

# Instruction manual



Packaging Technology



**BOSCH Packaging Technology Co., Ltd.**  
**CHINA**  
**SVE 2510 QR**

Version 1.0  
12/2004

**BOSCH**



# Instruction manual



**Packaging Technology**

Version 1.0  
12/2004

Customer:

**BOSCH Packaging Technology Co., Ltd. 8-101-980-633**

Overall order no:

**CHINA**

Year of construction:

**2007**

Type of machine:

**SVE 2510 QR**

Designation:

Order/machine no.:

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**BOSCH**





**Safety measures** ..... **Chapter 1**



**Transport, installation and connections** ..... **Chapter 2**



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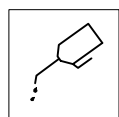
**Operation** ..... **Chapter 4**



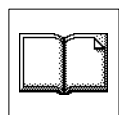
**Trouble shooting** ..... **Chapter 5**



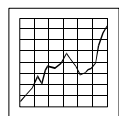
**Change of size/product** ..... **Chapter 6**



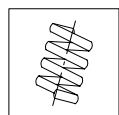
**Maintenance** ..... **Chapter 7**



**Documentation on sub-supplied equipment** .... **Chapter 8**



**Appendix** ..... **Chapter 9**



**Spare parts** ..... **Chapter 10**

The illustrations in this manual may differ from the machine delivered. They serve to illustrate and should not be regarded as dimensional drawings for construction and details. The dimensions are not binding.

The layout of the touch screen is continuously improved, which implies that texts and positions of keys and/or fields may deviate from this manual.

A reference such as “see 2.5” means: see chapter 2 section 2.5

**Explanation of the table form**

The operations are mainly described in the table form given below on the right-hand page. The accompanying illustrations and/or photos are given on the left page.

- Left column: consecutive important operations.
- Middle column: the operation is described step by step.
- Right column: if a remark is applicable, this is printed at the same level as the step concerned.

OPERATION	METHOD	REMARKS
Operation 1	Step 1.1 -----	Remark step 1.1.
Operation 2	Step 2.1 ----- Step 2.2 -----	Remark step 2.2.
Operation 3	Step 3.1 ----- Step 3.2 -----	Remark step 3.1.
Operation 4	Step 4.1 ----- Step 4.2 ----- Step 4.3 -----	Remark step 4.3.

Left column is cancelled when only one operation is to be described.

**This manual’s version number: SVE2510Q-01-2005 (E251Q-15)**

### Safety symbols

These symbols are printed beside all safety instructions contained in this manual, where potential danger to life and limb is indicated.

Particular attention must be paid to these instructions and personnel are to exercise extreme caution at all times. All users/operators must be fully informed of operational safety instructions.



Danger zone



Danger of electricity or high voltage



Hazardous or irritating substances



Danger of fire



Danger of crushing



Hot surface



Hanging loads



Corrosive substances



Explosive substances



Explosive atmosphere

### Key words in safety notices and their definition

Keyword	Application
<b>Danger!</b>	danger of injury to personnel
<b>Caution!</b>	danger to property and environment
<b>N.B.!</b>	for additional information

### Information symbols



#### Notice!

- you are required to act
- for enumerations
- ◆ refers to additional facts, causes or consequences
- ☞ calls attention to additional information





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## 1.1 Correct use

### 1.1.1 Basic factors concerning the construction of the machine

The machine has been constructed in accordance with:

- the agreements laid down in the contract such as nominal output, product to be filled, packaging material, packaging media, auxiliary packaging media (containers, closures etc.) and with the samples with which we have been provided
- the latest developments in technology and the established safety regulations

When the machine is operated improperly, danger can nevertheless occur to the user's life and limb as well as damage to the machine and other material assets.

### 1.1.2 Non-permissible modes of operation

It is not allowed to operate the machine

- with power sources, products, packaging material, packaging media etc. that are not listed in the order confirmation
- with power sources, products, packaging material, packaging media etc. that are listed in a decree on hazardous substances or that have any effect on the health of the operating personnel
- with a machine/plant altered by the operator

### 1.1.3 Permissible modes of operation

Operation of the machine is only permitted, if these operating instructions have been completely read and understood and the procedures described therein are heeded.

The machine is intended for operation exclusively in accordance with the contract. Any other or further use of the machine as for example the processing of products not listed in the order confirmation as well as operating with dangerous or hazardous substances is contrary to the regulations.

For damage resulting from use contrary to regulations the manufacturer/supplier assumes no liability. The risk is exclusively with the operator.

In addition the following is valid for pharmaceutical machines:

- For protection of the entire personnel against product contamination, the machine supplements as agreed in the contract must be installed. Adequate functioning must be proven
- Sufficient precautions must be taken on site to protect personnel against product contamination, if any jobs have to be executed on the machine outside of normal operation (e.g. cleaning, waste disposal, repairs)
- The entire personnel must receive ongoing training on the dangers from product contamination

## 1.2 Information for the plant operator

### 1.2.1 Warranty and liability

The warranty and liability are governed by the conditions laid down in the contract.

**Notice!**

The right to warranty and liability shall lapse, if any software changes are effected without the knowledge and permission of Robert Bosch GmbH.

### 1.2.2 Requirements of personnel

**Danger of accident!**

Work at/with the machine may only be carried out by trained, skilled personnel. In addition, the personnel must be charged with the operation by the operator.

Connection, setting, maintenance and repair work may only be carried out by trained, skilled personnel.

Persons who operate power-driven work media must ensure that they endanger neither themselves nor others by movements that entail danger.

The owner/user of power-driven operating media may assign work which entails potential danger only to such persons who are authorized to execute such work and who

- are able to carry out such work independently and with safety or
- following previous instruction are under the supervision of a person who is familiar with this work

Danger can occur if the machine is operated by unskilled personnel or used contrary to the regulations.

## 1.2 Information for the plant operator

### 1.2.3 Duties of the operator

**Danger of accident!**

Incorrect operating and irregular condition of the machine causes risks.

It is the operator's duty to ensure correct operation of the machine according to the regulations. Danger points occurring between BOSCH machines and customer installations must be rendered safe by the user/operator.

### 1.2.4 Check safety devices

- Safety devices, warning systems, locking devices and couplings of packaging and supplementary packaging machines must be checked at least once a year by a specialist for their safe condition.
- Check on by an impedance measurement in accordance with 612.6.3 of the IEC 60364-6-61 the connection between the internal (terminals) safety earth and the external safety earth respectively the external safety conductor depending on the electrical source (power supply) and in accordance with the local general standards.
- Devices extracting harmful substances must be checked for their efficiency by a specialist prior to the initial start-up.
- The above-mentioned test results must be documented on a test certificate and be stored until the next check.

### 1.2.5 Nominate and instruct responsible persons

- Only skilled and trained personnel are to be assigned and their responsibility for operation, setting, maintenance and repair work must be clearly defined.
- Regularly check if the personnel are working in accordance with the safety regulations and are conscious of the dangers involved.
- Before starting the machine the personnel are requested to have read and understood the operating manual, especially the chapter about "Safety measures" as well as the valid regulations.
- The instructions and regulations must be kept so that they are easily accessible for the operation and maintenance personnel.

**Notice!**

Comply with all other general and legal regulations in order to avoid accidents and to protect our environment.

## 1.3 Operation



### Danger of being injured!

Inside of the machine there is a higher risk of accidents due to moving masses and rotating or hot machine parts.

Do not wear long unbound hair, loose clothing or jewelry and rings. There is danger of being injured e.g. by getting caught or drawn in.

Do not climb on the machine while it is in operation.

High guards – open at the top – must not be reached over.

Wear close-fitting clothes. Protect long hair with a hair-net. Don't wear jewelry.



### N.B.!

For the protection of the operating personnel there are warning/safety symbols attached to the machine. Please observe these signs and pay particular attention. Immediately renew damaged or illegible warning/safety symbols!

### 1.3.1 Measures before putting the machine / line into operation

Item	Measures
1	Movable packaging and auxiliary packaging machines must be secured against their unintentional rolling away.
2	Check the machine for recognizable damages. Immediately inform the responsible superior about trouble or damage at the machine. Do not continue production before all problems are eliminated.
3	Wear the necessary ear protection and safety clothes.
4	Check safety devices (see "safety devices").
5	Information to personnel The machine operator must warn his colleagues before each actuation of the machine. In addition, he is obliged to check that nobody is located within the range of the moving parts of the machine or is reaching into it.

## 1.3 Operation



### Danger of explosion!

Pneumatic, steam pressure and hydraulic systems are under pressure.  
In case of incorrect removal, explosion and serious accidents may be the result.  
Before removing the devices, pressure must be released.



### Danger of falling!

During installation work in high positions there is danger of falling.  
When working in high positions secure yourself by holding devices!  
Use additional safety steps or ascents provided for this purpose. Do not use machine parts for climbing!  
Keep clean all handles, steps, railings, landings, platforms and ladders!

### 1.3.2 Measures before working on the machine / line

Item	Measures
1	Heed the information mentioned in "electrical/electronic installations"
2	Switch off the machine in compliance with this operating manual and assure that it cannot be switched on accidentally.
3	Lock main control cabinet and remove key and/or attach a warning sign at the main switch.
4	Before working on the pneumatic-, steam pressure, and hydraulic devices the pressure generator must be switched off and the stored pressure has to be released.
5	Movable parts as for example upper parts of the stations or movable guidingways must be secured with fixing devices.
6	Before working wait till all hot parts of the machine are cooled down.
7	The working area must be spaciouly secured (barrier chains, warning signs).
8	Inform personnel, assign one person with the responsibility of operation.
9	Cancel faults.

## 1.3 Operation

### 1.3.3 Information on cleaning

**Danger of being injured!**

During operation of the machine there is a higher risk of accidents due to movable masses and rotating or hot parts.

Cleaning work may not be performed on moving parts of packaging and auxiliary packaging machines while they are in operation.

Heed the information in chapter 7 !

### 1.3.4 Adapting guard devices

**Danger!**

Due to arbitrary changes or modifications, risks can arise when working on the machine.

Do not carry out any changes and do not add any parts or make any modification work on the machine which could influence the safety of operation.

This also applies to the installation and adjustment of safety devices and valves as well as for the welding on carrying parts.

Packaging and auxiliary packaging machines with size-dependent separating guard devices may not be put back into operation after each changeover until the latter have been adapted to the new size.

### 1.3.5 Spare parts

Spare parts must comply with the technical requirements demanded by the manufacturer.

Fasten bigger parts and subassemblies correctly to lifting devices. Only use technically perfect lifting devices.

## 1.4 Electrical/electronic installations



### Danger to life!

There is danger to life from contact with fuses or parts carrying live voltages.

Before carrying out work on electrical devices, the whole line has to be disconnected from the mains. This can be done by switching off the main switch and/or by drawing the mains plug.



### Notice!

Work on electrical parts/subassemblies must only be carried out by a skilled electrician in accordance with the rules of electrical engineering.

### 1.4.1 Important rules of behaviour

Item	Measures
1	Inspect the machine regularly. Eliminate immediately any defects or faults. Switch off the machine until the defects have been eliminated.
2	Any defects ascertained on electrical installations/subassemblies/operating means must be rectified immediately. If imminent danger exists, the installation, subassembly or operating means may not be used in a defective condition.
3	Any machinery and plant parts on which servicing, maintenance and repair work is being performed, must be switched voltage-free. First of all check that the parts that have been switched off are indeed voltage-free, then earth and short-circuit them and insulate any neighbouring parts that are live.
4	If any work is necessary on voltage-conducting parts, involve a second person who can actuate the EMERGENCY STOP switch or the main switch and thus disconnect the voltage in an emergency. During work guard off the work area and provide it with a warning sign. Use only electrically insulated tools !
5	When working on high-voltage subassemblies, after disconnection of the voltage connect the supply cable to earth and short-circuit the components, e.g. capacitors, by means of an earthing rod !
6	Fuses may not be patched or bypassed. Insert only such fuses as specified by the manufacturer.



## **1.4 Electrical/electronic installations**

### **1.4.2 Test in accordance with the accident prevention regulations**

In the event of configuration or installation of a machine/line or of operating means from different manufacturers or suppliers, subsequent to reworking of products supplied by us with intervention into the electrical equipment, a precise test shall be carried out, in compliance with the valid accident prevention regulations and the respectively applicable electrical engineering rules, by the operator, prior to starting the machine.

In case of any open questions or work for which you need the necessary specialists, please contact Messrs. Bosch for support.

## 1.5 Safety devices



### Danger!

Only operate the machine when all safety devices are available and in operative condition!

**You**, as server or operator of the machine are responsible for the duly operation of the machine!

The machine is constructed in accordance with the actual valid and legal regulations and reliable in its operation. Nevertheless there are risks in case of incorrect handling or if the machine runs in non-operative condition.

Constructively non-excluding danger zones have to be equipped with safety devices and if necessary they have to be marked with warning signs at the machine and with information for safety working in the operation manual.

### The machine is equipped with the following safety devices:

1	Warning signs at danger zones
2	Optical fault display
3	Acoustic fault display (only if installed)
4	Automatic control of the working process and automatic interruption of operation at faults
5	EMERGENCY STOP impact key on the side of the operating panel
6	Automatic machine stop when opening the safety devices in the working range of the machine
7	Control cabinet with mechanically locking main switch. <b>Do not wash down with hose or high-pressure cleaning device</b>
8	Metal covering of the drives and the moveable mechanical components
9	Metal covering of electrically loaded parts
10	Transparent plastic sheets in front of machine parts which must be observed

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## **2.1 Supply**

### **2.1.1 Scope of supply**

Compare the entire scope of supply with the order and the shipping note.

#### **Check if shipment is complete**

Check if shipment is complete using the attached shipping note! Otherwise we refer to our general conditions for the supply of machines.

#### **Report damage**

In case of damage caused by insufficient packing or during transport the forwarding agents, the insurance company and the machine supplier are to be informed immediately after delivery of the machine with all accessories.

### **2.1.2 Packing**

#### **Normal freight**

The line is supplied in various transport boxes. Each transport unit is fastened with screws on a wooden pallet and covered by a plastic film.

#### **Sea freight**

With sea transportation the wooden pallets are additionally provided with a wooden crate.

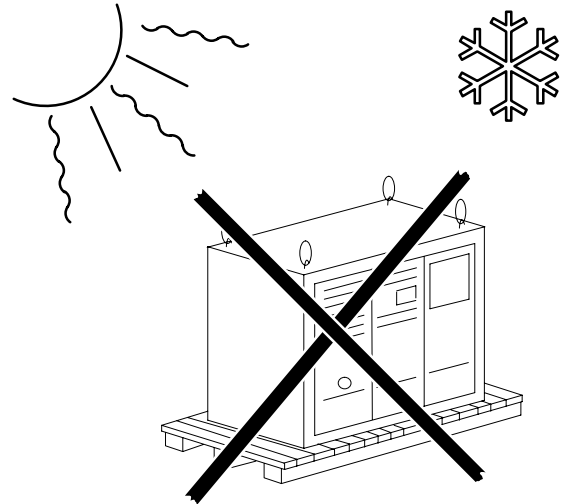
#### **Air freight**

For air freight the wooden pallets are provided with plywood crates.

## 2.2 Storage and conservation

In order to maintain the operability of a machine that is not used for a long period please heed the following:

- The storage room must be dry and clean
- The machine must not be exposed to extreme heat or cold
- Place the machine on level ground in order to avoid torsion
- Clean entire machine. All bright metal parts must be lightly coated with acid-free oil
- Cover entire machine so that no dirt or dust can get in



## 2.3 Information on liability

### Storage of the machine

We do not assume any warranty for corrosive damage which occurs due to improper storage.

### Claims

We would like to point out that improper transportation does not entitle to the right to replacement or warranty. In case of doubt please contact supplier before transportation.

If a service engineer is present, he can be asked for advice concerning matters of transportation. However, he does not assume any responsibility for transportation and any damage arising therefrom.

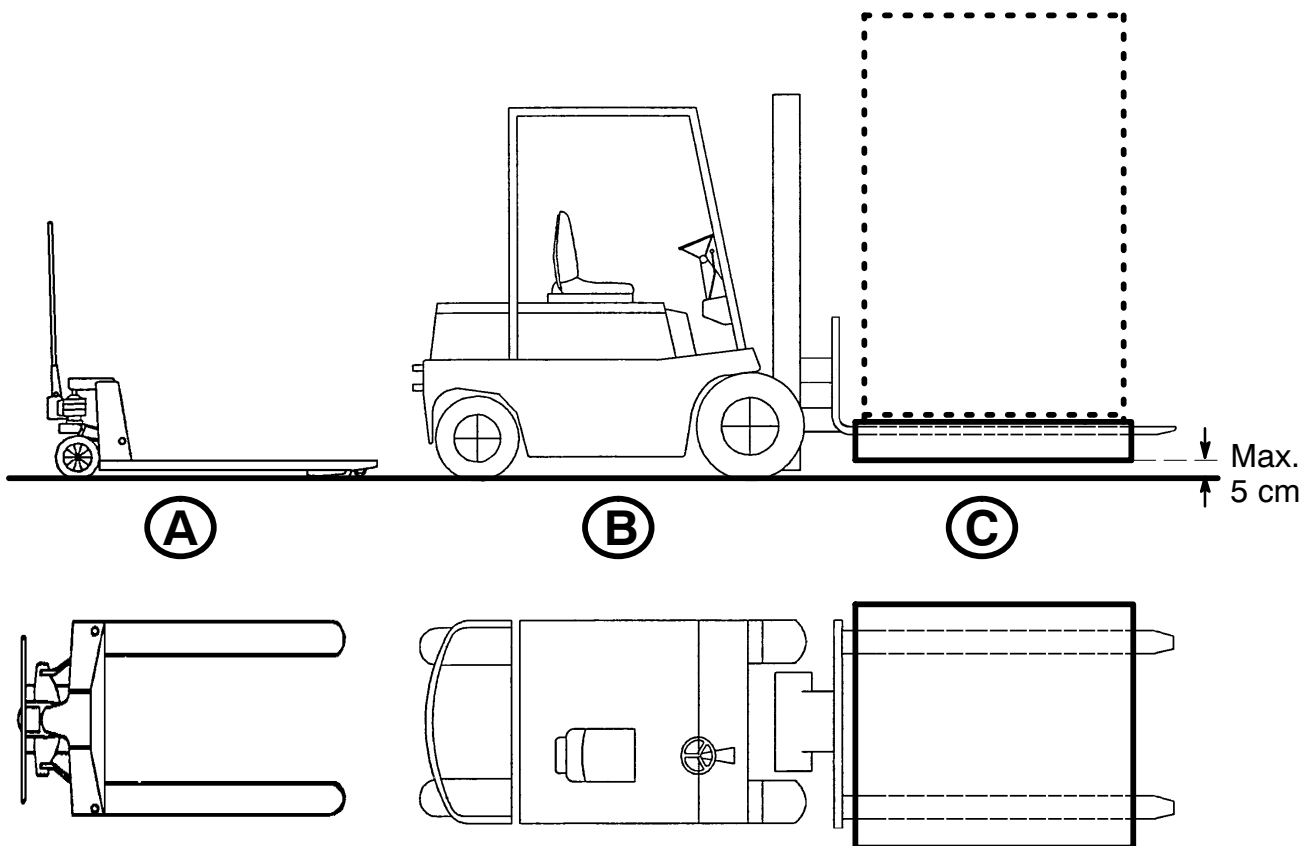
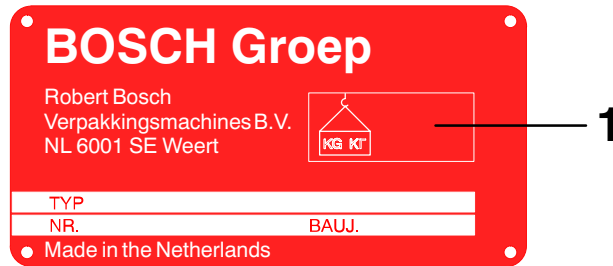
### Illustrations and drawings

are for the purpose of general illustration and are not decisive for their detailed design. The dimensions quoted are also without obligation.

### Rights

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# SVE2510 QR/WR/DR 1300 kg



## 2.4 Transportation

### 2.4.1 Machine weight

See type plate (1) on the machine.

### 2.4.2 Transporting the machine mounted on a pallet, with a fork-lift or fork-lift truck



#### **Danger to life!**

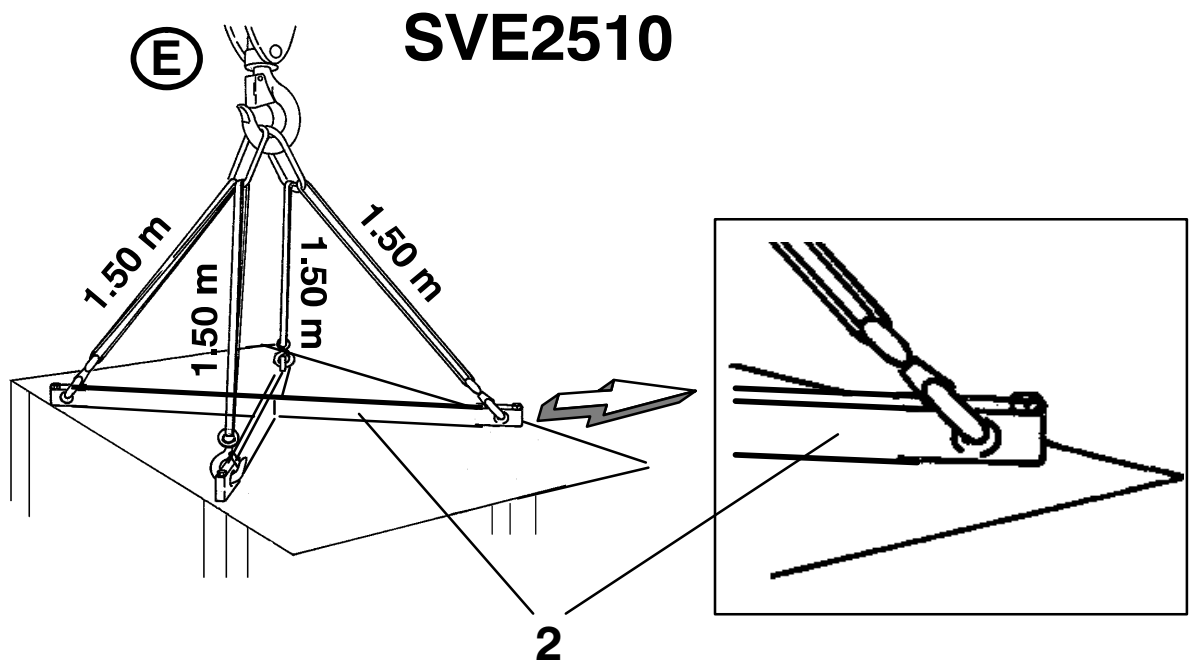
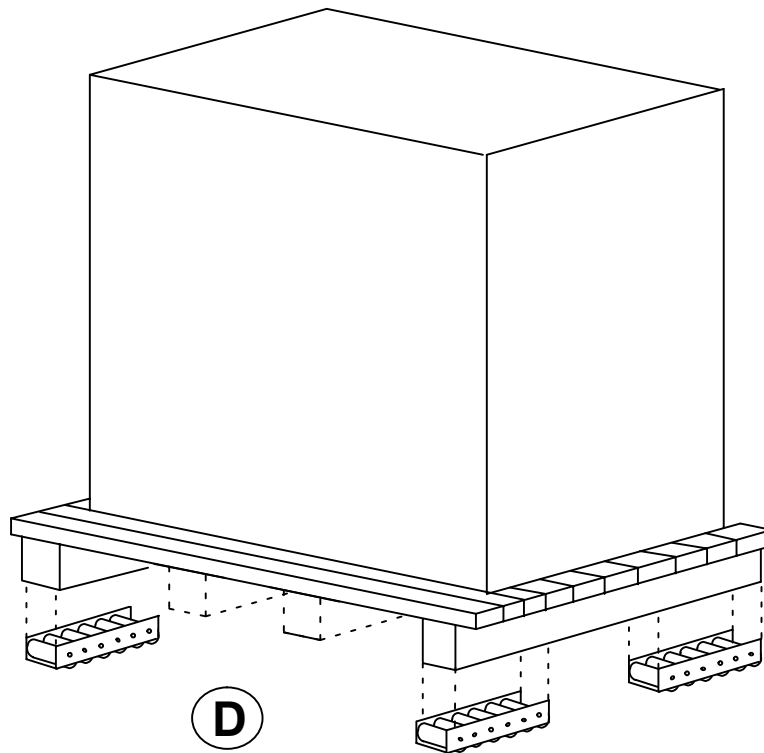
Hanging weights can fall down.

Due to incorrect fixing or a breakdown of the hoist, the loads can fall down and serious injuries or death can be the result.

Do not go under hanging weights!  
Use suitable lifting devices and fixing agents.

- The driver must have a license to drive the fork-lift truck.
- Move the fork of the fork-lift (A) or fork-lift truck (B) between the longitudinal beams of the pallet (C).  
Once the pallet (C) has been removed, introduce the fork of the fork-lift truck (B) with a SVE2510 from the left or right side or, with a SVE3600, from the front or back underneath the machine between the adjustment feet. Attention: Make sure not to contact machine parts protruding downwards and not to move the fork under protruding machine parts, otherwise the bottom of the machine would be damaged. If necessary, use filler beams.
- The distance between the fork teeth must be as large as possible and the fork should protrude from the far side.  
Position the hoist in such a way that the machine will be level when lifted.
- Before lifting the machine, all persons must be beyond the working range of the fork-lift truck.
- Lift only slightly, **5 cm at the most**.
- Do not produce torsion during the transportation.
- Lower the machine at the position intended for the purpose.

*continued on next page*





## 2.4 Transportation

### 2.4.3 Transporting the machine, mounted on a pallet, with transport rollers

**Danger to life**

A moving load can crush personnel and/or lead to serious injury or death.

Do not stand in front of a moving load – use suitable securing systems!

- Lift the pallet with the screwed-on machine using a fork-lift or fork-lift truck.
- Put transport rails under the longitudinal beams of the pallet.
- Lower the pallet.
- Carefully push the pallet with machine to the installation locate.
- Ensure torsion-free transportation of the machine.
- Lift the machine in reverse order from the conveyor rollers and lower it onto the spot intended for the purpose.

### 2.4.4 Transportation with a hoist or crane

**Danger to life**

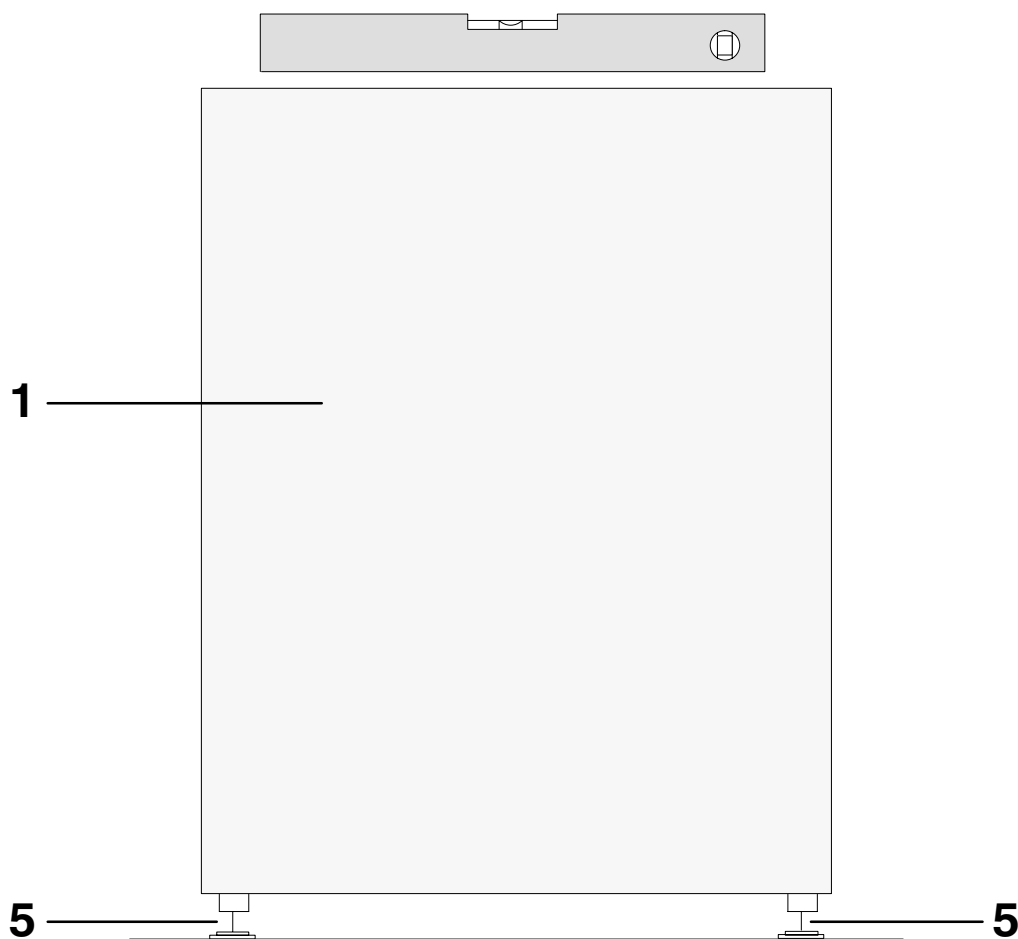
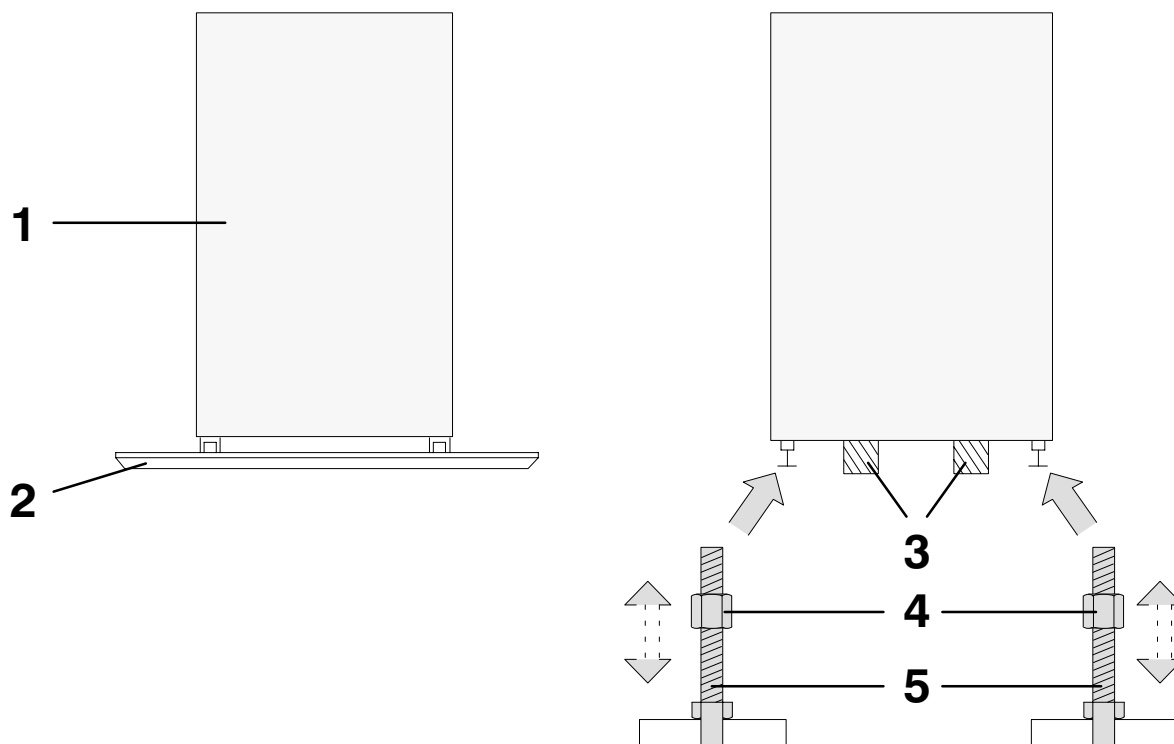
Hanging weights can fall down.

Due to incorrect fixing or a breakdown of hoist, the loads can fall down and serious injuries or death can be the result.

Do not go under hanging weights!

Use suitable lifting devices and fixing agents.

- Only the BOSCH lifting support (2) should be attached and the screws tightened.
- The crane driver must have a license to operate the crane.
- Cables or chains may not be damaged. Note allowable carrying capacity of the cables and chains, each must be at least 500 kg. Pay attention that the cables or chains are of equal length and have a minimum length of 1.5 m, see illustration (E).
- Fasten the cables or chains only to the eyes of the BOSCH lifting support (2).
- Before the machine is lifted, all persons must be beyond the turning circle of the crane.
- Ensure torsion-free transportation.
- Lower the machine at the position intended for the purpose.



## 2.5 Installation

### 2.5.1 Preparations

The machine must be installed based on the installation drawing. Usually, the installation is handled by employees of the Robert Bosch GmbH company.

The space where the machine is to be placed must be free of vibration - and draught, and the floor must have enough bearing capacity.

### 2.5.2 Installing the machine

- Install the machine in the position intended for the purpose, see previous pages.
- Inspect the machine for transport damage.
- Unscrew the wooden pallet.
- Lift the machine and remove the wooden pallet (2).
- Lower the machine onto wooden beams (3). Attention: do not place the beams (3) underneath protruding machine parts, otherwise the bottom of the machine might be damaged.
- Twist the adjusting feet (5) into the carrying brackets of the machine. For the length, see installation drawing.
- Slightly lift the machine and remove the wooden beams (3).
- Lower the machine onto the adjusting feet (5) in the position intended for the purpose.



**Danger to life! The machine might tip over.**

The adjusting feet (5) are unscrewed (too far) from their bearings, if the machine's maximum allowed height in the installation drawing is exceeded.

- Align all units - also those upstream or downstream - in height, angle and position. Avoid torsion. For the maximum allowed height of the machine, see installation drawing.
- Lock the checknuts (4) of the adjusting feet (5).
- After transportation and installation, remove the BOSCH lifting support or transportation blocks and install the short screws included in the delivery.



