatings of the package unaffected.

This page intentionally left blank

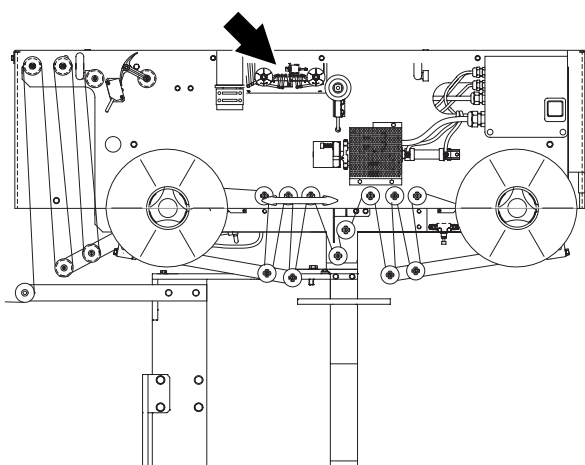
2.2TB.102892.en

Strip supply

To avoid unnecessary production stops, always make sure to have both strip reels prepared and the strip threaded.

Caution!

Before touching the strip or the packaging material, disinfect your hands/gloves.

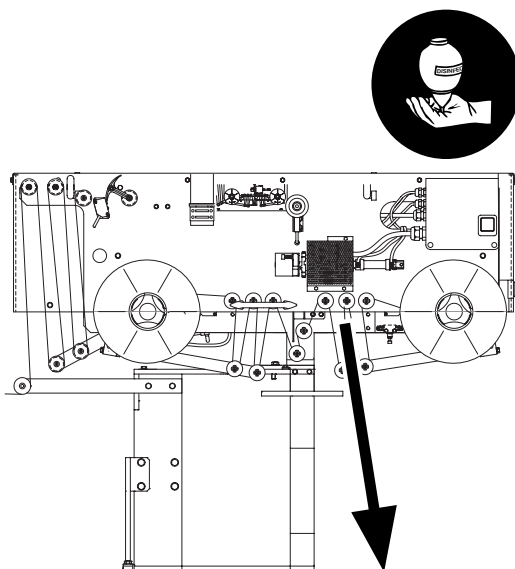


1

Thread the strip according to the diagram on the inside of the cover.

Note!

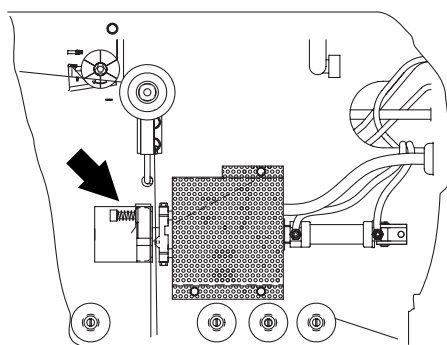
Remove the coloured end of the strip from the reel.



WARNING!

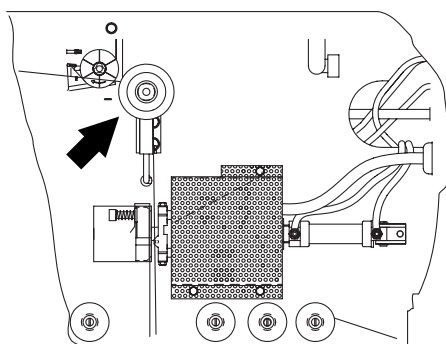
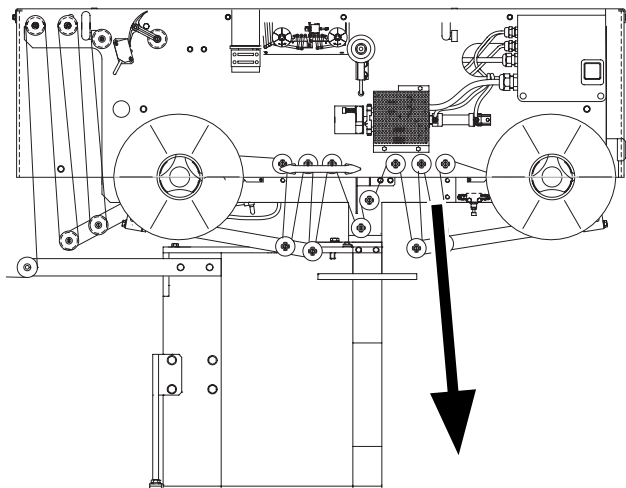
2

Place the tail end of the strip in the groove of the splicing block and engage the catch.



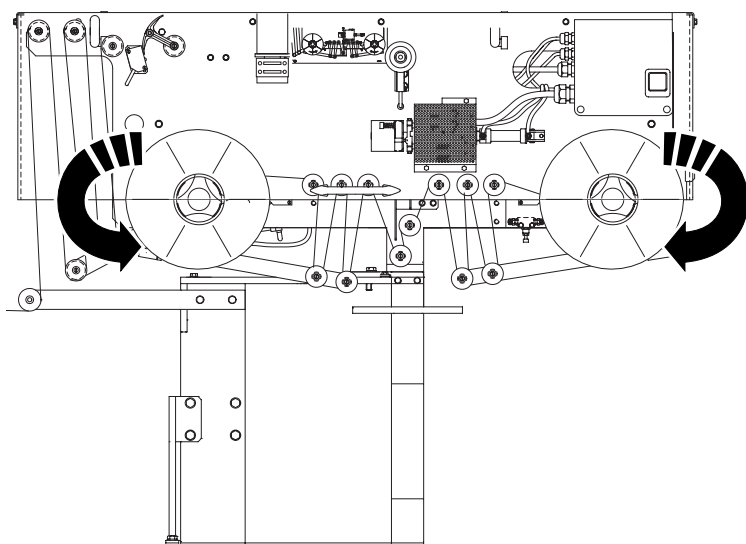
3

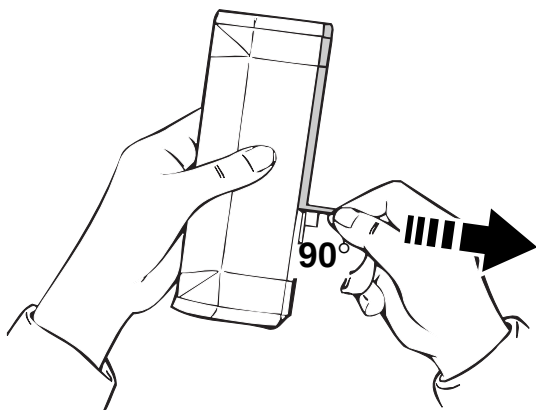
As the splice is done, press the reset button on the roller to change the position of the spliced strip.



4

Place a new LS strip reel on the empty hub.
Make sure the reel is correctly positioned on the hub.





5

The splice monitor discards the four packages close to and including the splice.

Pick out the **two** following packages and number them.

Test the packages, see the *Package checks* section.

6

Start the equipment, see the *Start* section.

This page intentionally left blank

2.2TB112892.en

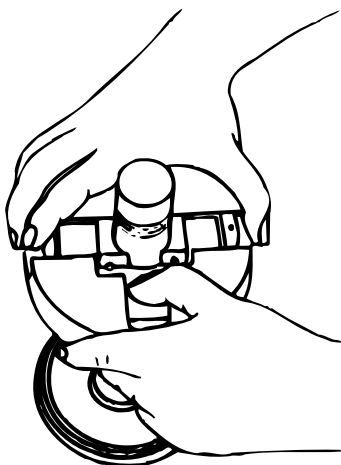
Packaging material supply

Caution!

The packaging material must never touch the floor.

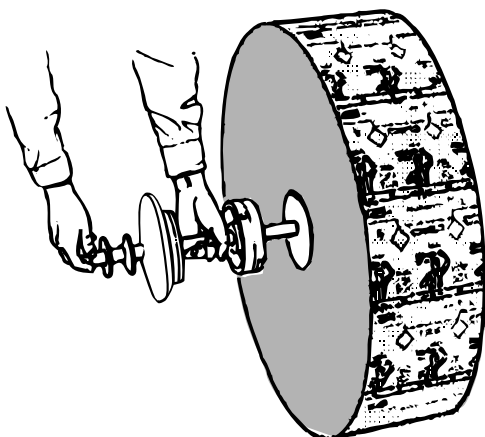
Caution!

Before touching the packaging material, disinfect your hands/gloves.

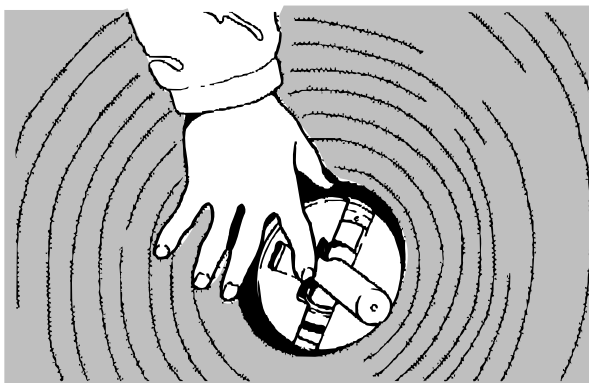
**1**

Remove the core plugs from the packaging material reel.

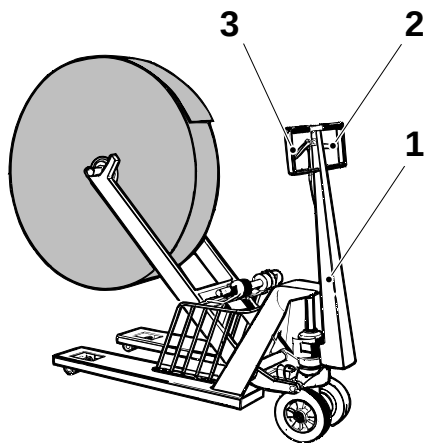
Compress the spring loaded lugs in the reel holder.

**2**

Insert the reel holder into the core.

**3**

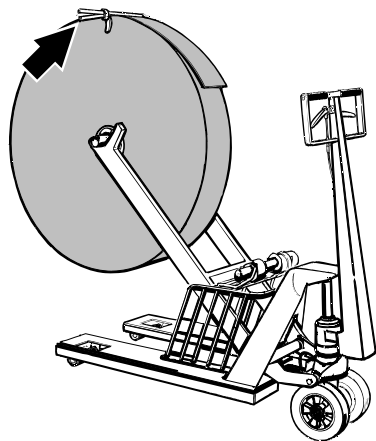
Release the reel holder catch.



4

Place the packaging material reel on the trolley. Make sure that the reel is placed in the correct rotation direction!

Lift the reel by pumping the handle (1).
Lower the reel by pressing the lever (2).
The lever (3) operates the brake.

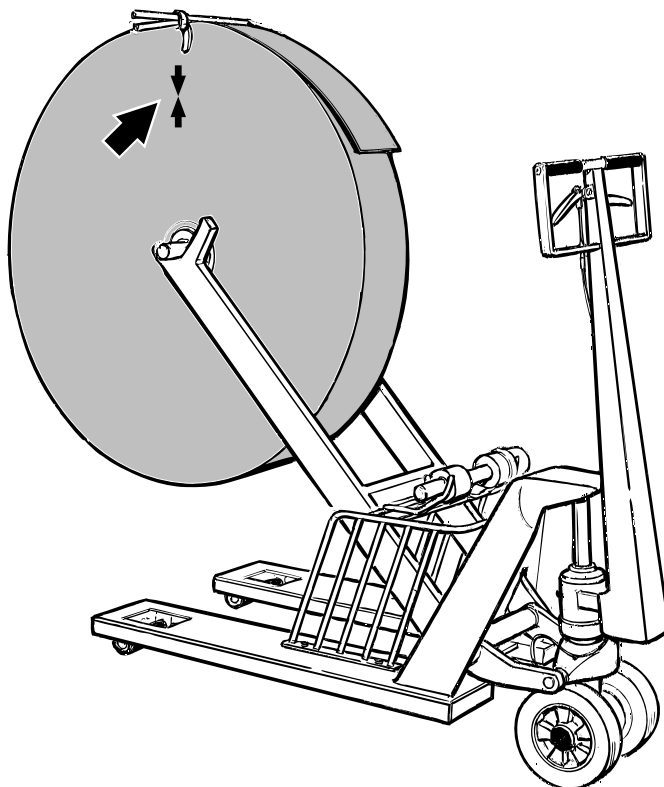


5

Remove the plastic wrapping from the reel.

Fit the paper clip.

Remove and keep the P-order tag.

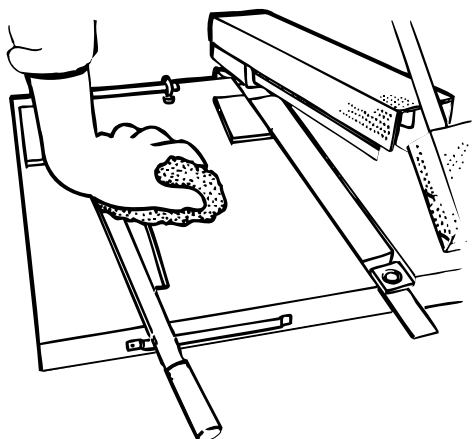


6

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

Note!

Always carry out destructive checks, see the *Package checks* section, after a factory splice.

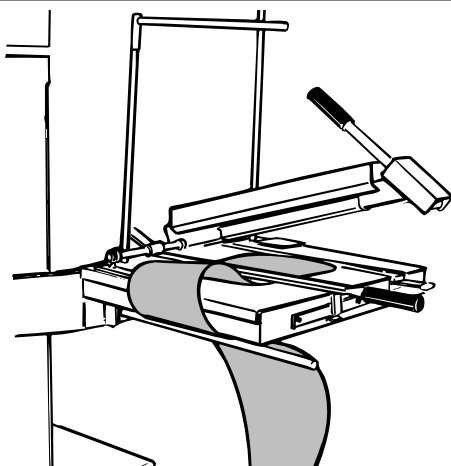


7

Chemical products!

Cleaning compound. Follow the *Safety precautions*.

Disinfect the material holder. Use cleaning compound code G, see the *Technical data* section.

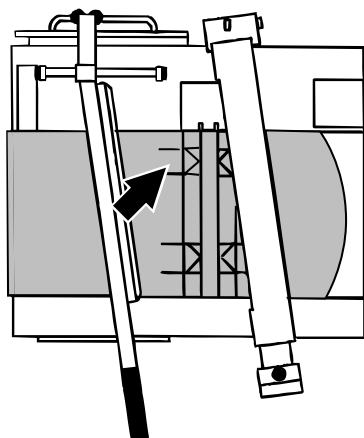


8

Caution!

Make sure that the packaging material **does not touch** the floor.

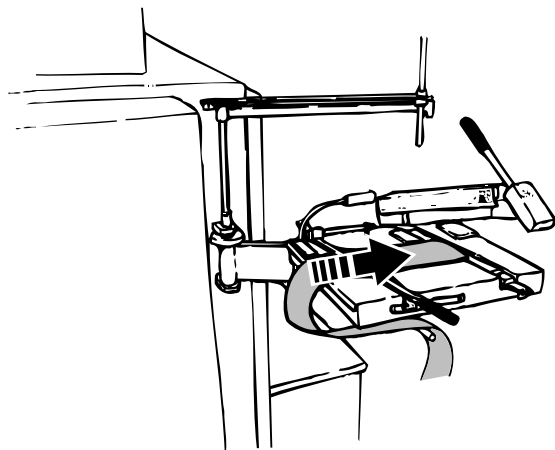
Pull the packaging material web underneath the splicing device and up onto it.



9

Place the new packaging material on the splicing device so that the top fin crease and the bottom fin crease line up with the location marks on the splicing device.

Press down the knife and tear off the web.



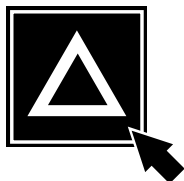
10

Slide the cut-off packaging material web forwards so that the next pair of creases line up with the location marks.

Press down the knife to lock the web and swing the splicing device out of the way.

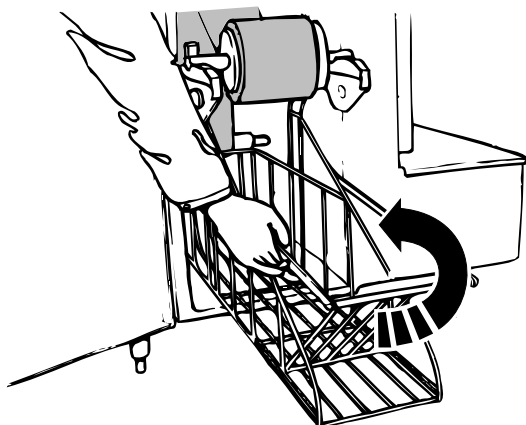
11

When the **Paper supply** alarm is triggered, push **Alarm reset**.



12

Pull out the carriage slowly and lift up the rear part of the basket.



13

Unreel remaining packaging material from the old reel.



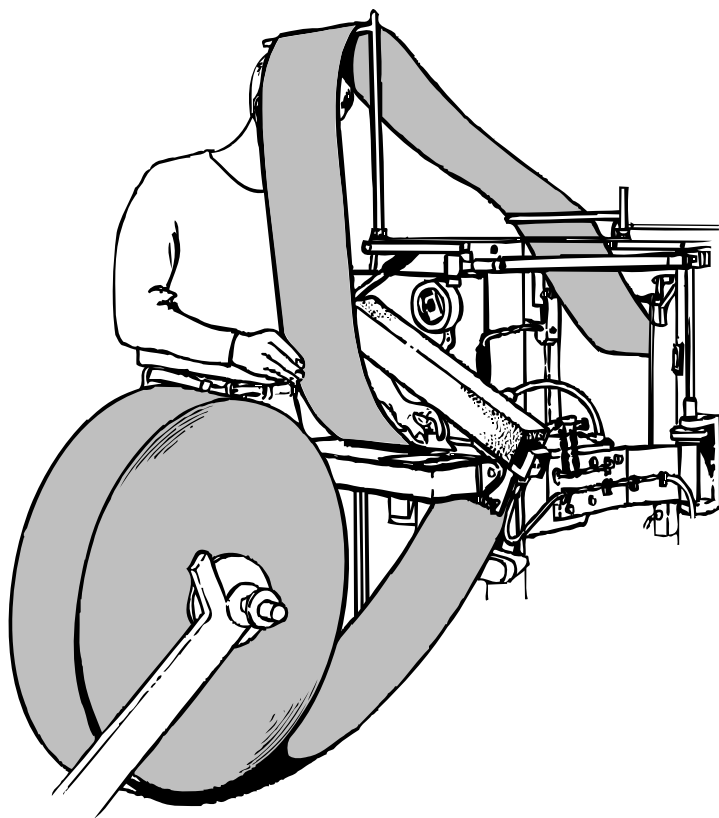
2.2TfB.122892.en

14

Pull the packaging material web from the old reel up over the support rods and down onto the splicing device.

Place it on top of the old packaging material.

The top fin crease and the bottom fin crease are to line up with the location marks on the splicing device (see *item 9 on page 117*).



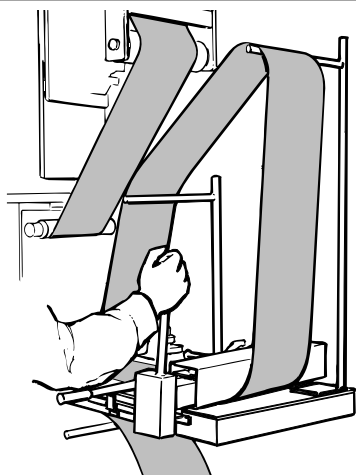
2.2TB122892.en

15

Press down and lock the sealing arm. Tear off the end of the packaging material.

Release the knife.

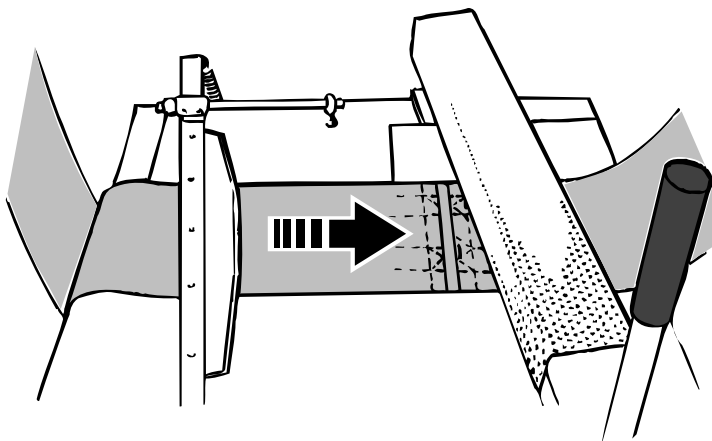
After 10 - 15 seconds, release the sealing arm.