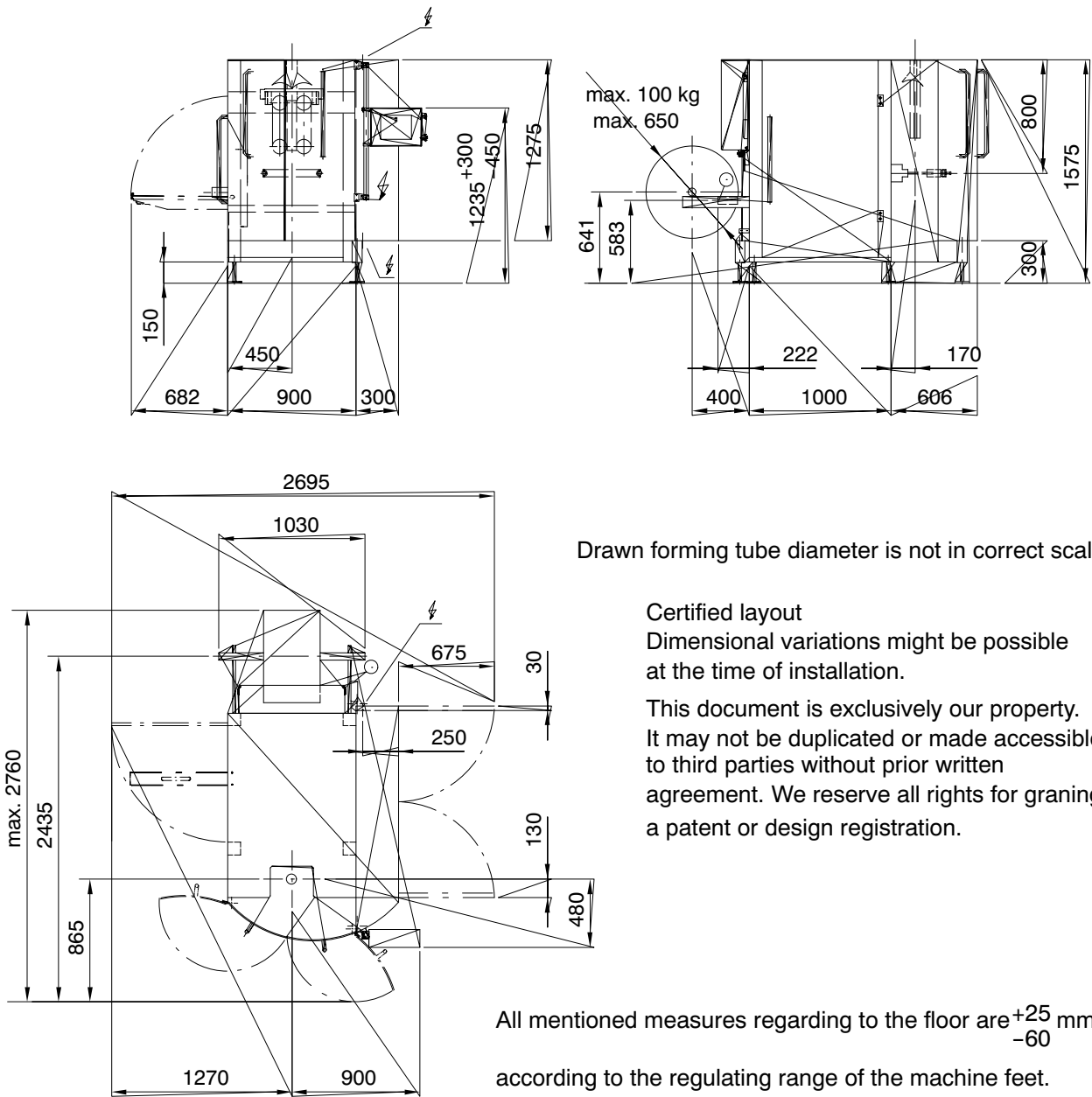
**Danger to life! The machine might tip over.**

Bolt the machine, with a dosing unit installed on the face plate, to the floor. The machine may tip over if lifted up at one side.

- Fasten conveyor belts to the floor or provide them with a construction (e.g. dowel pins), making sure that the conveyor belts are always aligned in relation to the bagging machine.
- Clean the entire machine (see maintenance schedule in Section 7). Avoid complete degreasing. If necessary, lubricate all bare and moving machine parts lightly with machine oil.
- Check all film web rollers for low-friction rotation. Adjust if necessary.







Drawn forming tube diameter is not in correct scale.

Certified layout

Dimensional variations might be possible at the time of installation.

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All mentioned measures regarding to the floor are  $+25$  mm.  $-60$  according to the regulating range of the machine feet.


Typ	energy requirement KW	connected load KVA	compressed air		dust-exhaust pu=0.018bar m <sup>3</sup> /h	weight kg
			compr. air requirement m <sup>3</sup> /h	Entry pressure Pe bar Ovr-pressure min max		
SVE 2510 QR	8	11	2 / 10	5 16	-	1300

## 2.5 Installation

### 2.5.3 Installation drawing

See page on left.

### 2.5.4 Compressed-air connection and consumption

The compressed-air connection (shown on the left-hand page) is as follows: 

Maximum inner diameter of supply line	17	mm (1/2 inch)
Minimum compressed-air supply	6	bar.
Maximum compressed-air supply	16	bar.


Operating pressure of the machine	5	bar. See chapter 7.6.
Consumption without options	0,1	litre per cycle at an overpressure of 5 bar.
Consumption with a poly-welding system	1,2	litre per cycle at an overpressure of 5 bar

### 2.5.5 Electrical connection



#### Instruction!

Usually, personnel of Robert Bosch GmbH company are deployed to install the machine in accordance with the installation drawing. In any case, observe the safety regulations of Chapter 1 and the local safety regulations.

The power supply connection (shown on the left-hand page) is as follows: 

For the **connection data** see the installation drawing and the wiring diagrams. The electrical wiring diagrams are included in the machine delivery or supplied separately.

Ensure that the **available mains voltage** is in accordance with the voltage specified on the type plate (control cabinet).

The **power supply cable** must be connected to terminals L1-L2-L3, N and PE, including the earth wire of the connection box in accordance with the IEC 60204-1, and the locally required specifications, respectively.

The earth or the zero-voltage connection, respectively, must be made in accordance with the specifications of the local power supply company.

**Before switching on** observe the instructions regarding the direction of rotation (pole-correct connection). Example vacuum pump: On a short switching-on impulse of the relay concerned, ensure that direction of rotation is in direction of arrow. If required, change power supply cable connections. Correct rotation: Machine is electrically operational.

## 2.6 Changing the installation location

Always disconnect the machine from all external energy supplies, even if displacing the machine slightly!

☞ Fix moving parts that may represent a risk!

Consult the manual to reconnect the machine at the other location, and commission it.

## 2.7 Dismantling



### **Risk to life!**

Risk to life due to electrical current and other forms of power.

Before dismantling the machine, disconnect it from all external power supplies.

Before dismantling, render pressureless any pressurized devices.

Pack suitably any components that are in danger of breakage and, if necessary, drain off any liquids.

### 2.7.1 Requisite qualifications

The machine may only be dismantled and disassembled by skilled personnel subject to compliance with local safety regulations.

### 2.7.2 Scrapping and disposal

Protect the environment!

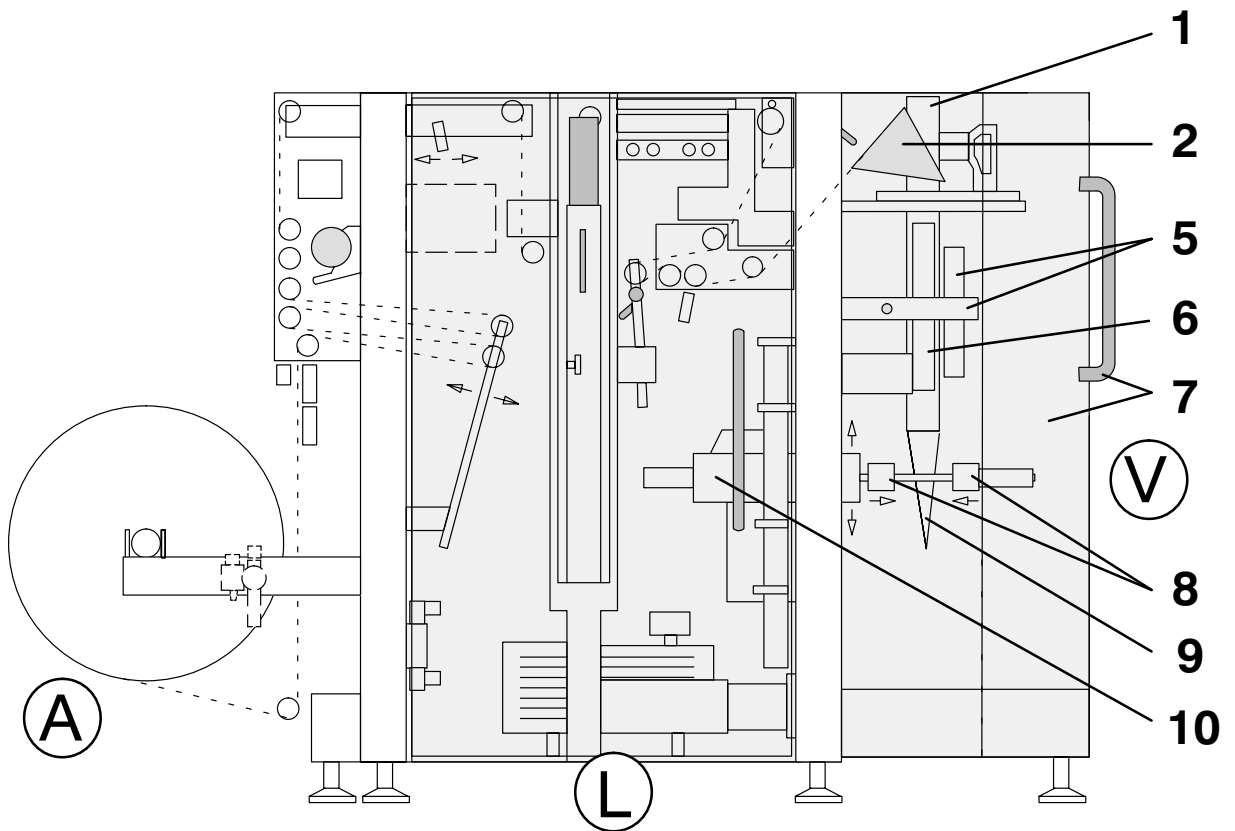
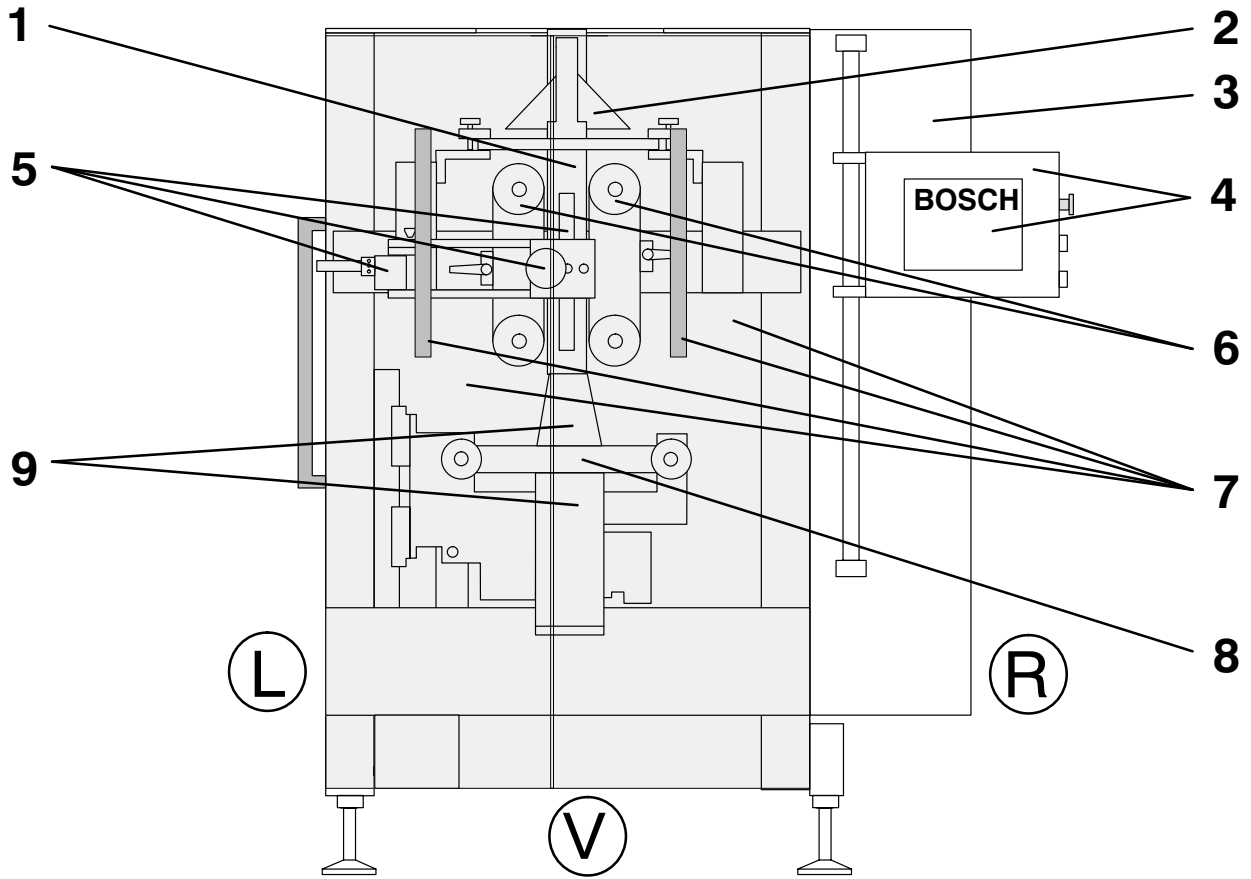
Prior to dismantling, whether for recycling or scrap, remove without any residue oils and other water-jeopardizing substances.

The machine frame and all mechanical subassemblies consist of steel, lightweight metals and plastics. These materials can be allocated for recycling.

Dispose of any problem substances that are no longer usable, such as lubricants, batteries or electrical components, in compliance with the statutory ordinances as special waste.



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### 3.1 Main items in the standard machine

V = Front of machine.

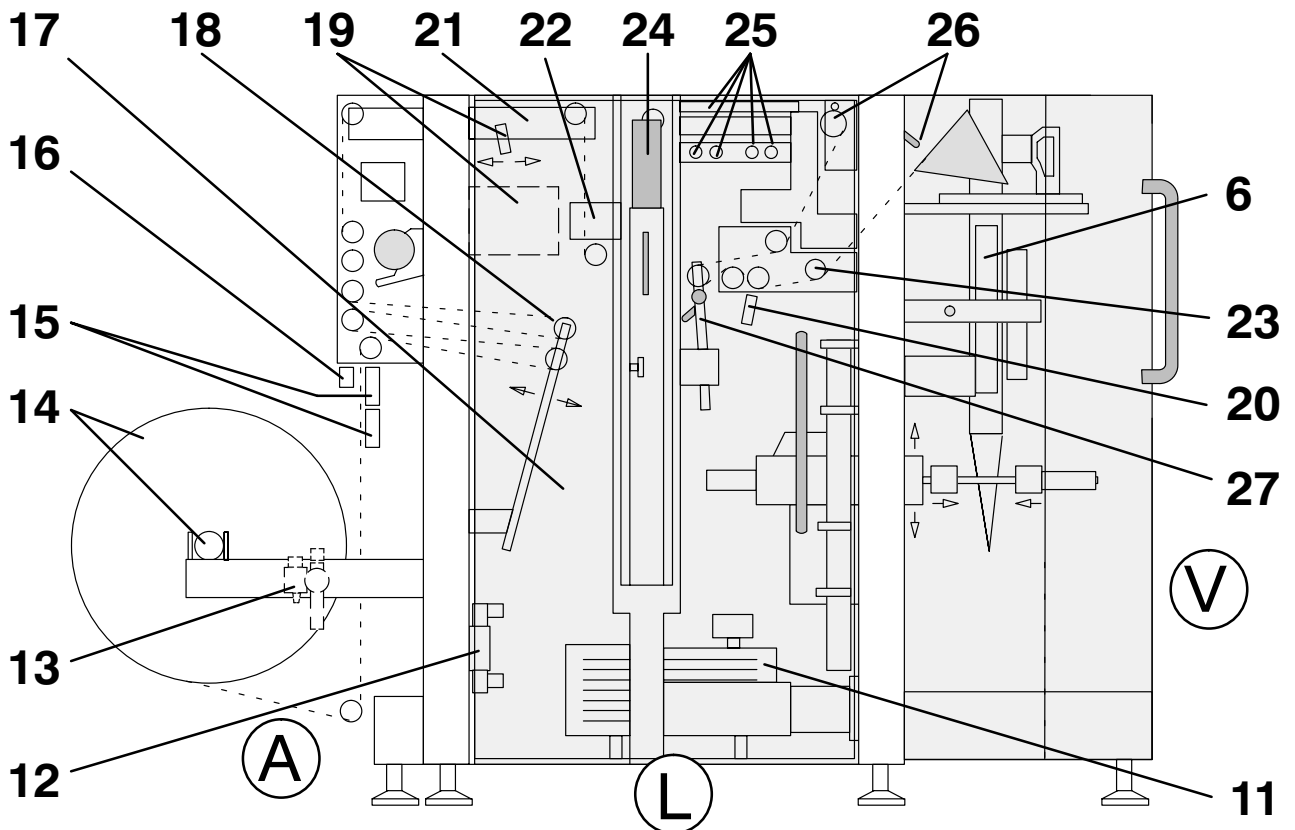
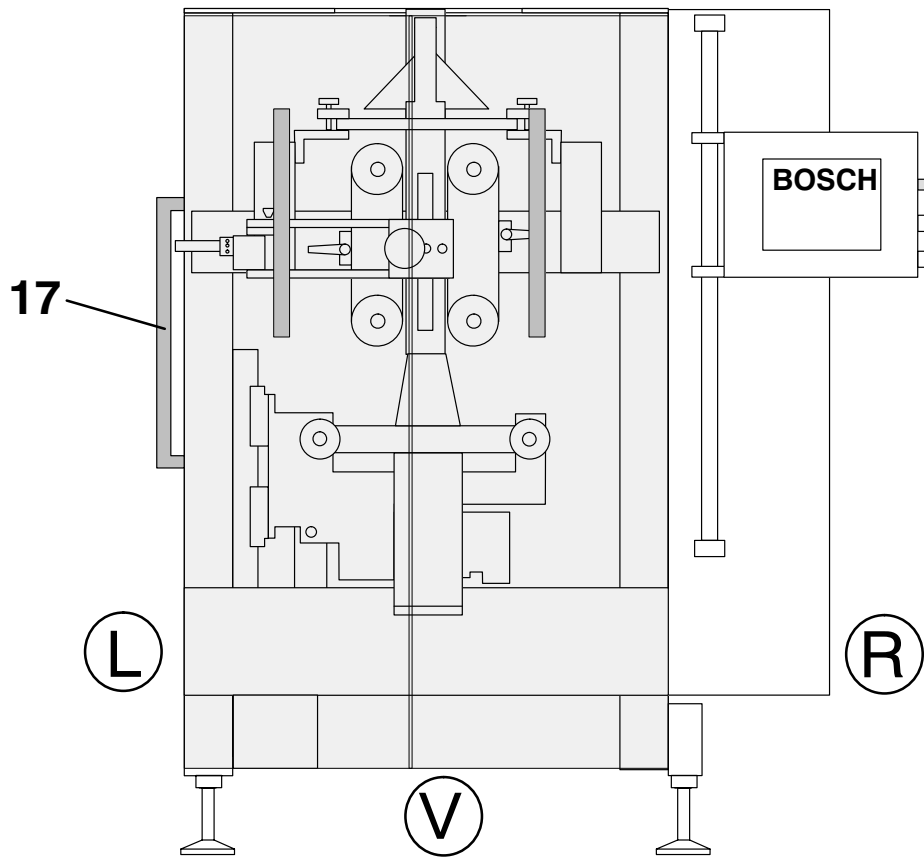
A = Rear of machine.

L = Left-hand side of machine.

R = Right-hand side of machine.

No.	Concept and function
1	Forming tube. Through this tube, the product is dropped into the film tube (9).
2	Shoulder. Will form a film tube (9) from a flat film web.
3	Electrical cabinet.
4	Operating panel with touch screen. Starting, stopping etc. of the machine.
5	Long-seam device. Closes the film tube (9) in the longitudinal direction (vertically).
6	Vacuum draw-off belt system. Pulls the film across the shoulder (2) through the machine.
7	Safety guards at the front of the machine.
8	Cross-seam device. Closes the film tube (9) at the top of the filled bag and the bottom of the next bag. A cross-seam knife cuts off the filled bag.
9	Film tube. Is closed alongside 'long seam' (vertically) and at the bottom 'cross seam' (horizontally).
10	Cross-seam jaw housing with the cross-seam unit (8).

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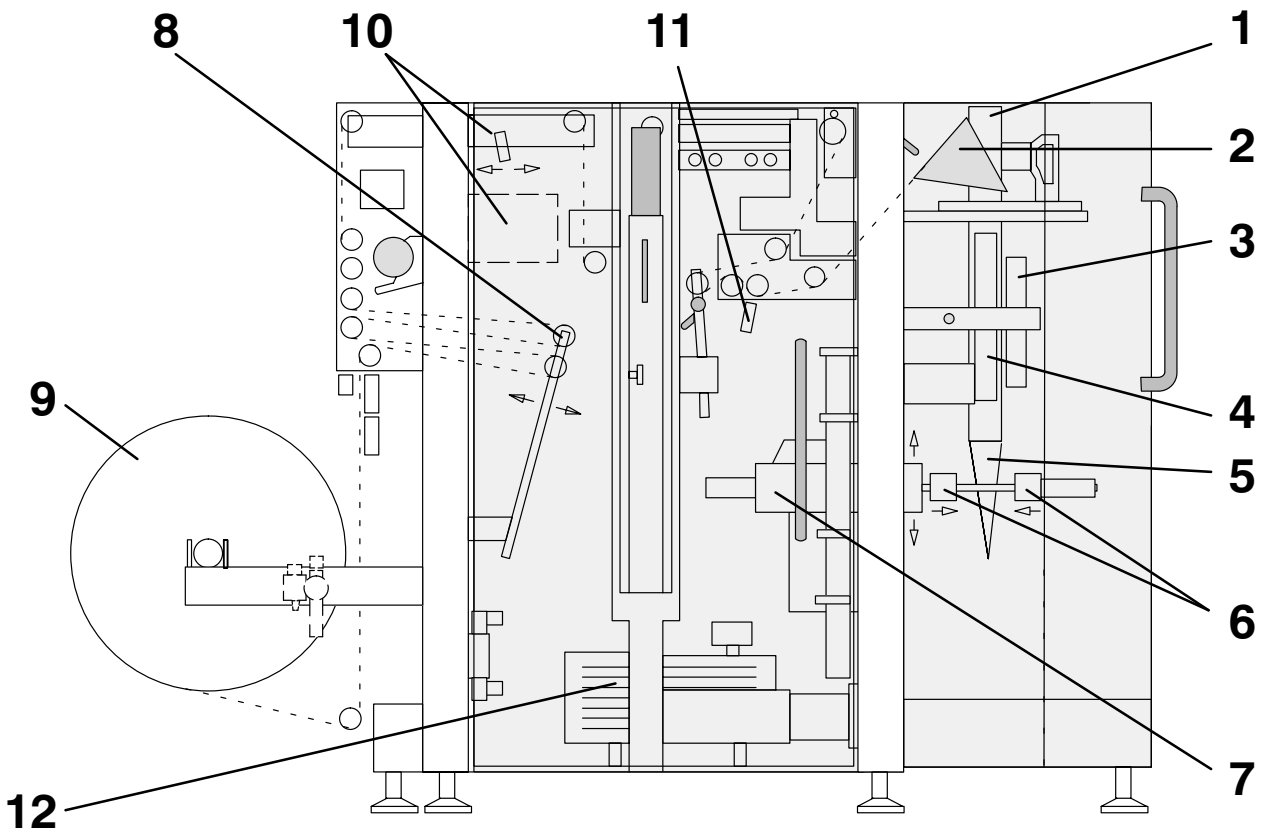
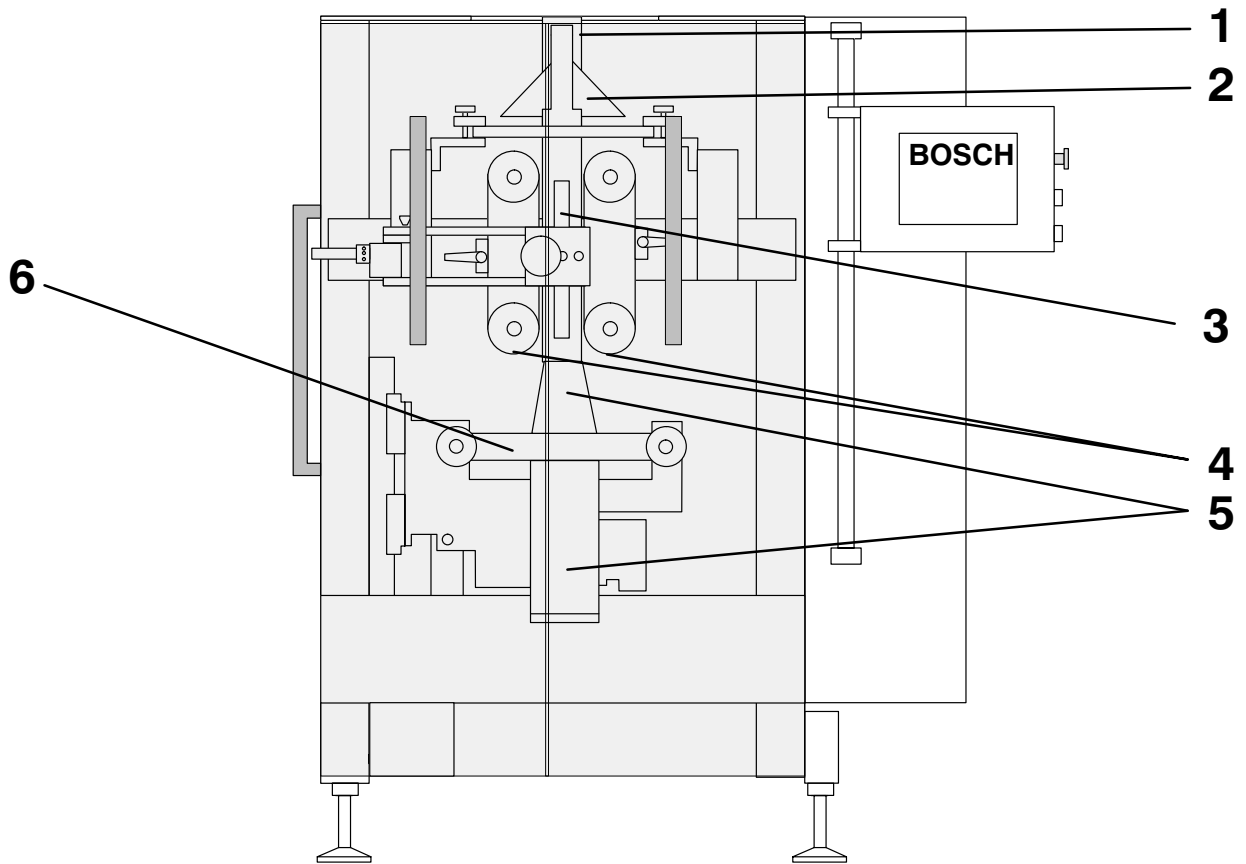


### 3.1 Main items in the standard machine (contd.)

No.	Concept and function
11	Vacuum pump. Draws the film against the draw-off belts (6).
12	Pneumatic valves.
13	Compressed-air supply.
14	Film reel with film reel shaft. Option: Motor-driven unwinding of the film reel.
15	Splicing table. Allows easy splicing together of ends of film webs.
16	Film web clamp. Clamps the end of the film web to the splicing table.
17	Safety guards at the left-hand side of the machine.
18	Balance. Provides the film web tension and maintains a supply of film to be able to compensate for any speed differences between the draw-off belts (6) and the film reel (14).
19	Printing device and/or labelling device (optional). Prints a print or affixes a label.
20	Print mark control (optional). Adjusts the film transport to provide the correct bag length, film printing image and cut-off position.
21	Movable tracking frame to control the film web track. Moves the film web track sideways as opposed to the film reel (14), to ensure a correct film web position on the shoulder (2).
22	Sensor (optional) for automatic operation of the film web track.
23	Adjustable film web roller. Feeds the film web to the shoulder (2) at the correct run-in angle.

#### Items added for corner seal bags and Doypack bags

No.	Concept and function
18	Balance. Provides the film web tension between the film reel (14) and the auxiliary driving roller (26). The tension arm controls the unwinding of the film reel and maintains a supply of film to be able to compensate for any speed differences between the film reel (14) and the auxiliary driving roller (26).
24	Folding station. Makes 2, 3 or 4 folds in the film web to produce the final corner seals.
25	Corner seal station. Seals the 2, 3 or 4 folds that are formed by the folding station (24).
26	Auxiliary driving roller. Pulls the film web through the folding station (24).
27	Second tension arm with folding plates. The tension arm provides the film web tension between the auxiliary driving roller (26) and the draw-off belts (6). This tension arm controls the speed of the auxiliary driving reel and maintains a supply of film to be able to compensate for any speed differences between the auxiliary driving roller (26) and the draw-off belts (6). The folding plates, that can be turned away, fold the corner seals in the required direction.



## 3.2 Description of the machine

The SVE machine is a continuously running, vertically forming-, filling- and closing machine.

### 3.2.1 Forming of flat bags, if necessary with a gusset or block bottom

Draw-off belts (4) transport a film tube at an (almost) constant speed from a movable film web roller system (8), which temporarily compensates the speed differences between the draw-off belts (4) and the film reel (9). The tension arm (8) maintains a constant film web tension and unwinds the film reel (9) in order to replenish the stock of film in the tension arm.

Option: A printing device and/or labelling device (10) will print a print and/or affix a label on the film web.

A vacuum pump (12) draws the film through slits against the draw-off belts (4), so that the film and the draw-off belts travel at the same speed.

The draw-off belts (4) pull the film over a shoulder (2), forming a vertical film tube (5).

A long-seam jaw (3) closes this film tube (5) vertically during film transport.

Cross-seam jaws (6) in a cross-seam jaw housing (7) running along with the film tube (5) form the cross seam. The upper halves of the jaws form the lower seam of the bag to be filled.

The lower half forms the upper seam of the filled bag. A knife between the jaws separates the produced bag from the film tube.

Option: cross seam jaws combined with gusset blades form gusseted or block-bottom bags.

Option: A photocell (11) registers a printed mark (print mark) on the film web track and the film transport is corrected for the relevant bag length, printing image and cut-off position.

Above the machine, the product dosing unit allows the product to drop into the film tube (5), via the forming tube (1).

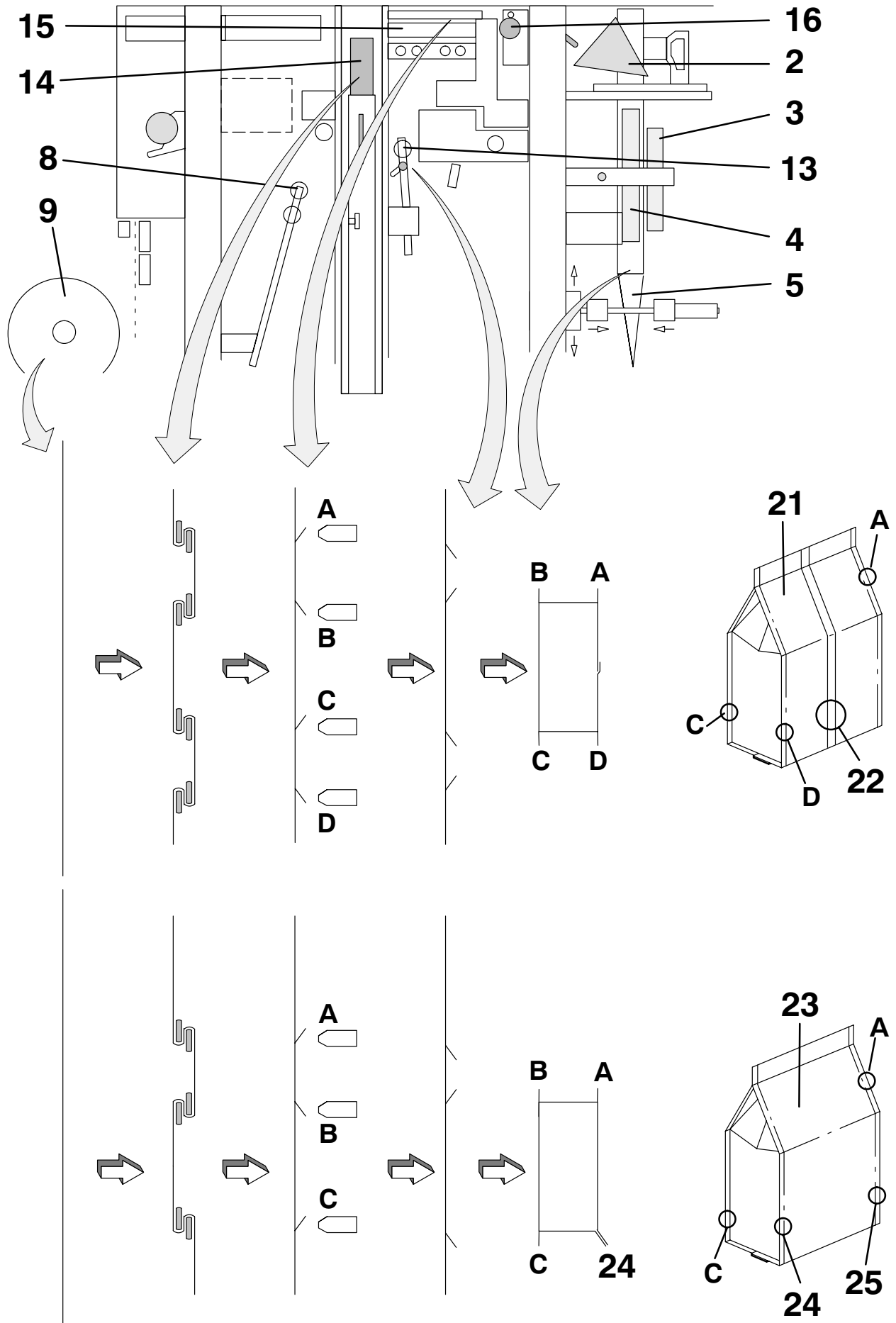
When the cross-seam jaws (6) are opened, the bag falls onto a discharge system.

The machine can be provided with options. Options that need adjusting are described in Section 6.

For the desired bag length, e.g. 200 mm and the desired machine speed, e.g. 60 bags/min., the machine calculates the settings and the interrelated synchronisation of the subsequent 3 independent drive systems:

- The draw-off belts (4) to control the speed of the film web in order to produce bags of a preset length, at the set machine speed.  
In the example, the draw-off belts ensure an average film web speed of:  
200 mm x 60 bags/min. is 12000 mm/min (12 metres/min).
- The horizontal motion profile of the cross-seam jaws.  
Example of the calculations: Here, we calculate, for example, jaw opening, acceleration of the jaws as far as the film tube (mouthpiece), speed (equal to the film speed) of the further closing cross-seam jaws with the film tube in between, formation of the cross seams, the opening, etc.
- The vertical motion profile of the cross-seam jaw housing (7).  
In the example, the cross-seam jaw housing moves up and down 60 times. From the top position, the cross-seam jaw housing accelerates downwards until the speed equals that of the film tube. The vertical running speed of the cross-seam jaws remains equal to that of the film tube during the formation of the cross seams and as long as the opening cross-seam jaws can hinder the film transport.  
During the rest of the cycle, the cross-seam jaw housing moves back to the upper position.

*continued on next page*





## 3.2 Description of the machine (continued)

### 3.2.2 Forming of corner seal bags

The description below is an addition to the forming of flat bags, see previous paragraph.

The auxiliary driving roller (16) pulls the film web through the folding station (14) from the tension arm (8) that can temporarily absorb the speed differences between the auxiliary driving roller (16) and the film reel (9). The tension arm (8) maintains a constant film web tension between the film reel (9) and the auxiliary driving roller (16) and makes the film reel (9) unwind to make up the supply of film in the tension arm.

Draw-off belts (4) transport the film web from the tension arm (13) that can temporarily absorb speed differences between the draw-off belts (4) and the auxiliary driving roller (16). The tension arm (13) maintains a constant film web tension between the auxiliary driving roller (16) and the draw-off belts (4) and makes the film driving roller (16) transport enough film to make up the supply of film in the tension arm.

The draw-off belts (4) pull the film over a shoulder (2), forming a vertical film tube (5).

A long-seam jaw (3) vertically closes this film web ends of the film tube (5) during film transport.

The illustrations show the view from above of the forming process of two types (21 and 23) corner seal bags and where this takes place in the machine.