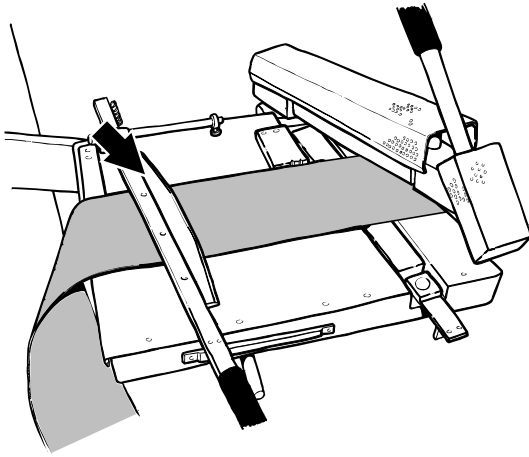


16

Move the web approx. 15 mm in the arrow direction.

Press down the knife. Press down the sealing arm once more, for about five seconds.





17

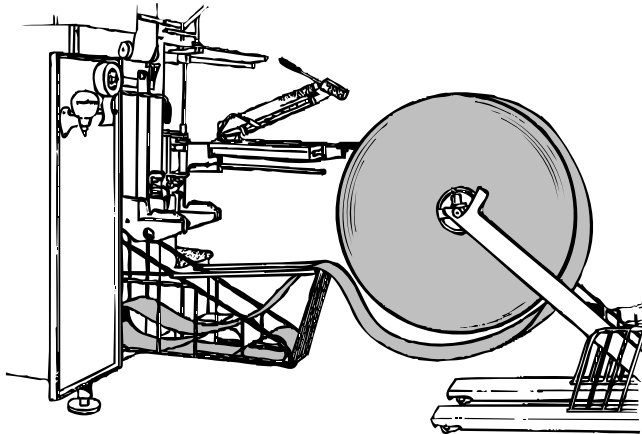
Release the knife.

Caution!

The packaging material must not touch the floor.

Remove the packaging material from the splicing device and put it in trolley basket.

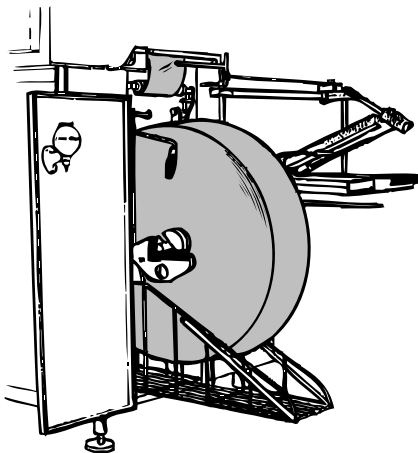
Press down the knife.



18

Remove the empty reel holder.

Swing the splicing device out of the way and put the packaging material in the basket.

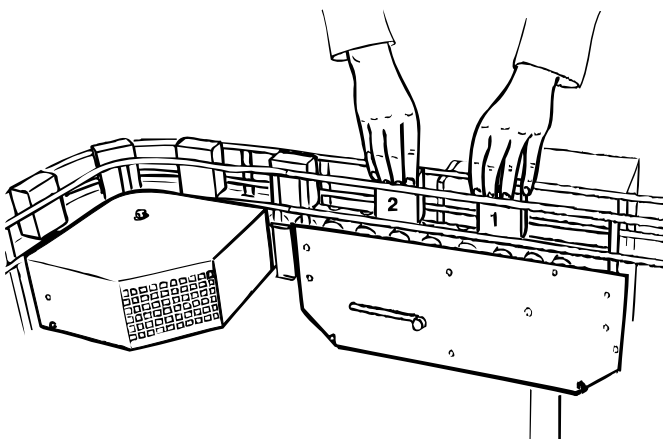


19

Remove the paper clip.

Transfer the reel from the trolley into the cassette.

Close the cover.



20

Pick out the first two packages discharged from the final folder after the splice.

Check the packages, see the *Package checks* section.

There are five ways of stopping the machine during Production:

- **Emergency stop**
- **Security stop**
- **Short stop (stop up to five minutes)**
- **Normal stop (stop up to 40 minutes)**
- **Production finished stop**

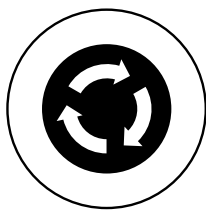
Stop

The machine is normally stopped in **Short stop** or **Normal stop**.

This section also describes how to start the machine after each stop.

Note!

For stoppages longer than one hour, remember to lower the dating unit ink bottle.



Emergency stop

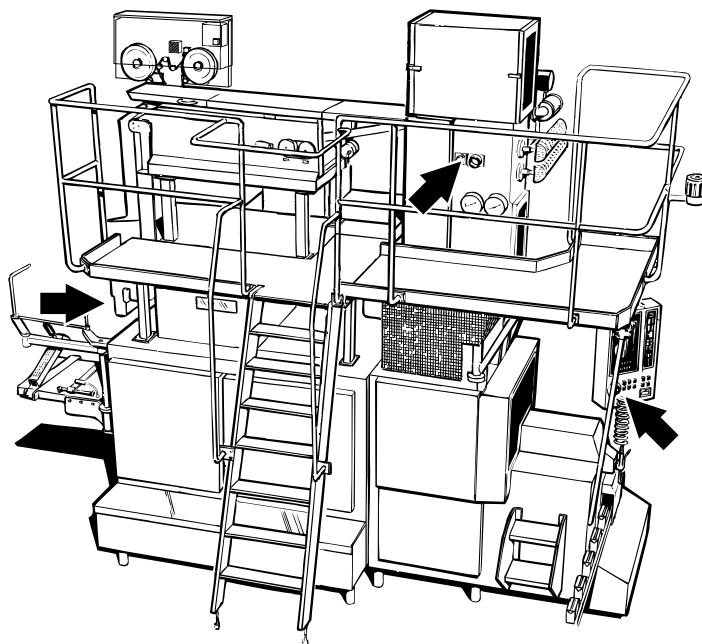
1

Push one of the **Emergency stop** buttons.

Eliminate the cause of the stop and pull out the **Emergency stop** button.

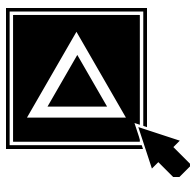
Pushing **Emergency stop** will reset the machine program to **Zero** position and **deactivate all air cylinders**.

See also the *Safety precautions* section.



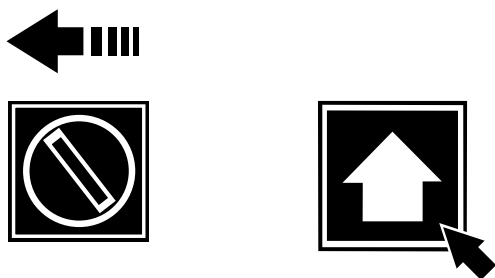
2

Push **Alarm reset**.



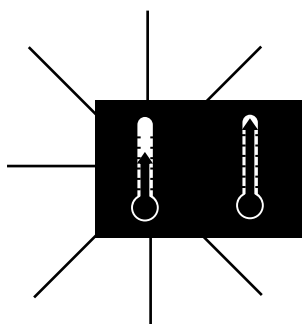
3

Turn the **Selector** switch to the LH position and push **Program up**.



4

The **Preheating SA** symbol light becomes fixed.

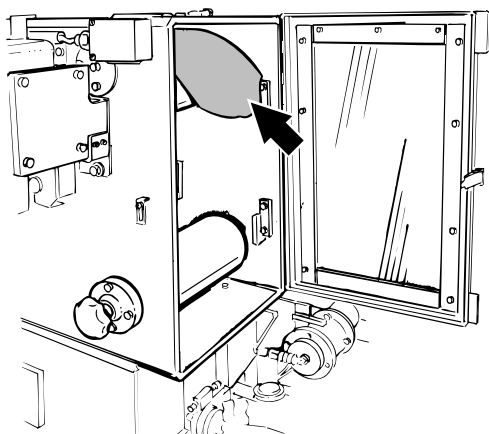


5

Hydrogen peroxide!
Follow the *Safety precautions*.

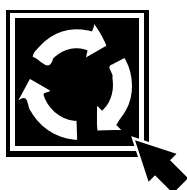
Open a door of the aseptic chamber.

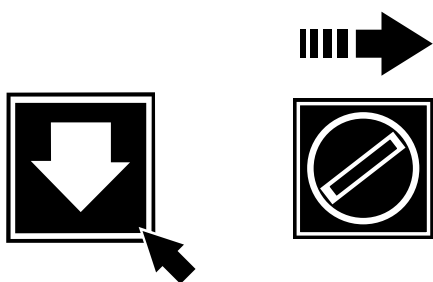
Cut the packaging material between the upper bending roller and the crease roller.
Cut so that the tip is rounded.



6

Push **Inching** to inch the cut-off packaging material out of the machine.

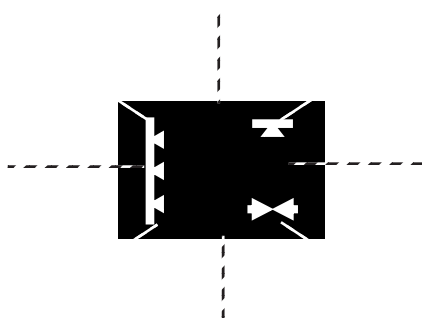




7

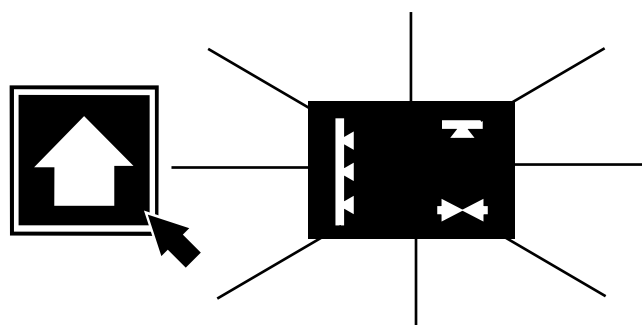
Push **Program down**.

Turn the **Selector** switch to the RH position.



8

The **Preparation for CIP** symbol and the **Preparation for external cleaning** symbol start to flash.



9

Push **Program up**.

The **Preparation for CIP** symbol and the **Preparation for external cleaning** symbol lights become fixed.

10

Caution!

Before restarting, the machine must be cleaned and sterilised.

Select cleaning program, see the *Daily care* section.

Security stop

1

During **Production** the machine will stop immediately if:

- the cover over the final folder is opened
- the dating unit cover is opened
- the side doors are opened
- the doors of the aseptic chamber are opened

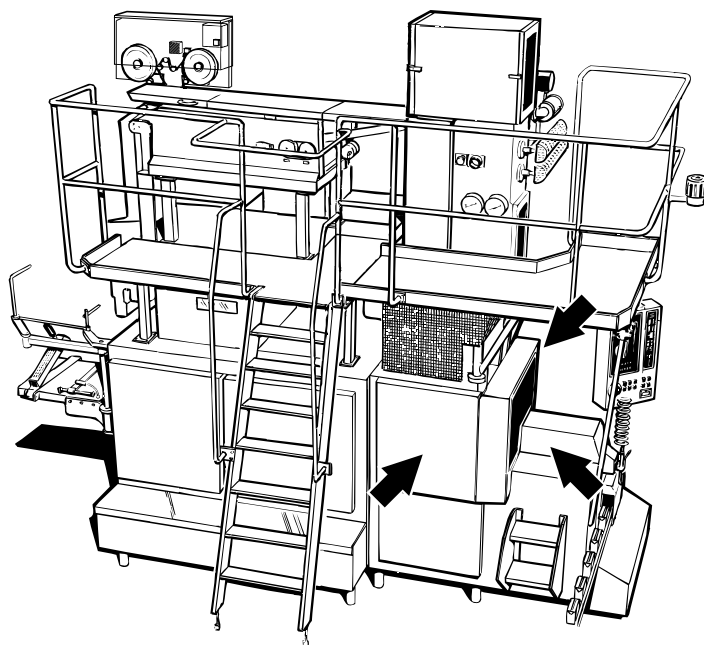
See also the *Safety precautions* section.

If any of the doors of the aseptic chamber have been opened, close the door and carry out actions according to *Emergency stop*, on page 121

If any of the side doors, the final folder cover, or the dating unit cover have been opened, proceed as follows.

Caution!

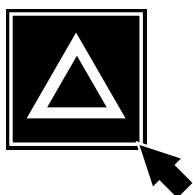
If the machine cannot be brought back into **Production** within 40 minutes, see *If the equipment cannot be brought back into production within 40 minutes* on page 134.



2

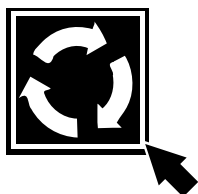
Close the door or the cover.

Push **Alarm reset**.



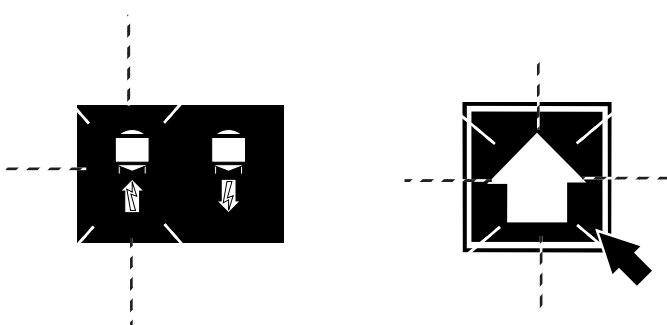
3

Push **Inching** to inch all packages out of the final folder.



4

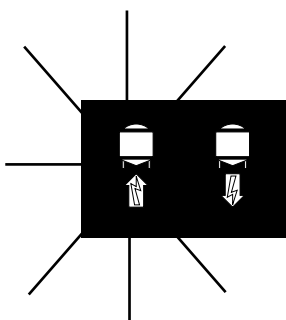
When the **Signal to steriliser** symbol and the **Program up** button start to flash, push **Program up**.



5

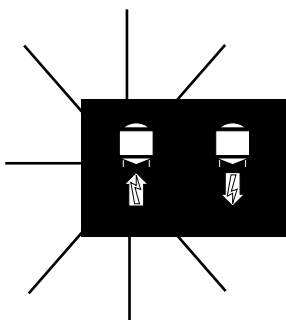
The **Signal to steriliser** symbol light becomes fixed.

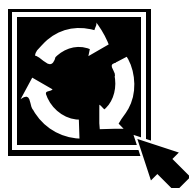
Restart, see the *Start* section.



6

When the steriliser is ready, the **Signal from steriliser** symbol light becomes fixed.





7

After 20 minutes stop

Risk of serious production fault!

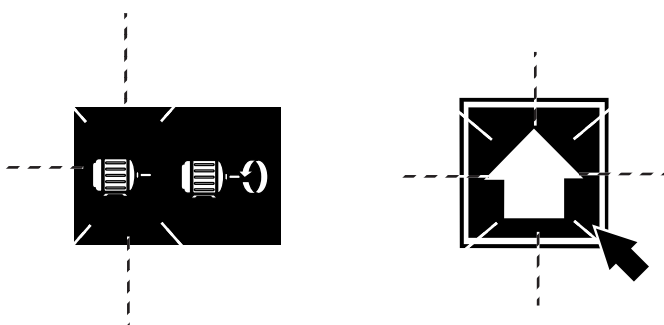
The web **must not** be renewed by inching more than once.

Inch to renew the packaging material web from the SA down to the jaws to eliminate the risk of web tearing.

Caution!

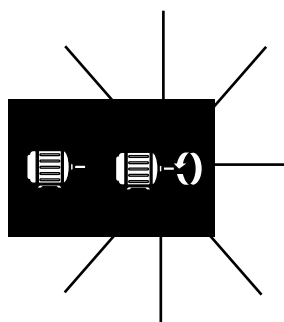
If the web tears, the machine must be cleaned and sterilised

If the equipment cannot be brought back into production within 40 minutes, see page 134.



8

When the **Ready for production** symbol and the **Program up** button start to flash, push **Program up** and keep it pressed.

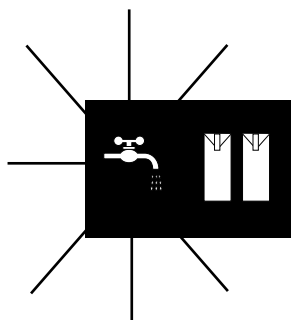


9

Release the **Program up** button when the **Motor start** symbol light becomes fixed.

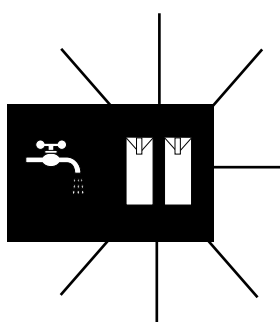
10

After a while, the **Filling** symbol light becomes fixed.



11

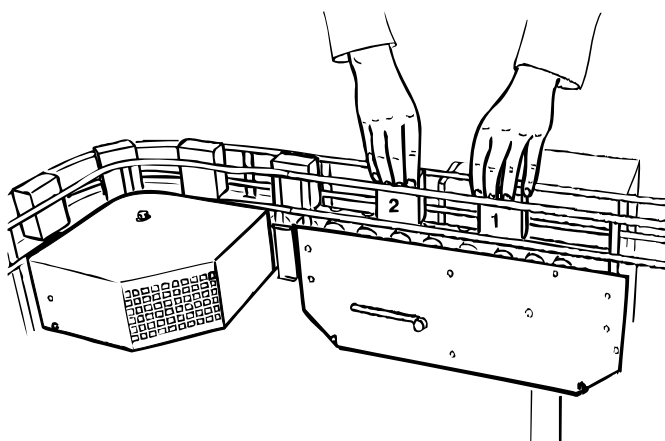
When the printed design is in correct position, the **Production** symbol light becomes fixed.



12

Pick out the first two packages discharged from the final folder.

Check the packages, see the *Package checks* section.





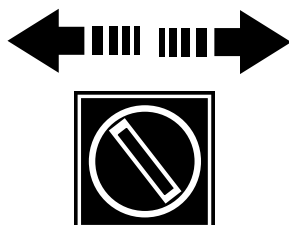
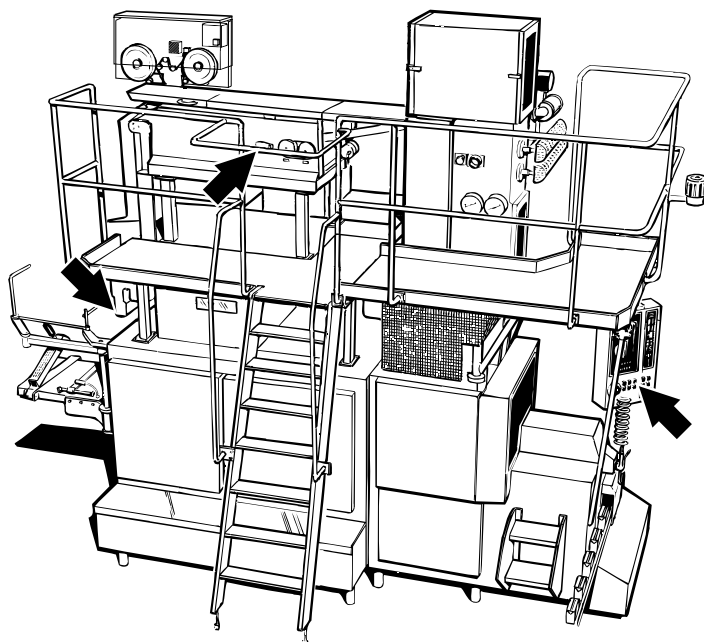
Short stop 1

Stop up to five minutes

There are three **Short stop** buttons, see also the *General description* section.

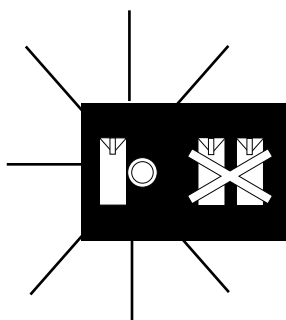
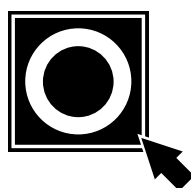
Note!

Short stop also interrupts **Inching** and **Tube sealing**.



2

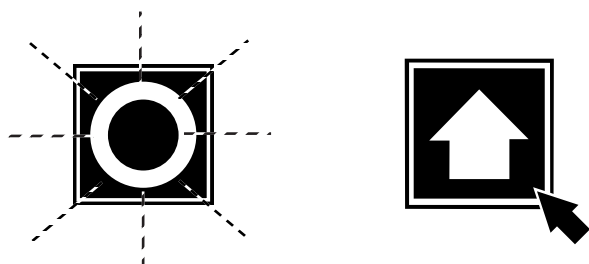
Select whether the RH jaw pair or the LH jaw pair is to stop in open position by turning the **Selector** switch.



3

Press **Short stop** and keep it pressed until the **Short stop** symbol light becomes fixed.

The machine stops with filled packaging material tube, synchronised printed design and the selected jaw pair in open position.



4

After four minutes the **Short stop** button starts to flash.

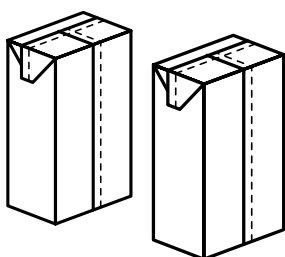
Restart the machine by pressing **Program up**. Keep the button pressed until the drive motor starts.

5

At first Short stop every day

After restart, take the packages that have been opposite the LS short-stop nozzle.

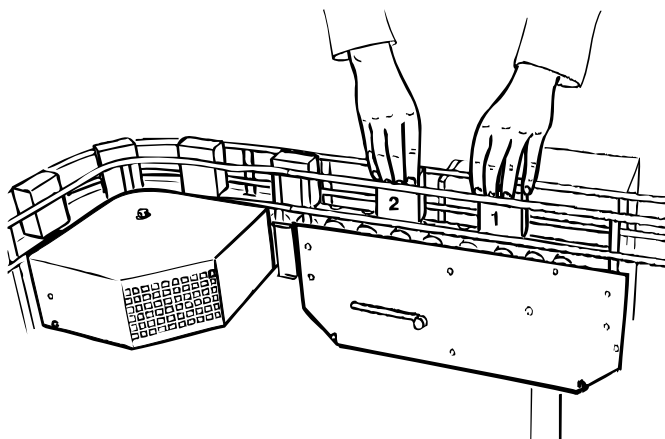
Cut them open and check the LS strip, see items 6c and 6d on page 103 in the *Package checks* section.



6

After the fourth set of discarded packages, pick out the first two packages discharged from the final folder.

Check the packages, see the *Package checks* section.

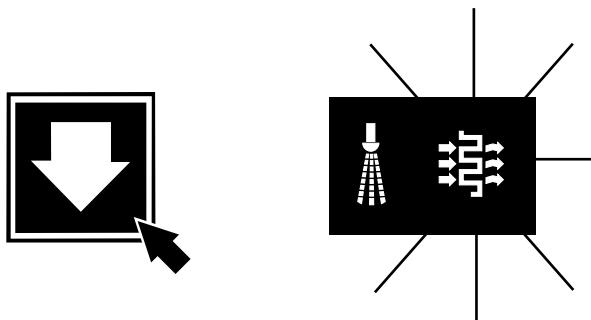


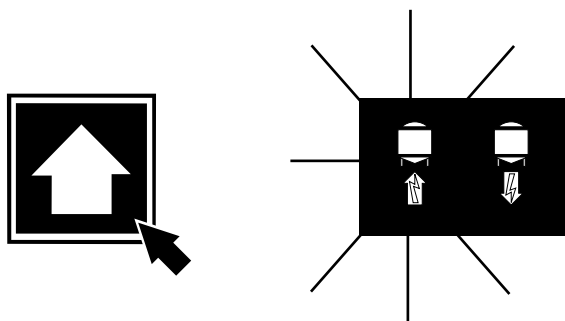
7a

If the crank switch is activated during Short stop

Push **Program down**.

The machine resets to step **Drying**.

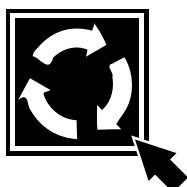




7b

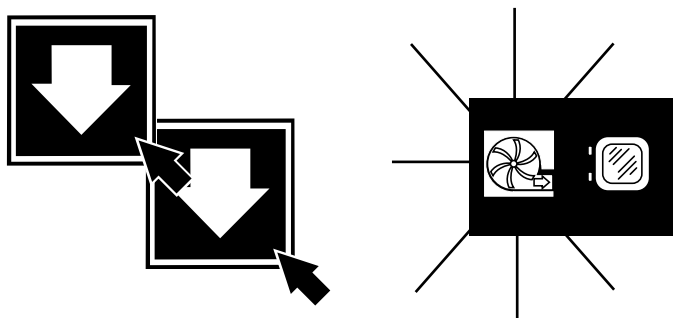
Push **Program up**.

The **Signal to steriliser** symbol light becomes fixed.



7c

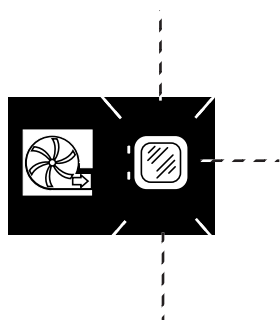
Push **Inching** to inch the tube empty.



7d

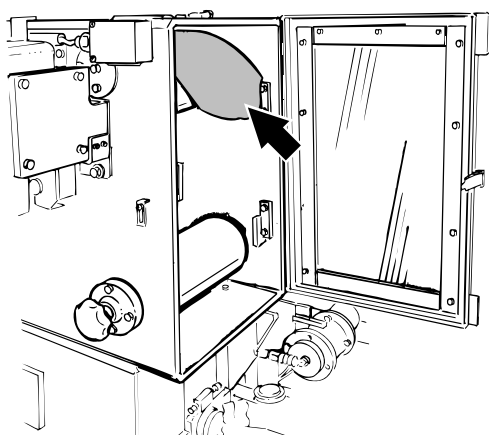
Push **Program down** twice.

When the machine is in step **Drying**, the **Program down** button must be presseded for at least four seconds before the machine resets to step **Venting aseptic chamber**.



7e

After five minutes the **Venting aseptic chamber finished** symbol starts to flash.



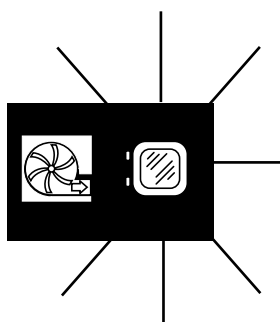
7f

Hydrogen peroxide!

Follow the *Safety precautions*.

Open the door of the aseptic chamber and cut the packaging material between the upper bending roller and the crease roller.

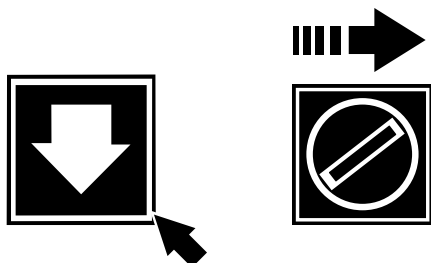
Cut so the tip is rounded.



7g

Close the door of the aseptic chamber.

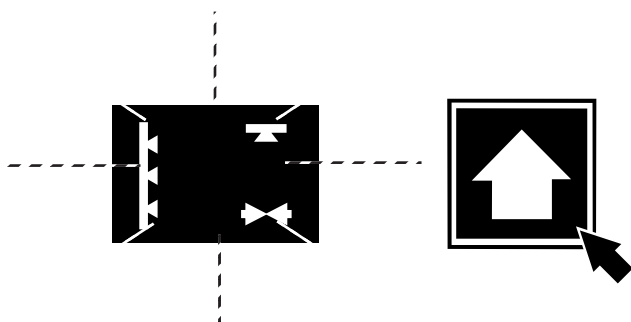
The **Venting aseptic chamber finished** symbol light becomes fixed.



7h

Push **Program down**.

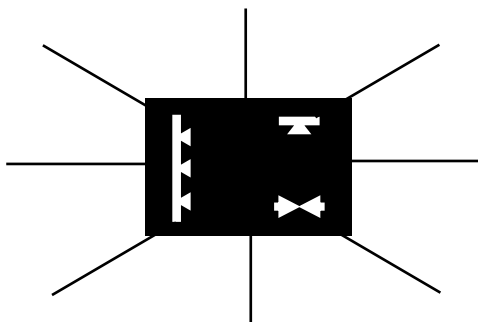
Turn the **Selector** switch to the RH position.



7i

The **Preparation for CIP** symbol and the **Preparation for external cleaning** symbol start to flash.

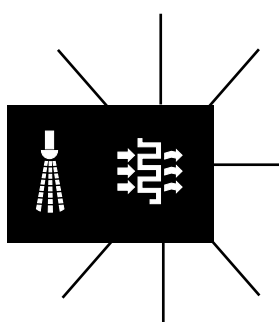
Push **Program up**.



7j

The **Preparation for CIP** symbol and the **Preparation for external cleaning** symbol light becomes fixed.

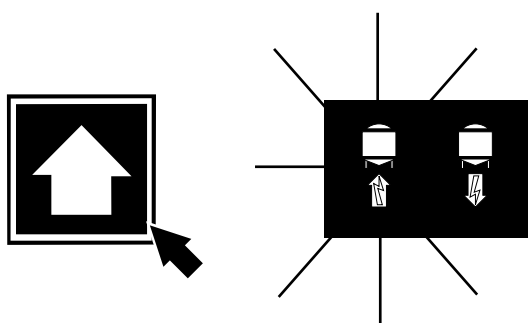
Select cleaning program, see the *Daily care* section.



8a

If the **Short stop time** is exceeded

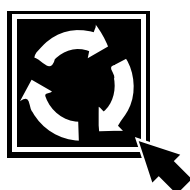
The machine resets to step **Drying**.



8b

Push **Program up**.

The **Signal to steriliser** symbol light becomes fixed.



8c

Push **Inching** to inch the tube empty.

8d

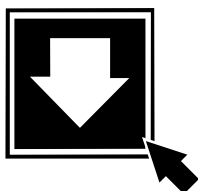
Restart, see the *Start.* section.

Caution!

If the equipment cannot be brought back into production within 40 minutes, see page 134.

Normal stop

1



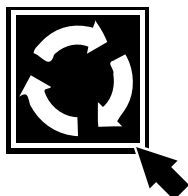
Stop up to 40 minutes

Push **Program down** once to stop the filling only.

Push **Program down** twice to stop the machine.

2.2TB132892.en

2



After 20 minutes stop

Risk of serious production fault!

The web **must not** be renewed by inching more than once.

Inch to renew the packaging material web from the SA down to the jaws to eliminate the risk of web tearing.

Caution!

If the web tears, the machine must be cleaned and sterilised

If the equipment cannot be brought back into production within 40 minutes, see page 134.

3

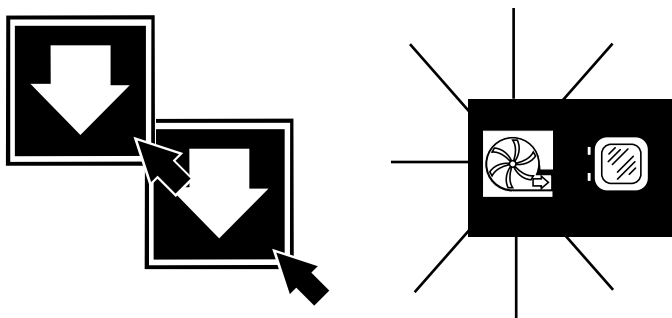
Restart, see the *Start* section.

4a

If the equipment cannot be brought back into production within 40 minutes

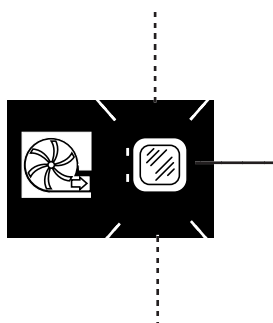
Push **Program down** twice.

When the machine is in step **Drying**, the **Program down** button must be pressed for at least four seconds before the machine resets to step **Venting aseptic chamber**.



4b

After five minutes, the **Venting aseptic chamber finished** symbol starts to flash.



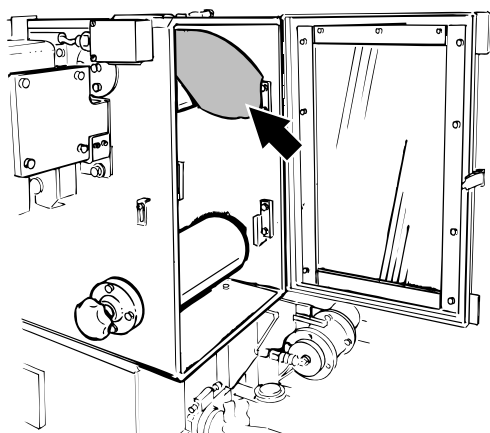
4c

Hydrogen peroxide!

Follow the *Safety precautions*.

Open the door of the aseptic chamber and cut the packaging material between the upper bending roller and the crease roller.

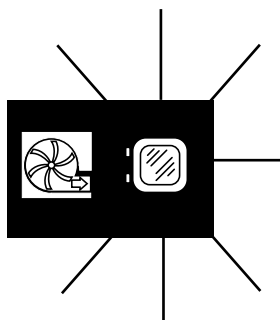
Cut so the tip is rounded.



4d

Close the door of the aseptic chamber.

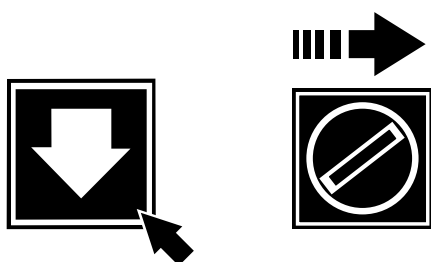
The **Venting aseptic chamber finished** symbol light becomes fixed.



4e

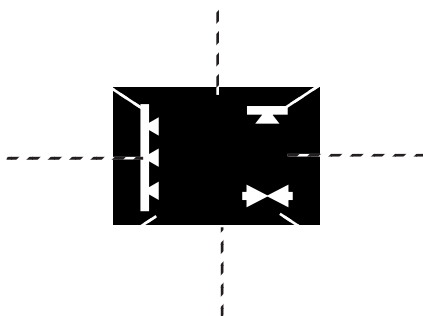
Push **Program down**.

Turn the **Selector** switch to the RH position.



4f

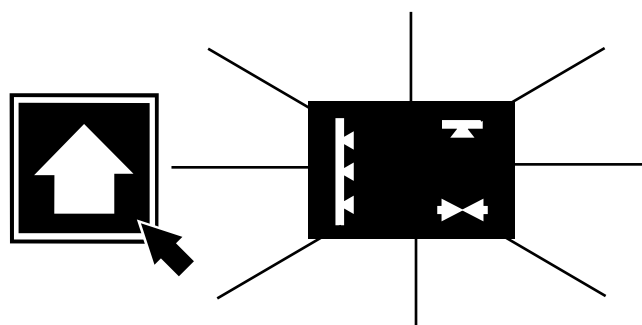
The **Preparation for CIP** symbol and the **Preparation for external cleaning** symbol start to flash.



4g

Push **Program up**.

The **Preparation for CIP** symbol and the **Preparation for external cleaning** symbol lights become fixed.

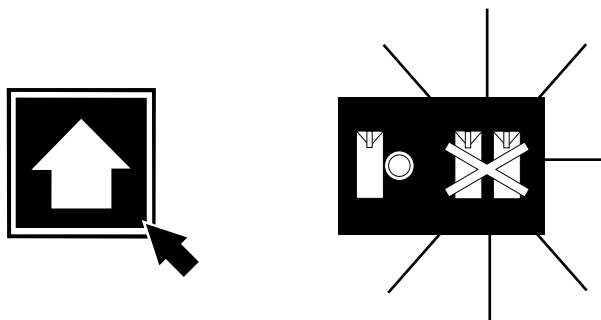


4h

Select cleaning program, see the *Daily care* section.

Caution!

Before restarting, the machine **must be** cleaned and sterilised.

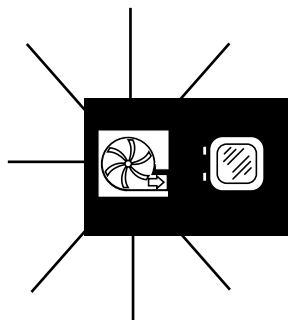


Production finished stop 1

When production is finished, push **Program up**.

Note!

It is possible to restart the machine within two minutes, by pushing **Program down**. The **Signal to steriliser** symbol starts to flash and the machine can be restarted.

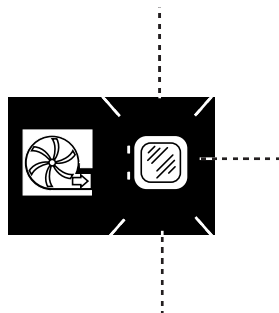


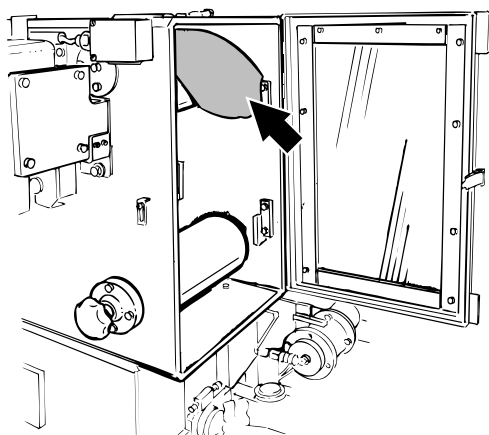
2

After two minutes the **Venting aseptic chamber** symbol light becomes fixed. Venting of the aseptic chamber starts.

3

After five minutes the **Venting aseptic chamber finished** symbol starts to flash.





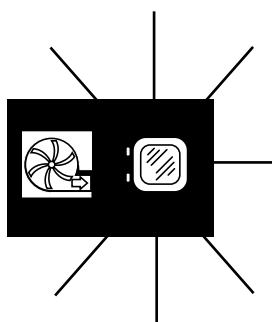
4

Hydrogen peroxide!

Follow the *Safety precautions*.

Open the door of the aseptic chamber and cut the packaging material between the upper bending roller and the crease roller.

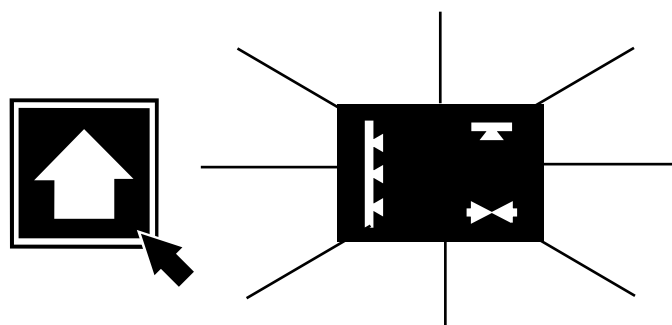
Cut so the tip is rounded.



5

Close the door of the aseptic chamber.

The **Venting aseptic chamber finished** symbol light becomes fixed.



6

Push **Program up**.

The **Preparation for CIP** symbol and the **Preparation for external cleaning** symbol lights become fixed.

7

Select cleaning program, see the *Daily care* section.

Caution!

Before restarting, the machine **must be** cleaned and sterilised.

This page intentionally left blank

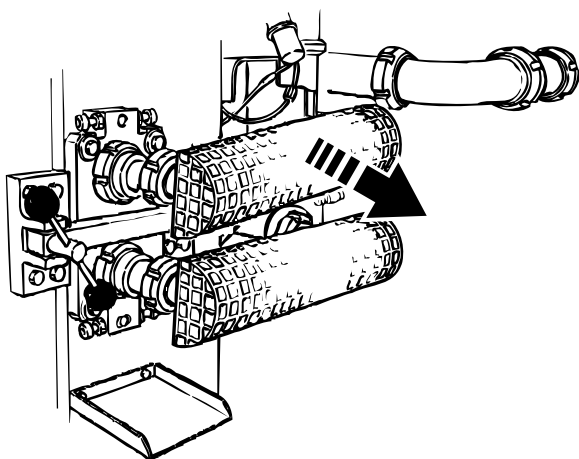
2.2TB.132892.en

Daily care

Caution!

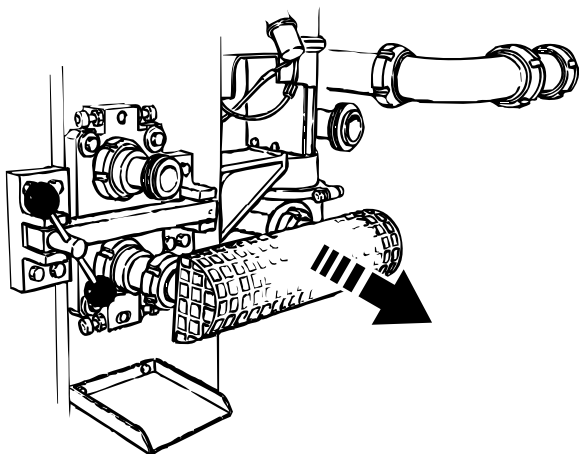
Do not use chlorine or iodine based cleaning compounds when cleaning parts which will be in contact with hydrogen peroxide.

Carry out *Daily care* after every production run - daily or at least every 24 operating hours.