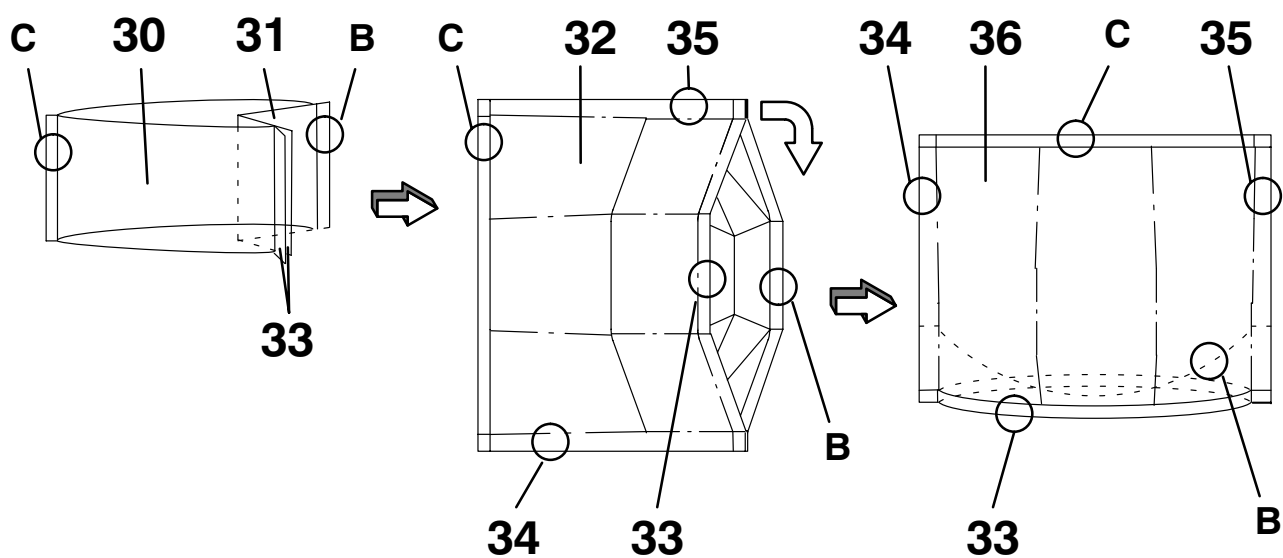
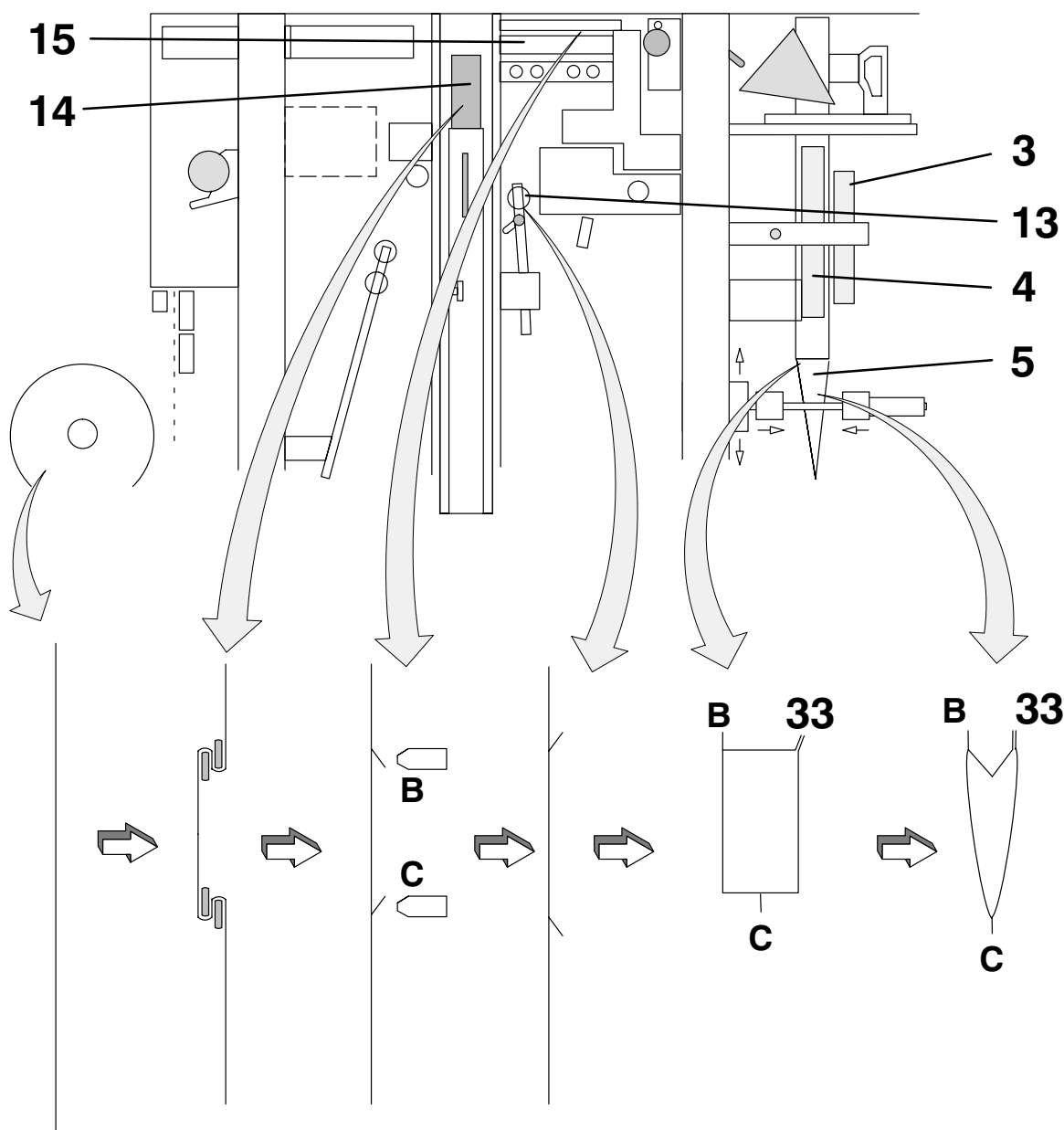
During film transport in the folding station (14) folds are formed in the flat film web that eventually should end up on the corners of the mouthpiece. In the folding station (15) the folds are sealed during film transport and then folded into the required direction by the folding plates (13).

See illustration in the middle: four folds for a corner seal bag (21) with four corner seals (A, B, C, D) and a long seam (22) that vertically closes the film web ends. A long seam that is not in the middle of the bag is called a 'shifted long seam'.

See illustration on the bottom: three folds for a corner seal bag (23) with three corner seals (B, C and A or D) and a pinching long seam jaw (24 or 25) that closes the film web ends on a corner as a corner seal. A long seam as corner seal on the correct position (24) or (25) is called a 'completely shifted long seam right' or 'completely shifted long seam left'.

The cross-seam seal jaws combined with gusset blades form the block bottom.

*continued on next page*



## **3.2 Description of the machine (continued)**

### **3.2.3 Forming of Doypack bags**

The description below is an addition to the forming of flat bags and corner seal bags, see previous paragraphs.

The illustration in the middle show the view from above of the forming process of the Doypack bags (36) and where this takes place in the machine.

The illustration at the bottom shows, as seen from the front of the machine, the forming process of the Doypack bag (36) below the forming tube where there are one finger on the left and two fingers on the right, see position (5).

The film route and the forming of the two corner seals (B and C) is equal to the forming of a corner seal bag with a 'shifted long seam left' (33), see previous paragraph.

During the film transport two folds (B and C) are formed in the folding station (14) in the flat film web. The folds are sealed in the corner seal station (15) during film transport and are then shifted into the required direction by the folding plates fitted on tension arm (13). The shifted long-seam jaw (3) closes the two film web ends (33) of the film tube as a corner seal. Eventually the corner seal (C) comes on the left finger below the forming tube and the corner seal (B) and long seam (33) each on one finger on the right.

A folding tube between the two spreading fingers on the right hand forms a gusset (31) during the film transport.

While closing the cross seam jaws a gusset blade forms the gusset (31) on the right-hand side, while the left-hand finger holds the corner seal (C) in position.

Stripper (option): The strip function prevents folds by closing the cross seam jaws to an adjustable opening and to move faster down than the film tube over an adjustable length.

The cross seam jaws form the seams (34) and (35) that are separated by the cross seam knife. By turning the formed bag (32) the Doypack bag (36) is formed.

### 3.3 Machine specifications

#### 3.3.1 Specifications of the delivered machine

The equipment and the structure of the machine and the description of the functions correspond to the order confirmation.

Machine dimensions: see the installation diagram in chapter 2.5.

#### 3.3.2 Specifications of the standard machine

Bag length	SVE2510	60–700	mm
Bag width	SVE2510	60–250	mm
Speed (depending on film, bag form and product)	SVE2510	15–180	bags/min.
Forming of corner seal bags	See the order confirmation		
Film roll bearer max. Ø	SVE2510	650	mm
Cross-seam jaw opening max.	SVE2510	135	mm
Film reel core, internal diameter	SVE2510	70–77	mm of 150–155 mm

Control by microprocessor.

Servomotors drive the vacuum-supported draw-off belts.

A servomotor drives the horizontal motion of the cross-seam jaws.

A servomotor drives the vertical motion of the cross-seam jaw housing.

Options upon request of client.

#### 3.3.3 Sound emissions

The following table provides the sound emissions produced while the bags are being emptied using a standard machine with heat seal, and measured by the manufacturer in accordance with DIN 45635 Parts 1 and 28 (accuracy level 2) for the following machine settings.

Cycles / Minute	Measuring plane sound-pressure level $L_{pA}$ dB(A)	Sound power level $L_{wA}$ dB(A)
30	67,3	83,9
70	72,6	89,2
100	73,3	89,9
120	74,0	90,6


### 3.3 Machine specifications

#### 3.3.4 Ambient conditions of the machine

The machine is built according to the European standard EN 60 204 and can be deployed in the following ambient conditions:

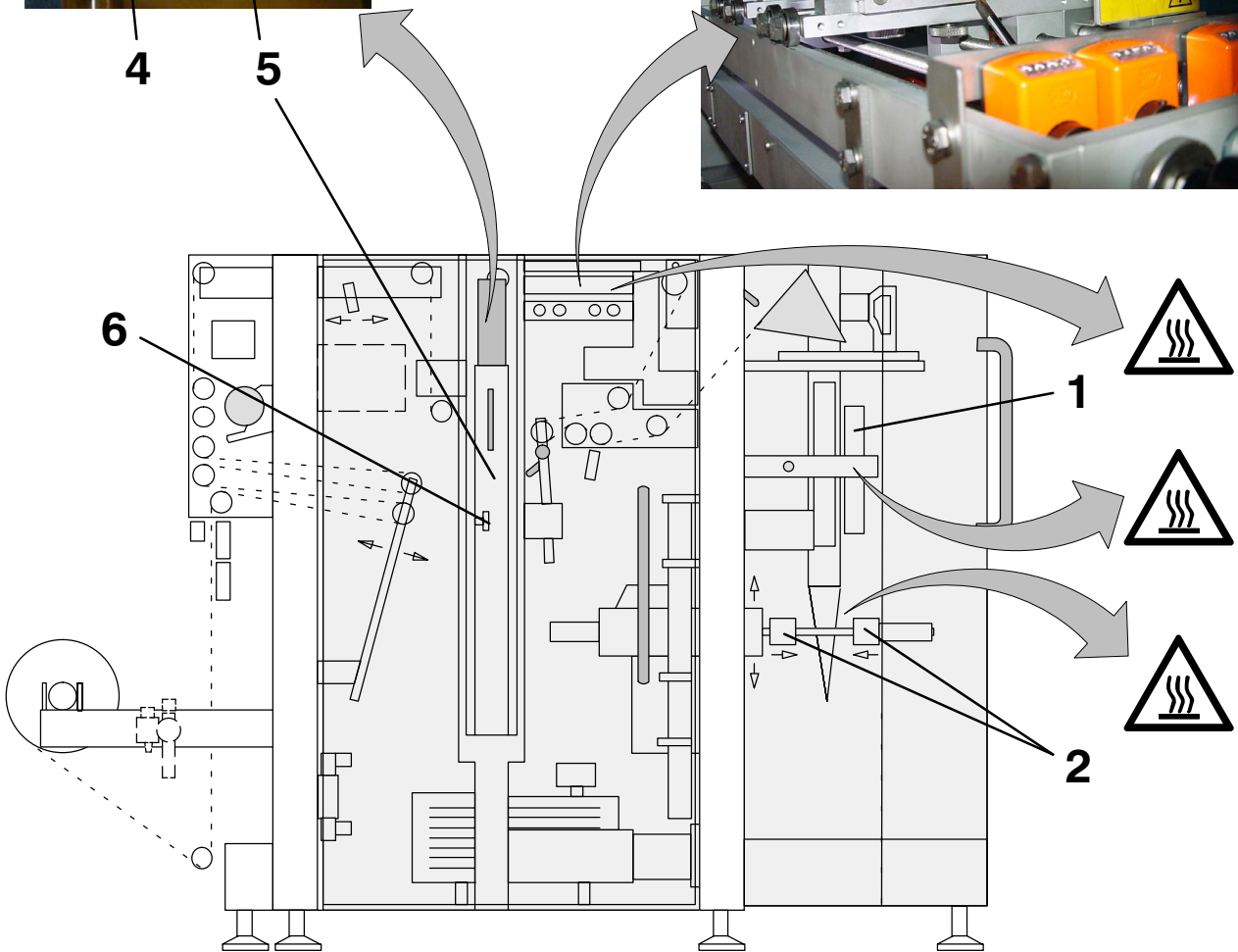
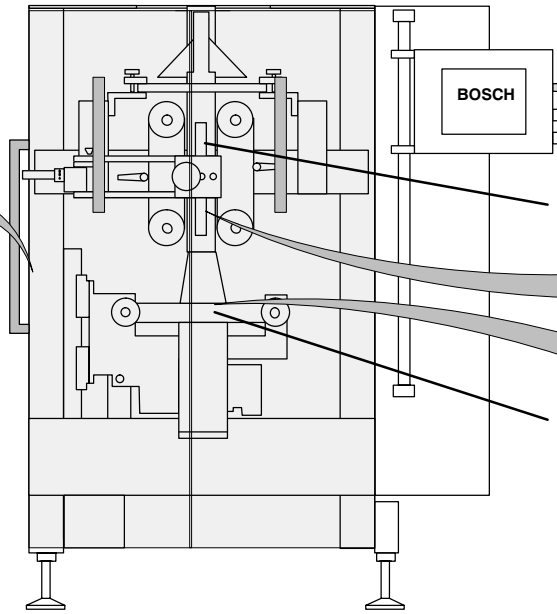
Room temperature	from + 5 to + 40 °C (41 to 104 °F)
Relative humidity	maximum 50% at 40 °C (104 °F)
Altitude	up to 1000 m above sea level

### 3.4 Conditions for processing and storage of packaging materials

Processing and storage temperature	18 to 20 °C (64.4 to 68 °F)
Relative air humidity	40 to 50 %
Dimensions and quality	Machine-compliant as per size sample sheets
 Never insert the packaging material into the machine when it is cold, but wait for 24 hours until its temperature has adjusted to the constant temperature of the processing room.	



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## 4.1 For your safety (see also Section 1, "Safety measures")



**You are responsible!**  
Please heed the "safety measures"!

### Requirements of personnel

#### Who is allowed to operate the machine?

- persons who are entitled to carry out such work because of their training and qualification
- persons who are assigned to carry out such work by the operator of the machine



#### **Danger of being injured!**

The machine is a source of danger, if it is operated improperly or not in an orderly condition.

Refrain from any method of work that is of questionable safety!

Do not start machine before all guard and safety devices e.g. guard devices that can be taken off, EMERGENCY STOP devices, sound insulation devices, extraction devices are installed and in operative condition!



#### **Danger of burn injuries!**

The long-seam jaw/s (1), the cross-seam jaws (2) and the corner-seal jaws (3) can be hot after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw/s (1).

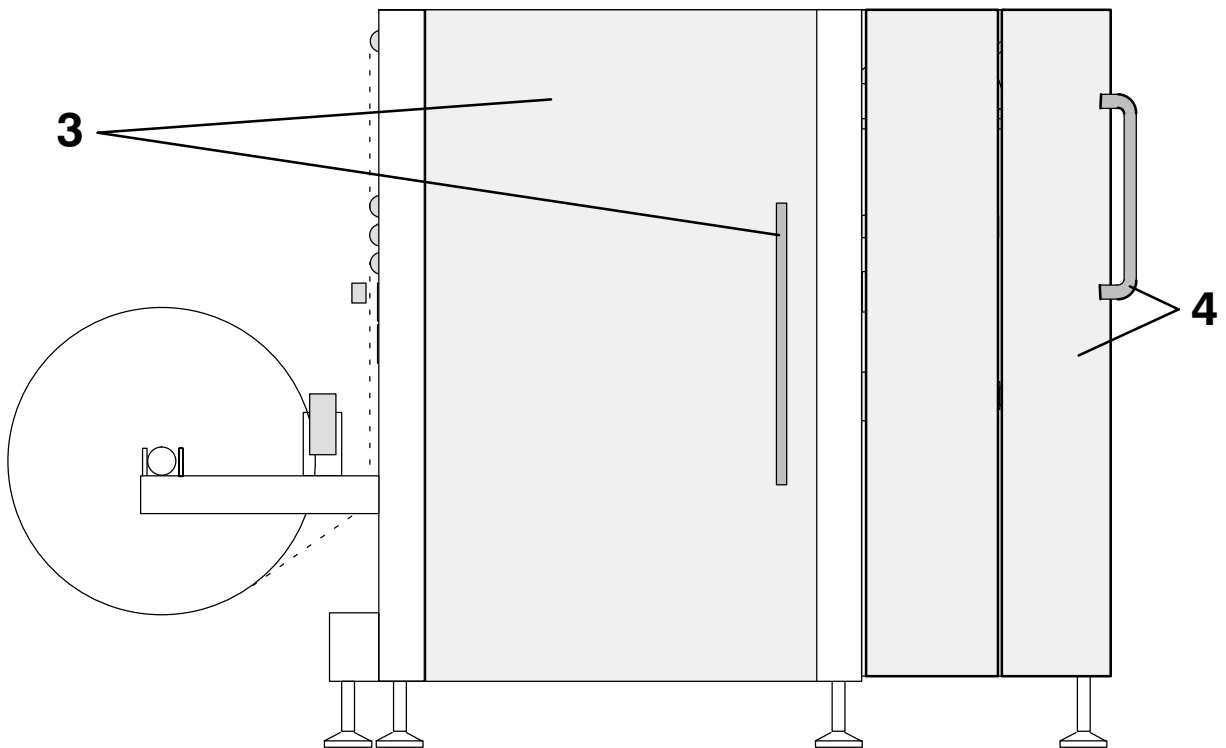
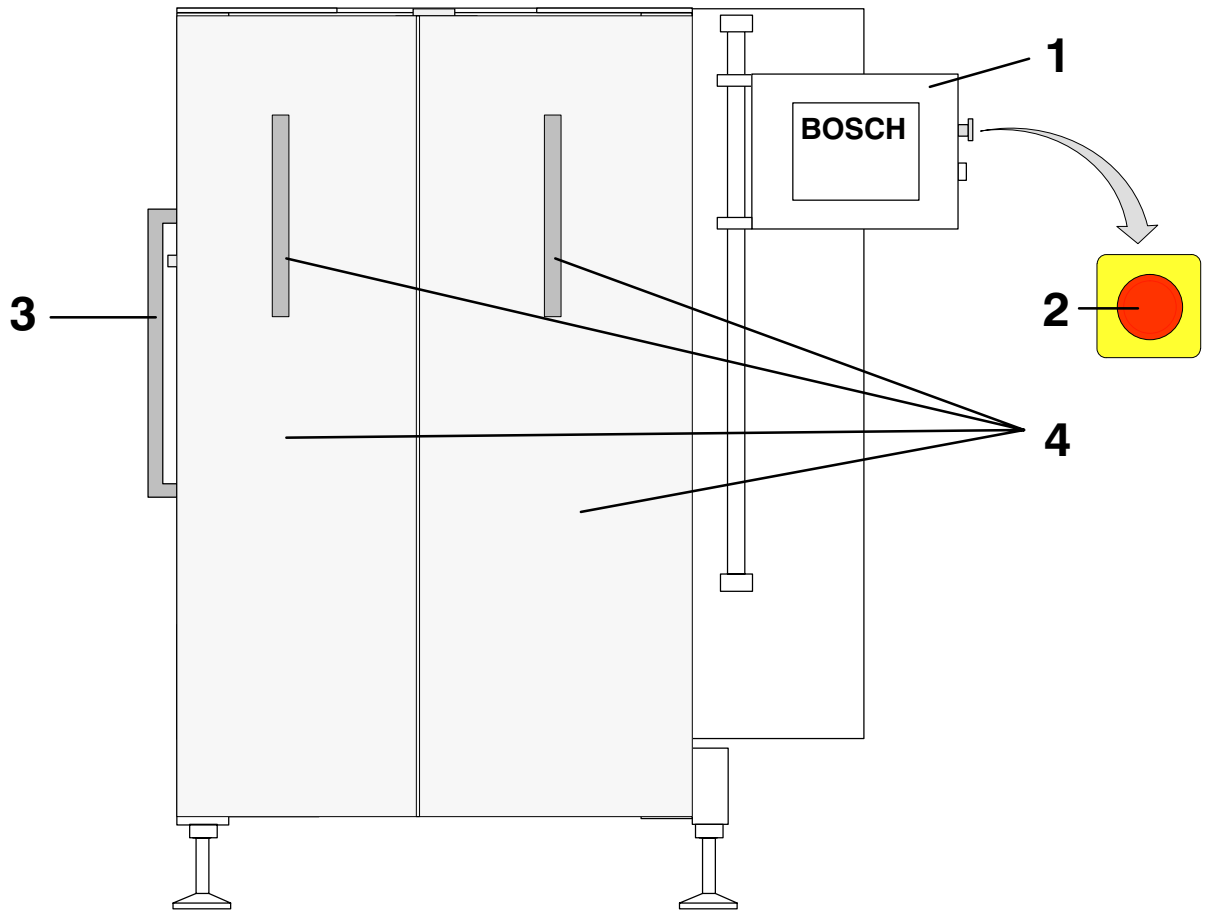


#### **Danger of injury and damage!**

The guide (5) can tumble/fall into the horizontal position when the knob (6) is pulled. Stay outside the falling circle of the guide (5)!

Two people are required to change the (28 kg) folding station (4).

- ☞ Before starting the machine ensure that nobody is endangered by the start-up of the machine



## 4.2 Shut-down in case of emergency (EMERGENCY STOP)

### Position of the EMERGENCY STOP devices

**Danger!**

Pushing the EMERGENCY STOP button (2) on the side of the operating panel (1) will immediately stop the machine. If one of the doors (3 and 4) is opened during production, the machine will immediately stop.

Before switching on the machine again, determine the cause of the EMERGENCY STOP and eliminate an existing emergency situation.

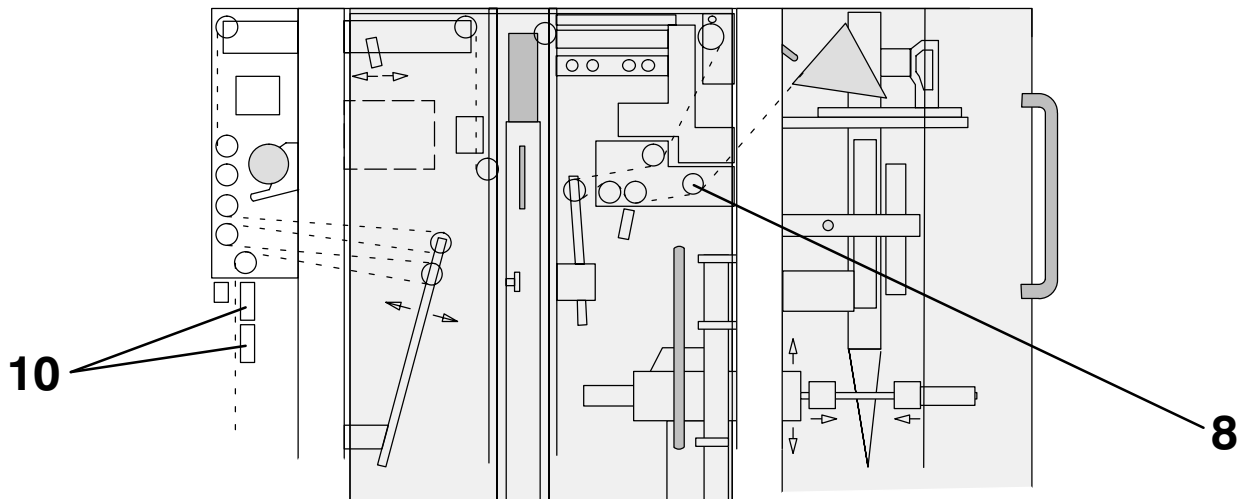
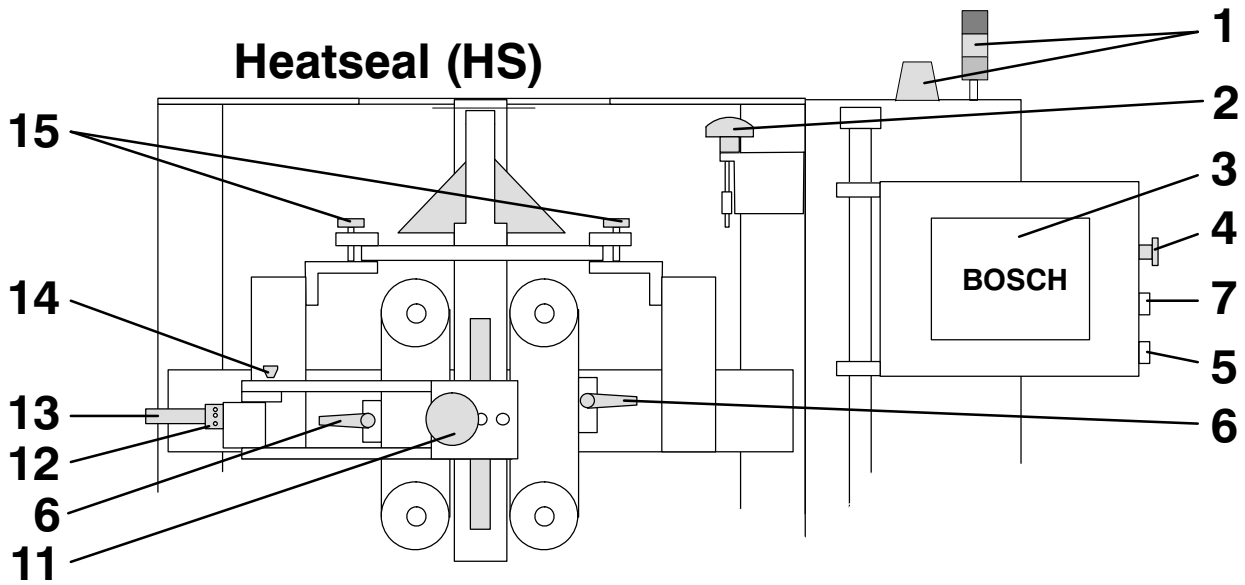
Unlock the impact button EMERGENCY STOP by pulling out.

**Caution!**

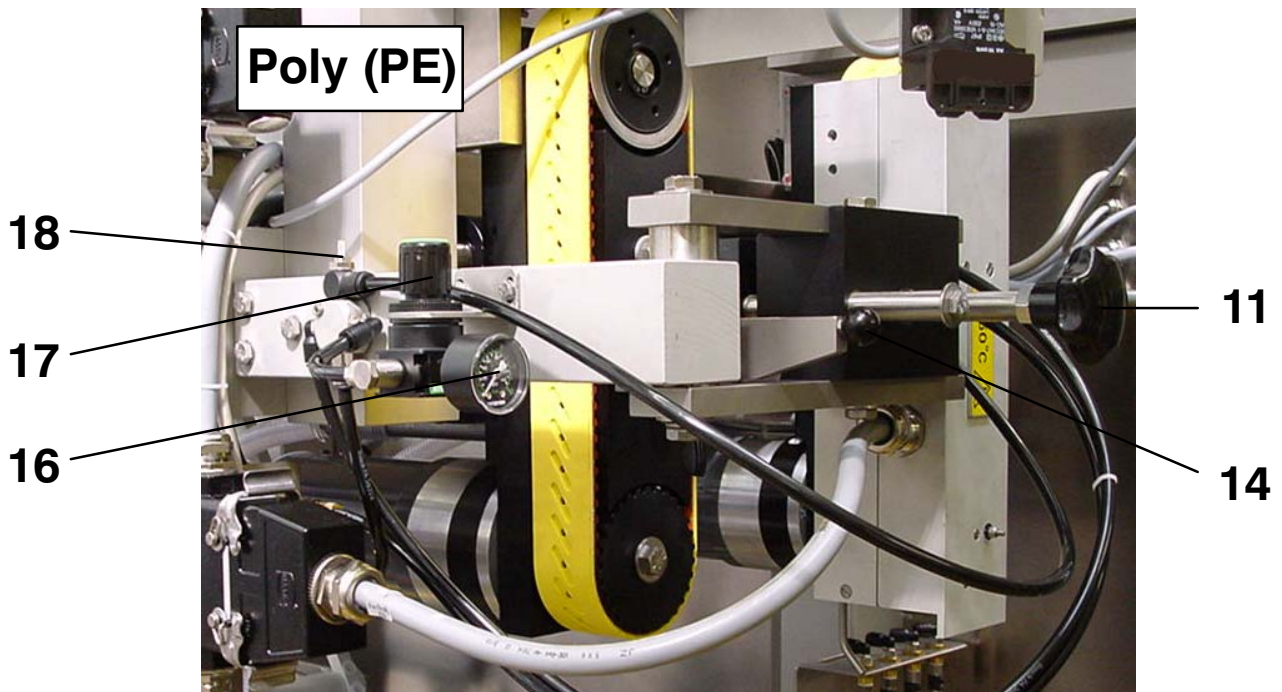
Only press the impact button "EMERGENCY STOP" in case of danger!

- ▶ Consequential faults can occur!
- ▶ Measures to be taken after "EMERGENCY STOP": see 4.8.

**Heatseal (HS)**



**Poly (PE)**

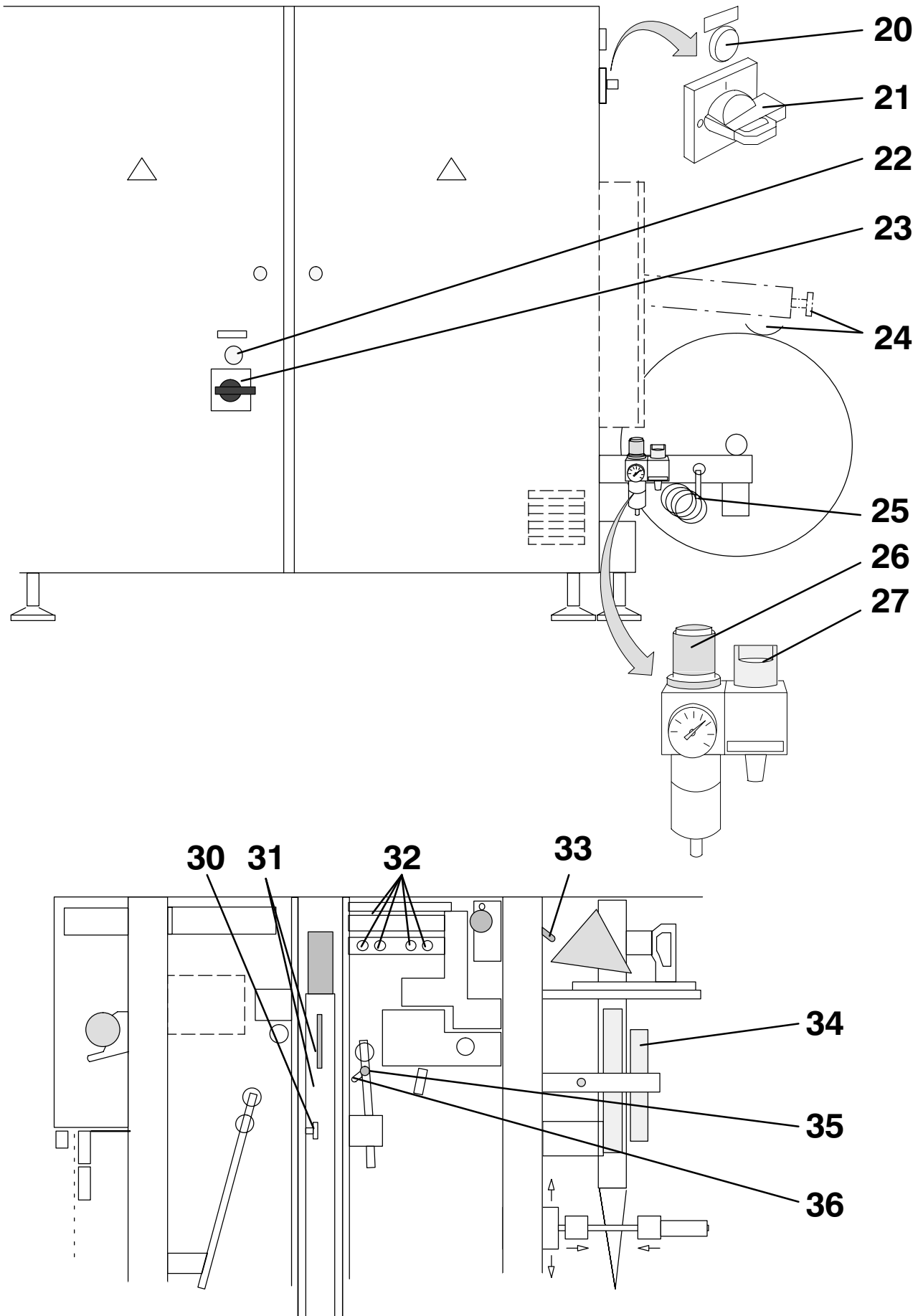


### 4.3 Operating controls

If a non–displayed option has been mounted, refer to the option concerned in section 6.

NO.	OPERATING CONTROL	FUNCTION
1	Warning light	Option. Orange: end of film reel approaching. Red: machine stop after failure report.
2	Rotary knob	Set the position of tracking frame in order to control the film web sideways. Not present with optional automatic film–web tracking control.
3	Touch screen	For operating the machine (e.g. starting, stopping, etc.). The operating panel can be rotated and moved vertically, as necessary. Option (not shown in figures): operating panel on the left side or on a swivelling arm.
4	Emergency stop button	Immediately deactivates machine in an emergency.
5	Beeper	Sounds when a key on the touch screen is pressed.
6	Hand clamps	Lock the draw–off belts in position with respect to the forming tube.
7	Push button	Switches on the compressed air supply for some functions that were switched off by opening a safety guard.
8	Rotary knob	Sets the film–web reel to feed the film web to the shoulder at the correct run–in angle.
10	Splicing table	Simplifies a film–reel change by splicing a new film web onto the old film web. Option: splicing table with which vacuum draws the film against the table.
11	Rotary knob	Sets the distance between the long–seam jaw and the forming tube.
12	Counter	HS: gives an indication of the adjusted long–seam pressure.
13	Rotary knob	HS: adjusts the long–seam pressure.
14	Pull button/lock	Locks the long–seam arm to the drive.
15	Quick–release clamps	Lock the forming set.
16	Manometer	PE: Indication of the amount of hot air for the long seam.
17	Pressure control	PE: Sets the amount of hot air for the long seam.
18	Throttle valve	PE: Sets the amount of cooling air for the long seam.

*continued on next page*



### 4.3 Operating controls (continued)

NO.	OPERATING CONTROL	FUNCTION
20	Push button	-Switches machine off, e.g. for film reel replacement. -Switches the film clamp off.
21	Selector-rotator switch	Option: Switches the supply voltage to the dosing unit.
22	Signal lamp	Indicates that the machine has been switched on.
23	Selector-rotator switch (Main switch)	Switches the supply voltage to the machine on (position '1') and off (position '0'). In position '0', the red section can be pulled out and locked. The left-hand door and subsequently the right-hand door of control cabinet can only be opened in position '0'.
24	Motor-driven unwinding roller (if provided)	Option: unwinds the film reel. Stop the drive roller and disconnect from the film reel by moving the knob (24) upwards into the lock. Check lock.
25	Air gun	Blows compressed air into the side of the film reel shaft in order to lock the film reel onto the shaft.
26	Pressure control	Sets the air pressure for the machine. The manometer indicates the pressure of the compressed air in the machine.
27	Valve	Supplies the pneumatic system with compressed air. Bleeds off air when the system is switched off. Can be locked.

#### Operating controls added for corner seal bags and Doypack bags

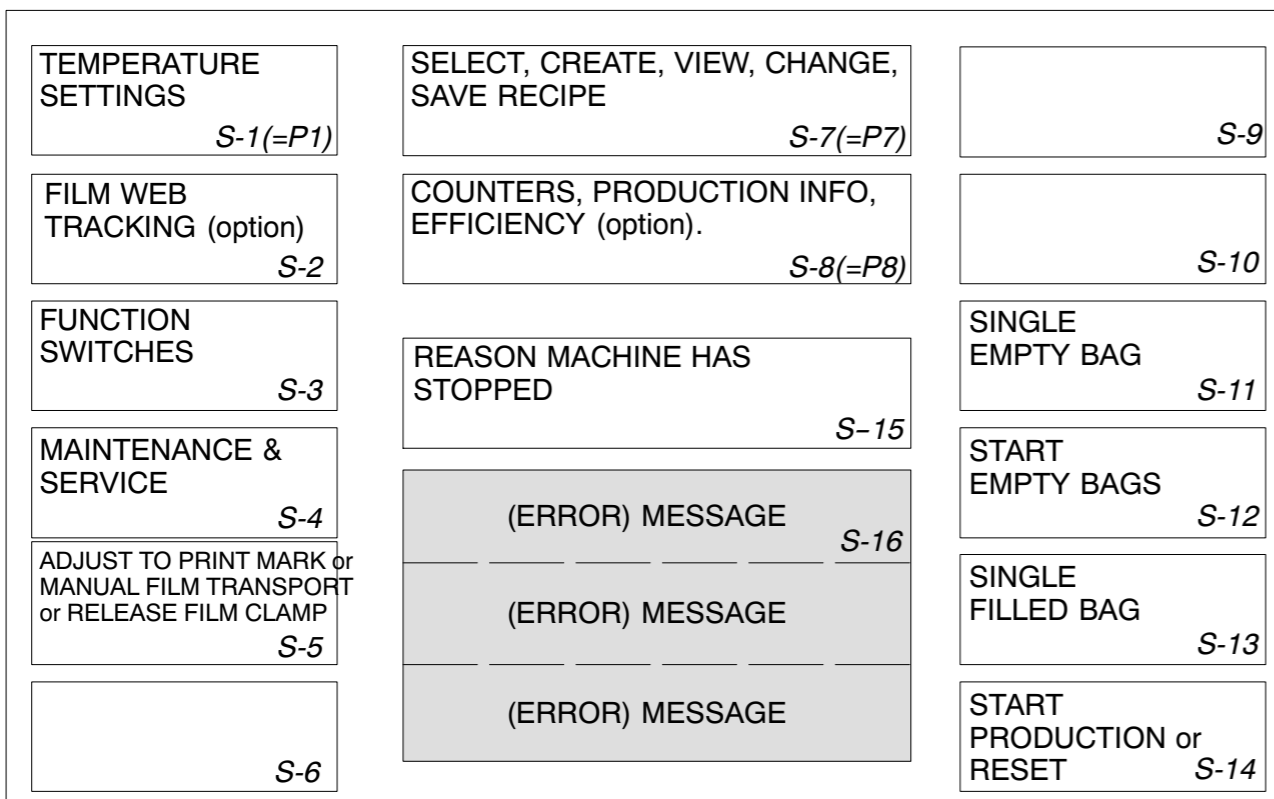
NO.	OPERATING CONTROL	FUNCTION
30	Pull button/lock	Locks the guide (31) in the vertical position.
31	Grip	Provides the possibility to carefully move the guide (31) in the horizontal position.
32	Lockable turning knobs with counters	Can horizontally set each corner seal jaw in relation to the folds in the film web.
33	Handle left and right	Lift up the auxiliary driving roller to be able to guide through the film web.
34	Pinching long seam	If provided, see the option concerned in section 6.
35	Pull button/lock	Locks the folding plates in relation to the film web roller.
36	Handle	Turns the folding plates away from the film web roller.



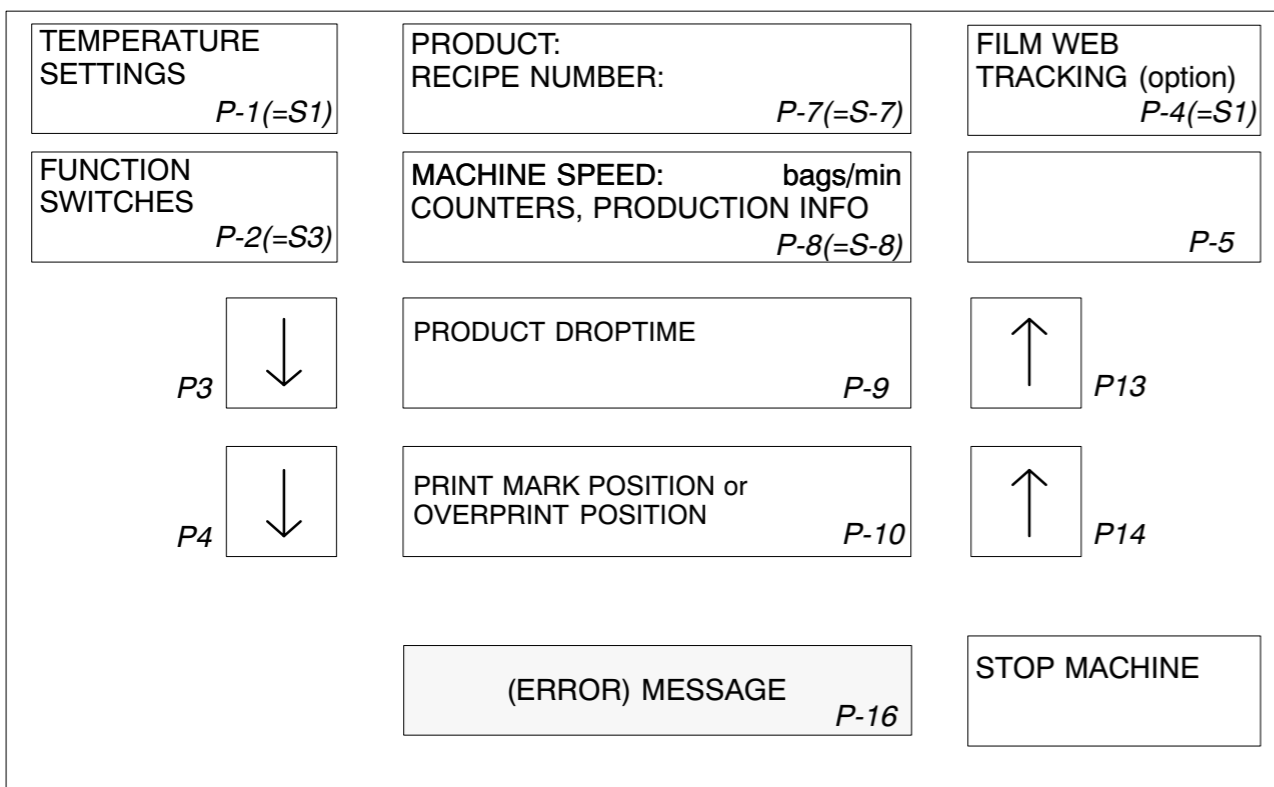




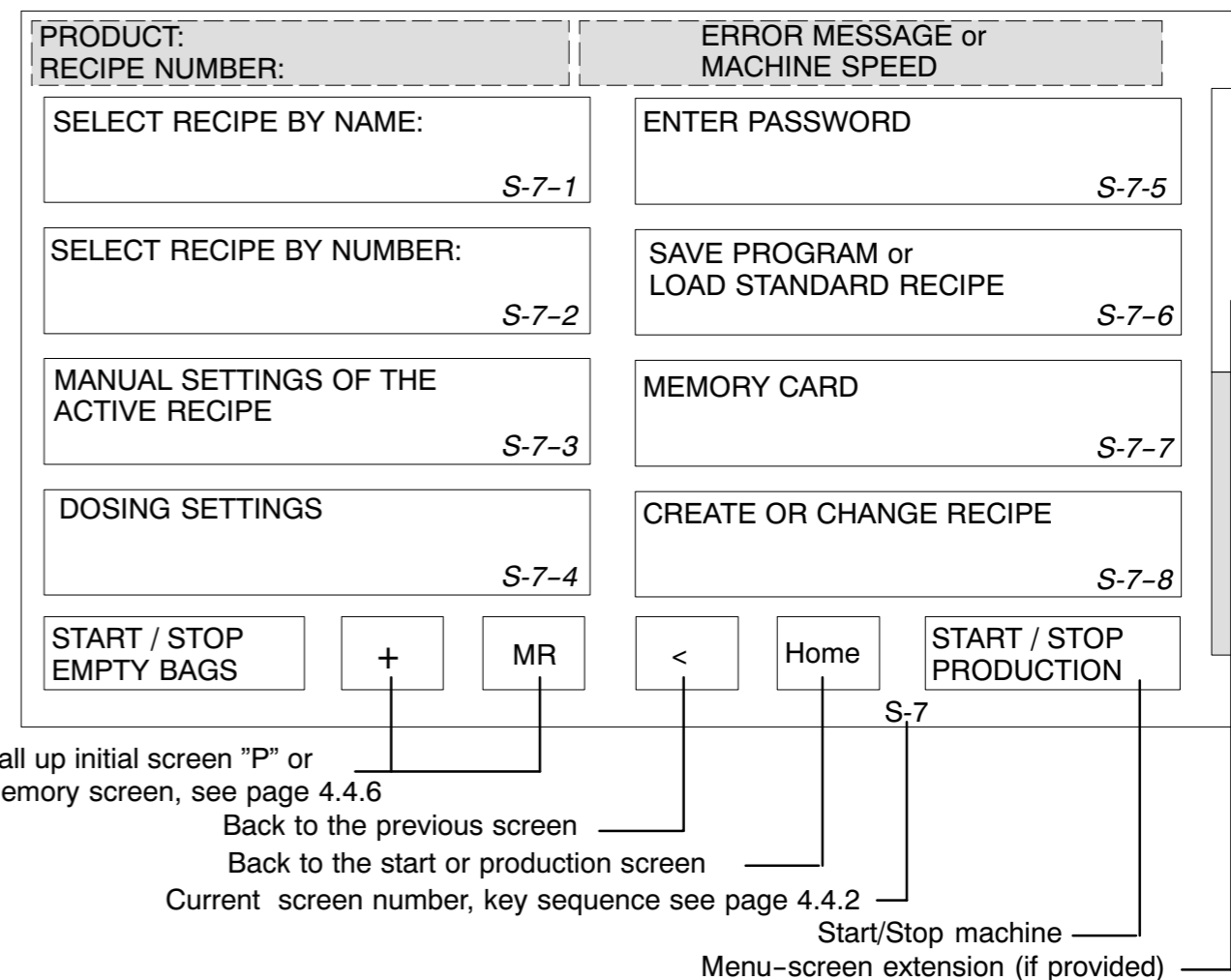
**START-SCREEN (protective guards closed)**



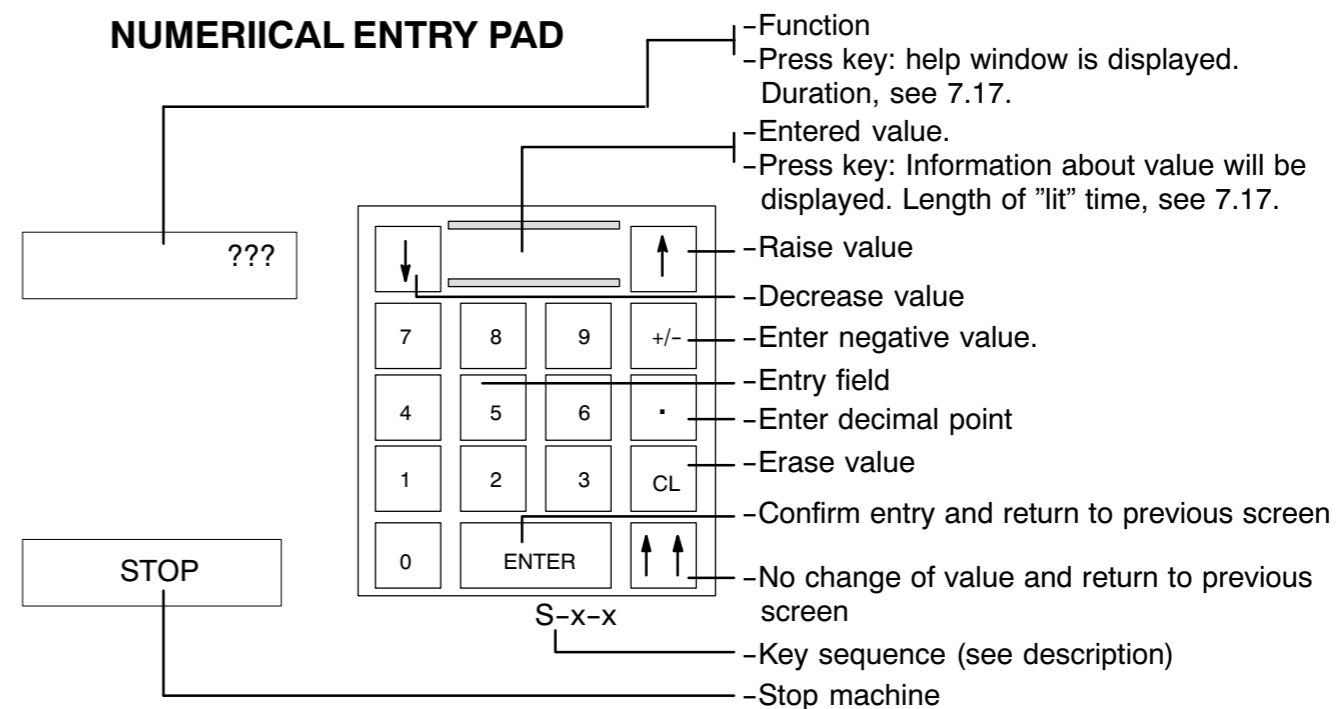
**PRODUCTION-SCREEN**



**MENU-SCREEN**



**NUMERICAL ENTRY PAD**



## 4.4 Touch screen

### 4.4.1 Description

The machine is controlled by a microprocessor, which in turn is connected to the touch screen. The touch screen will inform the operator about such matters as the machine speed, causes of any machine failures, etc. The set functions, times, information, etc. are stored in a recipe. A maximum of 96 different recipes can be stored.

Note: the layout of the touch screen is continuously improved, which implies that texts and positions of keys and/or fields may deviate from this manual. Wherever the manual says 'press' a key or field, the key or field only needs to be lightly touched.

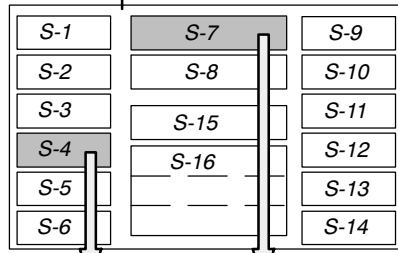
Please open the fold-out page on the left. It shows the most important screens. The page can be folded out at a description in this manual; here it may be handy that the start and/or production screen remains visible.

START screen (S) appears when the main switch is activated or when the machine stops. Press HOME if the screen does not appear.  
 PRODUCTION screen (P) appears during production.  
 Press HOME if this screen does not appear.

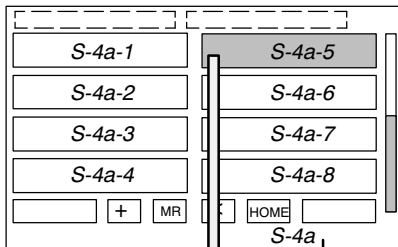
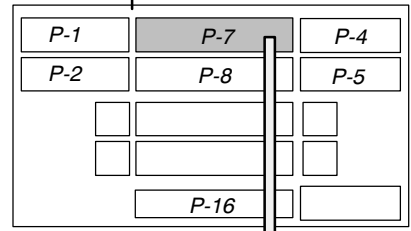
A beeper on the operating panel sounds each time a key is pressed. Some keys require extra confirmation before the function will be carried out. Depending on the touch screen supplied, the keys will have various colours or shades of grey. The meanings of the colours or shades of grey and some important keys are listed below.

Colour	Shade of grey	Meaning
red	black	-(error) message. Failures are listed in section 5.
grey	grey	-information or -listed function cannot be executed
green	white	-listed function will be executed after pressing the key (if possible)
blue	dark grey	-after having pressed the key, a next menu screen appears
yellow	white	-option or -after having pressed the key, an entry field appears . Data may be changed.
HOME	HOME	-after having pressed the key, the START or PRODUCTION screen will appear
<	<	-after having pressed the key the previous screen appears

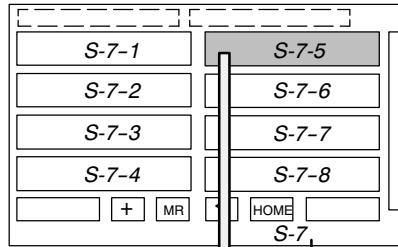
**S**



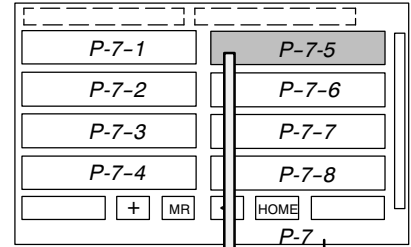
**P**



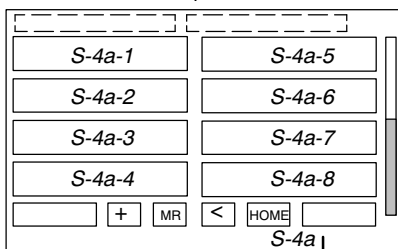
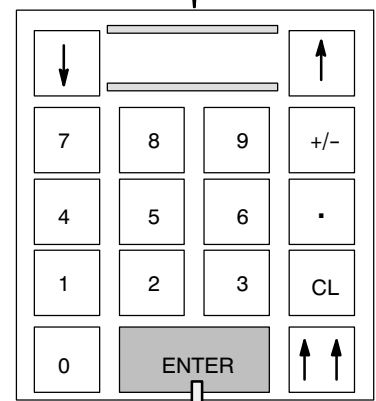
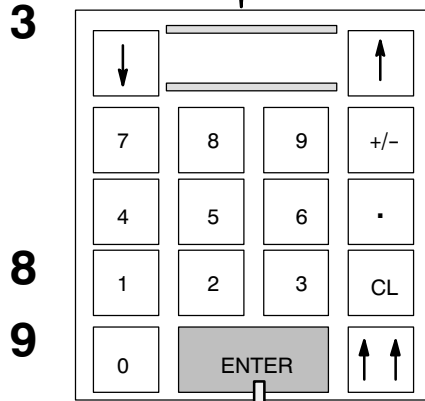
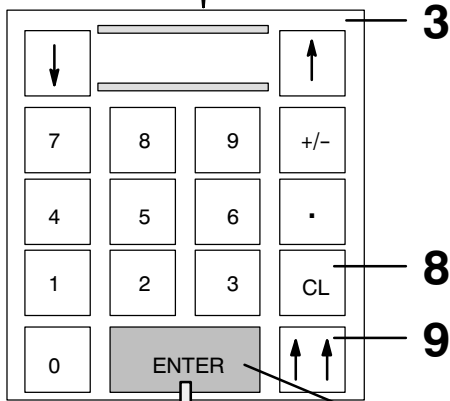
**S-4a**



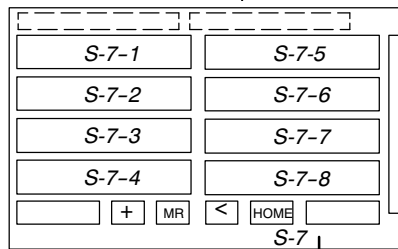
**S-7**



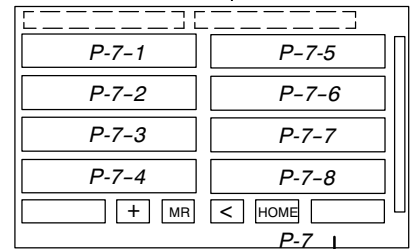
**P-7**



**S-4a**



**S-7**



**P-7**

## 4.4 Touch screen

### 4.4.2 Using a numerical sequence to find a screen or key in the touch screen

By way of illustration every key in every screen has been provided with a number.

The numerical sequence is: from top left down, then from top centre down and, if present, from top right down. A numerical sequence in this manual indicates the order of the keys that successively are to be pressed on each screen.

The current numerical sequence appears at the bottom right in each screen. For example:

**S-7-5** means: during machine standstill press the **Start** screen (S) key **7**,  
press key **5** on the next (menu) screen (S-7). Entry field (3) appears.

**P-7-5** means: press the **Production** screen (P) key **7**,  
press key **5** on the next (menu) screen (P-7). Entry field (3) appears.

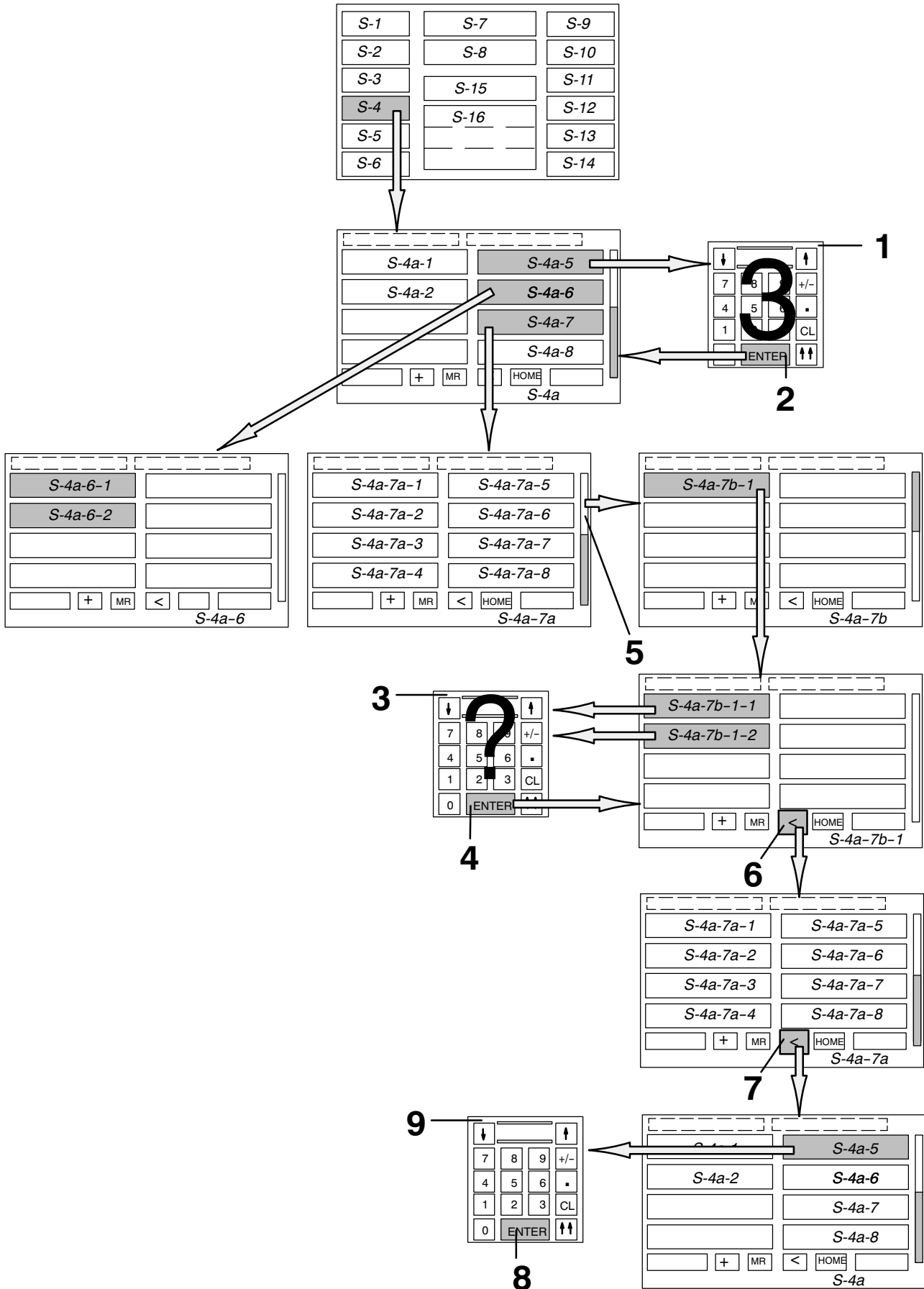
The screens that during production are found in the same place as during machine standstill are not additionally mentioned in this manual. In the displayed numerical sequence the first letter "S" is only replaced by "P". E.g. **P-7-8-1-1** is equal to **S-7-8-1-1**.

### 4.4.3 Enter password

The access to the touch screen has been divided into levels. A higher level gives access to more functions and more data can be changed. Levels 2 and 3 require passwords. Consultation with BOSCH is required when the password for level 3 is not known (anymore).

Level	Target group	Options	Password
1	Operator	Choose or change recipe	Switch on main switch or press 'ENTER' (6) in the entry field (3).
2	For example: foreman	Select, change, create and save recipe	The password entered by Bosch is '2'. Change, see next page.
3	Technical depart- ment customer	See 7.17.	The password entered by Bosch is '3'. Change, see next page.

OPERATION	METHOD	REMARKS
Enter password level 2 or 3	Press S-4a-5 or S-7-5 or P-7-5. Enter password for the required level. Confirm entry with 'ENTER' (6).	Entry field (3) appears.  Key (8): delete entry. Key (9): no entry and return to the previous screen, for example S-7.
Return to (operator) level 1	Press S-4a-5 or S-7-5 or P-7-5. Press 'ENTER' (6) on the entry field (3) without entry.	



## 4.4 Touch screen

### 4.4.4 Change password

Consultation with BOSCH is required when the password for level 3 is not known (anymore). With the password for level 3 the passwords for levels 2 and 3 can be changed.

Alternative: the steps below are shown step-for-step in S-4b-5, see 7.18.

OPERATION	METHOD	REMARKS
Enter password level 3	Press S-4. Press S-4a-5. Enter password level 3. At delivery this code is '3'. Confirm entry with 'ENTER' (2).	Entry field (1) appears.  S-4a-7 will be accessible.
Select change screen	Press S-4a-7. Select screen S-4a-7b with scroll bar (5). Press S-4a-7b-1. Select the level that is to be changed.	S-4a-7a appears.  Entry field (3) appears.
Change password	Enter the new password in the entry field (3). Confirm entry with 'ENTER' (4). Enter the new password in the entry field (3) again. Confirm entry with 'ENTER' (4). If necessary, change the password for the other level.	Max. 8 digits.  Entry field (3) appears.  S-4a-7b-1 appears.
Return to (operator) level 1	With key (6) back to S-4a-7a. With key (7) back to S-4a. Press S-4a-5 (alternative S-7-5). Press 'ENTER' (8) on the entry field (9) without entry.	

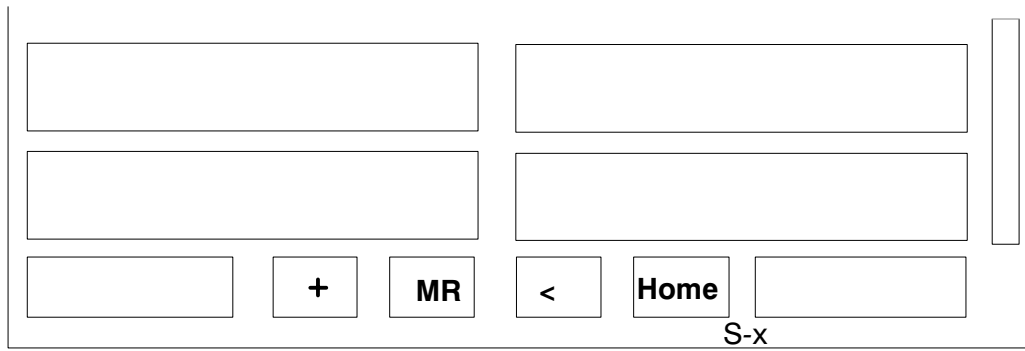
### 4.4.5 Select the touch screen language

Press S-4. S-4a appears.

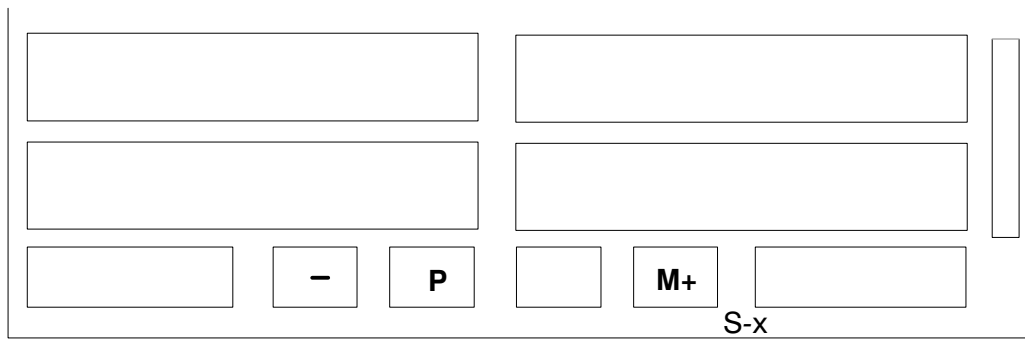
Press S-4a-6. Possible without password.

Select a language.

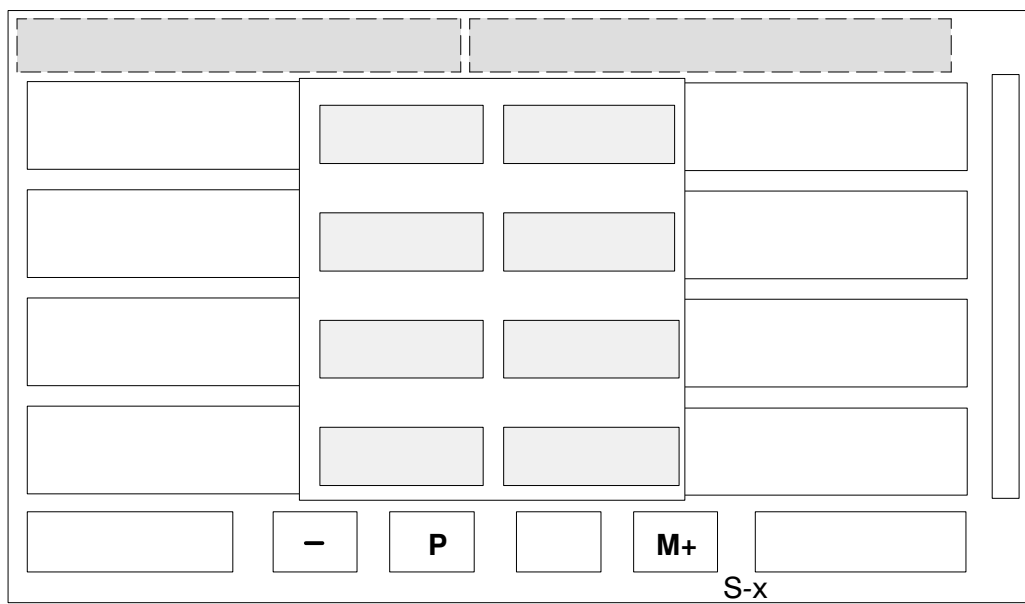
**A**



**B**



**C**

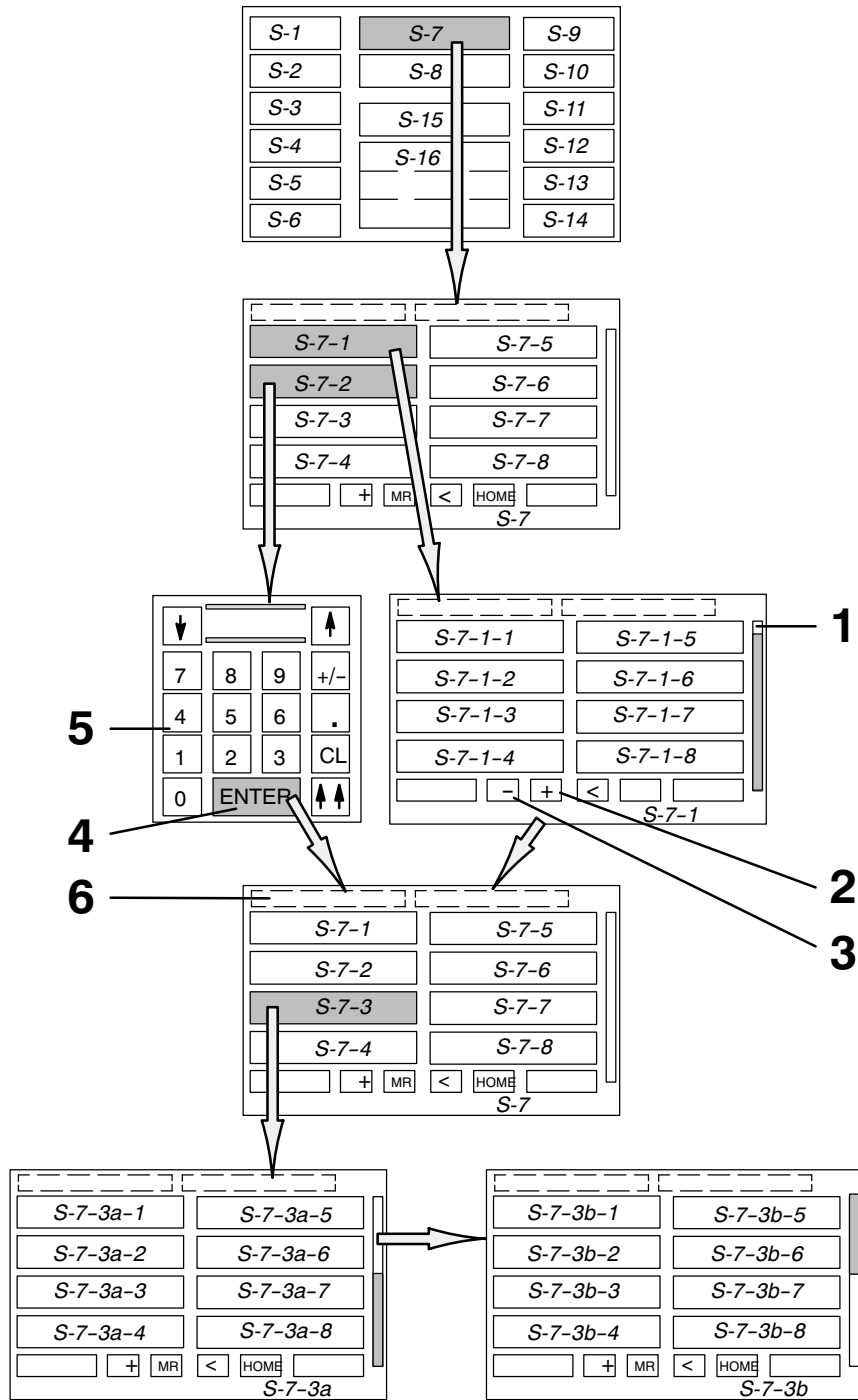




## 4.4 Touch screen

### 4.4.6 Call up an additional operating screen or memory screen

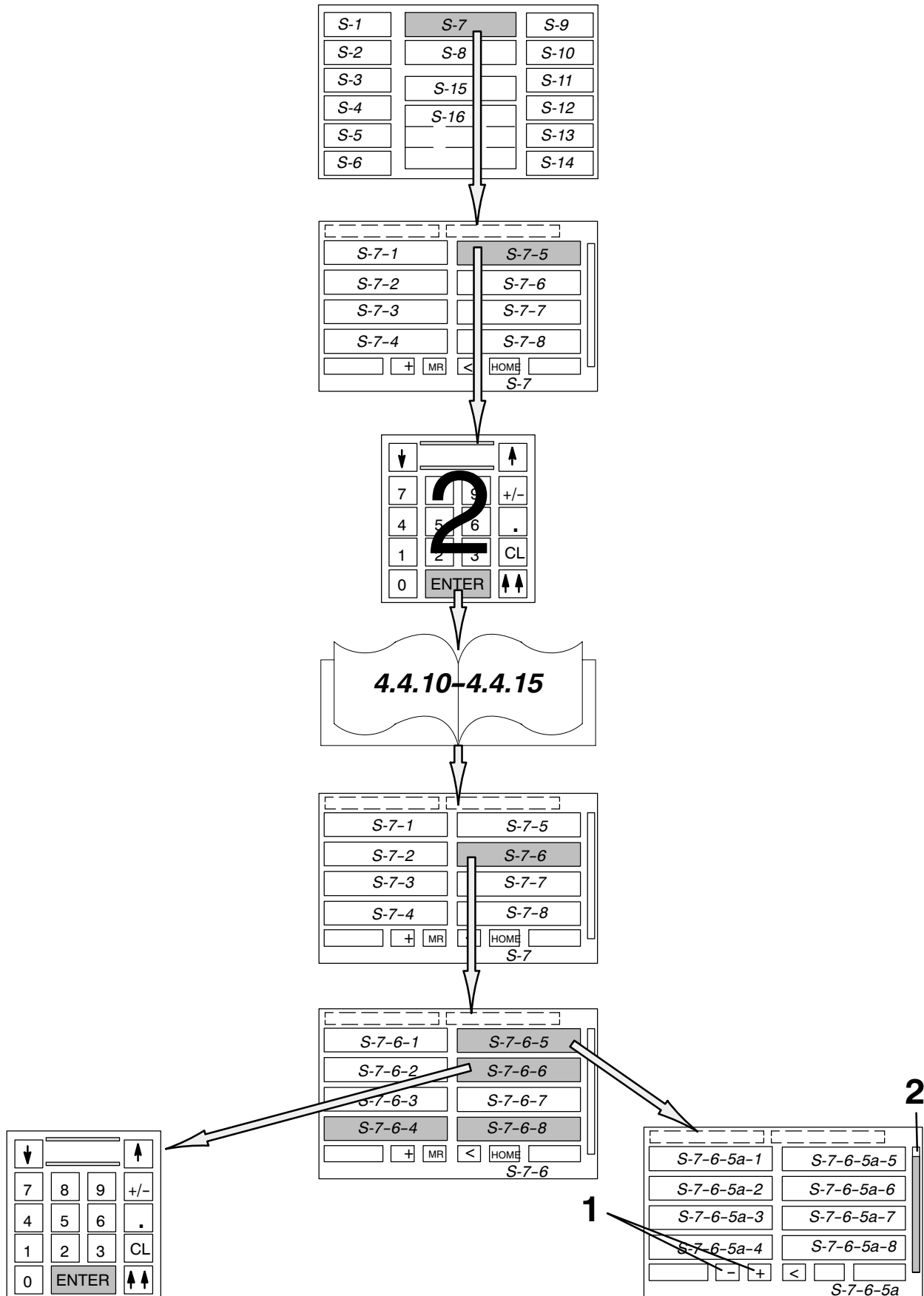
OPERATION	METHOD	REMARKS
Call up additional operating screen	Press '+' on screen A (see left-hand page).	Screen B appears.
	Press P on screen B	An extra screen will be laid over screen B; see screen C.
Make additional operating screen disappear	Press P on screen C	The extra operating screen will disappear as soon as original screen A becomes fully visible.
Register memory screen	Return to screen to be recorded in memory	E.g. a screen that is often used.
	Press '+' on screen A	Screen B appears.
	Press M+ on screen B	Selected screen is stored in memory.
	Press '-' on screen B	Screen A appears.
Call up memory screen	Press MR on screen A	The screen recorded in memory will appear. From this screen, other screens can be selected.