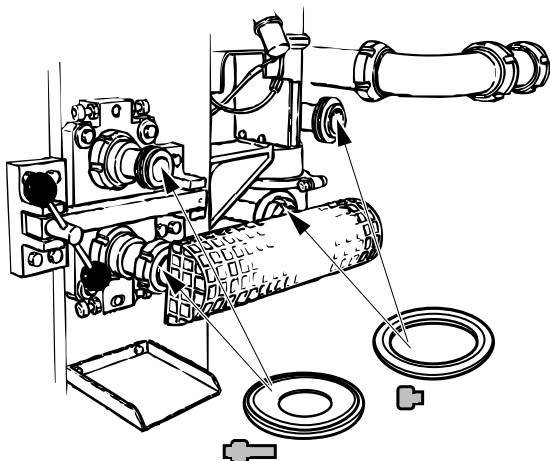
1

Remove the product pipe.



2

Remove the steril air pipe.

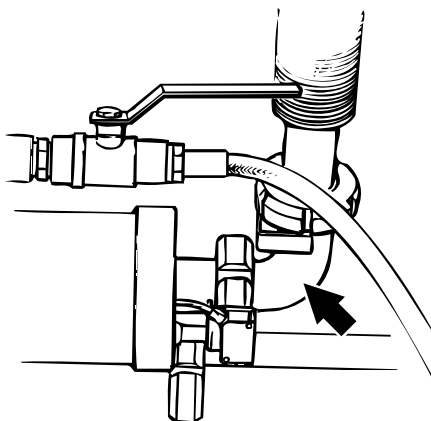


3

Make sure that the gaskets are intact.

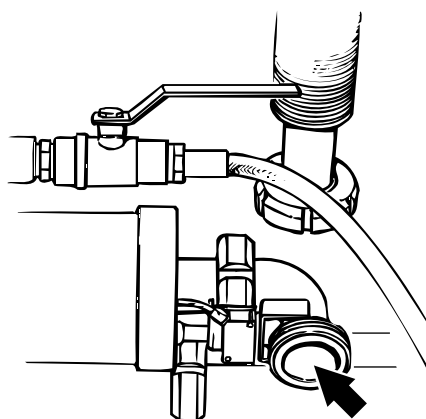
Note!

Make sure that they are fitted in the correct positions!



4

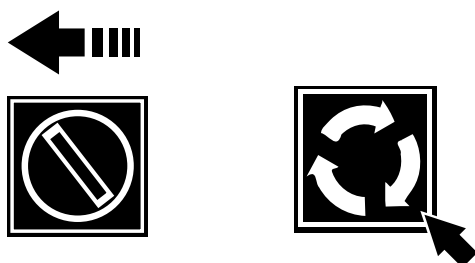
Disconnect the elbow pipe from the sterile air pipe.



5

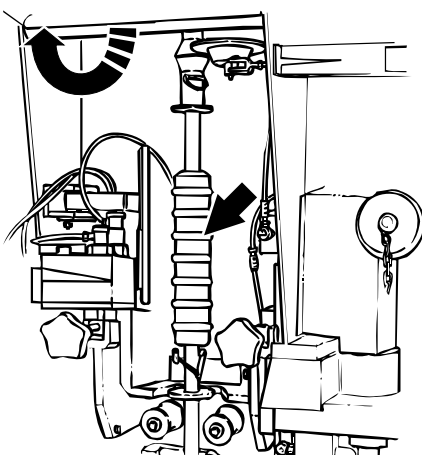
Make sure that all gaskets are intact.

Connect the elbow pipe to the incoming cleaning pipe.



6

Select **Slow inching** and push **Inching** until all the cut off packaging material has been fed out of the jaw system.

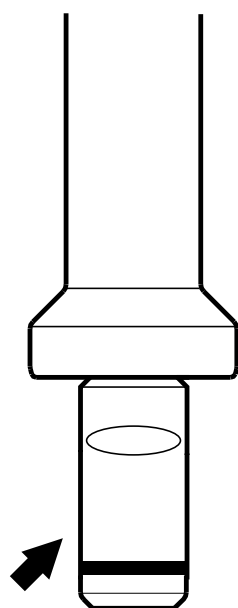


7

Raise the plastic cover.

Rinse with water.

Swing out the photocell unit and remove the lower filling pipe.



8

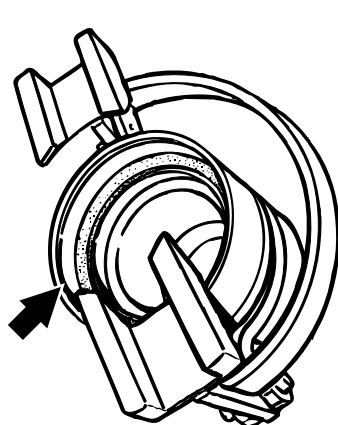
Chemical products!

Cleaning compound. Follow the *Safety precautions*.

Check that the upper filler tube is free from remnants of product. If required, clean it with a brush.

Use cleaning compound code D, see the *Technical data* section.

Rinse with drinking water.



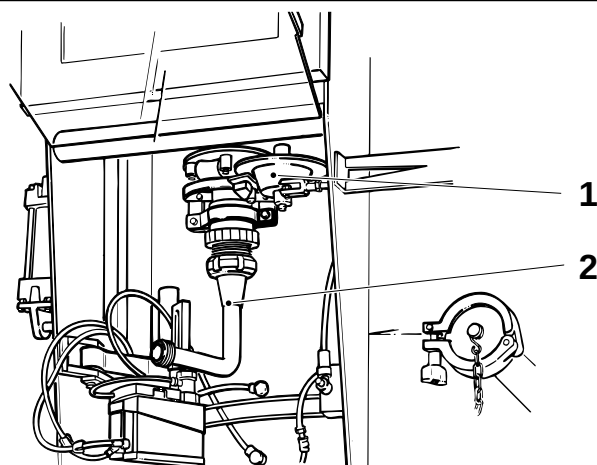
9

Chemical products!

Lubricant. Follow the *Safety precautions*.

Check that the O-ring of the cleaning attachment is not damaged.

Lubricate the O-ring with silicon grease, code L, see the *Technical data* section.



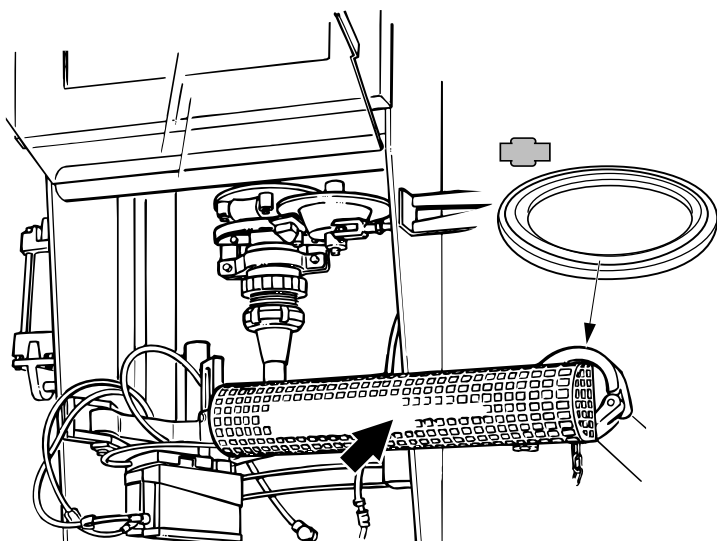
10

Caution!

Be careful not to tighten the nut too hard.

Connect the cleaning attachment (2) and tighten the nut.

Lift the clamp ring (1) and attach the branch with the proximity switch.



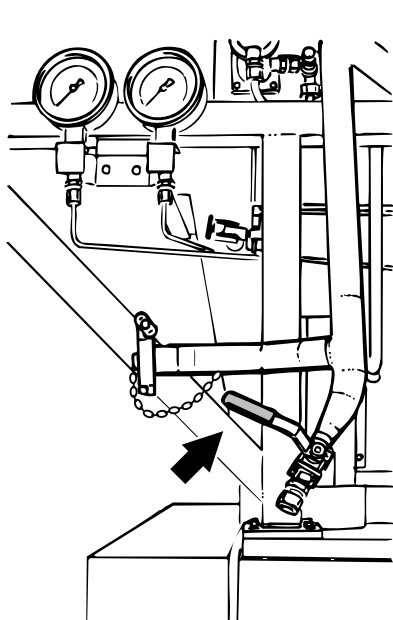
11

Make sure that all gaskets are intact.

Connect the product pipe.

Note!

Make sure that the clamping pieces are properly tightened.



12

Make sure that the valve is properly **closed** before starting CIP.

13

The machine is now ready for **CIP**.

Select either **Intermediate cleaning** or **Final cleaning**, see item 14a or 14b.

14a

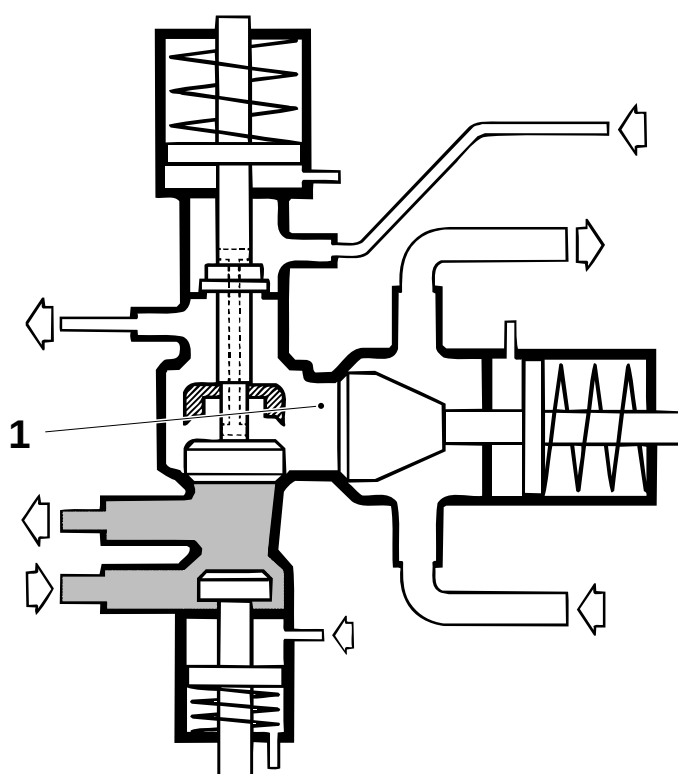
Intermediate cleaning

If product remains in the product line, perform cleaning with the product valve in the illustrated position.

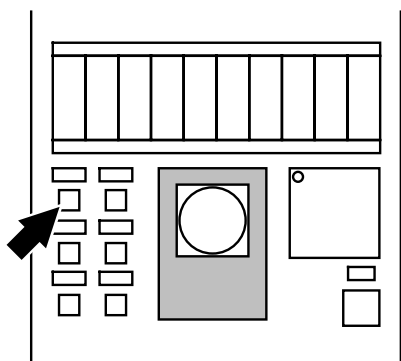
There will then be a steam barrier (1) between the cleaning liquid and the product. This type of cleaning is called intermediate cleaning.

The valve takes this position when the machine program is in step **CIP**, see item 16.

Intermediate cleaning is to be performed immediately after stop, except when a **Final cleaning**, see item 14b, can be performed within one hour.



2.2TB162892.en



14b

Final cleaning

Risk of serious production fault!

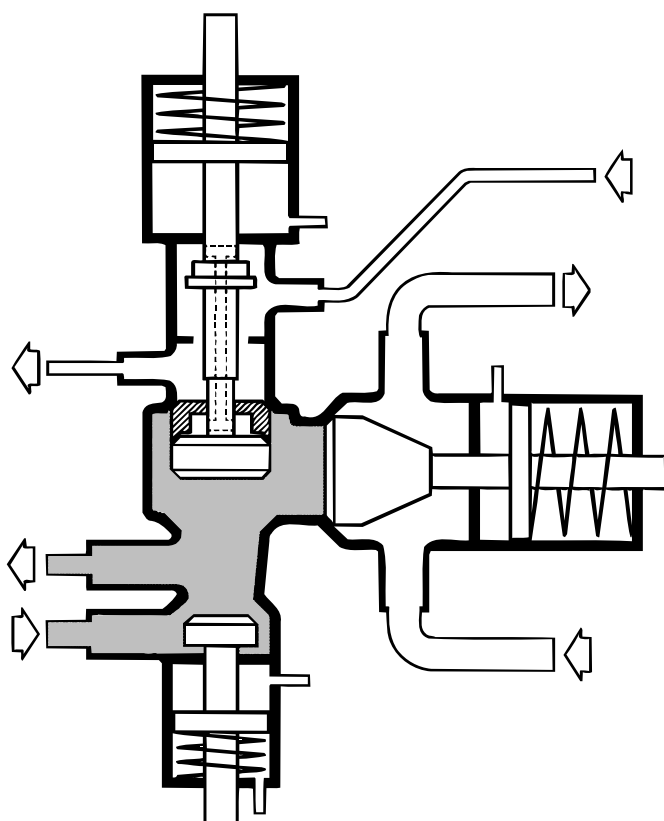
Never clean with the valve in position for cleaning of steam barrier space when there is product remaining in the product line.

In order to clean all parts in the valve that have been in contact with the product, cleaning must be carried out with the product valve in the position illustrated.

The product valve takes this position in step **CIP** when the key switch is in position for **Cleaning steam barrier space**.

Note!

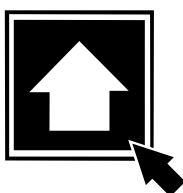
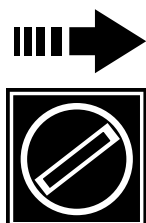
Cleaning in this position **must** be carried out after every production run daily or **at least** every 24 operating hours.

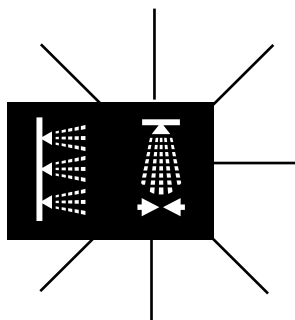


2.2TB.162892.en

15

Turn the **Selector** switch to the RH position and push **Program up**.





16

The **CIP** symbol light becomes fixed.

While **CIP** is in progress, continue with **External cleaning** and carry out the manual cleaning of the machine.



17

Chemical products!

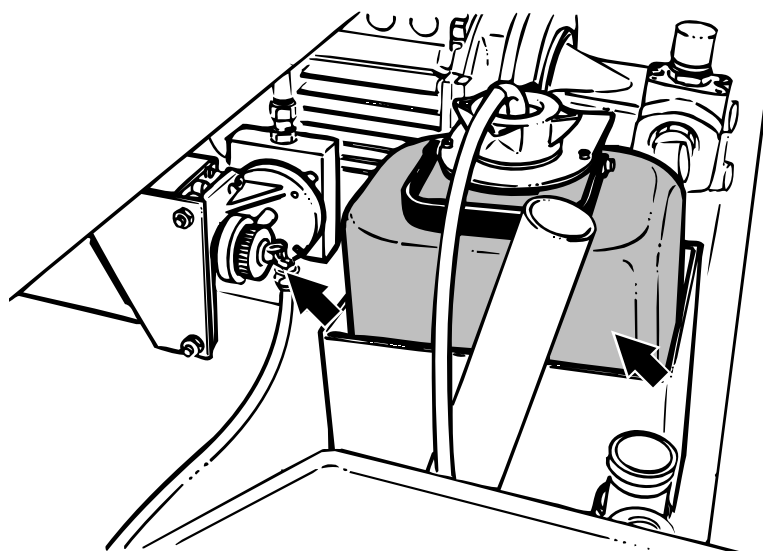
Cleaning compound. Follow the *Safety precautions*.

Check the detergent level in the bottle. If required, top up with cleaning compound code C, see the *Technical data* section.

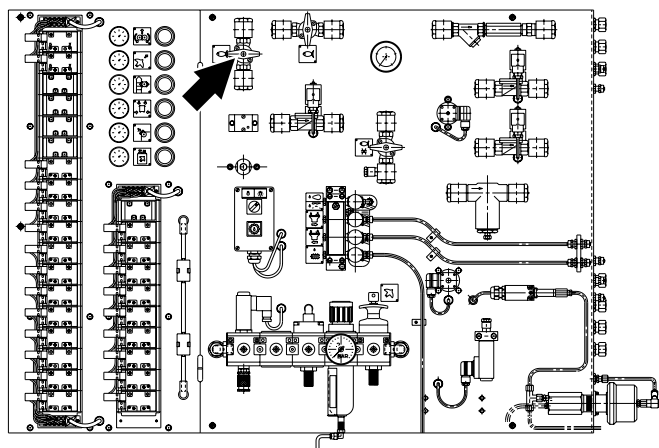
Mark the level to check how much detergent has been used after completion of the cleaning.

0.7 - 0.8 litres should be used up each time.

To set the detergent pump feed rate, loosen the ring nut and turn the scale counter-clockwise to increase the feed. Make the changes in very small steps.

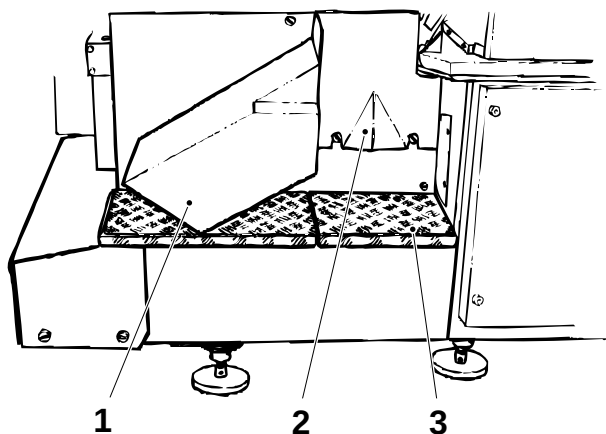


2.2TB162892.en



18

Open for hot water for cleaning.

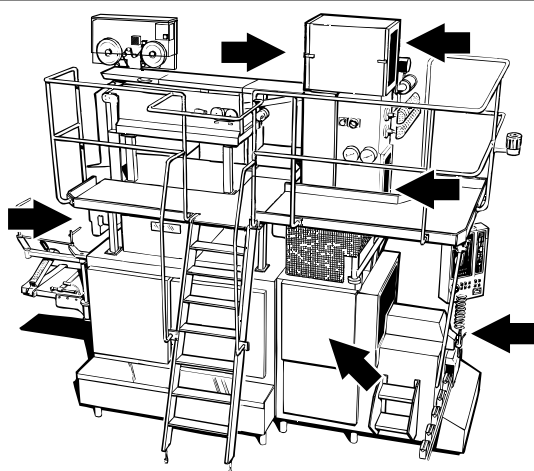


19

Open the final folder cover.

Swing out the chute (1) and fit the splash plate (2).

Remove the cover plate (3) and close the cover.



20

Close all the doors and covers.

Make sure that the **Safety monitor** is off.



21

External cleaning

Turn the **Selector** switch to the LH position and push **Program up**.

The **External cleaning** symbol light becomes fixed.

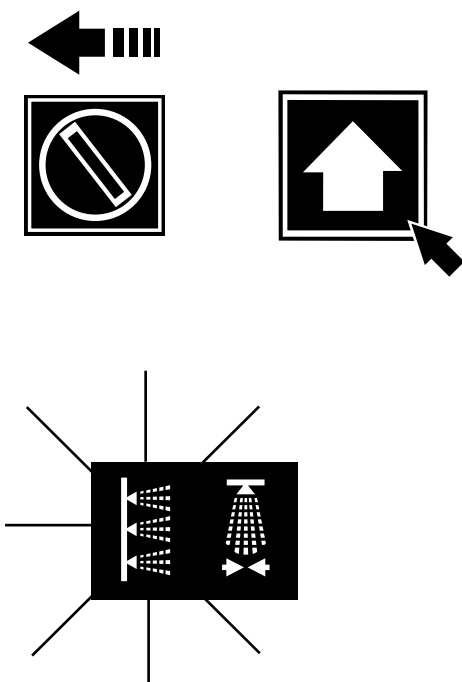
The two cleaning programs do not interfere with one another.

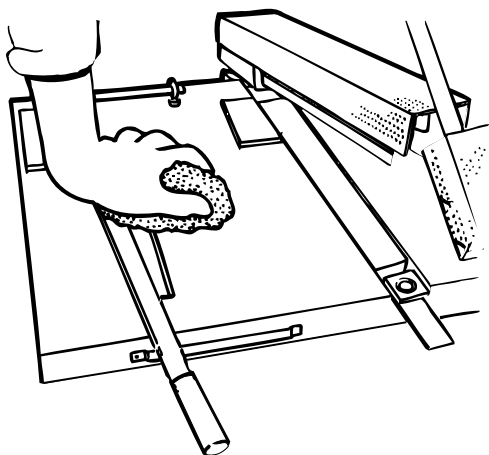
Note!