## 4.4 Touch screen

### 4.4.7 Select recipe

OPERATION	METHOD	REMARKS
Select recipe by name or	Press S-7-1. Look for the name of the recipe in the screen. The next screen can be selected with the scroll bar (1) or "+" (2) and the previous screen with "-" (3). Press the key with the name of the recipe. Check recipe name and number in field (6).	Scroll bar (1) indicates the position of the current screen.  S-7 appears.
Select recipe by number	Press S-7-2. Enter the number of the recipe in the entry field (5) and confirm with "ENTER" (4). Check recipe name and number in field (6).	Entry field (5) appears.
Manually set the machine	Press S-7-3. Manually set the machine by using the data on the screens S-7-3a and S-7-3b. Screens are equal to level 2 (S-7-8-1)-1, see 4.4.11	See Section 6.



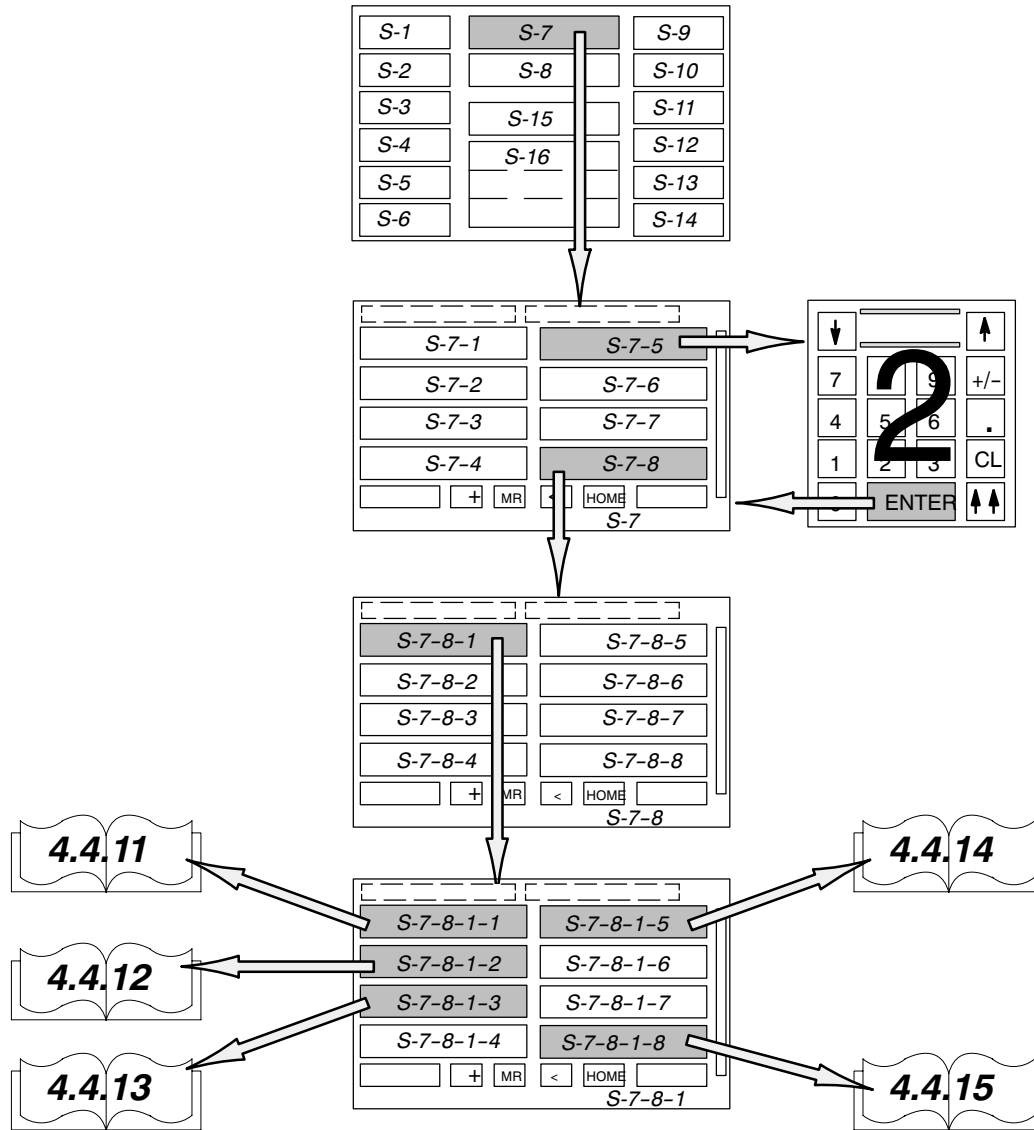
## 4.4 Touch screen

### 4.4.8 Create and save a new recipe

METHOD	REMARKS
<p>In S-7-5, enter the level 2 password.</p> <p>Select an existing recipe with comparable settings. If there is no existing recipe with comparable settings, a standard recipe can be loaded with S-7-6-4.</p> <p>Change recipe. See the following pages for an extensive explanation. The recipe name can also be changed in S-7-6-8.</p> <p>Save changed recipe in: -S-7-6-5 on an empty place. Select the following or previous screen with recipes by using "+" or "-" (1) whereby the scroll bar (2) indicates the current position. -S-7-6-6 using a free number.</p> <p>Return to (operator) level 1 by pressing ENTER in the empty entry field in S-7-5.</p>	<p>If necessary, see 4.4.3.</p> <p>Possibility to save time.</p> <p>Warning: old settings in the selected number will be lost.</p>

### 4.4.9 Change and save recipe

METHOD	REMARKS
<p>Select the recipe to be changed in S-7-1 or S-7-2.</p> <p>In S-7-5, enter the level 2 password.</p> <p>Change recipe. See the following pages for an extensive explanation.</p> <p>Save the "changed" recipe in S-7-6-5 or S-7-6-6 under the same number when the "old" settings may be lost in the selected number. If the 'old' recipe without the changes has to be kept, save the 'changed' recipe using a free number.</p> <p>Return to (operator) level 1 by pressing 'Enter' in the empty entry field in S-7-5.</p>	<p>If necessary, see 4.4.7</p> <p>If necessary, see 4.4.3</p> <p>Warning: save a changed recipe, otherwise the changes will be lost when another recipe is selected or when the machine is switched off.</p>



## 4.4 Touch screen

### 4.4.10 Make/view/change/optimise a recipe

The desired machine speed determines the time available to make one single bag. E.g. 60 bags/minute means that one bag will be produced in one 1 second (1000 milliseconds). This period is known as the cycle period.

If during the adjustment a parameter should take up too much time, an error message (see section 5) will notify this. If possible, the time deficiency may be made up for by taking time from other parameters or by adjusting the machine speed and with it the cycle time.

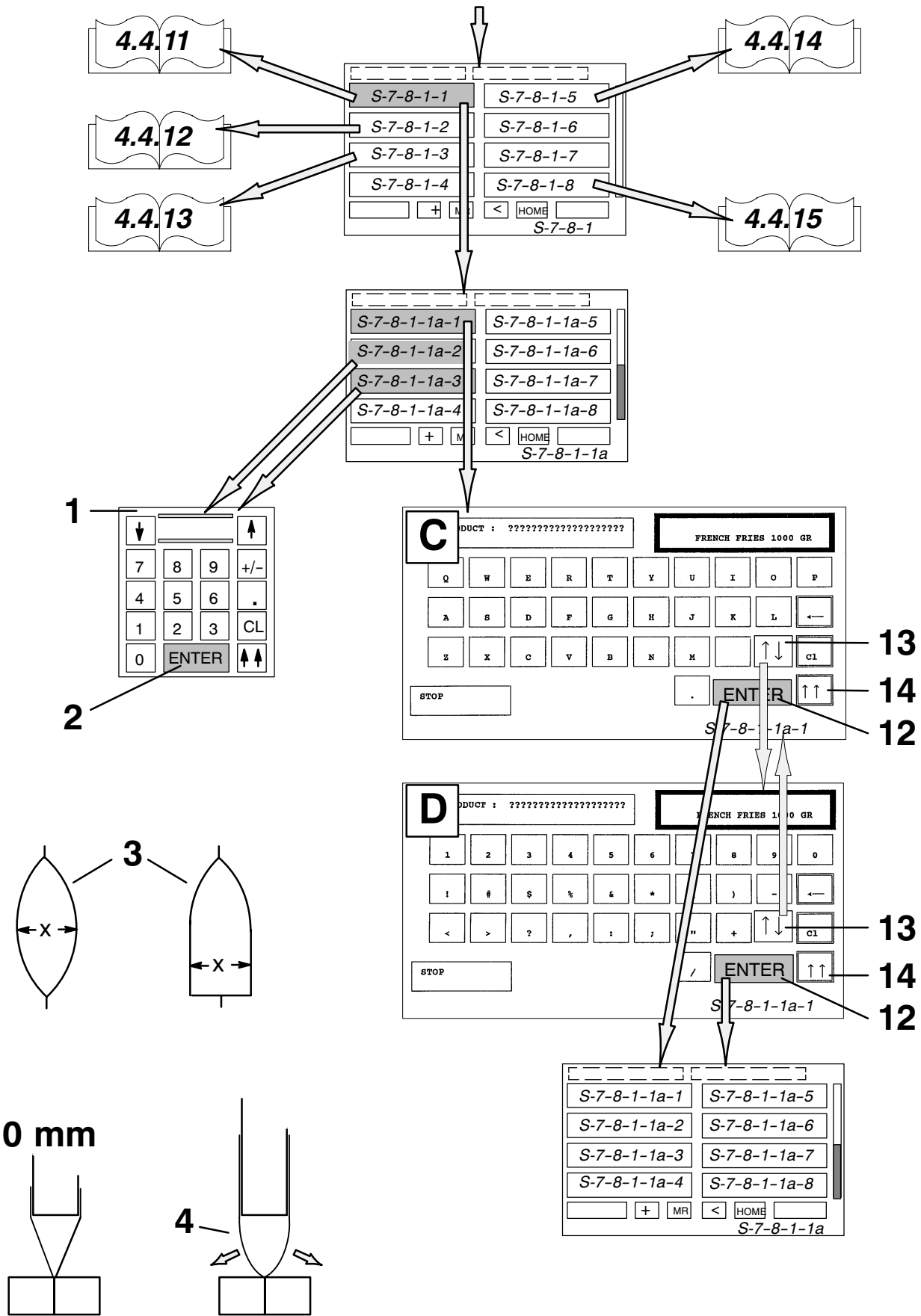
Recipe data, machine settings, function switches, displacements, times, counters and temperature controls have been collected in one screen. The screen has been divided into groups as shown below in order to facilitate finding the data. Those screens and/or fields that are also found on other positions in the touch screen are mentioned too. Those screens that are found on the same position during production and machine standstill are not mentioned, because in the displayed numerical sequence only the first letters "S" and "P" are exchanged, for example, P-7-8-1-1 is equal to S-7-8-1-1.

Warning: save a changed recipe in S-7-6-5 or S-7-6-6 using the same number, otherwise the changes will be lost when another recipe is selected or when the machine is switched off. If the 'old' recipe without changes has to be kept, save the 'changed' recipe using a free number.

The layout of screen (level 2) S-7-8-1 or (level 2) P-7-8-1 is as follows:

Group	Position in touch screen <sup>1)</sup>	Alternative position(s) <sup>1)</sup>	See chapter
Recipe and machine settings	Level 2 (S-7-8-1)- 1	(level 1) S-7-3	4.4.11
Function switches	Level 2 (S-7-8-1)- 2	(level 1) S-3 or P-2	4.4.12
Displacements	Level 2 (S-7-8-1)- 3		4.4.13
Times and counters	Level 2 (S-7-8-1)- 5		4.4.14
Temperature control	Level 2 (S-7-8-1)- 8	(level 1) S-1 or P1	4.4.15

<sup>1)</sup> The layout of the touch screen is continuously improved, which implies that texts and positions of keys and/or fields may deviate from this manual.



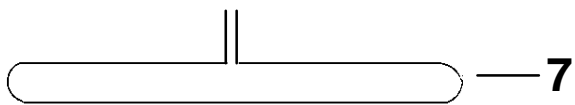
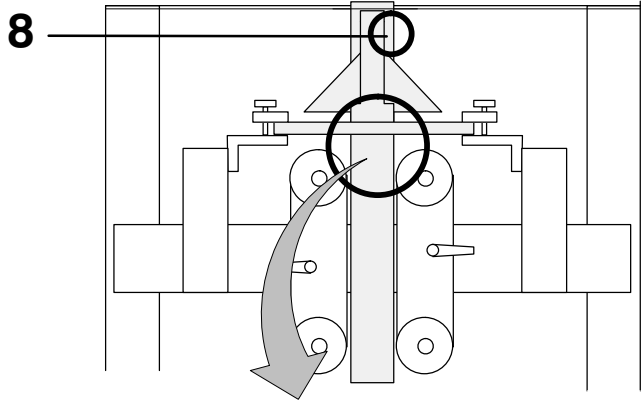
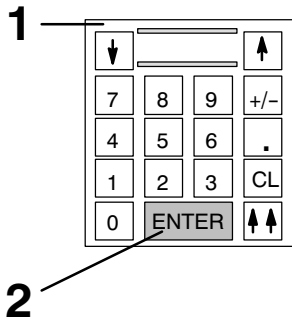


## 4.4 Touch screen

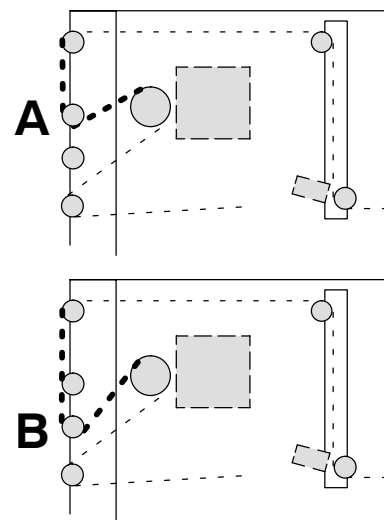
### 4.4.11 Recipe and machine settings level 2 (S-7-8-1)-1 or (level 1) S-7-3

OPERATION	METHOD	NOTES
Enter recipe name	Press (S-7-8-1)-1a-1. Enter name using entry fields (C) and/or (D). Confirm entry with "ENTER" (12).	Screen (C) appears.  Toggle between (C) and (D) with key (13). Back to the previous empty screen with key (14).
Enter machine speed	Press (S-7-8-1)-1a-2. Enter the speed in the entry field (1) and confirm with "ENTER" (2).	A speed of e.g. 60 bags per minute means that 1 bag must be produced in 1 second (1000 ms).
Enter bag length	Press (S-7-8-1)-1a-3. Enter the length in the entry field (1) and confirm with "ENTER" (2).	Film with a print mark: Measure the length on the film web between the beginning of the print mark and the beginning of the same print mark on the next bag. Alternative: with a set photocell (see 6.16), press S-7-8-2 twice and read the measured length.
Sealing and/or welding and/or cooling time and product drop time	See descriptions on 4.4.14.	
Enter bag depth (x)	Press the key concerned. Lift a filled bag (3) by the top seam and measure the thickest part (x). Enter value (x) in the entry field (1) and confirm with "ENTER" (2).	Among other things, the machine computes the opening of the cross-seam jaws. Correct this value if the jaws touch the bag during the upward movement or if the distance between bag and jaws is too large.
Enter extra bag volume to form more belly (4)	Press the key concerned. Enter the number of millimetres in the entry field (1) and confirm with "ENTER" (2) until a better filling rate is reached.	When the cross-seam jaws have been closed, extra film is transported so that the film tube on top of the jaws gets a greater volume (4) and can be filled better.

*continued on next page*



9



## 4.4 Touch screen

### 4.4.11 Recipe and machine settings level 2 (S-7-8-1)-1 or S-7-3 (continued)

OPERATION	METHOD	NOTES
Enter size	Press the key concerned. Enter the code (8) on the forming set in the entry field (1) and confirm with "ENTER" (2).	The code (8) gives the bag width of the flat bag that can be produced with the shoulder and format tube.
Enter long-seam form	Press the key concerned. Select long-seam form.	See the explanation at the bottom of the page.
Enter the position of the film reel on the shaft	Press the key concerned. Enter the film-reel position (9) in the entry field (1) and confirm with "ENTER" (2). After the test run, enter the correct value.	The position of the film reel on the shaft with which a correct long seam is formed. The tracking frame for the film-web control must be in the central position. For more information, see 6.4.
Enter the film thickness and the outside diameter of the film-reel core	Press the key concerned. Enter the value in the entry field (1) and confirm with "ENTER" (2).	Necessary for calculating the function: approaching end of film reel. The operator is warned when the end of the film reel approaches.
Enter the film web course for the overprinter	Press the key concerned. Enter the actual position. After the test run, enter the correct position (A or B).	This depends on the overprinter.  If the film transport stops during the printing, see 6.17.
Position of the corner seal jaws	See 6.5.2.	Only present for corner seal bags and Doypack bags.

#### Long-seam forms

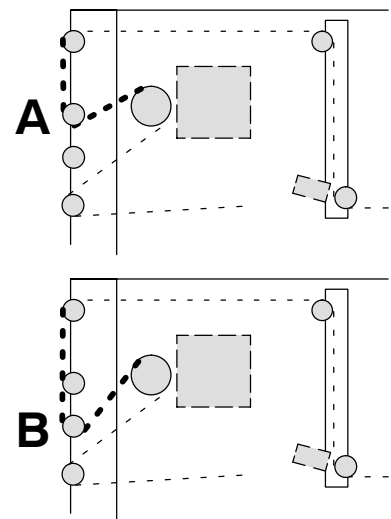
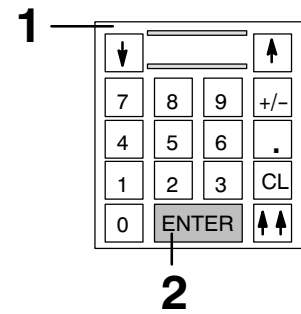
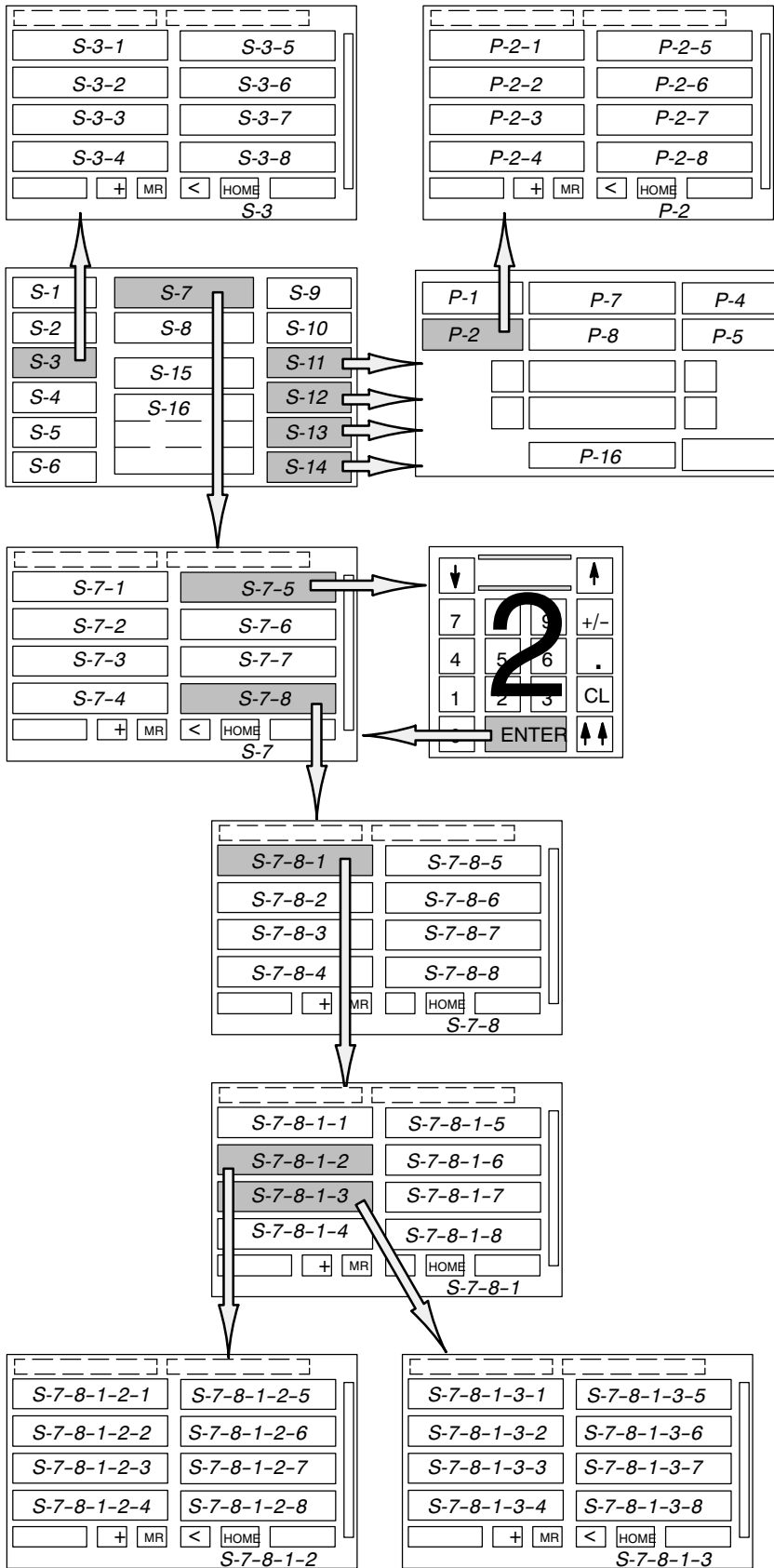
Remark: Corner seal and Doypack bags, see 3.2.2 and 3.2.3.

Figures (3 - 7) show top views of bags with different long-seam forms. At the right-hand side of each long seam, there is the top view of the same long-seam form as formed by the shoulder, seen from the front of the machine.

With an overlapping seam (3 and 4), the inside of the one film-web edge overlaps the outside of the other film-web edge. For instance, as seen from the front of the bag (long seam at the rear), the outside film edge points to the left. This is an overlapping seam left (3).

With a folding seam (5 and 6), the insides of the film edges are laid against each other and folded to the left or to the right. For instance, as seen from the front of the bag (long seam at the rear), both film edges point to the left. This is a folding seam left (5).

In the case of a pinching long seam (7), the insides of the film edges are laid against each other and sealed by a drag long seam jaw with anvil or sealed by travelling sealing bands.



## 4.4 Touch screen

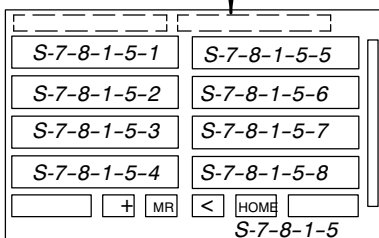
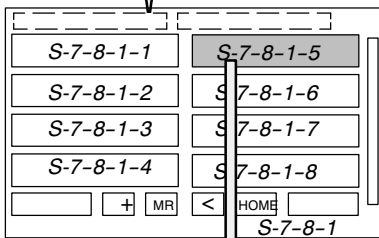
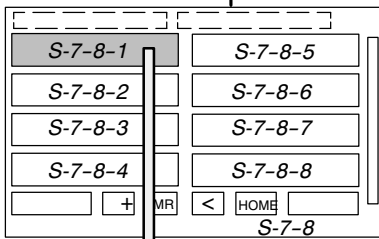
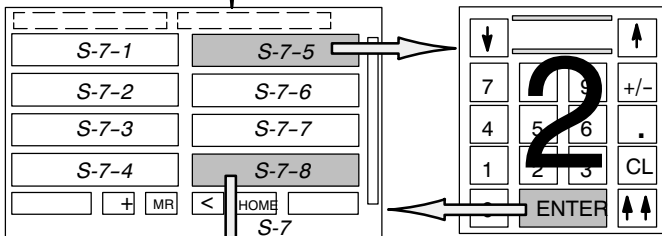
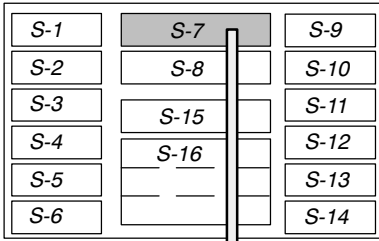
### 4.4.12 Function switches level 2 (S-7-8-1)-2 or (level 1) S-3 or (level 1) P-2

The function switches are dependent on the machine model delivered. See the relevant options in section 6.

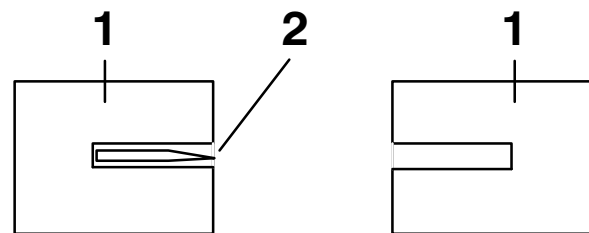
### 4.4.13 Displacements level 2 (S-7-8-1)-3

See the more extensive descriptions of the following and possibly missing options in section 6.

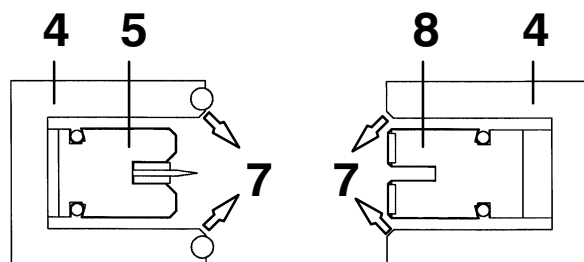
OPERATION	METHOD	NOTES
Enter print mark displacement for a correct cut-off position	Press the key concerned. Enter the value in the entry field (1) and confirm with "ENTER" (2).	For a correct cut-off position, the print mark or print on the bag can be moved in the longitudinal direction with respect to the cross-seam jaws and knife, see 6.16.
Enter the printing and/or label position on the film web	Press the key concerned. Enter the value in the entry field (1) and confirm with "ENTER" (2).	After setting the correct cut-off position, the seal and/or label position can be moved along the film web in the longitudinal direction, see 6.17.
Enter the film web course for the overprinter	Press the key concerned. Enter the actual position. After the test run, enter the position (A or B).	This depends on the overprinter.  If the film transport stops during the printing, see 6.17.
Further settings for print and/or label	See 6.17.	



HS



PE (PHS)



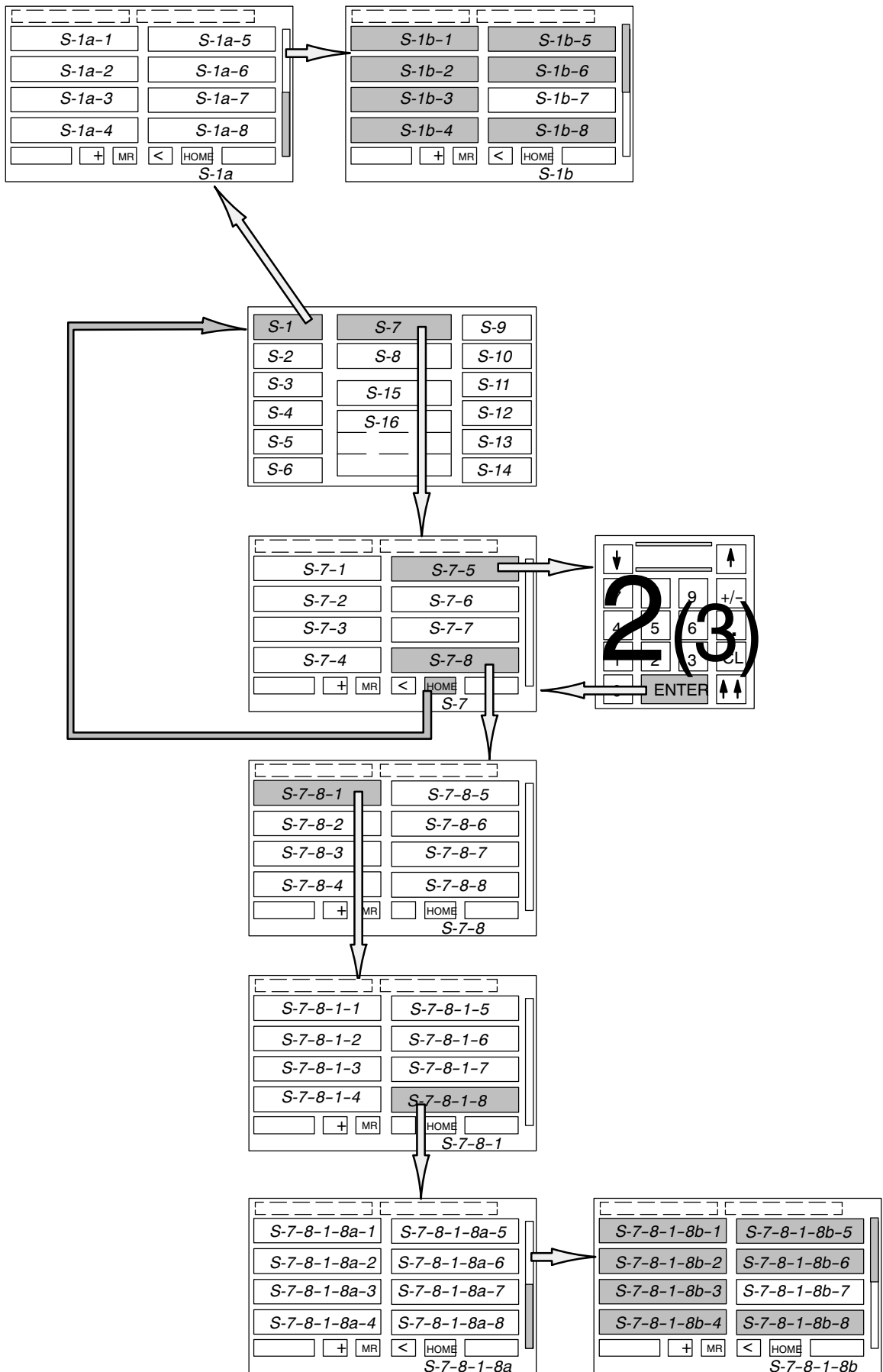
## 4.4 Touch screen

### 4.4.14 Times and counters level 2 (S-7-8-1)-5

HS means Heat Seal. PE or PHS means polyethylene welding.

See the more extensive descriptions and possibly missing options in section 6.

METHOD	REMARKS
Enter the drop time of the product	The time the product takes to drop, measured between the drop signal for the dosing unit and the moment the cross-seam jaws have just closed. Earliest possible drop moment (lower value): the product drops in the film tube on the just closed cross jaws. Latest possible drop moment (higher value): The last part of the product flow falls just into the bag before the cross jaws are closed.
Enter start of the long-seam movement	Set the start of the long-seam movement in relation to the start of the film transport. A too late start gives an opening in the long seam; a too early start may cause the long seam to burn.
Enter the start and operation time of the HS knife or	Set the start of the knife (2) in relation to the closing moment of the cross-seam jaws (1). A negative value controls the knife earlier. Set the operation time of the knife (2).
enter the start of the PE-knife jaw	Set the start of the knife jaw (5) in relation to the closing moment of the clamping jaws (4). A negative value controls the knife jaw (5) earlier. When the control is too early, the knife will cut poorly or the film tube will be pressed against the counterjaw (8). Operation time PE-knife jaw, see PE welding time.
Enter HS sealing time or PE welding time	Time required to form the cross seams. The time also depends on the set temperature and pressure. A higher temperature (film-dependent) may produce a shorter sealing/welding time.
Enter HS cooling time	Time required to cool off the cross seams sufficiently while the jaws (1) are a few mm open.
Enter the PE cooling time	Time required to cool off the cross seams sufficiently with air (7) while the clamping jaws (4) remain closed.
Extra PE-cooling time while the clamping jaws are opening	Extra cooling time while the clamping jaws (4) are opening and the product is not yet pressing on the cross seam. The cross seam must be cooled off sufficiently to be able to carry the weight of the product in the bag.