To stop **External cleaning**, turn the **Selector** switch to the LH position and push **Program down**.

Restart cleaning by pushing **Program up**.

Emergency stop and **Security stop** interrupt **External cleaning**.





22

Clean the splicing device with a wet sponge.

Chemical products!

Cleaning compound. Follow the *Safety precautions*.

Disinfect the splicing device.

Use cleaning compound code G, see the *Technical data* section.



23

Ink!

Follow the *Safety precautions*.

Caution!

Never use water when cleaning the dating unit.

Lower the ink bottle.

Pull out the handle (1) and turn the date printing roller out of operating position.

Chemical products!

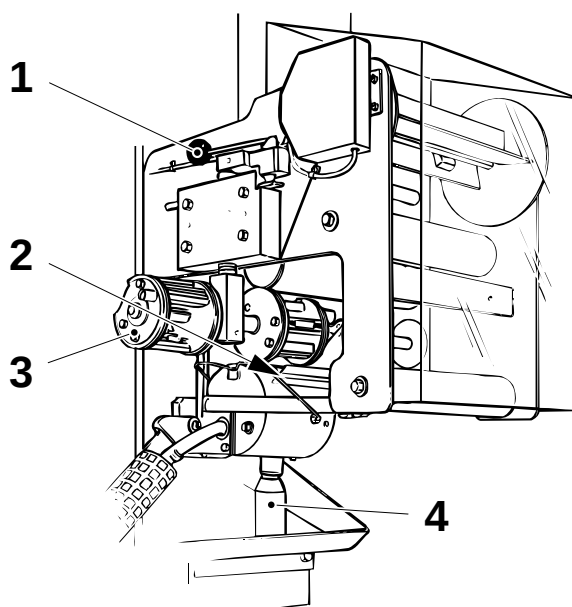
Solvent. Follow the *Safety precautions*.

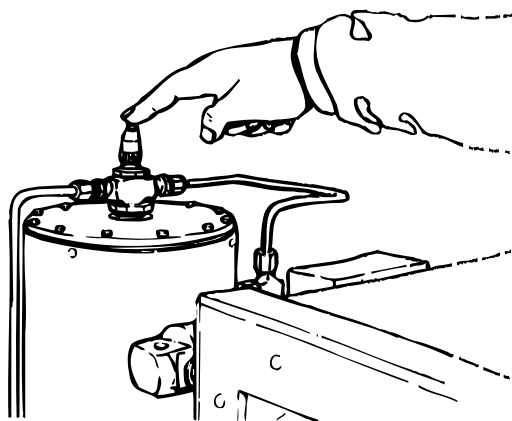
Remove the date printing rollers (3) and, using a brush, apply solvent (Prophylene glycol methylene ether/ Dowanol PM) and clean them.

Similarly, thoroughly clean the ink transfer roller (2) with the solvent and a brush, rotating the roller at the same time.

Make sure that the spillage bottle (4) is empty.

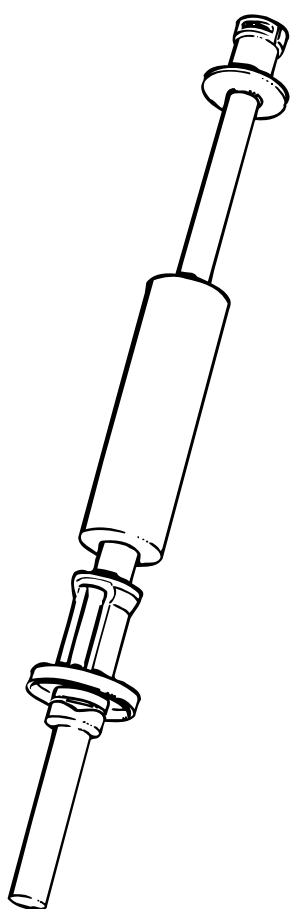
Clean the dating unit with solvent, Prophylene glycol methylene ether/ Dowanol PM.





24

Push the button of the hydrogen peroxide evaporator a couple of times to clean the spray nozzle.



25

Chemical products!

Cleaning compound. Follow the *Safety precautions*.

Caution!

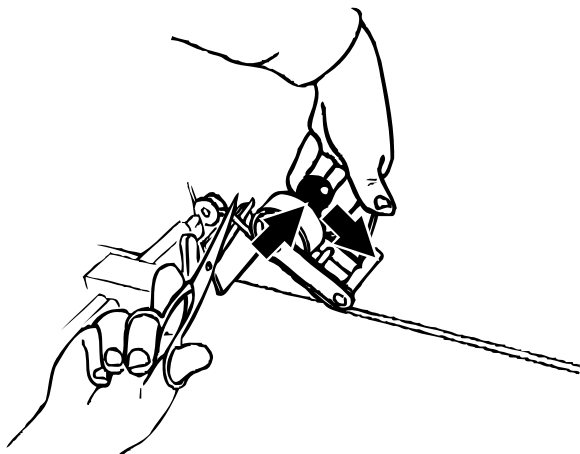
Chlorine or iodine based cleaning compounds **must not** be used for disinfection of the lower filling pipe.

Dismantle the lower filling pipe and clean its parts. Use cleaning compound code E, see the *Technical data* section.

Shake the float and check that there is no liquid in it. Replace as required.

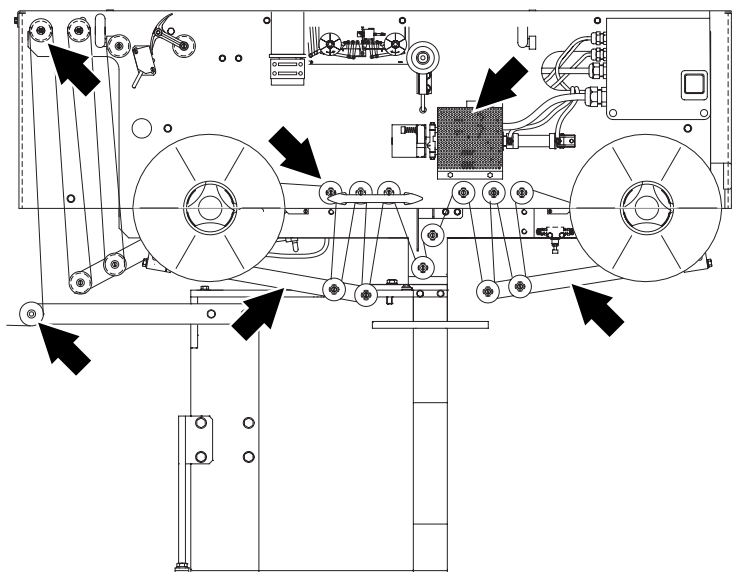
Reassemble the lower filling pipe and rinse it with drinking water.

Put the lower filling pipe in a container with cleaning compound code G, see the *Technical data* section, until the next production run.



26

Cut the LS strip and disengage the pressure roller of the SA.



27

Make sure the brake arms and tension arms move freely.

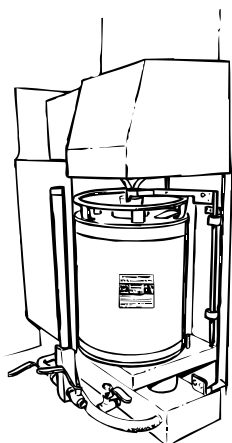
Check that all rollers rotate freely. If required, remove the rollers and clean the shafts with non-abrasive material.

Check that the springs are not stuck or broken.

Check that the spring in the take up arm assembly is not jammed.

Check and, if required, clean the splicing block for any plastic residues.

2.2TB162892.en



28

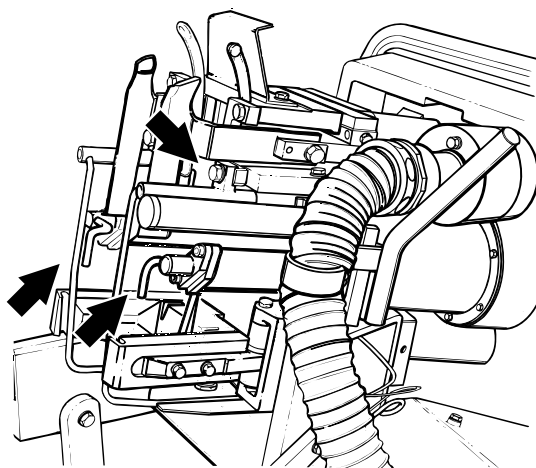
Hydrogen peroxide!

Follow the *Safety precautions*.

Always change the peroxide every week or after 120 hours of production, depending on what comes first.

Note!

Drain the peroxide, see the *Sterilisation liquid* section.

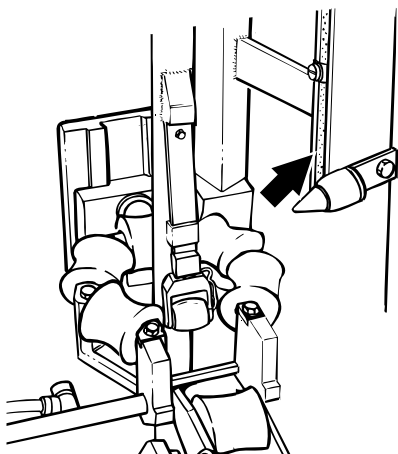


29

After finished external cleaning:

- open the final folder cover. Tilt the pivot frame forward and clean the hot air nozzles
- remove any burnt deposits with a brass wire brush and a knife
- make sure that the air holes are open

Tilt back the pivot frame.



30

Clean the LS nozzle. Remove any burnt deposits.

Make sure that all air holes are open.

If required, remove the cover plates on the LS nozzle and clean the nozzle.



31

Hydrogen peroxide!

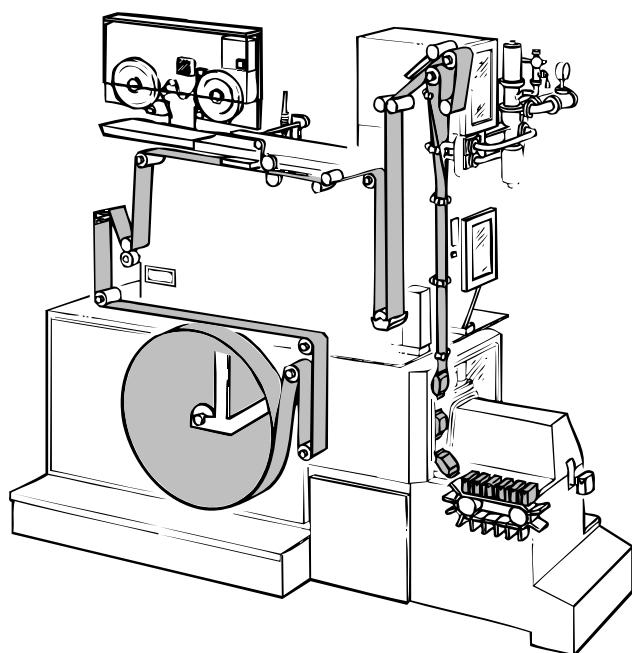
Follow the *Safety precautions*.

Make sure that all moving parts are clean and that they move freely.

Check on:

- the pressure and counter rollers of the SA
- the SA bending rollers
- the splice monitor wheel
- the calender rollers
- the rollers of the forming rings
- the pressure roller and counter rollers of the upper filler tube

Make sure that all roller surfaces are clean and undamaged, and that the rollers rotate freely.



2.2TB.162892.en



32

Hydrogen peroxide!

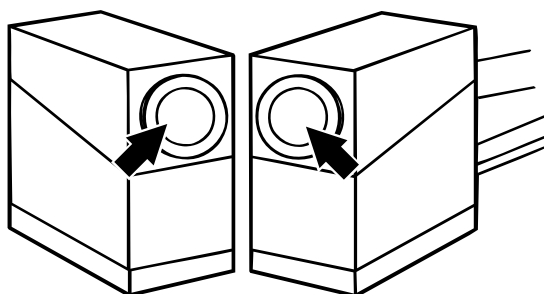
Follow the *Safety precautions*.

Remove the air knife cover.

Remove and clean the filter with compressed air.

Refit the filter and fit the cover.





33

Chemical products!

Deliming agent. Follow the *Safety precautions*.

If there are small lime deposits on the photocell lenses, clean them with a deliming agent.

If the photocell lenses are damaged or covered with lime deposits, call a technician.



34

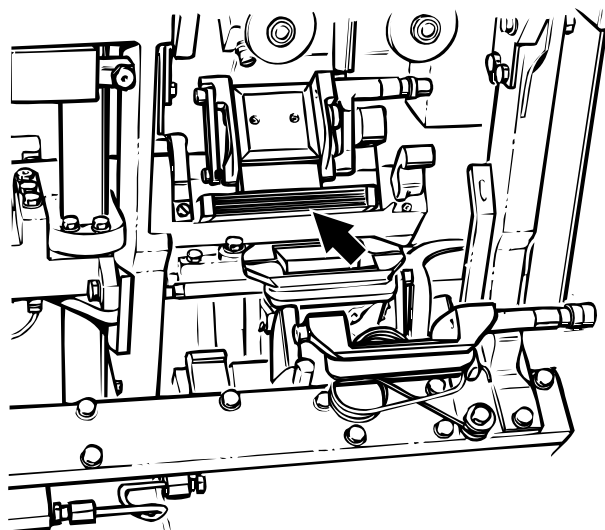
Crank until the inductors of the two jaw pairs become accessible.

Clean the inductors with a brass wire brush.

Rinse with water and blow the inductors and knives clean.

Check that the inductor is free from damages.

If not, call a technician.

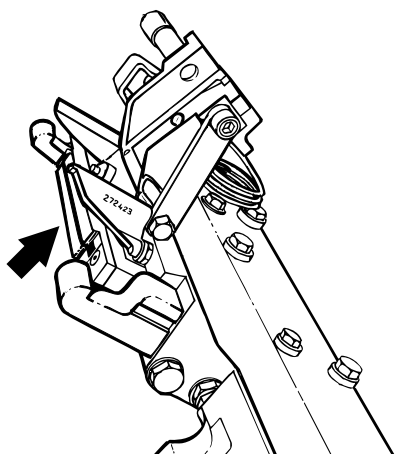


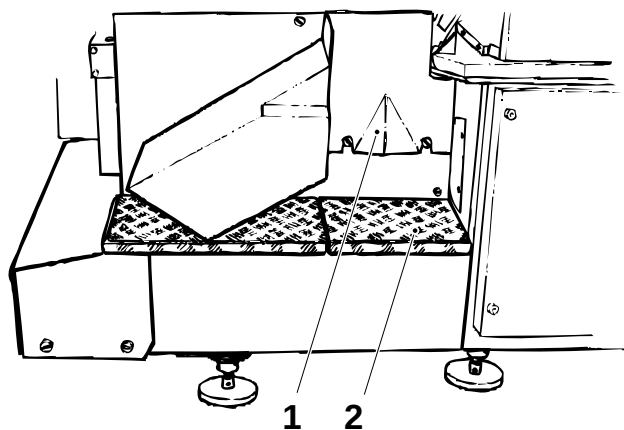
2.2TB162892.en

35

Check that the dollies are not deformed or worn. They must protrude **at least 1 mm** outside their holders.

Unscrew the screws and change any defective dollies.



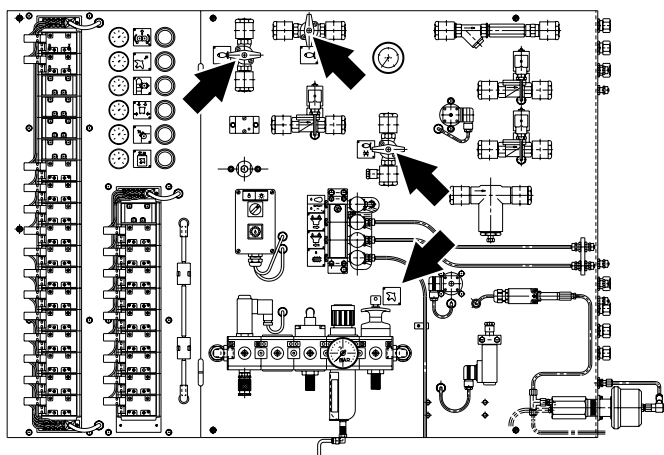


36

Fit the cover plate (2).

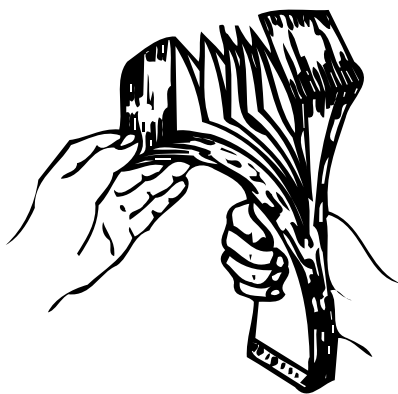
Remove the splash plate (1) from the outlet of the drop chute.

Swing back the chute and close the final folder cover.



37

When **CIP** and external cleaning have been finished, close for cooling water and hot water.



38

If the machine is equipped with a **process recorder**

Take out the production report and give it to the person responsible for evaluation.

39

Daily care has now been completed.

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

Caution!

Do not use chlorine or iodine based cleaning compounds when cleaning parts which will be in contact with hydrogen peroxide.

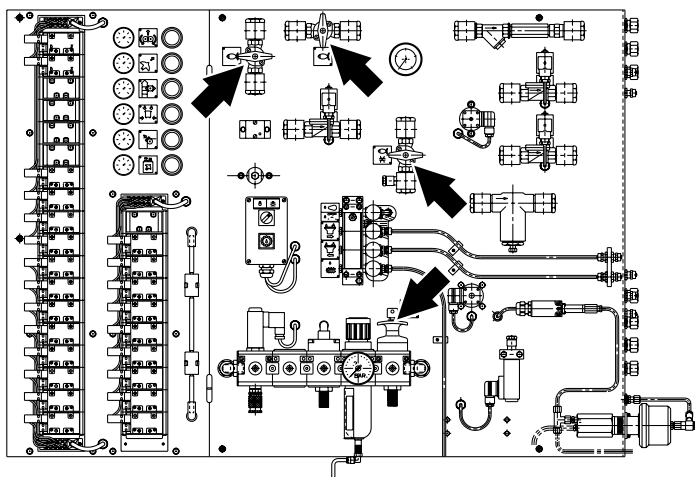
Weekly care

Carry out *Weekly care* at least once a week, or after max 120 operating hours.

Make sure that the *Daily care* has been carried out before.

1

Turn on input air and input cooling water.



2.2TB172892.en

2

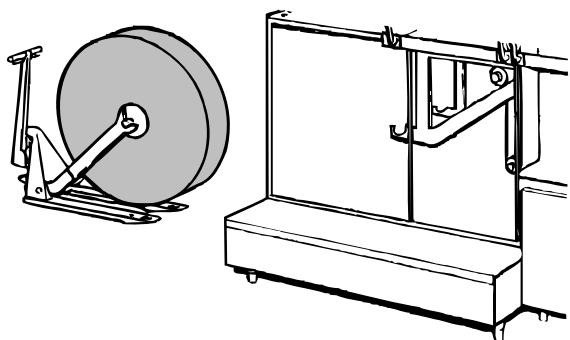
Hydrogen peroxide!

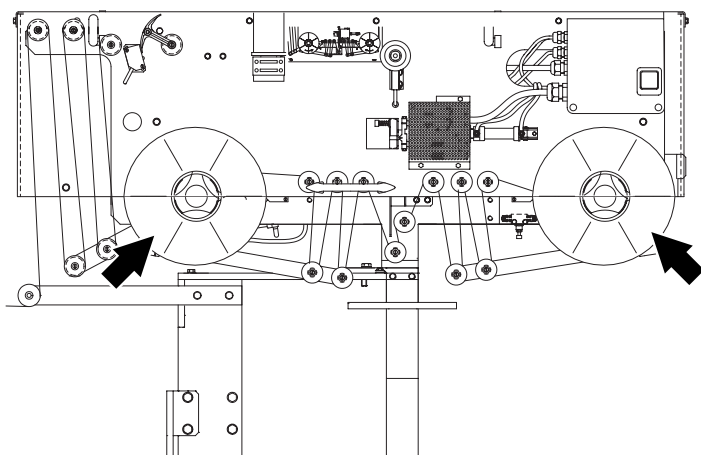
Follow the *Safety precautions*.



Remove the reel of packaging material.

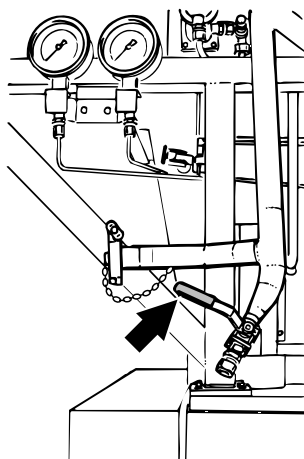
Pull all the remaining packaging material out of the machine.