## 4.4 Touch screen

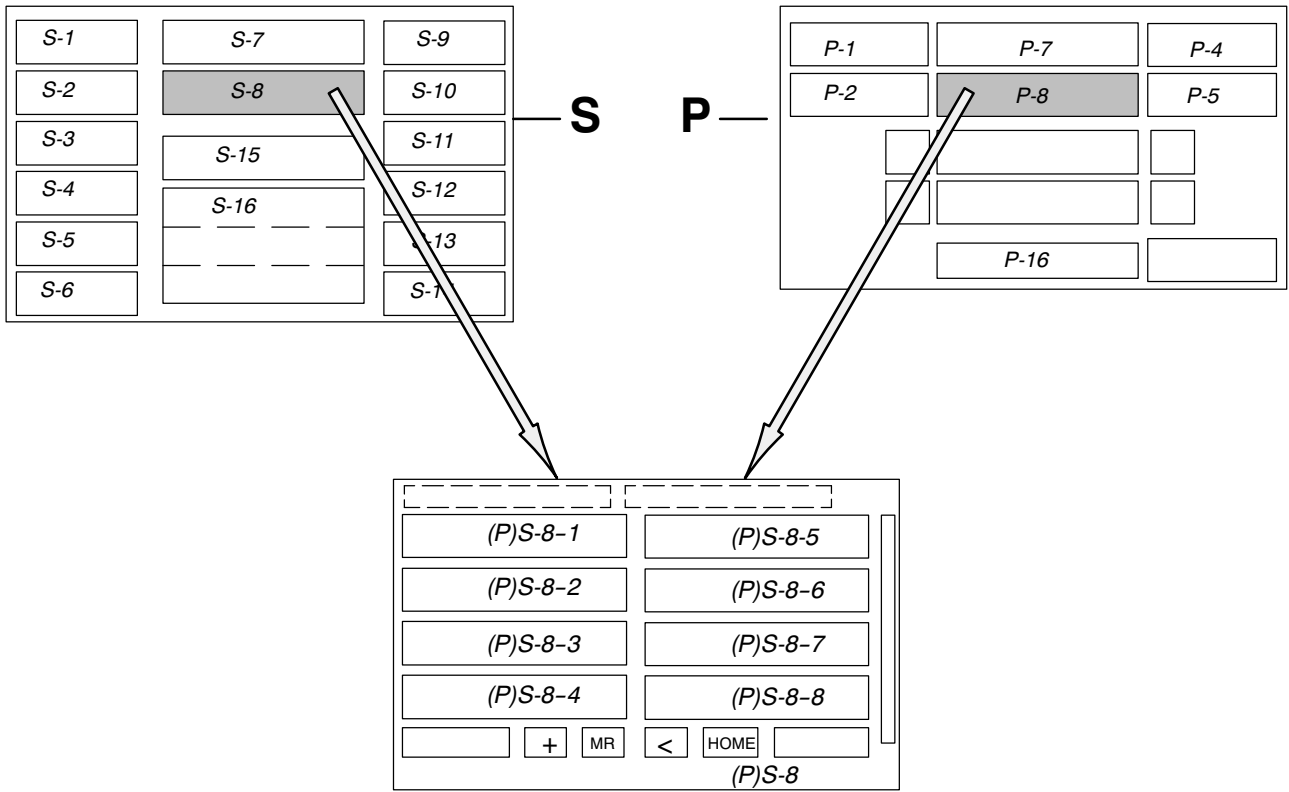
### 4.4.15 Temperature control level 2 (S-7-8-1)-8 or S-1 of P-1

The temperatures of the zones (seams) can be determined by trial and error and are partly dependent upon the set time, pressure and film.

A shorter sealing/welding time can sometimes be reached by a higher temperature.

Remark: when S-1b has also been provided with zones, the settings shift to S-1c.

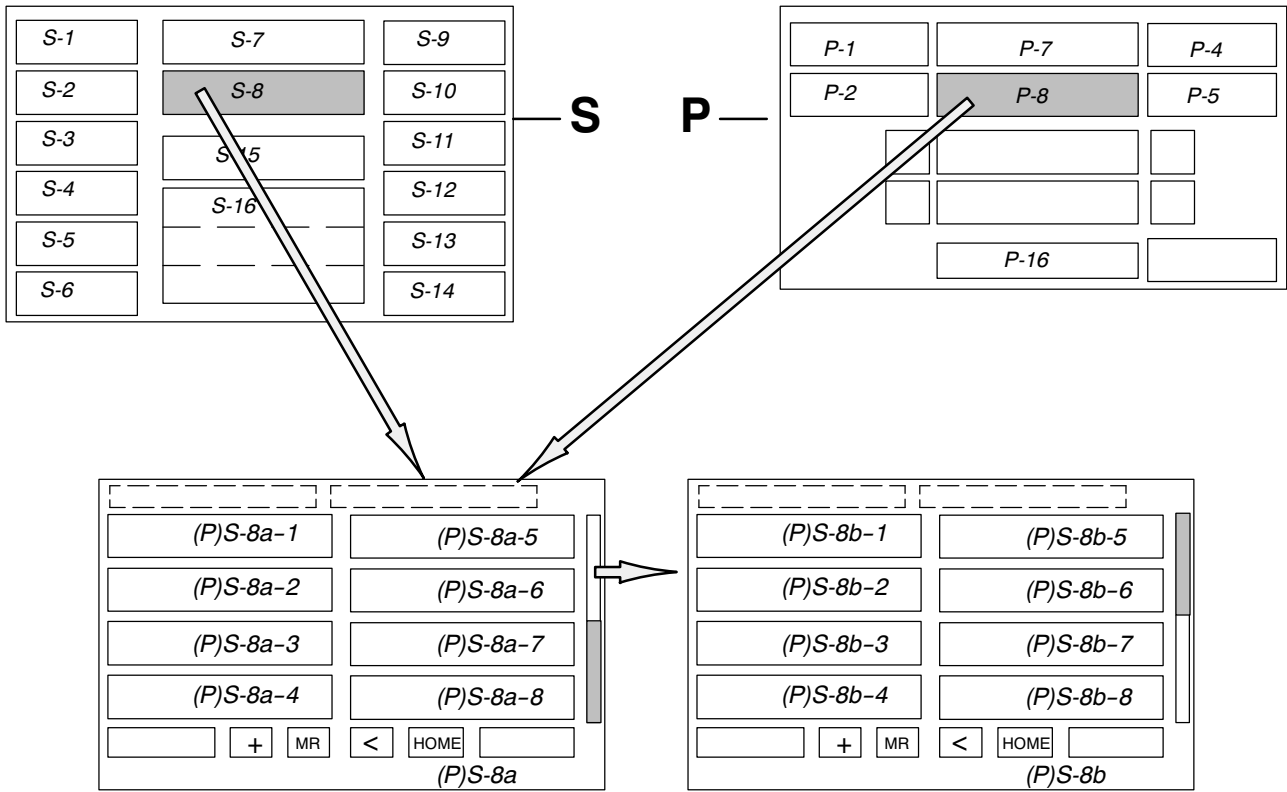
OPERATION	METHOD	REMARKS
PE-settings	See chapter 6.	
Check or change the temperature of a zone	Check in S-1a or P-1a or level 2 (S-7-8-1)-8a the zone concerned. Select a zone and change the temperature on the entry field.	The lowest value shows the actual (measured) temperature of the zone.
Switch a zone (seam) off or on Corner seal, see 6.5.2.	Switch a zone (including error message) off or on, depending on the application in (level 2) S-1b-1 or P-1b-1 or (S-7-8-1)-8b-1.	Only zones with a name are displayed in S-1a or P-1a or (S-7-8-1)-8a.
Check or change the alarm range of a zone	Check the zone concerned in (level 2) S-1b-2 or P-1b-2 or (S-7-8-1)-8b-2. Select a zone and change range (for example 10 <sup>0</sup> ) in the entry field.	Exceeding an alarm range will produce an error message causing the machine to stop.
Check the control time of the heating element	Check the control percentage of the zone concerned in (level 3) S-1b-3 or P-1b-3 or (S-7-8-1)-8b-3.	Uncontrolled = 0 %. With maximum control = 100 %.
Check or change zone settings	Select the zone concerned in S-1b-8 or P-1b-8 or level 2 (S-7-8-1)-8b-8. Check and/or change settings.	An overview of the above-mentioned settings appears.
Select the name of a zone	Select the zone concerned in (level 3) S-1b-4 or P-1b-4 or (S-7-8-1)-8b-4. Select the required name.	Only zones with a name are displayed in S-1a or (S-7-8-1)-8a.
Switch off error messages for testing purposes	Switch off in (level 3) S-1b-5 or P-1b-5 or (S-7-8-1)-8b-5. Note: switch on again before production.	The machine will not stop because of temperature problems.
Select control type	Select the control in (level 3) S-1b-6 or P-1b-6 or (S-7-8-1)-8b-6. Only select "On/off" when the "Z80" control cannot reach the required temperature.	Usually the "Z80" control is sufficient.



## **4.4 Touch screen**

### **4.4.16 Efficiency (if provided)**

**Not applicable**

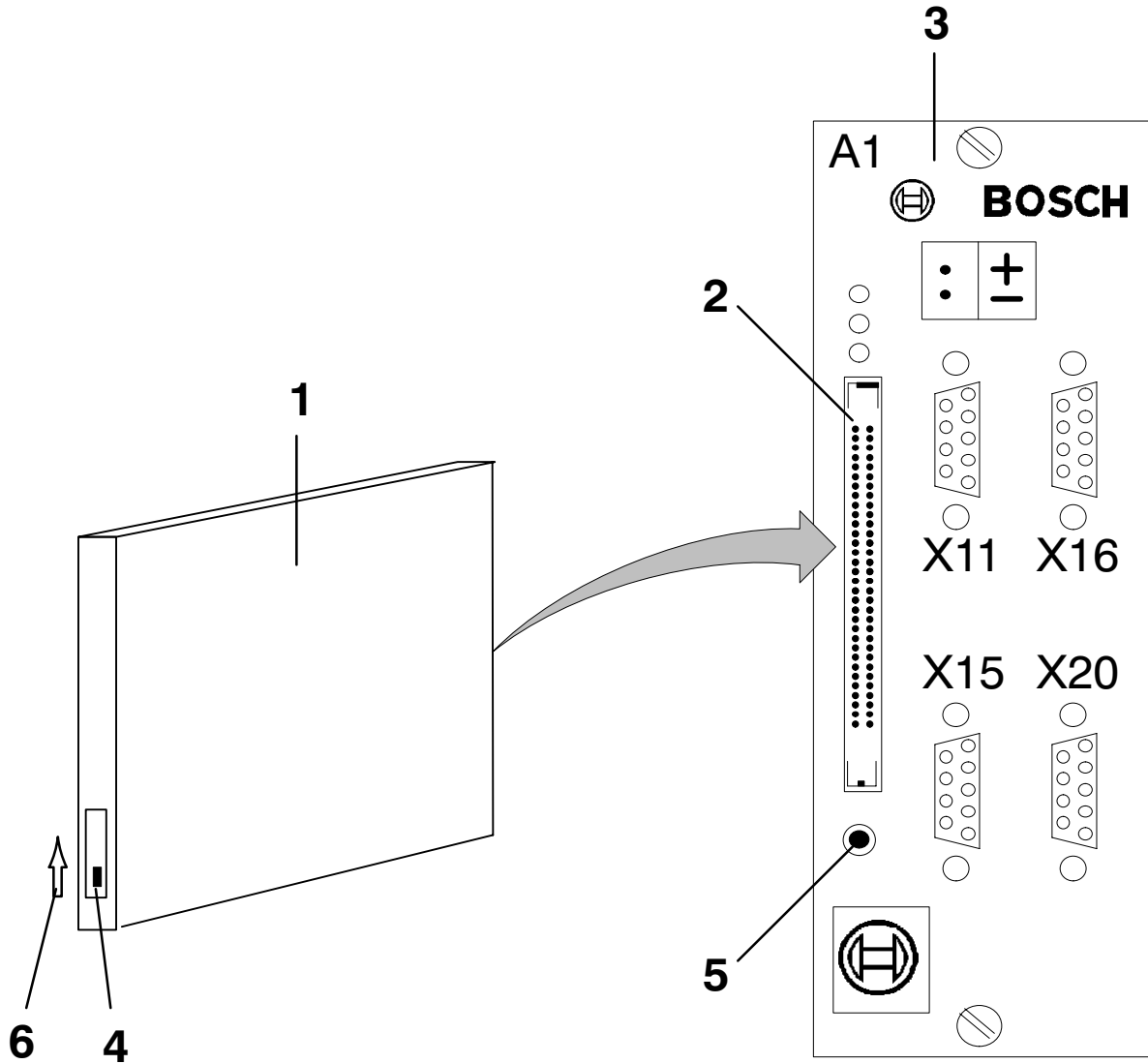


## 4.4 Touch screen

### 4.4.17 Counters (if provided)

Find below an overview of S-8.

BUTTON	REMARKS
S-8a-1	Shows the number of empty bags produced. Reset by entering "0".
S-8a-2	Shows the number of filled bags produced. Reset by entering "0".
S-8a-	Shows the length of the last bag produced. Print mark control (optional), see 6.16.
S-8a-	Shows the number of print marks per bag length. Must indicate '1'. Print mark control (optional), see 6.16.
S-8a-	Shows current and nominal pulses. Print mark control (optional), see 6.16.
S-8b-1	Shows the date.
S-8b-2	Shows the time.
S-8b-	Shows data about the horizontal and vertical cross-seam jaws movement.
Other options	<p>For example, batch counter:</p> <ul style="list-style-type: none"> <li>-the number of bags per batch;</li> <li>-number of bags already produced in the batch.</li> </ul> <p>Switch counter off by entering "0". Result after reaching the entered number, see (level 3) S4a-7b-3.</p> <p>For example, production counter:</p> <ul style="list-style-type: none"> <li>-the number of bags for the present production;</li> <li>-the number of bags already produced in the present production.</li> </ul> <p>Switch counter off by entering "0". Result after reaching the entered number, see (level 3) S4a-7b-3. Enter new value.</p>



## 4.4 Touch screen

### 4.4.18 Memory Card: load and save recipe(s) and/or machine settings

The 96 recipes and machine settings of 8 different machines can be saved on one card (1).  
Accurately maintain the contents of each card (1).

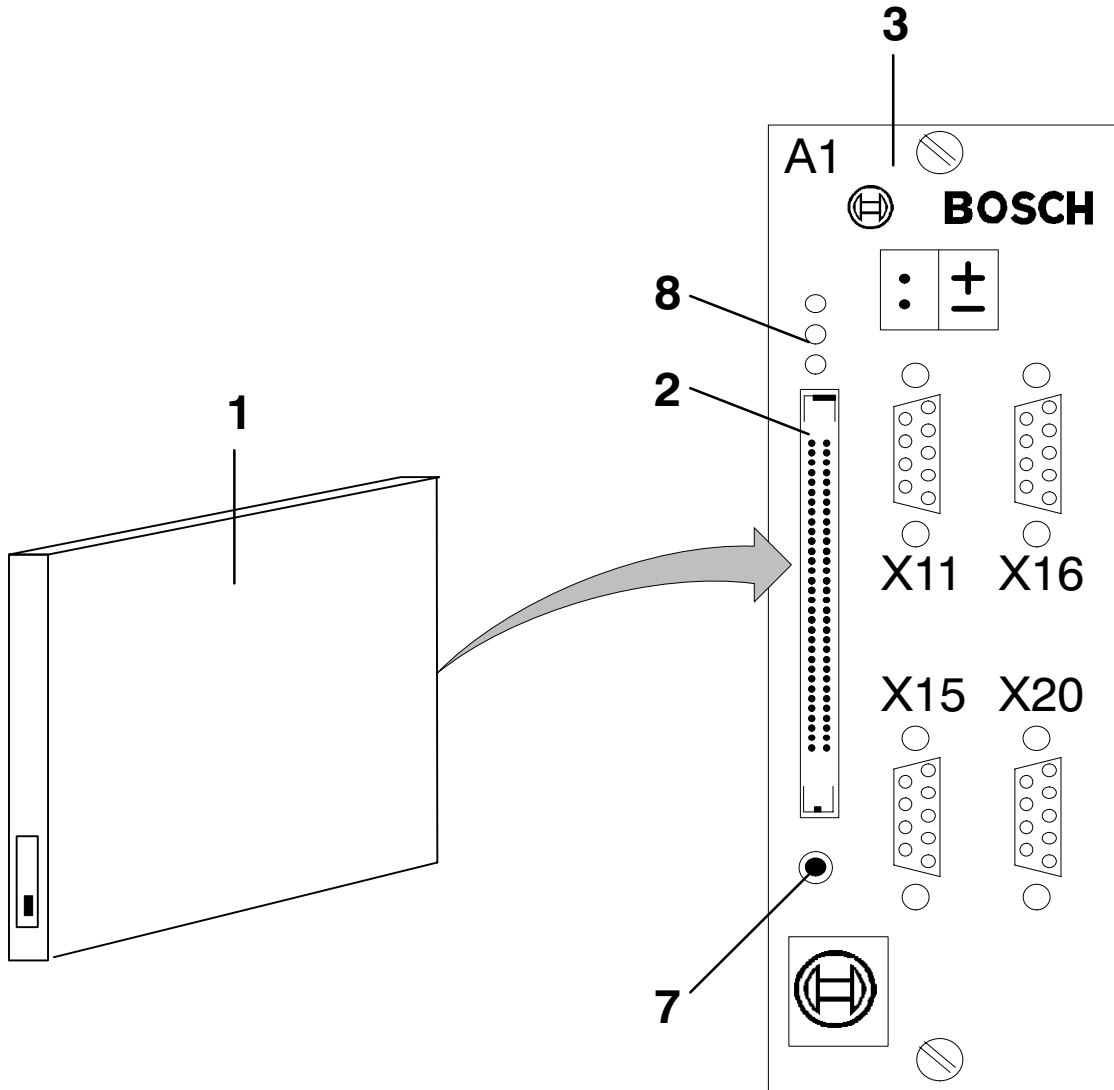


#### Danger to life!

With machines where the door of the control box cannot be closed when the card (1) has been placed on A1 (3), the operations below may only be carried out by an electrotechnical engineer or personnel that has been trained for this.

Touching live wires or components can be dangerous to life.

METHOD	REMARKS
<p>See the above warning. Switch off the main switch, open the control box and switch the main switch on again.</p> <p>Place the card (1) on the connector of the CPU card A1 (3). Attention: the card will fit in only one way. Do not close the door of a shallow box because of the risk of damaging the card (1) and/or A1 (3).</p> <p>Load recipe(s) and/or settings of the card into the machine:</p> <ul style="list-style-type: none"> <li>-press S-7-7 or (level 3) S-4a-8-6 to show the machines that have been saved on the card.</li> <li>-select machine, after which the various loading selections, information about the selected machine and a memory card status report appear.</li> <li>-make loading selection and confirm.</li> </ul> <p>When one recipe is loaded, the machine runs according to this recipe under number "0". Save this recipe under another number.</p> <p>Save recipe(s) and/or settings of the machine on the card:</p> <ul style="list-style-type: none"> <li>-Move the switch (4) on the card (1) towards the middle (see arrow (6)) of the card to enable saving.</li> <li>-Press (level 2) S-7-7 or (level 3) S-4a-8-6.</li> <li>-select the relevant machine or empty space.</li> <li>-select what is to be saved and confirm. Data on the selected place on the card are overwritten. See the table of contents of the card.</li> <li>-update the table of contents of the card (1).</li> </ul> <p>Remove the card (1).</p> <p>Move the switch (4) in the direction opposite to that of the arrow (6). Switch off the main switch, close the control box and switch the main switch on again.</p>	<p>A1 (3) is found in the prints rack at the top left in the box.</p> <p>See the status report in the field at the bottom right.</p> <p>See the status report in the field at the bottom right.</p> <p>The card is protected against overwriting.</p>





## 4.4 Touch screen

### 4.4.19 Memory Card: Test, install and restore machine software

The machine software of one machine is saved on one card (1).

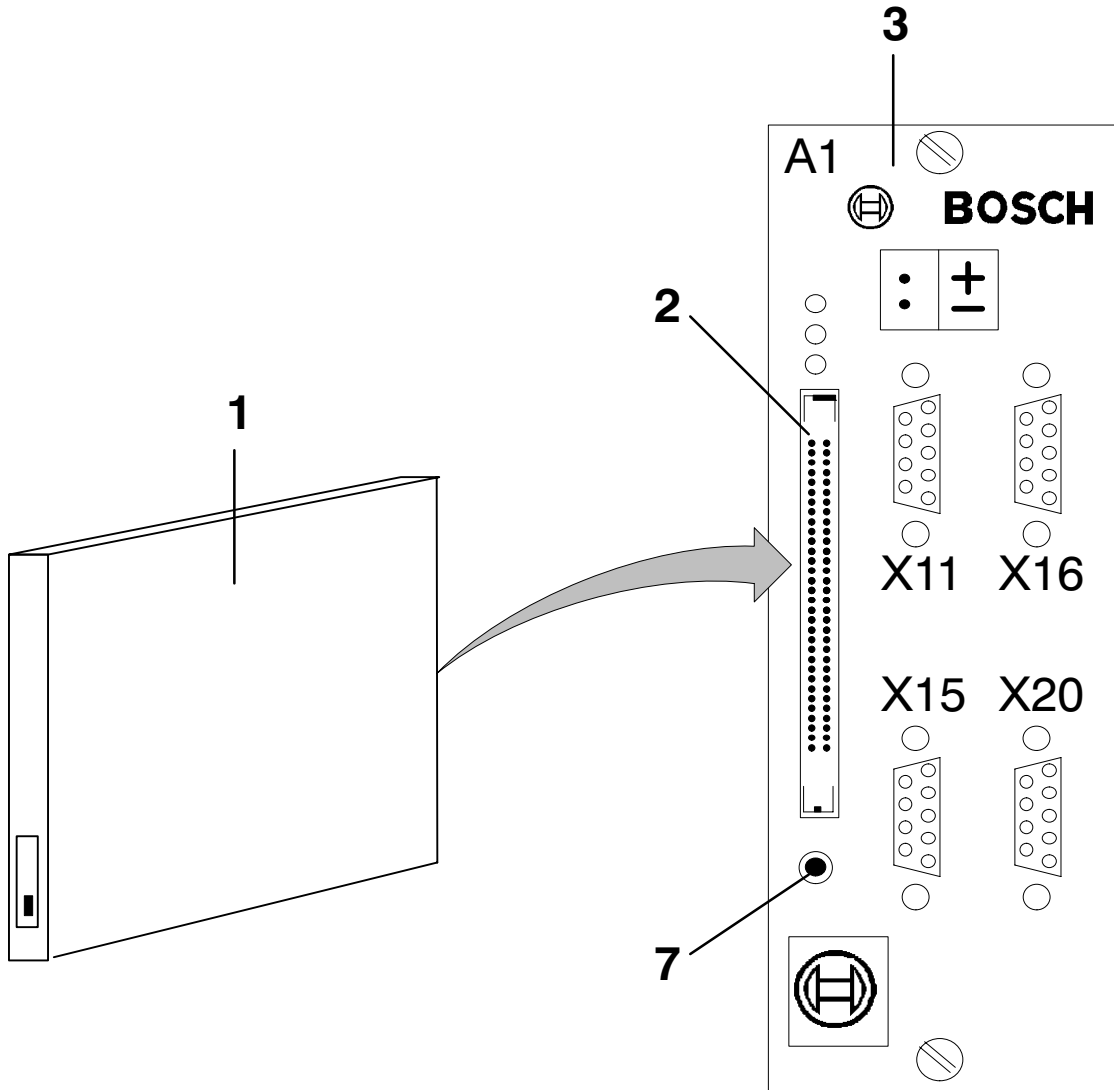


#### Danger to life!

With machines the door of the control box of which cannot be closed when the card (1) has been placed on A1 (3), the operations below may only be carried out by an elektrotechnical engineer or personnel that has been trained for this.

Touching live wires or components can be dangerous to life.

METHOD	REMARKS
<p>Test new software if this is possible with the machine delivered: Place the card (1) on the connector of the CPU-card A1 (3), see previous page.</p> <ul style="list-style-type: none"> <li>-press (level 3) S-4a-8-4 and note S-4a-8-4-1 software information.</li> <li>-If necessary, load the recipes and machine settings on the card, see previous page.</li> <li>-press button (7). The machine makes use of the software of the card. Led (8) flashes quickly. The old software is still present, but not active.</li> <li>-check (level 3) S-4a-8-1 whether the information has changed.</li> <li>-If necessary, press S-4a-8-6 and load the above-mentioned recipes and machine settings on the card in the machine, see previous page.</li> <li>-test the machine. Do not remove the card.</li> <li>-install the new software or restore the old software.</li> </ul> <p>Restore old software if the new software does not meet the expectations: -switch off the main switch; remove the card and switch the main switch on again.</p> <p>Install new software: -If possible, test the new software. See above. <ul style="list-style-type: none"> <li>-press (level 3) S-4a-8-1. The new software on the card is loaded and the old software in the machine is lost.</li> <li>-switch off the main switch; remove the card; close the control box and switch the main switch on again.</li> </ul> </p>	<p>Do not remove the card (1).</p> <p>New software.</p> <p>See below.</p> <p>The beeper beeps.</p>



## 4.4 Touch screen

### 4.4.20 Memory Card: charge internal not exchangeable battery of the card



#### Attention!

In the case of a memory card with an exchangeable battery, the battery must be replaced as described in the instructions delivered with the card. The battery cannot be charged in the way described below.

Note: With a fully charged battery in the card the data will be kept for 6 months. After that the data may be lost. Maximum charging can be done by placing the card on a PC with a PCMCIA lock for 48 hours or on the connector of CPU-card A1 (3), see below.

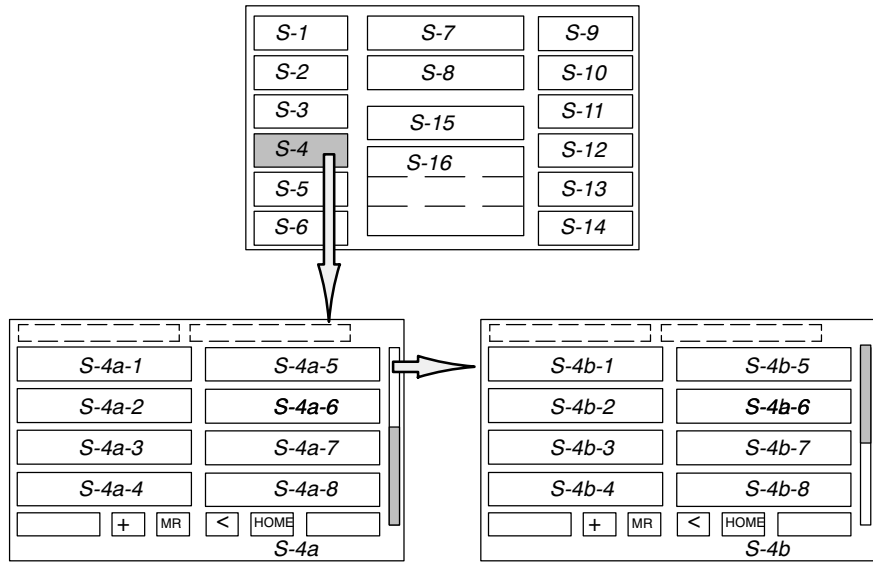


#### Danger to life!

With machines the door of the control box of which cannot be closed when the card (1) has been placed on A1 (3), the operations below may only be carried out by an elektrotechnical engineer or personnel that has been trained for this.

Touching live wires or components can be dangerous to life.

METHOD	REMARKS
<p>See the above warning. Switch off the main switch; open the control box and switch the main switch on again.</p> <p>Place the card (1) on the connector of CPU-card A1 (3) and charge for 48 hours. Warning: the card will fit in only one way. Do not close the door of a shallow box in view of the risk of damaging the card (1) and/or A1 (3). Warning: remove the card before switching on the machine again or pressing button (7). With some machine models the machine will run on the machine programme (uP) of the card.</p> <p>Note the date on the card after charging.</p> <p>Remove the card (1) after charging.</p> <p>Switch off the main switch; close the control box and switch the main switch on again.</p>	<p>A1 (3) is found in the prints rack at the top left in the box.</p> <p>See previous page.</p>

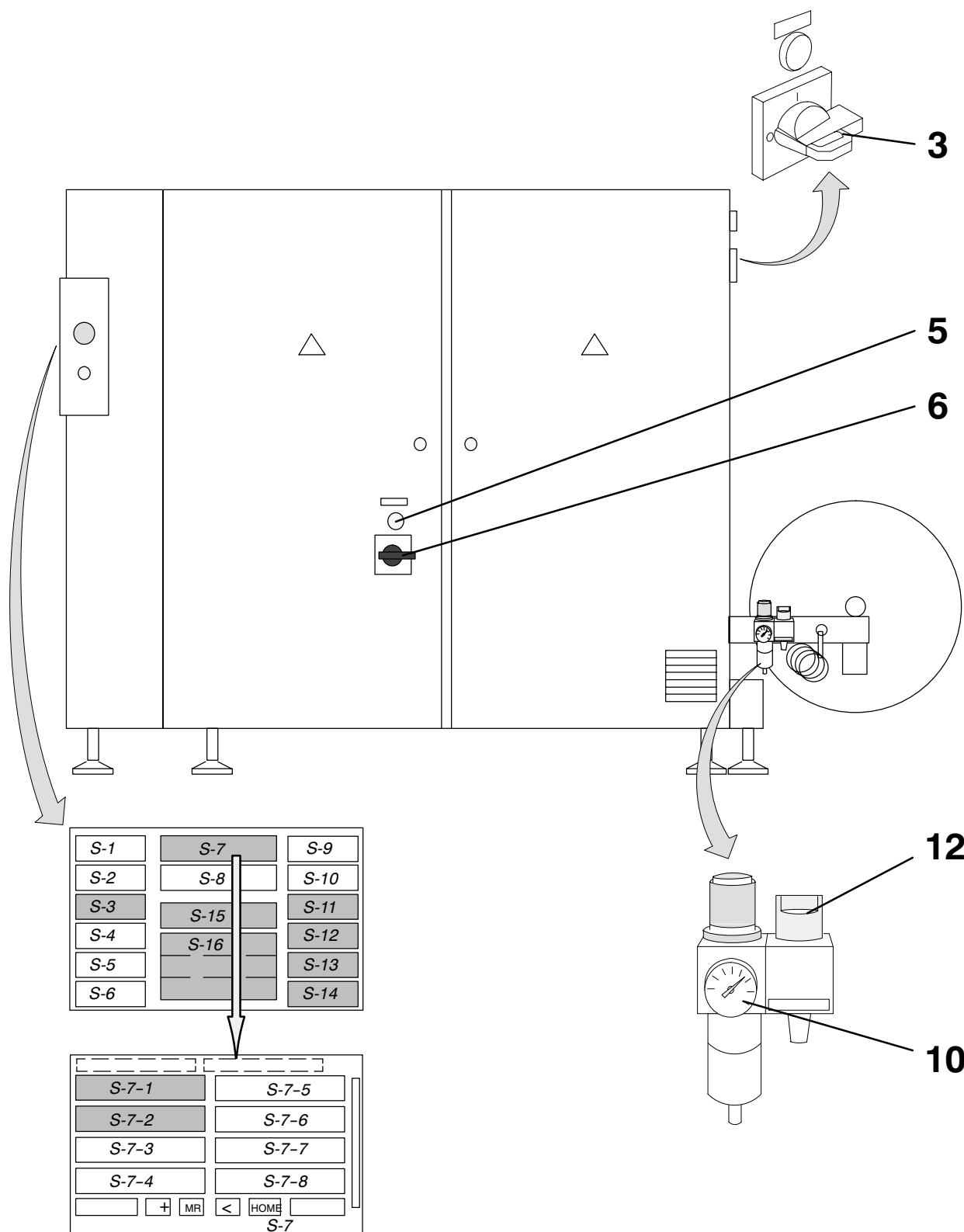


## 4.4 Touch screen

### 4.4.21 Maintenance S-4

Find below an overview of S-4.

BUTTON	REMARKS
S-4a-1	With the doors closed, remove the cross-seam knife from the jaws for cleaning.
S-4a-2	With the doors closed, open and close the draw-off belts.
S-4a-3	Start or stop vacuum pump.
S-4a-4	Switches on the compressed air supply for some functions that were switched off by opening a safety guard or emergency-off button. Alternative: Push button on the side of the operating panel, see 4.3.
S-4a-5	Enter password, see 4.4.3.
S-4a-6	Select touch screen language, see 4.4.5.
S-4a-7	Machine parameters, see 7.17.
S-4a-8	Memory Card operations, information on the machine software and the software configuration, see 4.4.18 - 4.4.20. Provide the data in S-4a-8-4-1 when contacting the manufacturer.
S-4b-1	Polyethylene welding (option): Reset the error message of the long-seam control, see 6.14.
S-4b-3 and S-4b-4	Producing a closed film tube with adjustable length in order to discharge product without contaminating the machine.
S-4b-5	Set-up, see 7.18. Actions for making an adjustment are shown step by step.
S-4b-6	Corner seal and Doypak bags (option): Manual filmtransport of the auxiliary driving reel, see 6.5



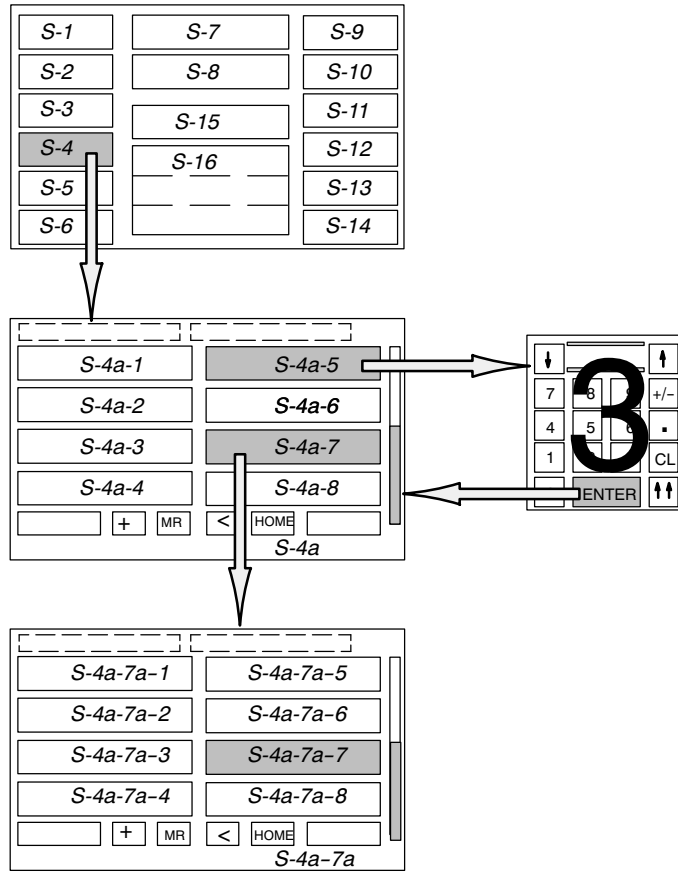
## 4.5 Putting the machine into operation



Observe the safety measures! (See chapter 1)

The machine must be cleaned before it is put into operation, see 4.11.

OPERATION	METHOD	REMARKS
Activate the power supply of the machine(s)	Turn the mains switch (6) and switch (3) (if installed) clockwise. Check whether the lamp (5) is lit. Check the operating panels of upstream and downstream machines.	The power must be activated 10–15 min before starting the production to warm up the jaws.
Activate compressed air	Turn valve (12), as shown. Read manometer (10).	5 bar for machine standing still. Set pressure, see 7.6.
Check recipe and select another recipe, if required	Check the current recipe in S-7. If required, select the desired recipe in S-7-1 or S-7-2 and set the machine accordingly; see 4.4.7.	Check the operating panels of upstream and downstream machines.
Remedy any failures	Remedy failures and messages in S-15 and S-16 in accordance with section 5.	
Inspect the draw-off belts	Inspect the run play of the belts using the adjustment plate.	If necessary, see 6.12.
If necessary, produce and check some empty bags	Select the desired functions in S-3. Option print-mark control: Press S-5 until the film transport stops. Press S-11 or S-12. Check seams, bag length, cut-off position, etc. In case of any problems, see section 5.	Precaution before starting production.
Produce and check some filled bags	Press S-13 or S-14. Check for correct filling, seams, etc. In case of problems, see section 5.	Switch on production-level monitoring (if present).
Put the machine into operation	Select the desired functions in S-3. Press S-14. Check bags.	If necessary, reset efficiency data; see. 4.4.16.