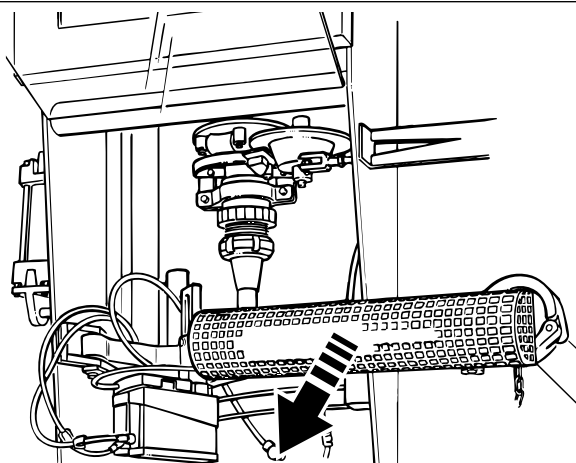
3

Remove the LS strip reels from the machine.



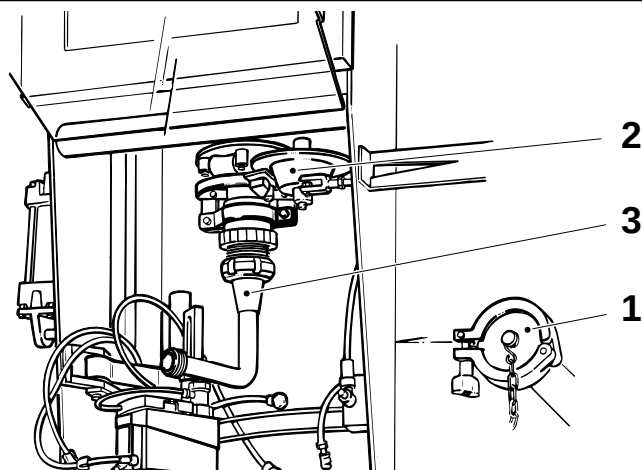
4

Open the valve and drain the cleaning pipe.
Close the valve properly.



5

Remove the product pipe.

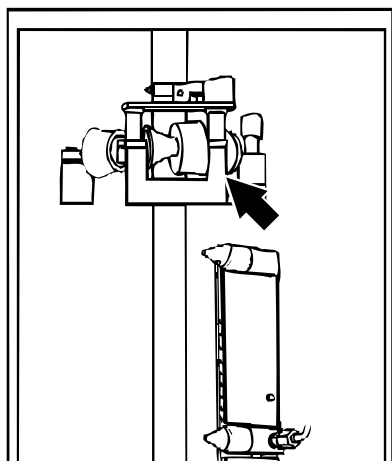


6

Put on the cap (1).

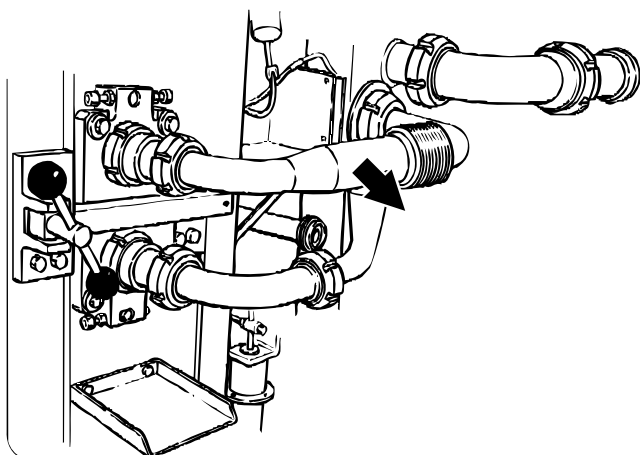
Lift the clamp ring (2). Swing out the branch with the proximity switch.

Loosen the nut and remove the cleaning attachment (3).



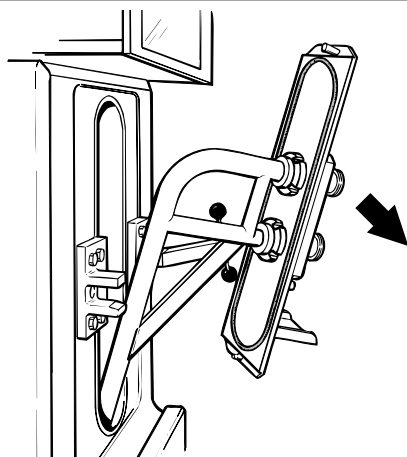
7

Open the divided forming ring.



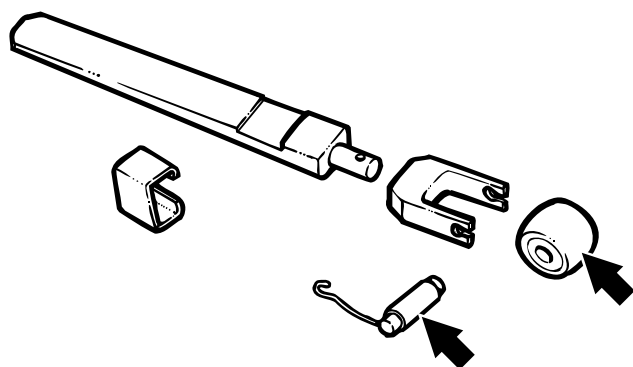
8

Remove the cleaning pipe.



9a

Loosen the plate of the upper filler tube and remove the upper filler tube.

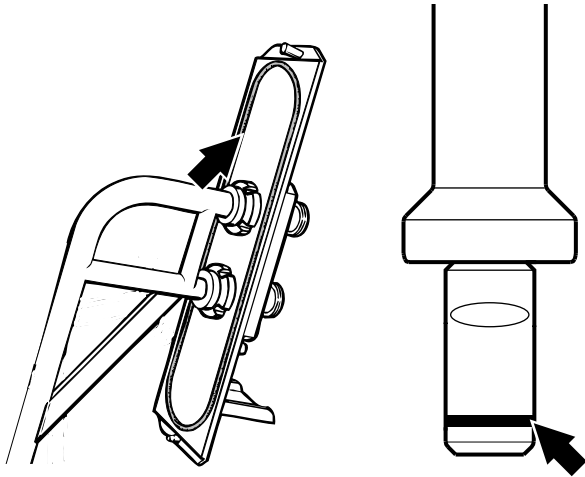


9b

Remove the LS strip pressure roller.

Make sure that the roller and its axle are not worn and/or damaged.

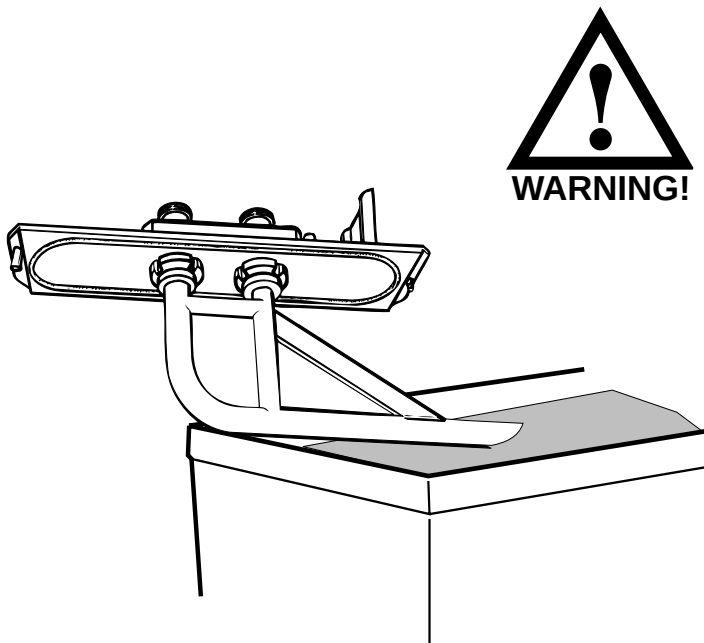
Change as required.



9c

Remove the O-rings from the upper filler tube.

Change the O-rings as required.



9d

Chemical products!

Cleaning compounds. Follow the *Safety precautions*.

Carefully clean the outside of the filler tube and the pressure roller. Use cleaning compound code E, see the *Technical data* section.

Immerse the filler tube for 30 - 60 minutes in cleaning compound code F, see the *Technical data* section.

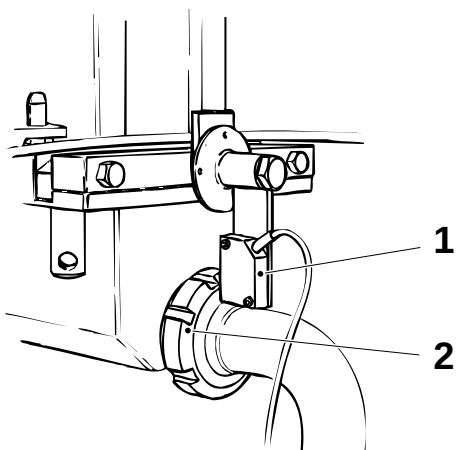
Note!

Use the highest recommended concentration from the supplier.

Refit the pressure roller.

Fit the roller and the O-rings on the pipe.

Rinse the pipe with drinking water and put it aside.



10

Hydrogen peroxide!

Follow the *Safety precautions*.

Swing out the branch with the proximity switch (1).

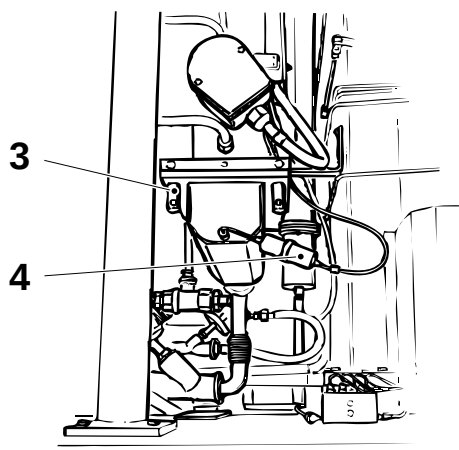
Undo the nut (2).

Undo the connector of the temperature sensor (4) for the peroxide bath. Loosen the four screws (3) and remove the bottom lid of the peroxide bath.

Clean the bottom lid and the bending roller. Use a cloth damped with distilled water. Then rinse with distilled water.

Check the O-ring of the bottom lid. Replace as required.

Refit in reverse order.



11

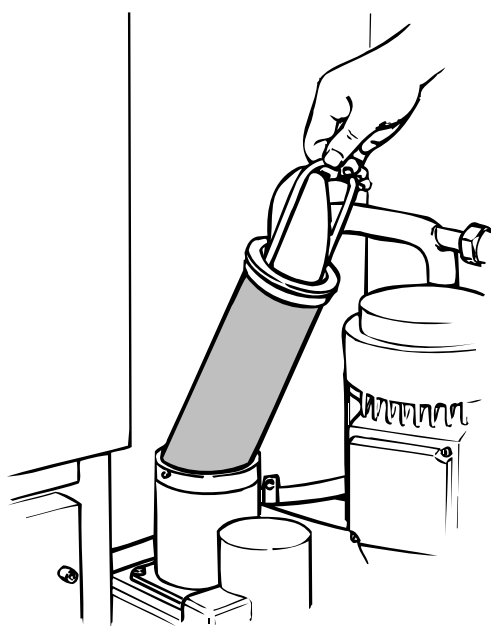
Hydrogen peroxide!

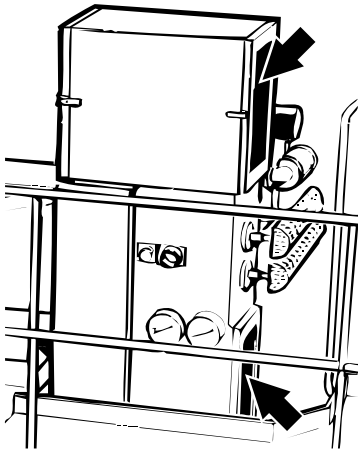
Follow the *Safety precautions*.

Take out the filter from the hydrogen peroxide tank.

Clean the filter with water and blow it dry with compressed air.

Put the filter back.





12

Hydrogen peroxide!

Follow the *Safety precautions*.

Chemical products!

Cleaning compounds. Follow the *Safety precautions*.

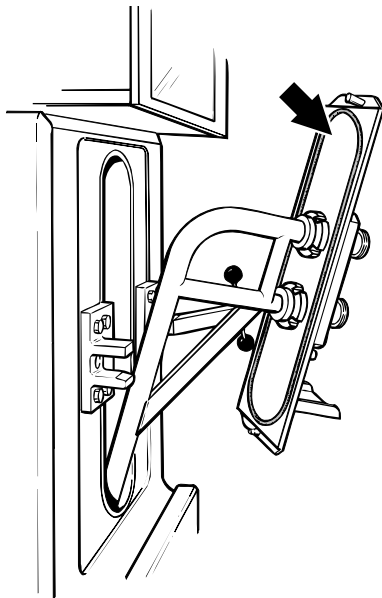
Caution!

Risk of production fault!

Make sure that no cleaning compound and/or water runs down into the hydrogen peroxide bath.

Wash the inside of the aseptic chamber.
Use cleaning compound code D, see the *Technical data* section.

Rinse with drinking water.



13

Caution!

Be careful not to damage the rollers of the LS nozzle, or to change their setting.

Fit the upper filler tube in the machine.

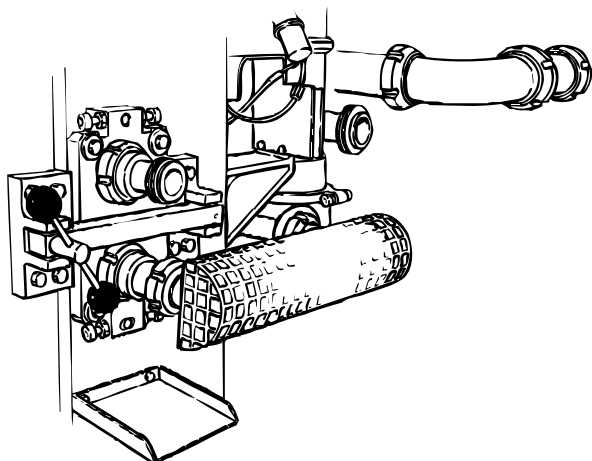
Make sure that the O-ring of the upper filler tube stays in the correct position.

Chemical products!

Cleaning compound. Follow the *Safety precautions*.

Spray the upper filler tube with cleaning compound code G, see the *Technical data* section.



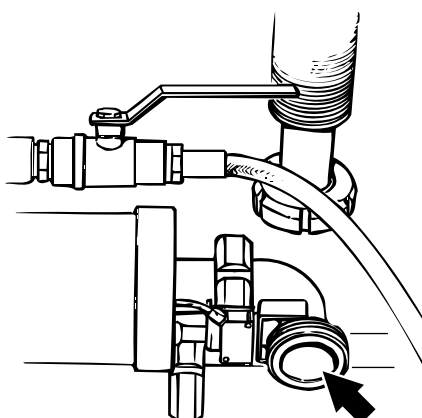


14

Fit the product pipe.

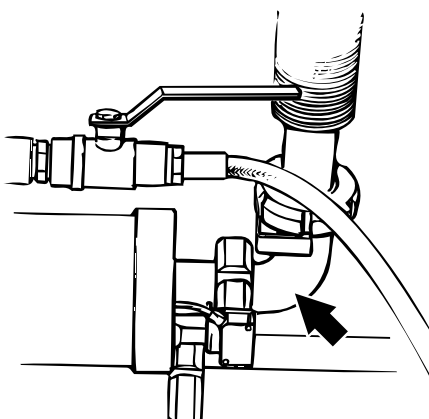
Note!

Make sure that the clamping pieces are properly tightened.



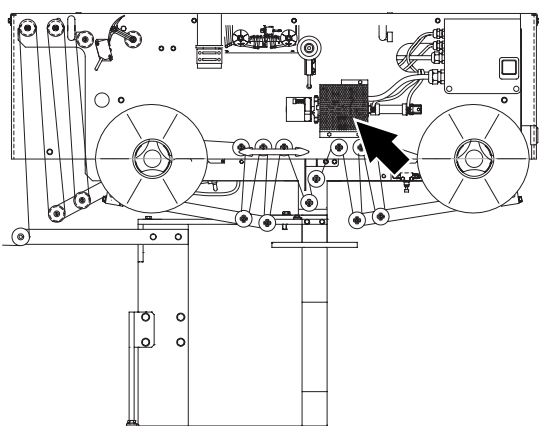
15

Undo the incoming cleaning pipe.



16

Connect the elbow pipe to the sterile air pipe.

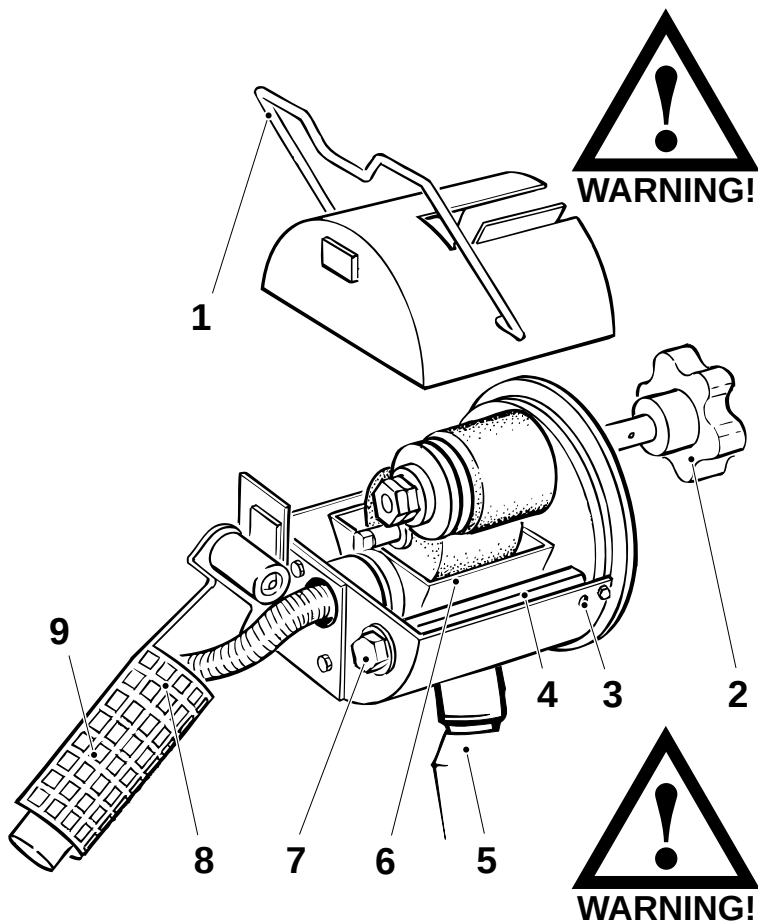


17

Check the pads in the splicing block for any damage. Replace if any damage in the area indicated by the arrow.

Carefully wipe the ceramic block with a soft cloth. Check that there are no cracks in the ceramic block.

Make sure the spring in the plunger is not jammed.



- 1 Clamp
- 2 Knob
- 3 Screw
- 4 Spacing screw
- 5 Spillage bottle
- 6 Trough
- 7 Screw
- 8 Bottle connection
- 9 Ink bottle



18

Ink!

Follow the *Safety precautions*.

Caution!

Never use water when cleaning.

Remove the ink bottle (9) and the spillage bottle (5).

Unscrew the knob (2) and remove the ink unit.

Loosen the clamp (1) and remove the cover.

Loosen the hose at the bottle connection (8).

Unscrew the screws (3) and (7) and the spacing screw (4) and remove the trough (6).

Chemical products!

Solvent. Follow the *Safety precautions*.

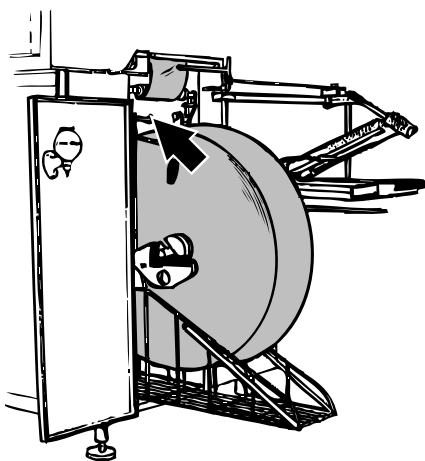
Put the parts in solvent, Propylene glycol methyl ether/Dowanol PM.

Wash the ink rollers in solvent.

Wash off ink splashes from the dating unit and from the machine body.

Assemble the ink unit in the reverse order and fit it on the dating unit.

2.2TB172892.en



19

Clean the inside of the cassette and the magazine with compressed air.