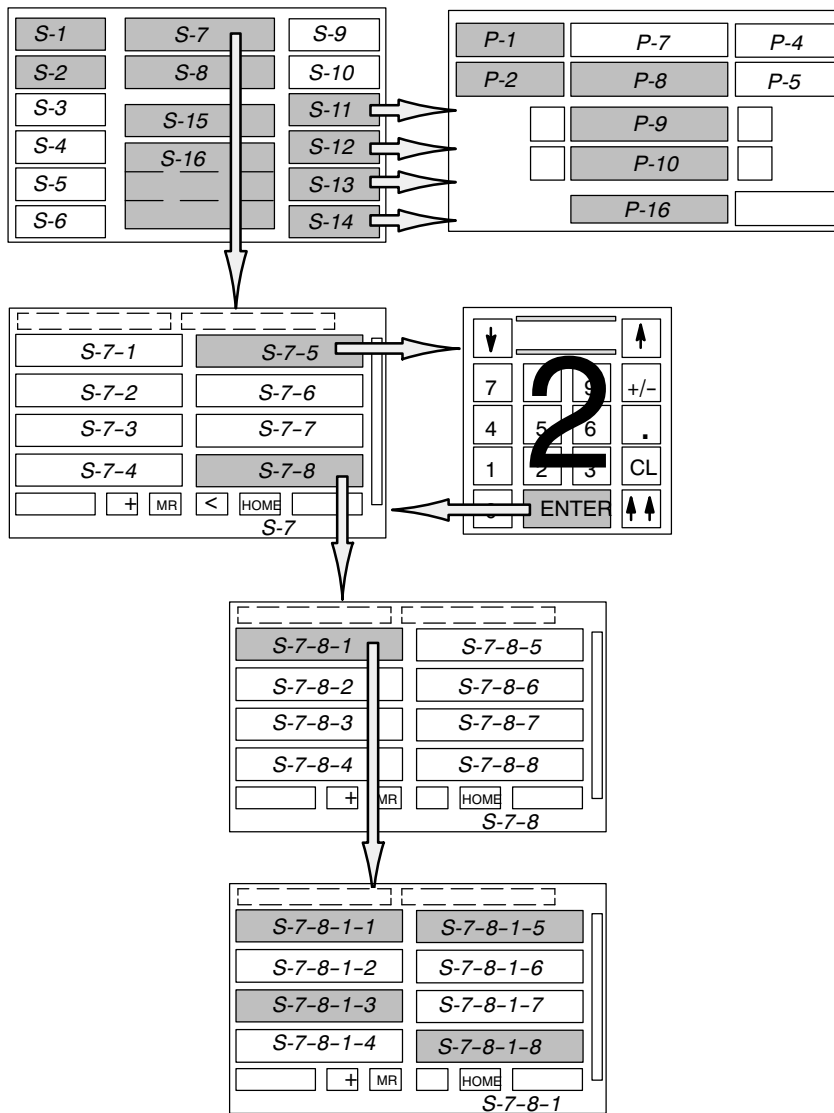


## 4.6 Upstream and downstream machines

See the manuals of the upstream and downstream machines.

Set synchronisation with the dosing unit in (level 3) S-4a-7a-7 and S-4a-7a-3a-1, see 7.17.

Alternative: In S-4b-5 the actions are shown step by step.

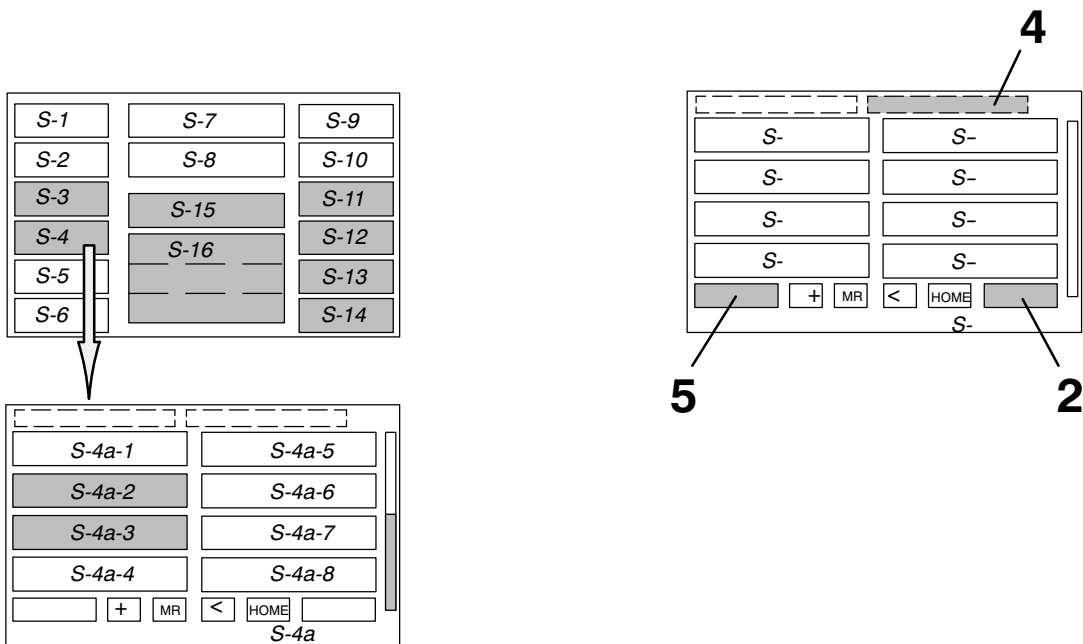
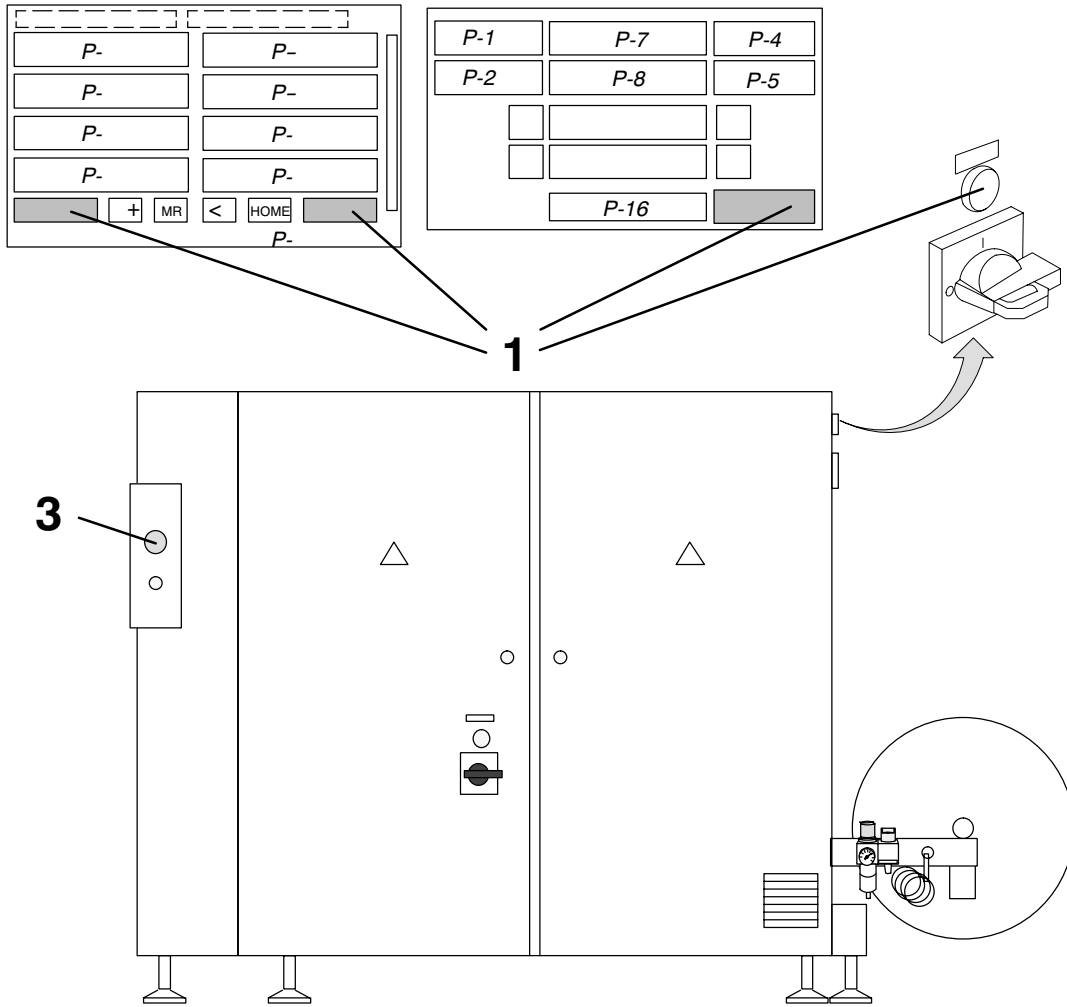


## 4.7 Inspections and measures during production



Observe the safety measures! (See Section 1)

CHECK	MEASURES		KEY	
	if necessary	See chapter	Pro-duction	Stop
Number of filled bags, number of machine cycles, checking of print mark control, etc.		4.4.17	P-8	S-8
Efficiency, if provided		4.4.16	P-8	S-8
Failure report on the touch screen		5.3 etc.	P-16	S-16
Film reel (almost) unwound	Replace film reel	4.9 etc.		
Long-seam overlap	Correct course of film web Correct automatic run	6.15 6.15.1	P-2	S-2
Quality sealing/welding seams	Miscellaneous measures correct temperature among other things	chapt. 5 4.4.15	P-1	S-1 or S-7-8-1-8
Product-dropping moment	Correct drop time	4.4.14	P-9	S-7-3 or S-7-8-1-5
Volume bag	Volume increase bag	4.4.11		S-7-3 or S-7-8-1-1
Cut-off position	Correct position	6.16	P-10	S-7-8-1-3
Overprint position	Correct position	6.17	P-10	S-7-8-1-3
Overprint quality	See description of device	chapt. 8		
Scratches on the bag	Clean shoulder	7.10		
Options	Optimise	6.21		
Cleaning and maintenance		4.11		
Weight of the bag	Check dosing unit			



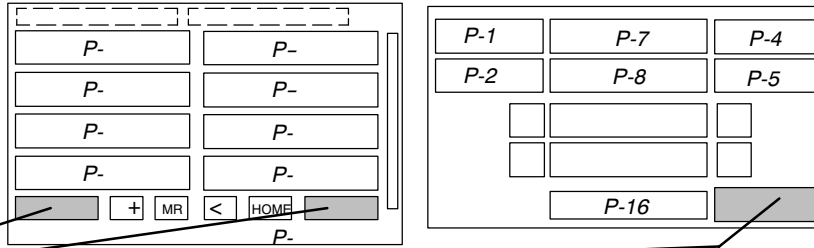
## 4.8 Stopping the machine and putting it into operation again

### 4.8.1 Putting the machine into operation after a synchronous stop

OPERATION	METHOD	REMARKS
Stop the machine for a short period (synchronous stop)	During production, press key (1) or one of the displayed screens or at the back of the electric cabinet.  If necessary, stop the vacuum pump using S-4a-3 and/or open the draw-off belts using S-4a-2.	The cycle will be completed and the machine will remain waiting in the starting position.  The vacuum pump will stop automatically after time (level 3) S-4a-7a-3-7.
Putting the machine into operation after a synchronous stop	Press (2) or S-14. After all other stops, see below.	A synchronous stop is only possible by pressing one of the stop buttons (1).

### 4.8.2 Putting the machine into operation after any other stop

OPERATION	METHOD	REMARKS
Remedy any failures	Remedy failures and reports in S-15 and S-16 or field (4), in accordance with Section 5.	E.g. pull out the 'EMERGENCY-OFF' impact button (3).
If necessary, produce and check some empty bags	Select the desired functions in S-3. Press S-11 or S-12. Check seams, bag length, cut-off position, etc. In case of any problems, see Section 5.	Precaution before starting production.
Produce and check some filled bags	Press key (5) or key (2) in S-13 or S-14. Check for correct filling, seams, etc. In case of problems, see Section 5.	
Put the machine into operation	Select the desired functions in S-3. Press (5) or S-14. Check bags.	



7

8

9

3

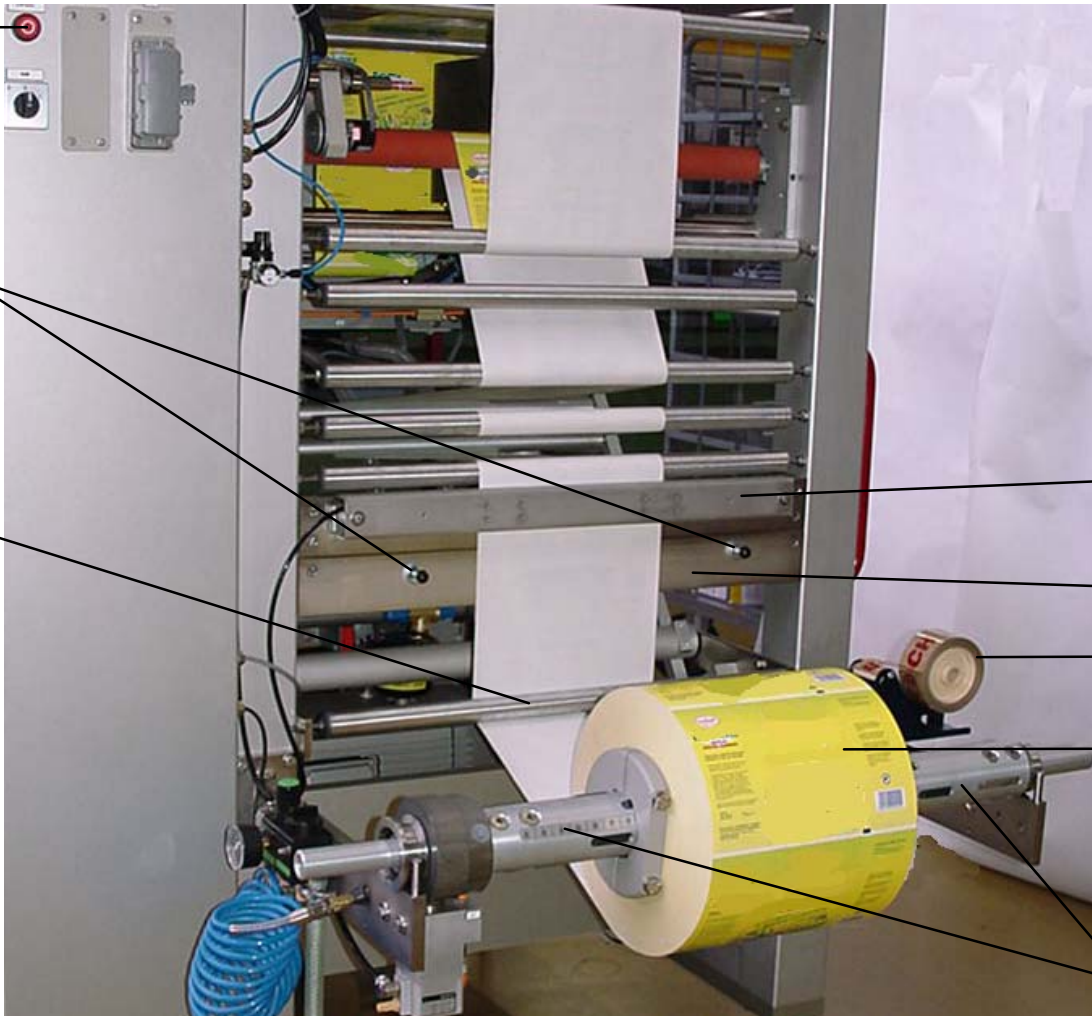
2

4

5

1

6



11

10

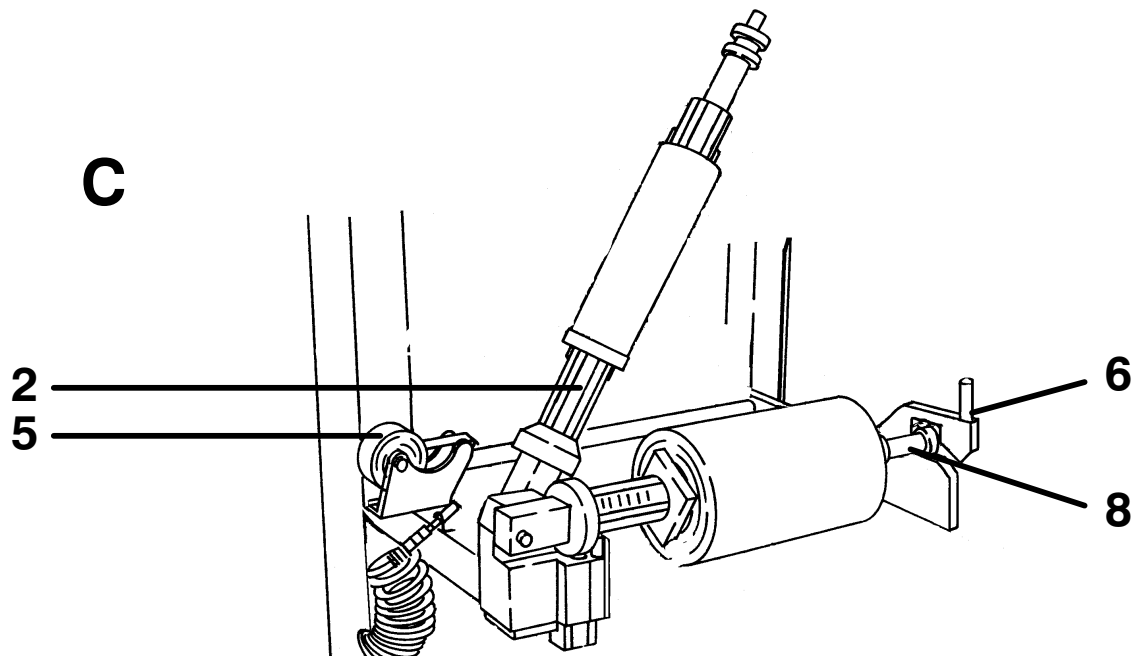
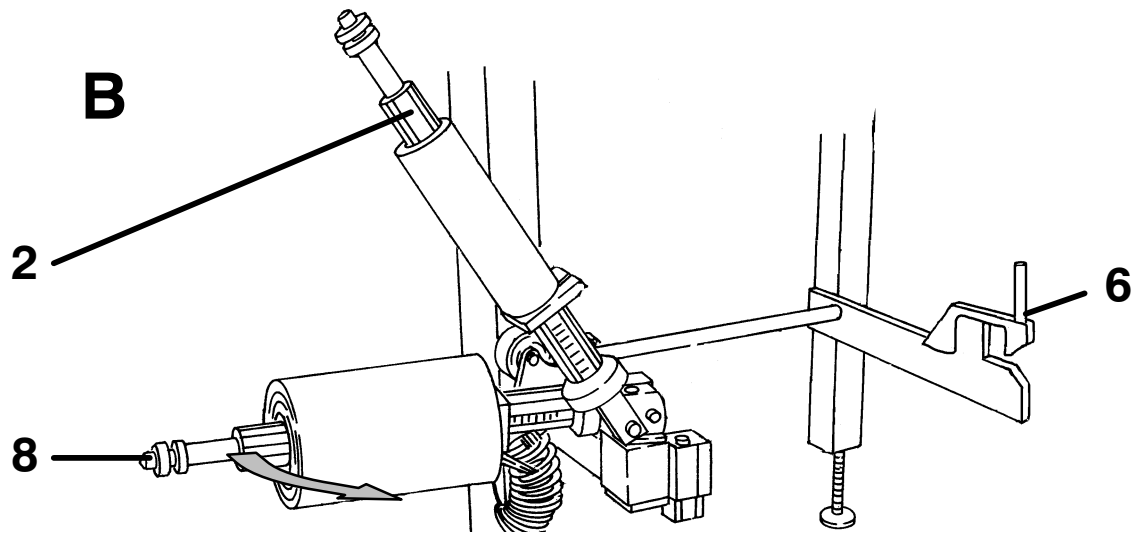
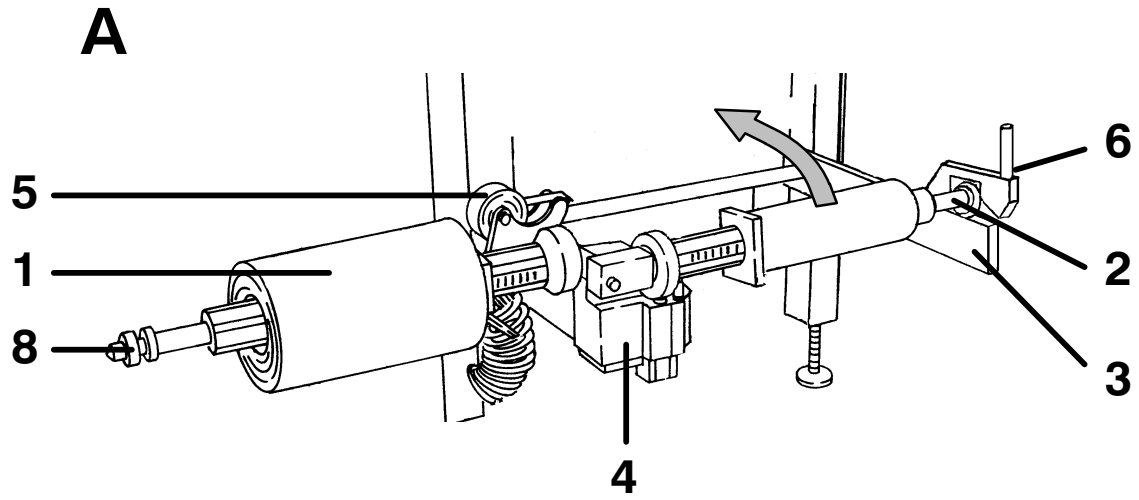


## 4.9 Replace film reel

At the end of the film reel, the machine stops and the film clamp (2) clamps the film.  
Option: the operator is alerted at a set time (level 3) S-4a-7a-3-1) before the end of the film reel, e.g. by an orange warning light.

OPERATION	METHOD	REMARKS
If necessary, stop the machine before the end of the film reel	Press the stop button (8) so that the film clamp (2) clamps the film and the machine stops. If necessary, switch the film clamp off with the stop key (8).	The stop key (7) only stops the machine.
If provided, switch vacuum splicing table (10) on	Open valve (11) (vertical) to make the vacuum pull the film web against the table and make the film clamp (2) clamp the film.	The vacuum pump must be switched on.
If switched off, switch on the film clamp (2)	Unwind the film reel until the tension arm is (almost) on the end stop.	The film clamp switches on.
Cut through the film web	Pass the knife through the (longest) slot in the splicing table (4 or 10). Remove the lower film web.	
Carousel (option)	For further operations, see the following page.	
Motor-driven (option) unwinding of the film reel	Lift the arm with knob (12) until it locks in the upper position. Check the lock (13).	If provided.
Remove the shaft with core	If installed, release the quick-release tensioner(s). Lift the shaft (6) with core from the support arms and put it aside.	Pay attention to the limit ranges for lifting and carrying weights (loads).
Install a new film reel on the shaft	Install a new film reel on the shaft if there is no reserve film reel shaft (optional) with film reel present.	If necessary, see 6.4.
Operations in the case of a single film-reel carrier or actions in the case of a double film reel carrier (option)	Transport the shaft with film reel with a hoist or manually to the machine. Place the shaft with film reel on the support arms. Remove and store the hoisting device.  Evenly roll the shaft with the film reel forward over the support arms. Fasten quick-release clamps on both sides.	Pay attention to the limit ranges for lifting and carrying weights (loads).

*continued on next page*





## 4.9 Replace film reel (continued)

The operations below only apply to a carousel (option).  
See the next page for any other film supply.

Careful: Maximum allowed weight of the film reel is 40 kg.

The carousel may also be delivered with the hinge point on supporting arm (3) instead of supporting arm (4).

OPERATION	METHOD	REMARKS
Install film reel (1) on the shaft (8) if no film reel has been installed	Install new film reel (1) on the shaft (8). Is usually led through during production in order to save time.	If necessary, see Section 6.
Remove shaft (2) with empty core	Pull the lock (6) upward and move the shaft (2) with the empty core backwards until past the lock (6). Release the lock (6). Carefully lift the end of the shaft (2) with both hands until past the highest point and release only on the stop.	See illustration A.  See the arrow in illustration A.  See illustration B.
Move the shaft (8) with the new film reel into the machine	Turn the end of the shaft (8) with the film reel horizontally until the lock (6) locks the end of the shaft (8). Carefully lift the empty shaft (2) past the highest point downwards and do not release until on the stop.	See the arrow in illustration B.  See illustration C.

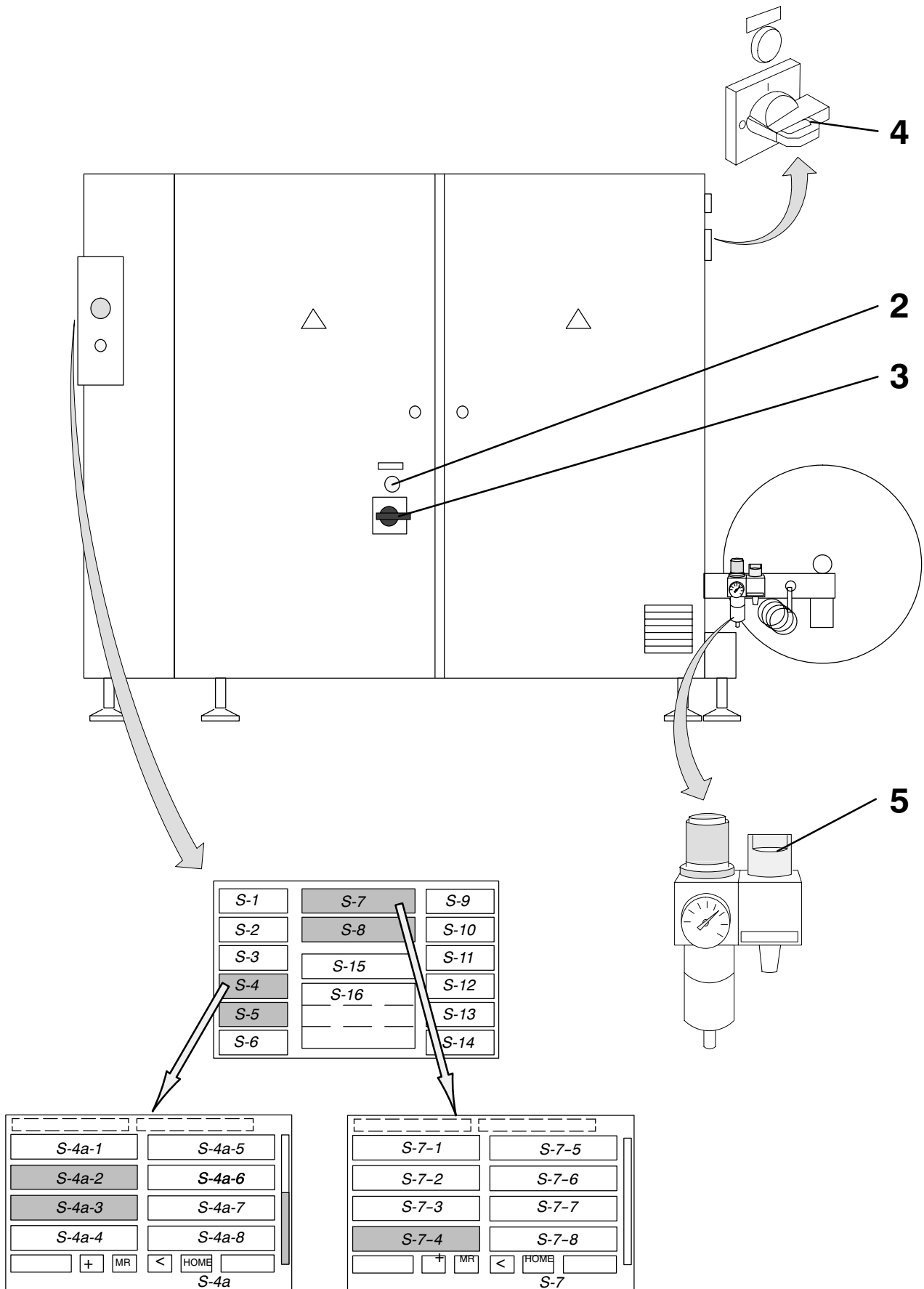
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S-1	S-7	S-9
S-2	S-8	S-10
S-3	S-15	S-11
S-4	S-16	S-12
S-5		S-13
S-6		S-14



## 4.9 Replace film reel (continued)

OPERATION	METHOD	REMARKS
Cut off the beginning of the new film web	<p>Unwind the film from the film reel and lead it underneath the film web reel (3) until it reaches the splicing table. If required: fasten the film on the splicing table with magnets (9) or tape on both sides.</p> <p>Motor-driven (option) film unwinding: lift the arm with knob (12), lift the lock (13) and let the arm drop.</p> <p>Pass a knife through the (longest) slot in the splicing table. Remove the cut-off film.</p>	<p>The prints of both film-web ends must together form one bag.</p> <p>If provided.</p> <p>The speed can be adjusted on the damper.</p>
Splice the film-web ends together	<p>Place the tape (5) with a length equal to the width of the film web on the joint and press firmly. If the film webs are allowed to overlap, fix the tape (5) on the beginning of the new film web and then press firmly onto the old film web.</p> <p>Wind the film back on the film reel (1) until the film web is tensioned. Remove the magnets or the tape on both sides or turn the valve (11) horizontally.</p>	<p>The film webs may overlap if they can be transported without problems through the shoulders.</p> <p>If necessary, lift the film-reel shaft slightly at the brake side or lift knob (12) (if provided).</p> <p>Depends on model.</p>
Deactivate the film clamp	Press (8) or S-5. S-5 is only possible with an activated film clamp.	The film is no longer clamped.
Put the machine into operation again	<p>Start production with S-14. Carefully check the transport of the spliced piece through the shoulder and down along the forming tube. Remove the faulty bags.</p>	<p>Alternative: Press S-5 until the spliced piece has been transported through the shoulder and down along the forming tube. Produce empty bags, etc.</p>
During production	Provide (spare) film-reel shaft with a film reel. Double reel carrier: Put the film-reel shaft on the rear of the support arms.	Options.



## 4.10 Take the machine out of production



Observe the safety measures! (See section 1)

OPERATION	METHOD	REMARKS
Run dosing unit until empty, using correct weights in the bags	Deactivate the product supply to the dosing unit. Produce bags until the weights of bags are no longer correct or the machine is stopped by the product-level monitoring. Press the stop button on the touch screen.	If provided.
Run the dosing unit further until empty without correct weights in the bags	Deactivate product-level monitoring. Press S-5 to form a film tube or S-4b-3 to transport the film length entered in S-4b-4. Place a container underneath the film tube. Press the key concerned in S-7-4 to run the dosing unit until empty.	If provided.  Alternative: keep producing until the dosing unit is empty. Remove the faulty bags.
Deactivate dosing unit	If present, turn switch (4) to the left into the 'O' position. Check the operating panel of the dosing unit.	If necessary, see the manual of the dosing unit concerned.
Check bag counter / efficiency	See the fields concerned (if provided) in S-8.	If necessary, see 4.2.17 and 4.4.16.
Stop the vacuum pump and open the draw-off belts	If necessary, stop the vacuum pump using S-4a-3 and/or open the draw-off belts using S-4a-2.	
Deactivate power supply	Rotate the main switch (3) to the left into the 'O' position. Lock if necessary. Check whether the lamp (2) is no longer on.	
Deactivate the compressed-air supply	If necessary, turn the valve (5) into the 'O' position. Lock if necessary.	The pneumatic system will vent.
Deactivate upstream and downstream machines	If necessary, see the manual of the machines concerned.	
Clean and service the machine	See the following pages.	

## 4.11 Cleaning and maintaining the machine

Maintenance is absolutely necessary for an uninterrupted execution of the operations. Special attention is paid to the fact that damages and decreased performance may occur if the instructions included are not followed or the machine is insufficiently cleaned and maintained.

Suction air is best used for cleaning. If cleaning is done with blow air this is to be done in such a way, that no product remnants or dirt are blown into gears, grooves, guides and the like.



### **Risk of damage!**

While cleaning the machine, using a high-pressure cleaner or waterjet is not allowed.

The machine must daily be cleaned thoroughly, especially when to the machine harmful materials have been processed and when the machine is in a room that does not meet the optimum conditions.

A part of the production dust and a part of the product waste may settle on the machine. Therefore the machine and the working area are to be cleaned regularly.



### **Risk of explosion!**

**Regular cleaning must ensure that no dust can be collected in amounts that may lead to danger.**



### **Risk of getting jammed!**

During the time that the machine is running, there is a larger chance of accidents through moving parts, such as rotating parts.

During the time that the machine is running no activities may be carried out on moving parts of packaging - and auxiliary packaging machines.

Incompetent use may result in serious injury, such as jamming or grazes.

Rotating reels may only be cleaned from the running-out side or covers must be installed above the gap between the reels on the running-in side.

*continued on next page*

## 4.11 Cleaning and maintaining the machine (continued)

### Composition of the cleaning agents

**Damage caused by cleaning agents!**

Do not use any corrosive or aggressive cleaning- agents and disinfectants.

Only use cleaning- agents or disinfectants that have proven in the past that they do not damage the machine.

New agents must be tested before use.

In case of doubt, contact our customer service and give the name of the agents as well as the chemical composition.

### Cleaning and maintenance

**Danger of burns!**

The long-seam jaw(s) and the cross-seam jaws can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw.

**Danger of cutting!**

Touching the sharp, toothed cross-seam knife may cause serious injury.

*continued on next page*

## 4.11 Cleaning and maintaining the machine (continued)



### Risk of damage!

A plastic shoulder breaks easily and cannot be cleaned with a high-pressure cleaner, water jet or hot water, see 7.10.

PART	DAILY ACTIVITIES <sup>1)2)</sup>
Working environment, machine parts that are in contact with the product, such as the top of the machine, forming set	<ul style="list-style-type: none"> <li>- Vacuum clean, remove product dust and waste.</li> <li>Sticky products:               <ul style="list-style-type: none"> <li>- Wipe clean with a moist cloth, if necessary with a non-corrosive cleaning agent <sup>3)</sup>.</li> <li>- Dry.</li> </ul> </li> </ul>
Corner seal jaws and long seam jaw(s)	<p><b>Warning:</b> The jaw can be hot. Risk of injury!</p> <p>Sticky products:</p> <ul style="list-style-type: none"> <li>- Wipe clean with a moist cloth, using any non-corrosive cleaning agent <sup>2)3)</sup>.</li> <li>- Dry.</li> </ul>
Cross-seam jaw housing and the knurling of the jaws, knife and knife space	<p><b>Warning:</b> The jaws can be HOT. Risk of injury!</p> <ul style="list-style-type: none"> <li>- Vacuum clean the immediate vicinity of the jaws.</li> <li>- Clean the jaws area with a brush/moist cloth.</li> <li>- Clean the bearings and guide shafts with a dry cloth.</li> <li>- Lightly oil the guide shafts.</li> </ul> <p>Brush off with brass-wire brush included in delivery. Move the knife forward with closed doors using key S-4a-1.</p> <p>Sticky products:</p> <ul style="list-style-type: none"> <li>- Cross-seam knurling, clean knife space and knife with hot water, using a non-corrosive cleaning agent <sup>2)3)</sup>.</li> <li>- If necessary, remove the knife (see Section 7) and clean with hot water.</li> </ul>
Photocells and reflectors	Clean. Warning: do not make scratches.
Bag removal, floor zone brake and brake disc of the film-reel shaft	<p>Vacuum clean, remove dirt and product waste.</p> <p>Sticky products:</p> <ul style="list-style-type: none"> <li>- Wipe clean with a moist cloth, if necessary with a non-corrosive cleaning agent <sup>3)</sup>.</li> <li>- Dry.</li> </ul>
Plastic parts, such as safety guard, touch screen, etc.	Attention: clean with agent that does not cause any damage. In case of doubt, contact our customer service.