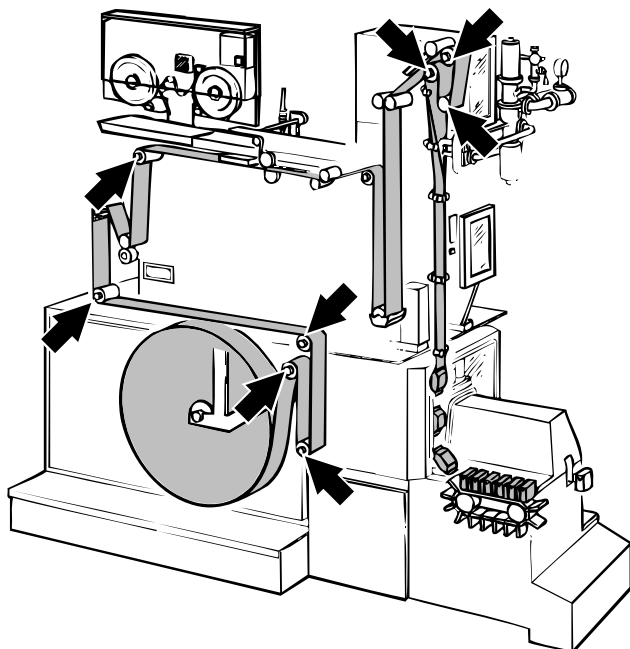


20

Chemical products!

Solvent. Follow the *Safety precautions*.

Clean the bending rollers with solvent, Propylene glycol methylene ether/ Dowanol PM.

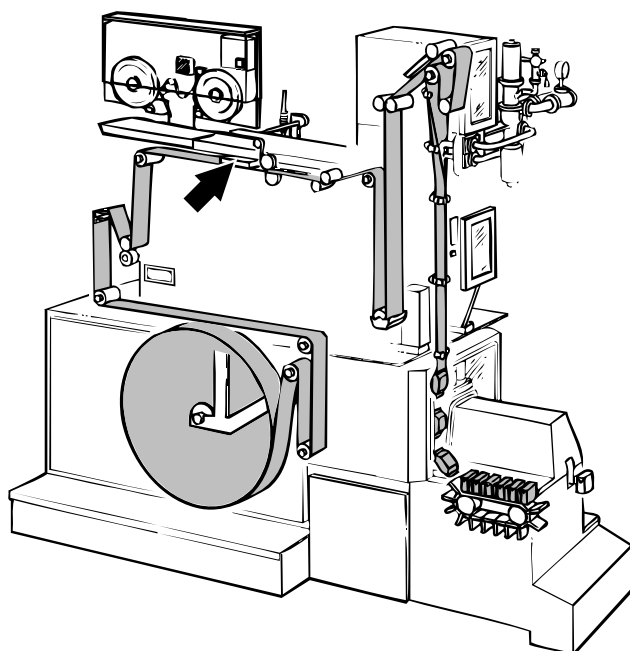


21

Blow clean the inductor with compressed air.

Clean the SA and the strip rollers with a damp cloth.

If detergent has been used, wipe with another cloth and clean water.





22

Close the doors of the aseptic chamber.

Chemical products!

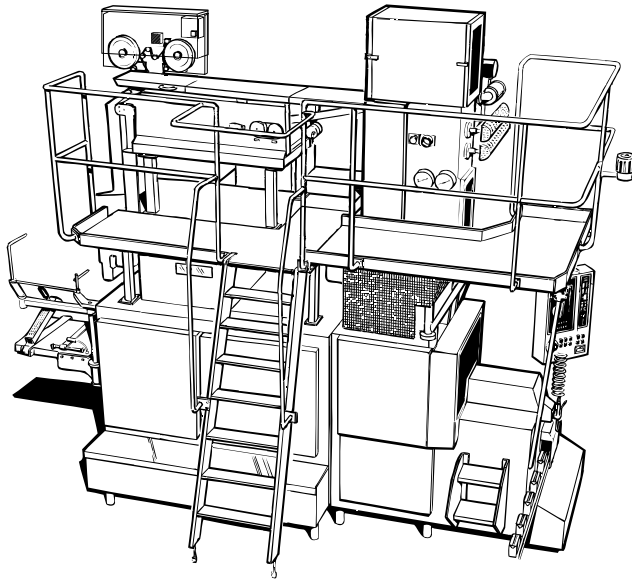
Cleaning compound. Follow the *Safety precautions*.

Clean the outside of the machine (except the stainless steel plating). Use cleaning compound code D, see the *Technical data* section.

Clean the stainless steel plating with cleaning compound code E, see the *Technical data* section.

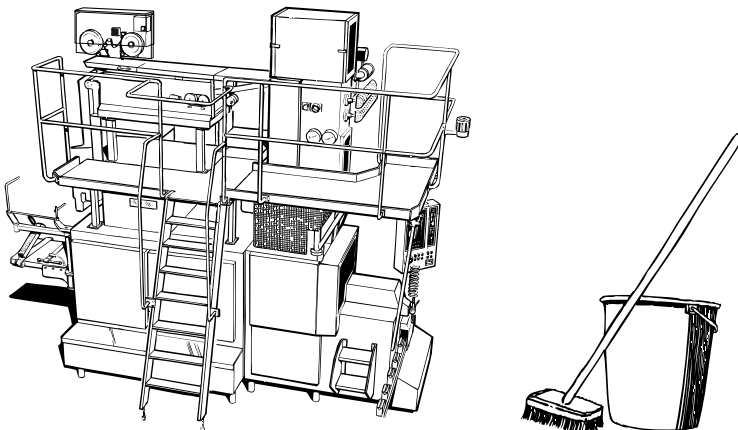
Rinse afterwards with clean water and wipe.

When the stainless steel has dried, rub it with paraffin oil.



23

Make sure that the area under and around the machine is clean and tidy.

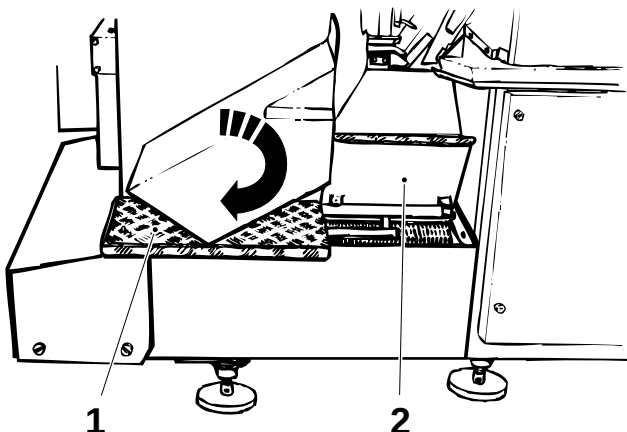


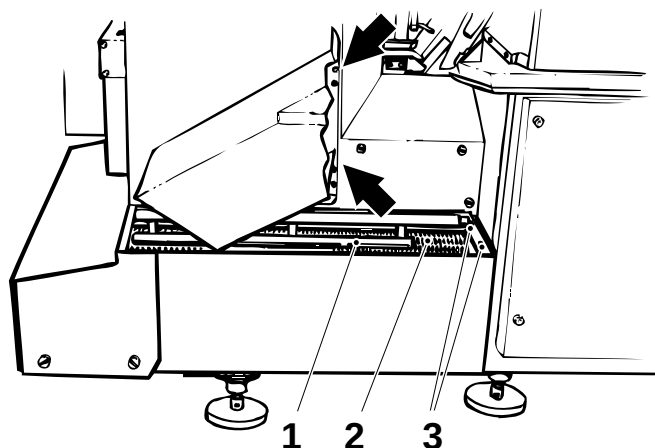
24

Open the final folder cover.

Remove the cover plate (1).

Swing out the chute and remove the plate (2).





25

Loosen the four nuts holding the chute. Remove the chute carefully. Clean the chute.

Unscrew the screws (3). Remove the protective grating (1) and the separation insert (2).



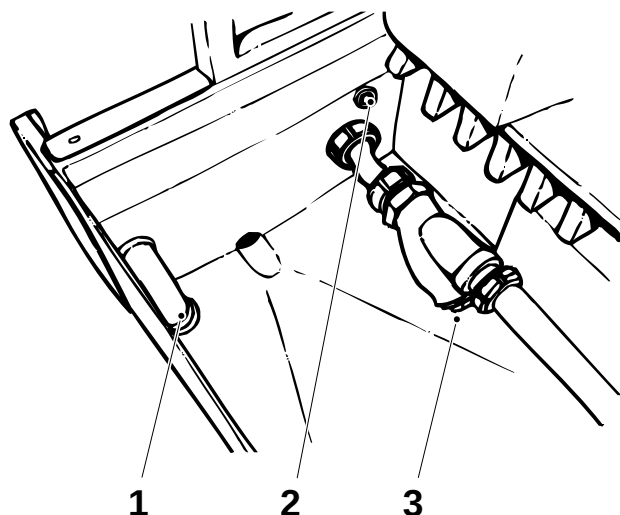
26

Unscrew the lid (3) and remove the filter insert.

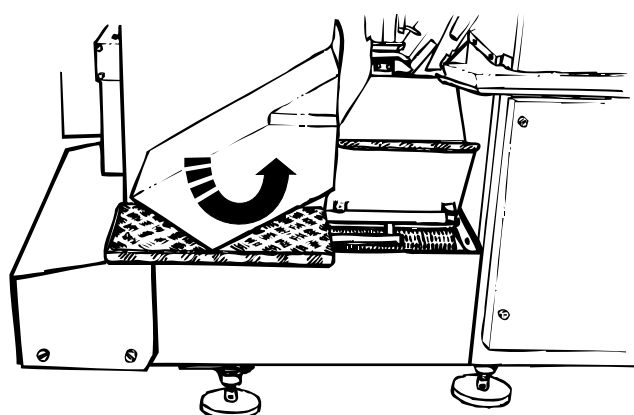
Blow clean the filter insert and fit it back.

Clean the level sensor (2) and remove any remnants of packaging material from the tray.

Make sure that the strainer (1) is clean.



2.2TB172892.en



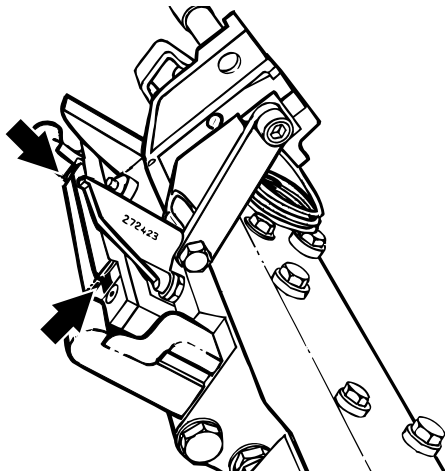
27

Clean the separation insert and the protective grating and fit them.

Fit the cover plates.

Fit the chute **carefully**.

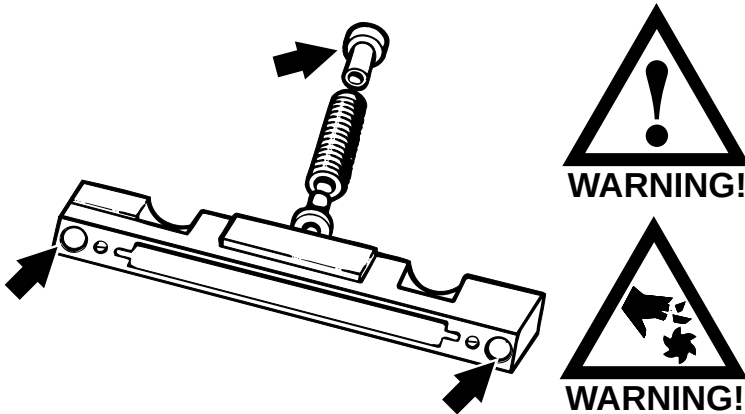
Swing back the chute and close the final folder cover.



28a

Crank until one jaw pair is open. Open the final folder cover.

Unscrew the two screws and pull off the dollies.



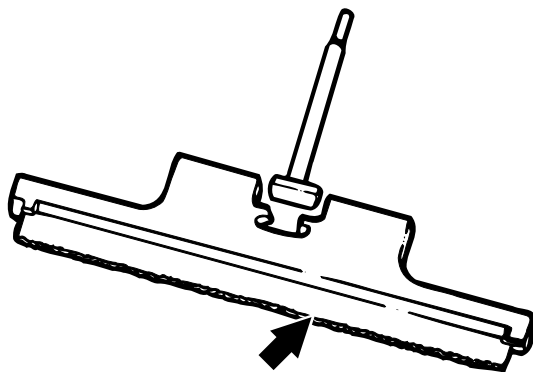
28b

Chemical products!

Lubricant. Follow the *Safety precautions*.

Unscrew the two screws and pull out the knife holder.

Unscrew the nut holding the knife and dismantle the knife holder.

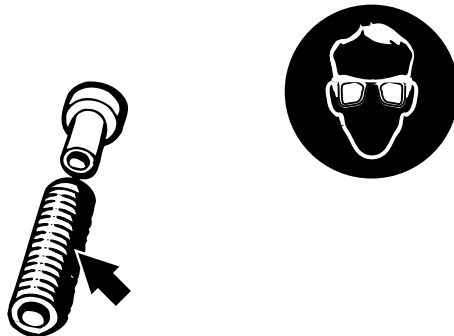


28c

Scrape both sides of the knife edge with a screw driver.

Wipe the knife.

Grease the knife holder with grease code L, see the *Technical data* section.



28d

Blow the spring and cutting jaw clean with compressed air.

Grease the spring with grease code L, see the *Technical data* section.

Assemble in the reverse order.



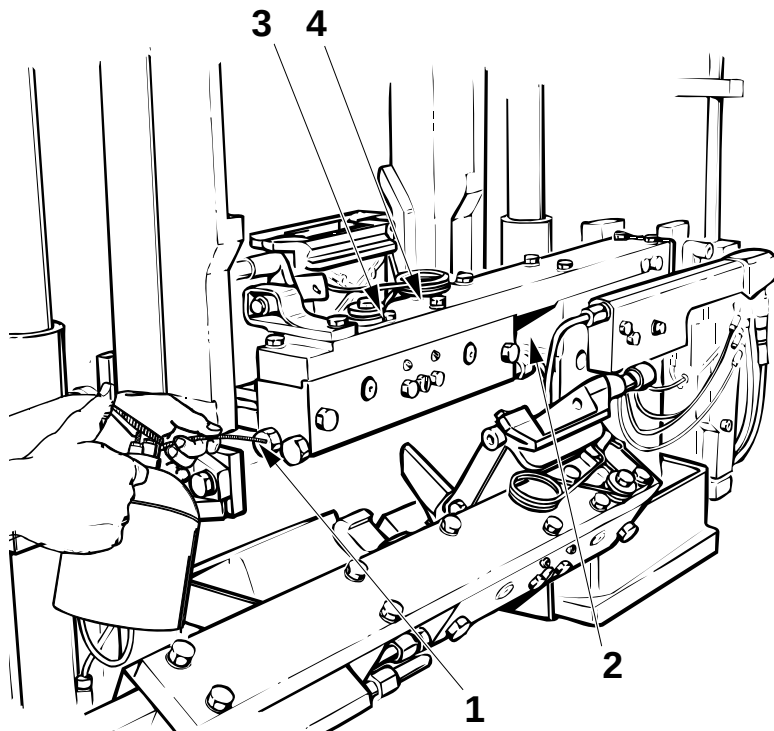
29

Cutting jaw oil change

Chemical products!

Lubricant. Follow the *Safety precautions*.

Crank until one jaw pair is in open position.

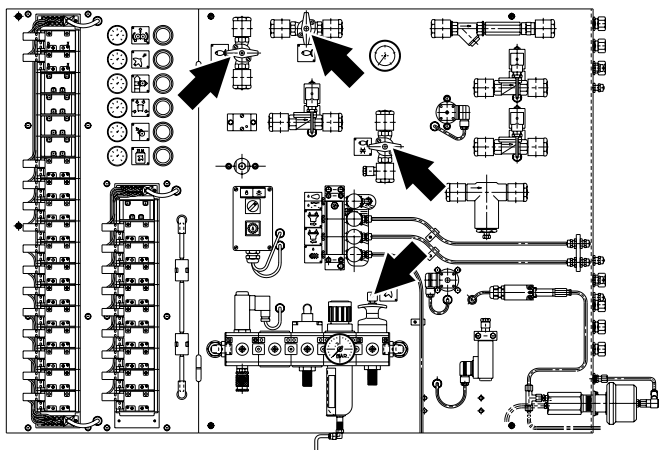


- 1 Drain hole
- 2 Drain hole
- 3 Bleed hole
- 4 Bleed hole

- a) Drain the oil from the bearing housing by unscrewing the plugs in the drain holes (1) and (2) and the bleed holes (3) and (4).
- b) Blow clear with compressed air through the bleed holes (3) and (4).
- c) Fill the bearing housing with oil, code H, see the *Technical data* section.
- d) Top up with oil through the drain hole (1).
- e) When oil is flowing out through the bleed hole (3), put a finger over the hole, remove the oil can and fit the plug in the drain hole (1).
- f) **Repeat the same procedure** and top up through the drain hole (2).
- g) When oil is flowing out through the bleed hole (4), put a finger over the hole, remove the oil can and fit the plug in the drain hole (2).
- h) Fit the bleed hole plugs.

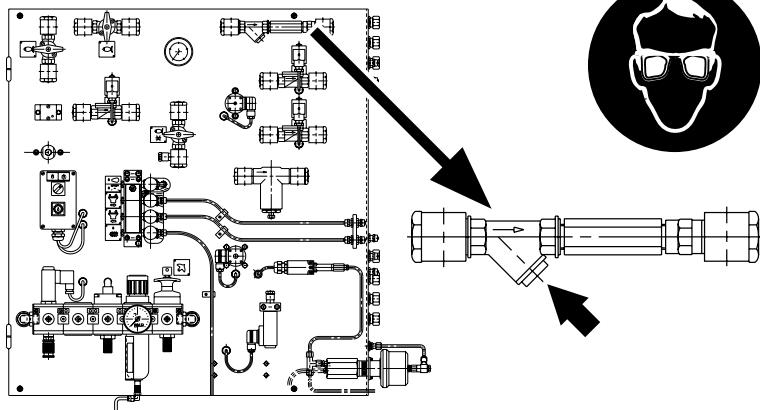
Note!

Crank and **repeat the procedure** for the other cutting jaw.



30

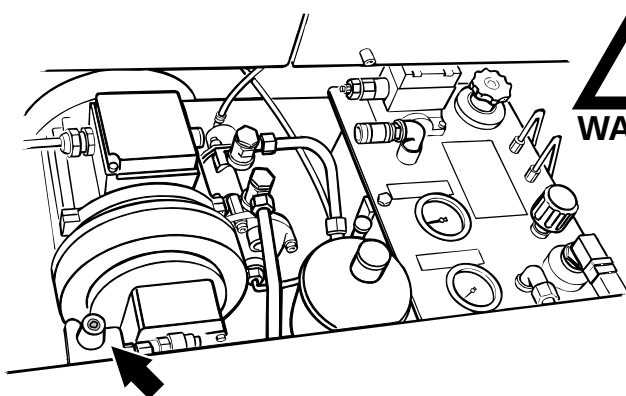
Close the valves for incoming water and air.



31

Remove the magnetic filter and blow it clean.

Fit the filter.



32

Chemical products!

Lubricant. Follow the *Safety precautions*.

Check the colour of the blockage indicator. If the colour has changed to red, replace the hydraulic fluid filter.

Unscrew the filter by means of the nut.



33

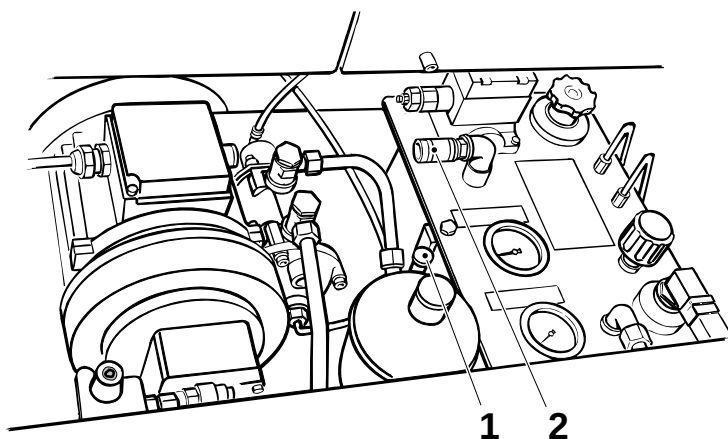
Chemical products!

Lubricant. Follow the *Safety precautions*.

Check the oil level at the level glass (1).

If required, connect oil supply through the filler plug (2) and top up.

Use oil code C, see the *Technical data* section.





34

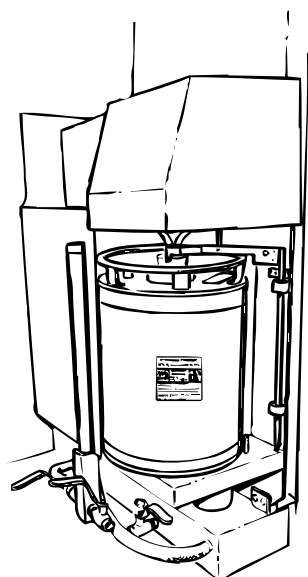
Hydrogen peroxide!

Follow the *Safety precautions*.

Change the hydrogen peroxide every week or after 120 hours of production, depending on what comes first, see the *Sterilisation liquid* section.

Note!

Even if it is not time to change the hydrogen peroxide, check the concentration, see the *Sterilisation liquid* section.

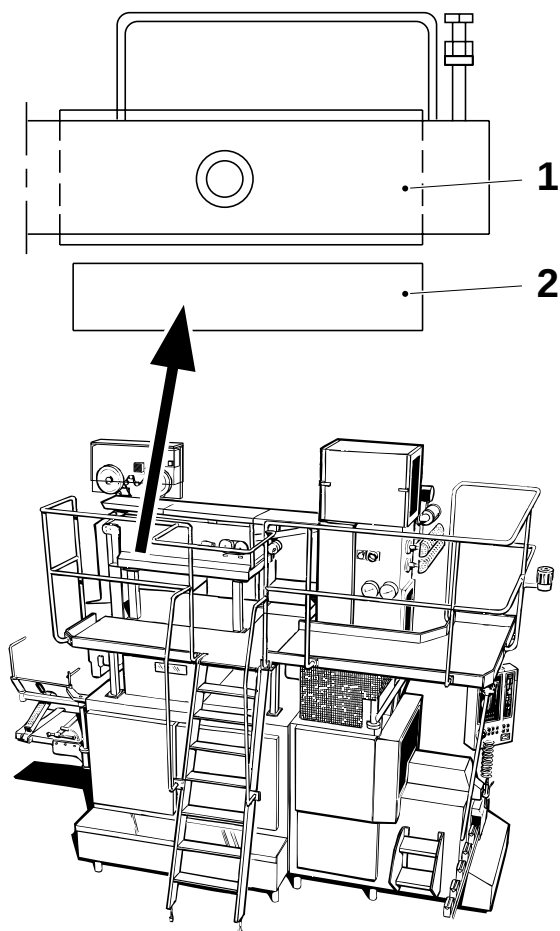


2.2TB172892.en

35

If the machine is equipped with a zone heater

Clean the counter roller (1) and the inductor (2) with a moist cloth.



36

When resuming **Production** after *Weekly care*, start from *Preparations after weekly care*.

Sterilisation liquid

This section contains information on how to proceed when handling the hydrogen peroxide.



Check concentration

1

Hydrogen peroxide!

Follow the *Safety precautions*.

The following equipment is required:

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

Caution!

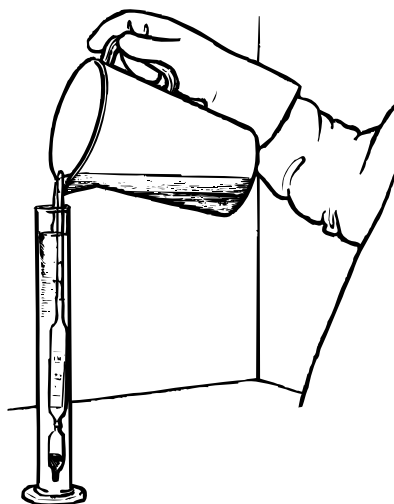
The equipment must be thoroughly cleaned.

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

Pour a small amount of hydrogen peroxide into the graduated cylinder. Lower the areometer into the cylinder making sure that there is enough to float the areometer.

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

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



2

The hydrogen peroxide concentration in terms of per cent by weight can now be read from the monogram.

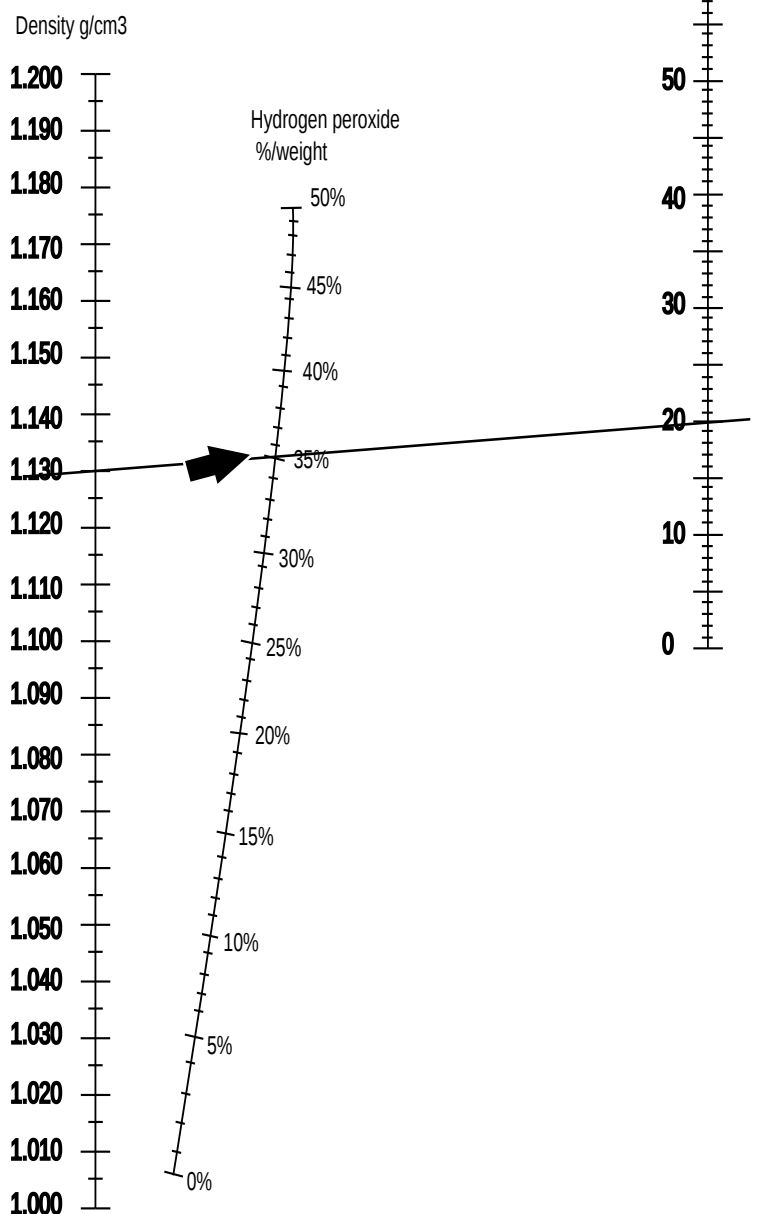
By means of a ruler, join the density value of the sample (on the density scale) with the temperature value on the temperature scale.

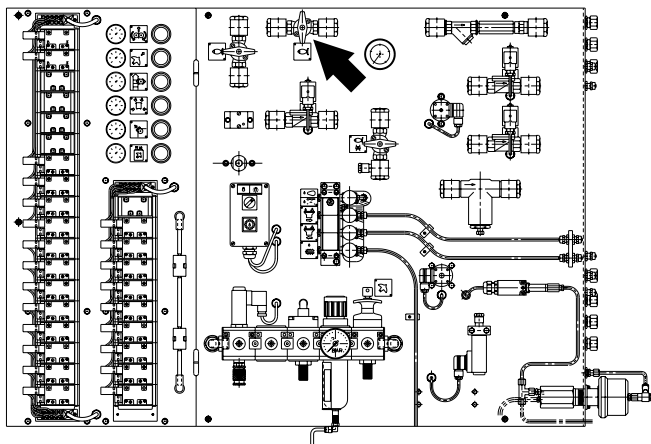
If the concentration is below **31%** or **above 50%**, change the hydrogen peroxide, see *Changing hydrogen peroxide* in this section.

Note!

If the hydrogen peroxide concentration is **between 31% and 35%**, repeat the check every 30 min.

If the concentration is decreasing, stop the machine and call a technician.





Changing hydrogen peroxide

1

Open the cooling water inlet.

2

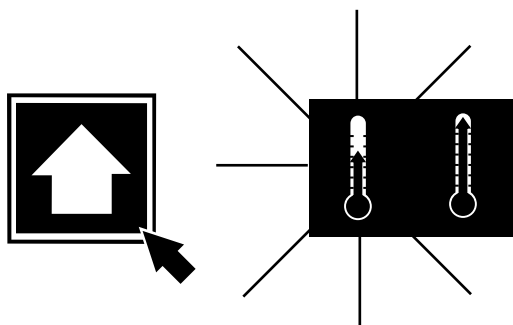
Turn the **Selector** switch on the operator panel to the left.



3

Press **Program up** until it goes out.

The **Preheating SA** symbol light becomes fixed.





4

Hydrogen peroxide!

Follow the *Safety precautions*.

Before the hydrogen peroxide tank is drained, empty the dilution tank.

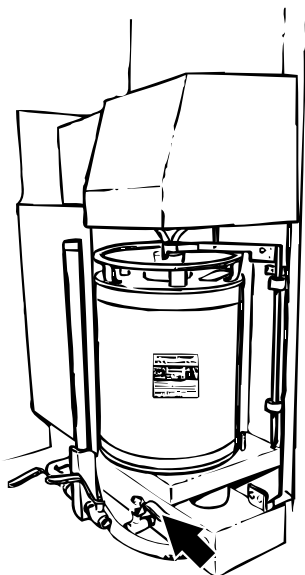
When the machine has been in production for more than 24 hours, the hydrogen peroxide concentration in the dilution tank must be less than 1%.

Caution!

If the machine has been in production for **less than 24 hours**, **dilute** with water when draining.

Open the valve.

When the dilution tank is empty, close the valve.



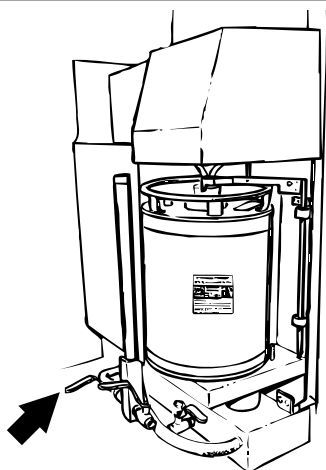
5

Open the valve.

The hydrogen peroxide in the tank will drained into the dilution tank.

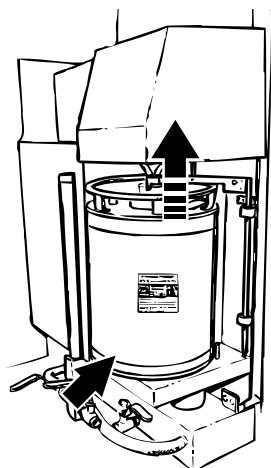
After 15 minutes, the tank will be empty.

Close the valve.



6

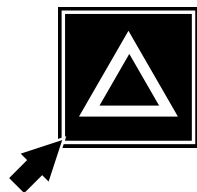
Change the hydrogen peroxide can, see *Changing can* in this section.



7

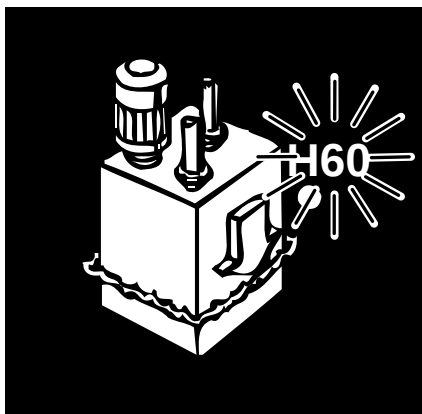
Push **Alarm reset**.

The filling of the hydrogen peroxide from the can to the hydrogen peroxide tank starts.



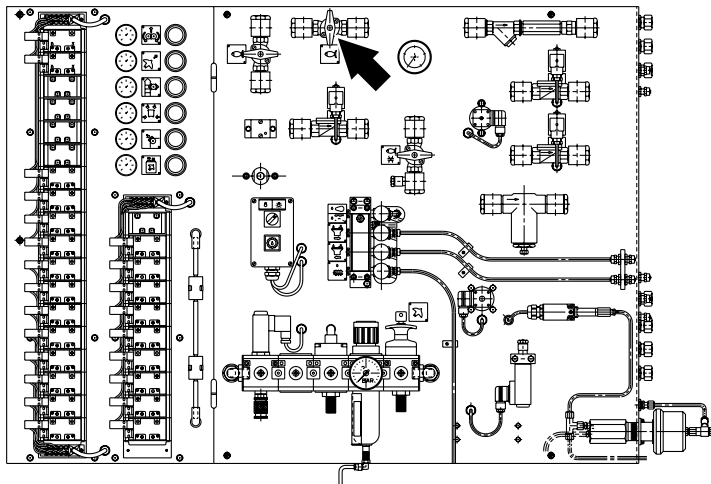
8

When the signal lamp **H60** on the monitor panel lights up, repeat items 3 and 7 above.



9

Close the cooling water inlet.





Changing can

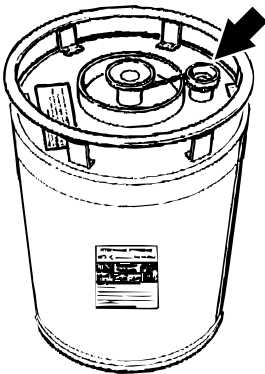
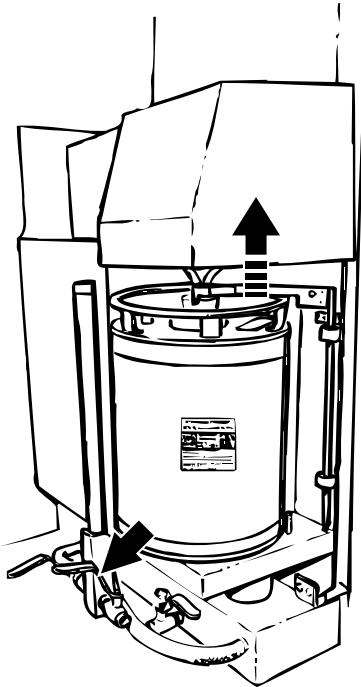
1

Hydrogen peroxide!

Follow the *Safety precautions*.

Release the quick connection on the hydrogen peroxide can.

Remove the can from the machine.



2

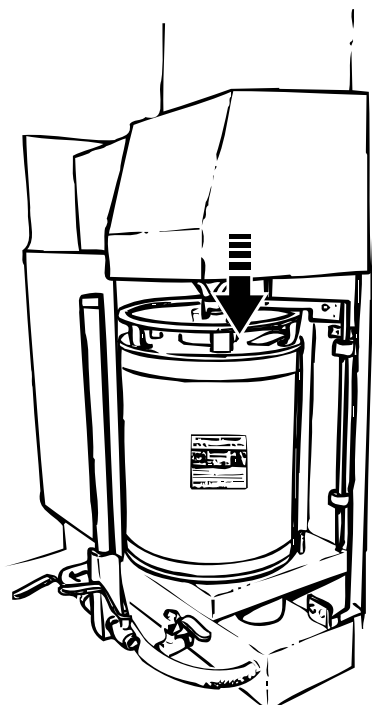
Take a can with 35% of hydrogen peroxide.

Check on the level glass that the can is full.

Place it on the machine and fit the quick connection.

Caution!

Make sure that it is properly connected.



Setting values

Pressures	Unit	Value
Input air	MPa	0.60 - 0.70
Input cooling water	MPa	0.30 - 0.45
Input hot water	MPa	0.30 - 0.45
Input steam	kPa	170 ± 30
Product pressure (depending on product and local conditions)	kPa (bar)	50 - 150 (0.5 - 1.5)
Product pressure, permitted variation during Production	kPa (bar)	±10 (0.1)
Sterile air	kPa	25 - 40
Squee-gee roller		
- 125 S	MPa	0.23
- 180 B - 284 B	MPa	0.30
Air to spray container	MPa	0.30
LS	kPa	2.7
LS short stop	kPa	2.0
Air to photocell unit	kPa	40
Design correction cylinders	MPa	0.20 - 0.30
Jaw pressure		
- 125 S	MPa	8.0 - 9.0
- 200 S	MPa	8.6 - 9.6
- 250 S	MPa	9.2 - 10.2
- 180 B - 284 B	MPa	10.0 - 11.0
Air to peroxide container	kPa	20 - 30
Cutting pressure	MPa	8.0 - 9.0
(cont'd)		

Pressures (cont'd)	Unit	Value
Flap sealing	MPa	0.15 - 0.20
Paper guide roller and brake, power feed roller	MPa	0.10 - 0.15
SA sealing	kPa	2.7
SA sealing, short stop	kPa	2.0

Temperatures	Unit	Value
Hot water	°C	60 - 75
Input steam	°C	125 - 140
LS sealing (basic)	°C	320
LS sealing sealed tube (basic)	°C	280
SA sealing (basic)	°C	255
- 125 S	°C	290
- 180 B - 284 B	°C	

Miscellaneous	Unit	Value
Cooling water flow		
- LH jaw pair	l/min	0.8
- RH jaw pair	l/min	0.8
Hydrogen peroxide	% w/w	35
Noise declaration	-	See the Installation Manual for the concerned equipment

Cleaning compounds

Caution!

Do **not** use chlorine or iodine based cleaning compounds when cleaning such parts which will be in contact with hydrogen peroxide.

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	Lever	Diversey
Cleaning CIP	A		Alkali	NaOH 1.5%	P3-mip RC P3-N 421	SU 559 (SU 159)	DSY 02
	B	1	Acid	HNO ₃	P3-Horolith L31		
		2	Acid	H ₃ PO ₄	P3-Horolith FPC P3-Horolith MSW		DSY 01
		3	Acid	HNO ₃ /H ₃ PO ₄		SU 475	
External cleaning automatic	C	1	Alkali foam		P3-Topax 12	SU 931	DSY 03
		2	Alkali solution		P3-mip FPC P3-FPC	SU 118	DSY 12
Manual detercion wipe	D		Alkali solution		P3-mip FPC P3-FPC	SU118	DSY 12
	E	1	Acid solution	HNO ₃ 0.5%			
		2	Acid solution	H ₃ PO ₄ 0.5%			
		3	Acid solution	Acetic Acid 0.5%			
Manual disinfection immersion	F	1	Low alkali foam		P3-Topax 99		
		2	Low alkali solution		P3-Steril BG <i>KL-HC 34 Ukes (IT)</i>	SU 319 SU 398	DSY 08 DSY 15
Manual disinfection spray	G	1	Alcoholic solution	Isopropanol 70%		SU 393	
		2	Alcoholic solution	Ethanol 70%			DSY 10
Hand disinfection	I				Spitacid	Leversept Levergel	DSY 10

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:

Technical Standardization, Tetra Pak P & S Services AB

Ruben Rausing's gate

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
A 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 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 High-pressure oil		54322-150	90 296-72	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
		For use in production plant with start temperature below 5°C			
C 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

2.2TB202892.en

(cont'd)

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
D 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)
E 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 Cyclesso TK 460 CylWay FZ 460 600W Super Cylinder Oil Valvata Oil J460 Vanguard Cylinder Oil
F 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
H 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

(cont'd)

(cont'd)

Lubricant code	Document No	Material No (internal TP designation for material type)	Part No (used when ordering from Tetra Pak)	Example	
				Supplier	Product designation
H 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
		For use in production plant with start temperature below 5°C			
K Circulation oil	M 1254.942	54942-100	90 296-15	BP Esso Statoil Mobil Shell Caltex/ Texaco Imperial Kluber	Energol CS 100 Turbesso 100 TurbWay 100 DTE Oil Heavy Tellu Oil 100 Regal Oil R & O 100 Tribol 775 Crucolan 100
L Silicon grease	M 1255.322	55322-30	90 296-9	Dow Kluber	Dow Corning 7 Compound Unisilikon L 250L
M Lithium grease, EP type	M 1255.112	55112-10	90 296-70	BP Esso Statoil Mobil Kluber Optimol	Energrease LS EP 1 Beacon EP 1 UniWay EP 1 Mobillux EP 1 Centoplex 1 EP Longtime PD 1
O Lithium complex grease	M 1255.122	55122-30	90 269-61	BP Esso Statoil Imperial	Energrease LS 3 Unirex N3 UniWay HT-63 Molub-Alloy ET 860-220
P Synthetic compressor oil	M 1254.632	54632-68	90 296-54	BP Esso Statoil Mobil Shell Caltex/ Texaco	Energol RC-R68 Compressor oil 68 CompWay 68 Rarus 427 Corena Oil H68 Compressor oil VDL 68

2.2TB202892.en

This page intentionally left blank