- 1) Adjust the period, depending on the level of contamination and house rules.
- 2) Water and/or cleaning agents may not come into contact with the electric system.
- 3) In case of sugar-containing goods, such as: 'Olifant Suiker Oplosolie' (sugar oil).

*continued on next page*



## 4.11 Cleaning and maintaining the machine (continued)

### Extra information for a “LR” machine (RVS model)

#### We recommend you to perform the cleaning as follows:

- Daily: Thorough cleaning of working area and machine parts that come into direct contact with the product to be packed. See the previous page.
- Weekly: Thorough cleaning of the entire machine and working area.
- Monthly: Check for paint quality. Touch up damaged paint parts, which means making the basis free of grease and sandpaper; after that prime and paint.

#### Recommended cleaning method

- Remove the product remains present on the machine (wipe dry, brush, etc.).
- Apply fluid cleaning agent and/or disinfectant with a sponge or cloth on dirty places. Do not use any corrosive agents that may affect the paint and other machine parts. Let it work in according to the directions of the cleaning agents applied.
- Wipe the machine off with a moist cloth. Wipe all surfaces that come into contact with cleaning agent with a moist cloth several times until all remains of the cleaning agent have disappeared. Attention: Cleaning the shoulder with hot water is forbidden.
- Let the machine dry and oil and/or grease the uncovered machine parts.
- When the dosing unit has been attached directly above the machine, very much product waste and water may come down (also during cleaning). This should be removed regularly.

With this respect the Bosch company can recommend taking precautionary measures, such as, for instance, providing swarf collectors and drip trays on the machine with a protective curtain.



<b>5.1</b>	<b>For your safety (see also section 1, 'Safety measures')</b> .....	<b>1</b>
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	Messages 105 – 161 .....	10
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<b>5.4</b>	<b>Bags general</b> .....	<b>19</b>
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<b>5.7</b>	<b>Film transport</b> .....	<b>23</b>
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## 5.1 For your safety (see also section 1, 'Safety measures')



**You are responsible!**  
**Observe the 'safety measures'**

### Personal conditions

#### Who is allowed to remove failures of the machine?

- Persons who are authorised to do so on the basis of their education and qualification
- Persons who have been ordered to do so by the owner

**Instruction!**

Activities on the electrical installation may only be carried out by an electrician or by personnel trained as such under the supervision of an electrician according to the electrotechnical regulations.

**Instruction!**

Activities on compressed aircsystems may only be carried out by trained personnel with special knowledge and experience in this area.

### Preparations for repairing failures

- Switch off the machine following this manual and protect it against switching on unexpectedly
- Close down the main operating elements and remove the key from the lock and/or place a warning plate on the main switch
- Amply close off the area in which the repairs are carried out
- Inform the operators and appoint supervisors

### Measures before switching on again the machine after having repaired failures

- Check the safety measures
- Check whether the doors of the control cabinet are closed

## **5.2 General instructions**

Insufficient cleaning of the signal providers (contacts, photocells, etc.) may influence the functioning and result in failures.

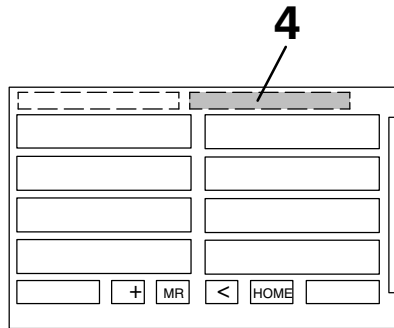
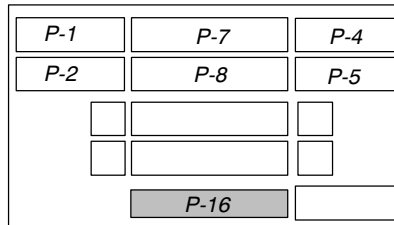
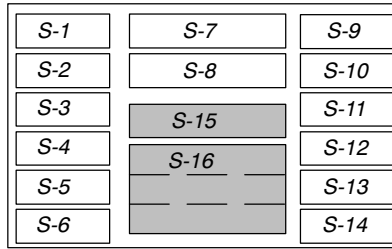
The heat discharge of the motors may not be hindered.

If a failure is not clear, the inputs and outputs must be checked in order to establish the lack of a signal. The input and output lists are displayed in the electrical wiring diagrams.

A signal sent to a magnetic valve can be checked by means of the LED indication on the valve. All magnetic valves have a manual operation for manual switching.

In the tables below failures, measures and/or possible causes are indicated. Where applicable reference is made to other sections of this manual.

When the machine switches off during operation, first look at the failure report on the touch screen, see 5.3.



### 5.3 Failure reports on the touch screen

In S-15 the reason appears why the machine has switched itself off.

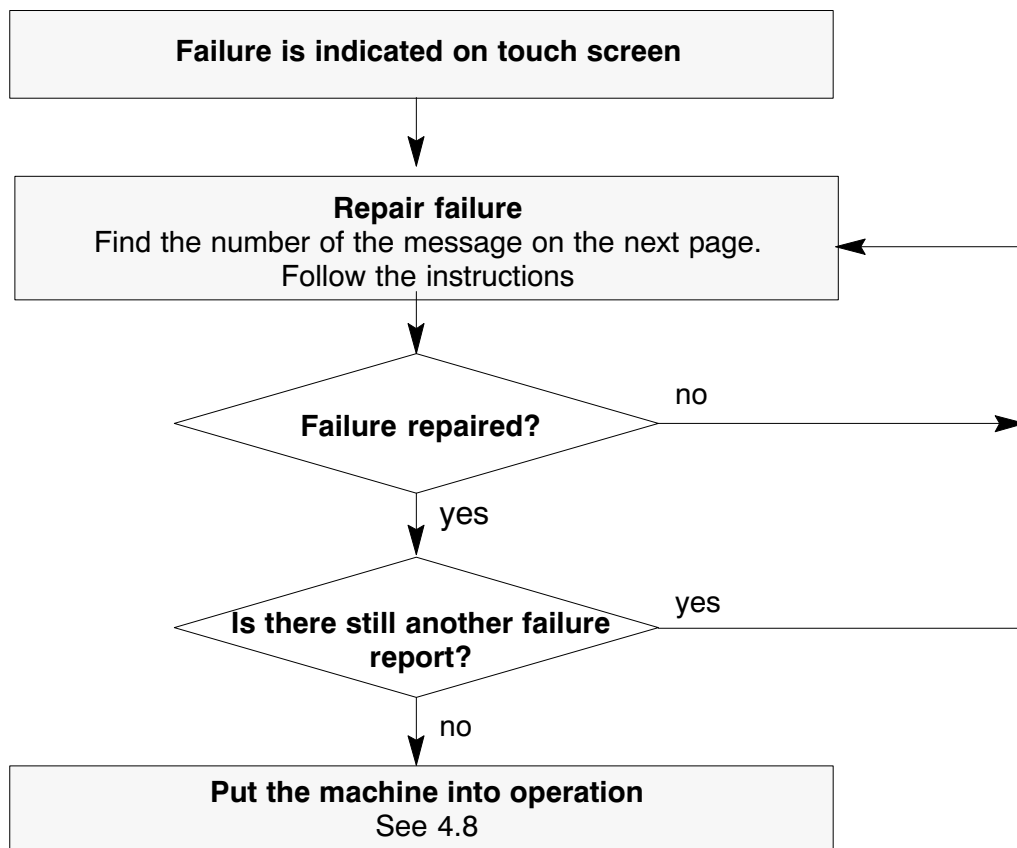
The (actual) failure(s) still present appear(s) in S-16, P-16 and in field (4).

The report begins with a number. Only the number is given in the list below.

If a failure is reported that is not mentioned in the list and/or that cannot be repaired, one should contact the manufacturer.

In that case the data in (level 3) S-4a-7a-2-1 or (level 3) S-4a-8-4 or (level 3) S-7-8-4a-2-1 must be reported in full.

Dependent on how the machine was stopped, the machine must be started according to the proper starting procedure given on 4.8.



### 5.3 Failure reports on the touch screen

#### Messages 001 – 012

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
001	Start, see 4.8.
002	Close door(s).
003	Activate and/or adjust compressed-air supply, see 7.6.1.
004	Start, see 4.8.
005	Pull out Emergency Stop button, see 4.2.
006	See electrical diagrams. E.g. short-circuiting of a pneumatic valve as a possible cause.
007	Place/solder new battery on the ADT board (A4). See electrical diagrams.
008	Increase voltage unit until the green LED on the ADT board (A4) is fully lit. See electrical diagrams.
009	Search option concerned through 6.21. Decrease duration. If necessary, reduce the machine speed, see 4.4.11.
010	Wait.
011	Wait and/or check dosing unit.
012	<p>SVE2510: Move the cross-seam jaws towards each other until the limit switch (S7, see 7.15.5) is no longer pressed in. Attention: If the jaws control kept running after the jaws were closed, the limit switch (S7) remains pressed in and the report does not disappear. In this case, close the jaws and then quickly pull the front bar back so that the control runs back into the working area. Check the switch (S7), see 7.15.5.</p> <p>SVE3600: Manually or in (level 3) S-4a-7a-5a-2a, run the cross-seam jaws back into the working area. If necessary, see the explanation in 7.15.</p>



### 5.3 Failure reports on the touch screen

#### Messages 013 – 026

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
013	Move the cross-seam jaw housing from the top or bottom position, see 7.16.3. If the cross-seam jaw housing is in the bottom position, the spring on which the housing has been suspended may be broken. Replace. Check which limit switch (S5 or S6) is pressed. Check the switch(es), see 7.16.4.
014	Search option concerned through 6.21. Decrease deceleration. If necessary reduce the machine speed, see 4.4.11.
015	Search option concerned through 6.21. Decrease duration. If necessary reduce the machine speed, see 4.4.11.
016–017	See the manual of the option concerned.
018	See 6.16. Clean the lens of the photocell; check position and setting; set on print mark; press S-5. During production implement checks in P-8.
019–021	Decrease mentioned setting(s), see 4.4.14. If necessary reduce the machine speed, see 4.4.11.
022	Set machine speed to an allowed speed, see 4.4.11
023	Decrease mentioned setting(s), see 4.4.14. If necessary reduce the machine speed, see 4.4.11.
024	Decrease mentioned setting, see 4.4.11.
025	Reduce the machine speed and/or decrease the bag length, see 4.4.11.
026	Search option concerned trough 6.21. Increase duration.

### 5.3 Failure reports on the touch screen

#### Messages 027 – 046

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
027	Reduce the machine speed and/or decrease the bag length, see 4.4.14.
028–030	Search option concerned through 6.21.
031	Increase bag length or machine speed, see 4.4.11.
032	Wait. See option concerned in chapter 6.
033	Consult factory.
034	Reduce setting(s) mentioned, see 4.4.14. If necessary reduce the machine speed, see 4.4.11.
035	Increase sealing time, see 4.4.14.
036	Consult factory.
037–038	Check solenoid switches concerned, see electrical diagrams.
039–041	Servo drive mentioned not ready. Push and Emergency Stop button and pull it out again. Restart.
042	Overprinter, see 6.17. E.g. end of printing carbon.
043	Search option concerned through 6.21.
044–045	Search option concerned through 6.21.
046	Close side door.

### 5.3 Failure reports on the touch screen

#### Messages 047 – 080

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
047	Consult factory.
048	Change film reel. Tension arm in top end position. Raise film reel and unwind reel until the tension arm is in the central position. Tension arm in bottom end position. Raise film reel and rewind film onto the reel until the tension arm is in the central position. Film-web tension too low. Increase web tension, see 7.9.6.
049	Release film clamp using S-5 or press stop button on rear of electrical cabinet.
050-51	Check circuit concerning Pt100, see electrical diagrams.
052	Temperature settings, see 4.4.15. If the report appears after the main switch was switched on or after a recipe change: wait until the heating elements have reached their operating temperatures. If the report appears during production: inspect the autofuse, solid state, element, etc. See electrical diagrams.
053	Calibrate horizontal drive cross-seam jaws, see 7.15.2.
054-065	Check reed contact concerned. Readjust if necessary, see 7.15.4.
066-068	Action has been carried out.
069	Search option concerned through 6.21.
070-072	Check the movements of the cross-seam jaws, see 7.15.
073	Check connections of the encoder, see 7.15.4.
074	Wait.
075	Calibrate vertical drive cross-seam jaw housing, see 7.16.1.
076	Wait or stop running dosing unit until empty.
077	Overprinter settings, see 6.17. If necessary, decrease the displacement with bag length and/or select another film route.
078	Calibrate horizontal drive cross-seam jaws, see 7.15.2.
079	Lower the machine speed, see 4.4.11. Increase the speed of the dosing unit.
080	Thermal safety device mentioned deactivated, see the electrical diagrams concerned.

### 5.3 Failure reports on the touch screen

#### Messages 081 – 104

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
081–082	If necessary, decrease displacement with respect to output by bag length.
083	Thermal safety device mentioned deactivated, see electrical diagrams.
084	Press start, see 4.8. The motor crank of the cross-seam jaws control moves horizontally back into the working area, see 7.15.
085	Check angle when the cross-seam jaws should close (collide), see 7.15.3.
086	Increase dropping time, see 4.4.14.
087	Search option concerned through 6.21.
088	Search option concerned through 6.21. If necessary, reduce the machine speed, see 4.4.11.
089–092	Check the drive concerned, see electrical diagrams.
093	Move the cross-seam jaws housing underneath the proximity initiator. SVE2510: remove the pin that locks the cross-seam jaws housing in the highest vertical position, see 6.7.1.
094–095	Check power supply concerned, see electrical diagrams.
096	Remove pin, see 6.20.3.
097	See 7.15.4.
098	Search option concerned through 6.21.
099	See description of option concerned on 4.4.17.
100	Search option concerned through 6.21.
101	Wait for sufficient product and/or check supply.
102	Check check-weigher.
103	Check auger filler.
104	Consult factory.

### 5.3 Failure reports on the touch screen

#### Messages 105 – 161

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
105	Wait. Check unit concerned.
106	Check unit concerned.
107	Wait.
108–110	Check unit concerned.
111–122	Check unit concerned.
123–132	Check auger filler.
133–142	
143–152	
153	Check unit concerned.
154	Search option concerned through 6.21.
155	The tracking frame is positioned in the end position, at the left-hand or right-hand side, see 6.15.1.
156	Search option concerned through 6.21.
157	Close door.
158	Wait and/or check dosing unit.
159	Consult factory.
160	Wait and/or check boarding machine.
161	Only allowed for testing purposes. Switch on, see 4.4.15.

### 5.3 Failure reports on the touch screen

#### Messages 162 – 182

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
162	Machine is ready to be started up.
163–164	Start, see 4.8.
165	Search option concerned through 6.21. If necessary, reduce the machine speed, see 4.4.11.
166	Press Reset button on touch screen, see 6.14.
167	Increase the reported setting, see 7.15.3.
168–170	Check dosing unit
171	Wait and/or check the unit concerned.
172	Initialisation cable connected to wrong drive or wrong button pressed.
173	See description of option concerned on 4.4.17.
174	See 4.4.19.
175	Remove the pin that locks the cross-seam jaw housing in the top position, see 7.16.3. Unscrew the screw that holds the cross-seam jaw housing in the top position.
176	Search option concerned through 6.21.
177	Search option concerned through 6.21.
178	The jaws do not touch each other in the closed position, see 7.15.3.
179	See 7.15.3.
180	Start, see 4.8.
181–182	Thermal safety device mentioned deactivated, see electrical diagrams.

### 5.3 Failure reports on the touch screen

#### Messages 183 – 211

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
183	Pull out Emergency Stop button concerned.
184	Close door.
185	Check unit concerned.
186	Decrease displacement by bag length, see 4.4.13.
187	Thermal safety device of the vacuum pump switched off, see electrical diagrams.
188–189	Check belt drives. Check draw-off belt settings, see 6.12. Problem with stepping motor. Press Emergency Stop button and pull it out again. Restart.
190–193	Overprinter, see 6.17. If necessary decrease the displacement with bag length and/or select another film route.
194	The operator will be warned a preset time before the end of the film reel (level 3) S-4a-7a-3-1 . Calculation depends on the film thickness and the outside diameter of the film-reel core, see 4.4.11.
195	Bring the film reel and film reel shaft into the correct position.
196–206	Search option concerned through 6.21.
207	Search option concerned through 6.21.
208	Search option concerned through 6.21. Decrease duration involved.
209–210	See synchronisation on page 4.6.
211	

**5.3 Failure reports on the touch screen****Messages 212 – 238**

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
212	Consult factory.
213	Reduce setting(s) mentioned, see page 4.4.14. If necessary, reduce the machine speed, see 4.4.11.
214–217	See 7.16.1.
218–219	See 7.15.2.
220	Press the bottom right key on the start screen.
221	Switch the vacuum table off, see 4.9.
222–223	See synchronisation on 4.6 and/or 7.17. See the description of the dosing unit.
224	The software of the temperature card (A4) is too old. Load newer software version.
225	Wait or check the unit concerned. Consult the manufacturer if no other error message appears.
226	Adjust one of the two machines.
227	Check signals.
228–231	See 7.16.5.
232–235	See 7.15.6.
236	Start, see 4.8.
237	Thermal safety device mentioned deactivated, see electrical diagrams.
238	Reset PNOZ relay block, see electrical diagrams.



### 5.3 Failure reports on the touch screen

#### Messages 239 – 263

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
239	Switch clipper off-line.
240	Check unit concerned.
241–244	Twin machine. Synchronisation, see 4.6.
245–246	Start, see 4.8.
247–248	Pull out Emergency Stop button.
249–250	Wait and/or check the unit concerned.
251	Start, see 4.8.
252	Print mark control, see 6.16. If necessary, decrease displacement by bag length. If necessary, move the film web roller just before the shoulder as a temporary solution.
253	Check and/or set compressed-air supply, see 7.6.1.
254	Wait and/or check the unit concerned.
255–256	Check unit concerned.
257	Press key.
258	Pull out Emergency Stop button.
259	Wait or check the unit concerned.
260	Decrease delay and/or check the unit concerned. If necessary, reduce the machine speed, see 4.4.11.
261	Decrease delay and/or check the unit concerned and/or increase drop time. If necessary, reduce the machine speed, see 4.4.11.
262–263	Consult factory.

### 5.3 Failure reports on the touch screen

#### Messages 264 – 299

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
264–265	See 4.4.20.
266–268	Search option concerned through 6.21.
269	Reduce drop time and/or reduce the machine speed, see 4.4.11.
270	Switch on.
271	Clean filters, see 7.4.
272–273	See relevant option in 6.19.
274	Search option concerned through 6.21.
275	Reduce the value concerned, see 4.4.11.
276–277	Search option concerned through 6.21.
278	See electrical diagrams.
279–285	Search option concerned through 6.21.
286	See 6.17 and relevant manual in section 8.
287	Search option concerned through 6.21.
288–296	See relevant drive in sections 7 and 8 and electrical diagrams, if required.
297	Search option concerned through 6.21.
298	See 7.15.4.
299	Search option concerned through 6.21.

### 5.3 Failure reports on the touch screen

#### Messages 300 -

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
300	Close cover(s). Press the push button on the right-hand side of the operating panel or S-4a-4 on the touch screen to switch on again the compressed air supply that was switched off for a number of functions.

### **5.3 Failure reports on the touch screen**

**Messages reserve**

### 5.3 Failure reports on the touch screen

#### Messages 900 – 999

No.	Measure(s) and, if required, possible cause. Start, see 4.8.
900 - 999	Consultation with the manufacturer passing on the following details: -the operations that preceded this message; -the full content of (level 3) S-4a-7a-2-1 or (level 3) S-4a-8-4 or (level 3) S-7-8-4a-2-1 must be reported in full. -the literal text of the error message.

5.4 **Bags general**

FAILURE	MEASURES AND/OR POSSIBLE CAUSE	See chapt.
Problems with the long seam		5.5
Problems with the cross seam		5.6
Problems with film transport		5.7
Problems with corner seal seams		5.8
Bag cut-off position incorrect	Correct key concerned in level 2 (S-7-8-1)-3 or P-10.	6.16
Print and/or label at a wrong place on the film web	Key concerned in level 2 (S-7-8-1)-3 or P-10.	6.17
Print poor quality	See description overprinter.	chapter 8
Too little/much air in the bag	Set air expellers	6.21
Scratches on the bags	Clean shoulder	7.10.2
Side folding poor	See description of option concerned in section 6. Side folding incorrectly set. Check and adjust.	6.21

## 5.5 Long seam

The long-seam jaw must be clean at all times.

POSSIBLE CAUSE	MEASURES AND/OR POSSIBLE CAUSE	See chapt.
Incorrect temperature	Change the appropriate key in S-1 or level 2 (S-7-8-1)-8	4.4.15
Long jaw play too large/too small	Readjust play	6.13 or 6.14
Incorrect sealing/welding pressure	Set pressure	6.13 or 6.14
Worn PTFE strips on long jaw and/or forming tube	Check underlay strip (if present) and replace Teflon strip	7.10.3
	Pinching long seam (option): Replace Teflon on seal jaw and anvil.	7.11
Incorrect long-seam overlap	Correct film-web tracking and readjust, if necessary	6.15 6.15.1
	Correctly adjust adjustable film web roller prior to the shoulder	6.10
	Readjust film guide roller	6.11
	Set draw-off belts	6.12
	Clean shoulder	7.10.2
	Readjust shoulder	7.10.1
	Readjust sideways position of the long-seam jaw	6.13 or 6.14
	Pinching long seam (option): correctly set the position and angle of the long seam jaw below the shoulder outlet	6.13
	Pinching long seam (option): correctly set the position of the long seam jaw in relation to anvil and forming tube	6.13
	Film web width too small because of too broad corner seal seams	6.5.2
Long-seam sealing not aligned	Readjust	6.13 or 6.14

## 5.6 Cross seam

The cross-seam jaw must be clean at all times.

POSSIBLE CAUSE	MEASURES AND/OR POSSIBLE CAUSE	See chapt.
Incorrect temperature	Change the key concerned in S-1 or level 2 (S-7-8-1)-8.	4.4.15
Incorrect sealing/welding time	Change the time concerned in S-7-3 or level 2 (S-7-8-1)-1 or (S-7-8-1)-5.	4.4.11 or 4.4.14
Incorrect sealing/welding pressure	Incorrect setting of the jaw holder. Set pressure.	6.20.2
Sealing jaws do not close properly	Clean cross-seam jaws. Incorrect jaw alignment.	7.13.4
Product in cross seam	Clean cross-seam jaws. Correct drop time product in level 2 (S-7-8-1)-5 or P-9. Excessive production distribution. Check adjustment of dosing unit. Clean dirty product infeed chute or forming tube. Air expellers too close together for bag size. Electrostatic discharge device does not work (if present). No dust extraction (if present). Jaws close too fast.	4.4.11    6.21 6.21 6.21

*continued on next page*



**5.6 Cross seam (continued)**

POSSIBLE CAUSE	MEASURES AND/OR POSSIBLE CAUSE	See chapt.
Product damages bottom seam	Product is dosed too late. Increase drop time product in level 2 (S-7-8-1)-5 or P-9. Increase capacity of cooling-air heads for cross seam (if present) or cooling period. Move product catching plates (if present) closer to film.	4.4.14 4.4.14 6.21
Bottom seam peels open	Insufficient cooling. Increase cooling-air amount/pressure.	4.18 or 4.19
Worn PTFE strips	Check underlay strip (if present) and replace Teflon strip.	7.14.3 or 7.14.4
Folds in cross seam	Insufficient spreading function. Bend spreader springs out by some mm.	
Gusset blades incorrectly adjusted	Check and adjust.	6.21
Knife dull or not fully extended	Check effect of knife. Replace knife, if necessary.	7.13.1 or 7.14.3
Position of corner seal seams incorrect	Check and set position of corner seals.	6.5
Air expellers set incorrectly	Check and set.	6.21

**5.7 Film transport**

MEASURES AND/OR POSSIBLE CAUSE	See chapt.
Select the correct recipe.	4.4.7
Check draw-off belt play and readjust.	6.12
A motor for the film transport has stopped. Inspect running play of draw-off belts.	6.12
Draw-off belts worn. Replace.	7.9.2
Film with print mark control: clean lens of photocell, check position and setting.	6.16
Number of print marks for each bag length in P-8 must show '1'.	and
Check bag length of last bag in P-8.	4.4.17
If the actual pulses in S-8 number over 15 less than the number of pulses for the nominal print mark position, then reduce the bag length in level 2 (S-7-8-1) or in S-7-3.	4.4.11
If the actual pulses in S-8 number over 15 more than the number of pulses for the nominal print mark position, then reduce the bag length in level 2 (S-7-8-1) or in S-7-3.	4.4.11
Check vacuum supply. Check vacuum pump. Vacuum should amount to at least 600 mbar (dependent on film). There is a connection for a vacuum gauge just before the inlet filter. Inspect the vacuum pipes for fractures. Inspect the filter of the vacuum pump. Inspect the sleeve at the end of each draw-off belt for dirt.	chapt. 8
Play of long-seam jaw too small. Check and set.	6.13 or
Long-seam pressure too high and/or temperature too high. Set sealing pressure.	6.14
Film pulls folds into long seam. Set sealing pressure.	
Excessive print time of overprint.	6.17
Film reel brake does not function optimally. Clean brake and brake lining of film reel shaft.	7.9
Check motions of tension arm; readjust, if necessary.	
Tensionarm arrives at top end position. Increase film-web tension.	7.9.6
Film accumulates beneath forming tube, because the spreading force is too strong. Slightly bend in spreader springs.	
Cross-seam jaws raise bag. Cross-seam jaw opening set too small or open cross-seam jaws earlier or install product-catching plates.	4.4.11
Emptying of film reel shaft: replace the air-inlet valve or, if necessary, the entire shaft.	

**5.7 Film transport (continued)**

MEASURES AND/OR POSSIBLE CAUSE	See chapt.
Corner seal bags and/or Doypack bags: All causes on the previous page.	5.7
Film has too much friction in the folding station because the folding plates are touching each other.	
Film has too much friction in the folding station because the folding plates sets are too close together at the bottom of the folding station.	
Film web does not run straight through the folding station due to the setting of the folding plates.	
Irregular film web run from the auxiliary driving roller to the shoulder due to a too low film web tension. Set the tension arm concerned heavier.	7.9.6
Auxiliary driving roller slips because of contamination. Clean with a non-aggressive cleaning agent.	
Too high film web tension in the preliminary section. Set the tension arm concerned lighter.	7.9.6
Pressure of corner seal jaw(s) too high.	
Shoulder contaminated. Clean.	7.10

## 5.8 Corner seams

The corner seal jaws must be clean at all times.

POSSIBLE CAUSE	MEASURES AND/OR POSSIBLE CAUSE	See chapt.
General problem		5.4
Long seam as corner seal if necessary		5.5
Cross seam		5.6
Film transport		5.7
Quality of corner seal insufficient	Change faulty temperature of corner seal concerned in S-1 or level 2 (S-7-8-1)-8	4.4.15
	Anvil not parallel with corner seal jaws	6.5.5
	Different corner seal widths because the corner seal jaws are not in line with the formed folds	6.5.2
	Pressure of corner seal jaw(s) too high	6.5.5
Corner seals do not coincide with the corner points of the mouthpiece	Set the mouthpiece parallel with the cross seam jaws	
	Folding station with cross adjustment: Set the folding station, corner seal jaws and folding plates crosswise.	6.5.4
	Folding station without cross adjustment: turn the shoulder when the corner seals are lying in the correct position on the film web.	6.5.4
Corner seals are sealed between the cross seam jaws the other way around	The folding plates do not fold the corner seal seams in the correct direction	6.5.3
	Folding plates set incorrectly	6.5.3
	Pressure bearings (if present) set too lightly	6.5.3
	Cooling set incorrectly, causing the corner seal seams to burn during standstill	6.5.5

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## 6.1 For your safety (see also Section 1, 'Safety measures')



**You are responsible!**  
**Please heed the "safety measures"!**

### Requirements of personnel

#### Who is allowed to operate the machine?

- persons who are entitled to carry out such work because of their training and qualification
- persons who are assigned to carry out such work by the operator of the machine

**N.B.!**

Work on electrical equipment may only be performed by a skilled electrician, or by trained personnel under the supervision of a skilled electrician, and in compliance with the rules of electrical engineering.

**N.B.!**

Work on compressed-air systems may only be carried out by personnel trained for this purpose who have special knowledge and experience with this work.

### Preparations for size/product change

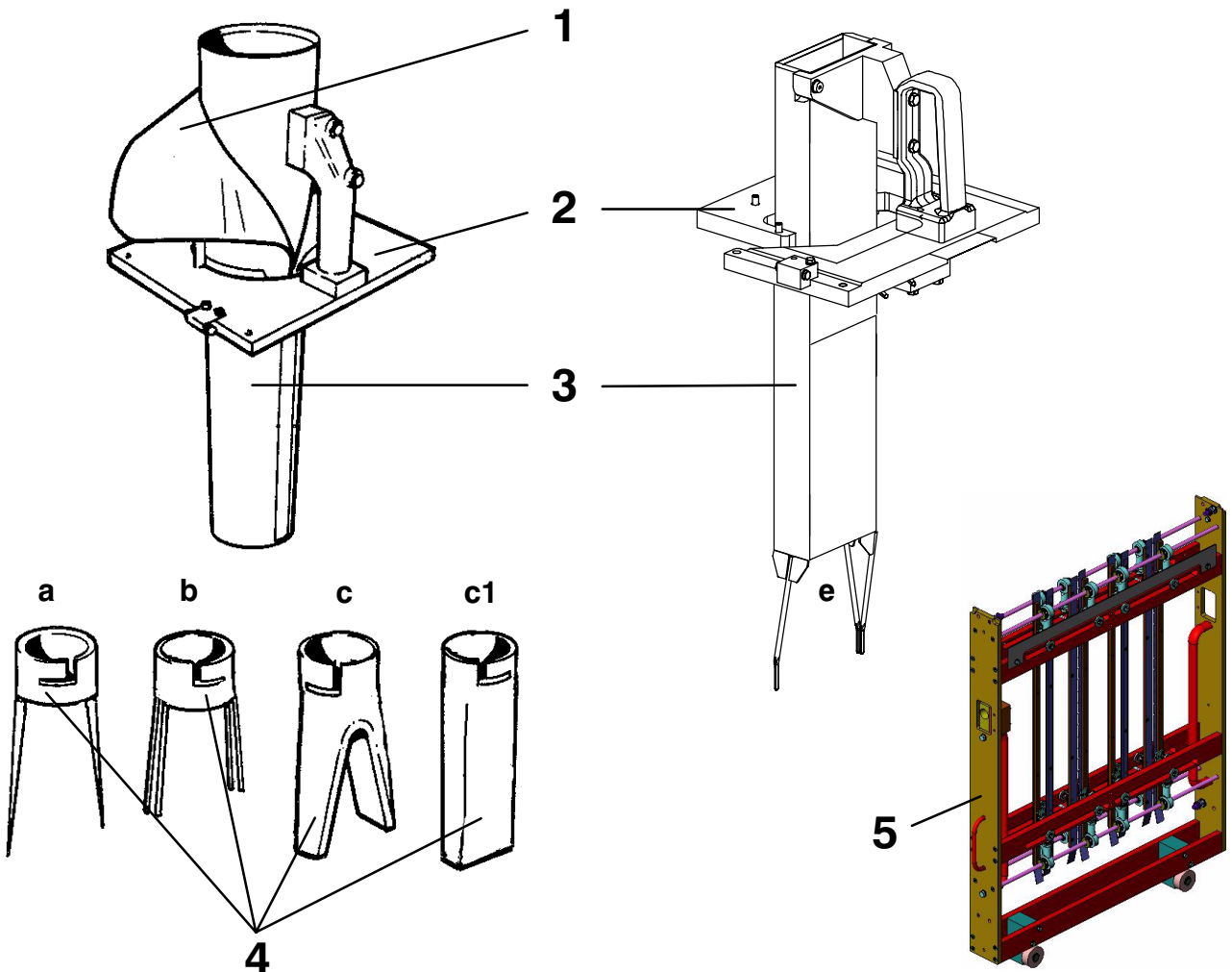
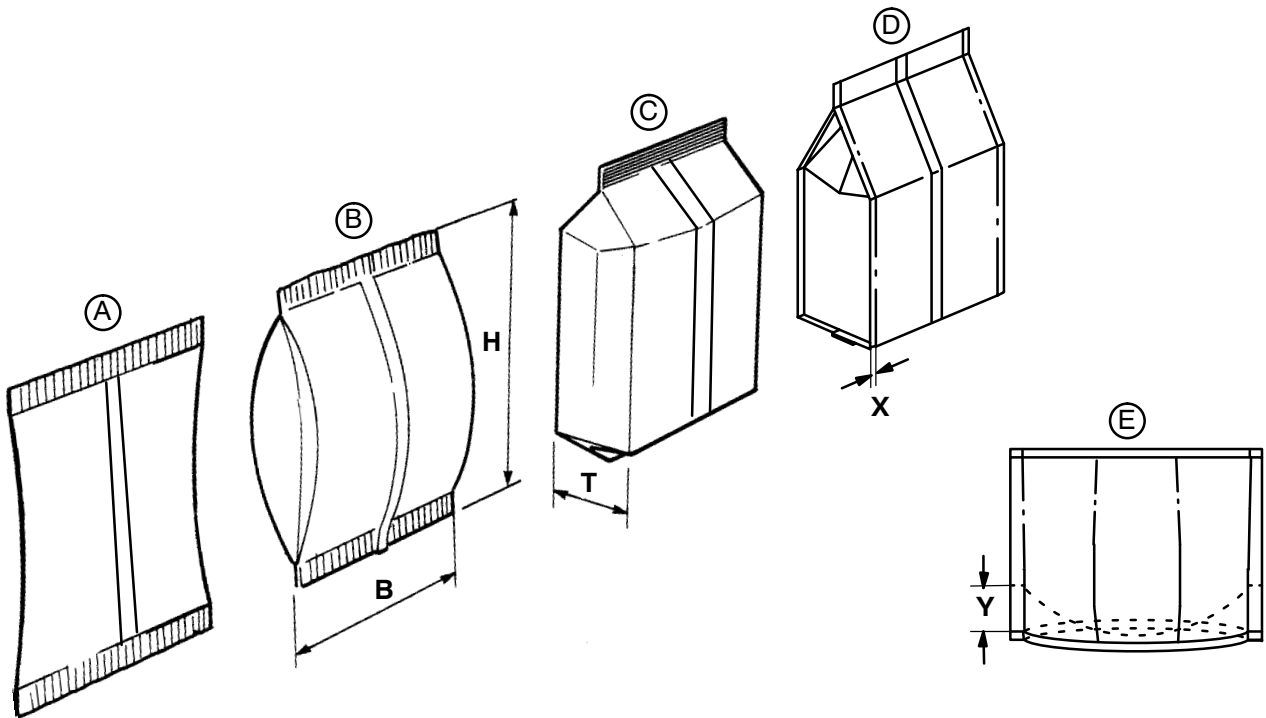
- Guard off the working area generously
- Inform operating personnel and nominate a supervisor
- Determine a responsible person to operate the machine from a place where it can be shut down at any time

### Adjusting safety provisions

After changing the format, packing and auxiliary packing machines with size-dependent safety provisions may not be recommissioned until the provisions have been adjusted to the new format.

### Measures to be taken before switching the machine on again after a change

- Check safety devices



## 6.2 Introduction

The machine must be changed in order to produce bags of other dimensions or forms. This may require only a small number of changes or simple adjustments, or the installation of interchangeable parts (optional) or completely new adjustments.

The following pages describe consecutively and in detail all modifications and adjustments required for a format set change.

See next chapter for the actions required for size and/or product change and/or film replacement.

The following bag types can be manufactured with the required change parts (option):

- A -Simple flat bag
- B -Flat bag with gusset (gusseted pillow bag)
- C. -Block-bottom bag
- D. -Corner seal bag
- E. -Doypack bag

The variables of a bag are:

- Height (H),
- Width (W),
- Depth (T),
- Width of corner seal (X),
- Insert depth (Y)
- Film thickness and film type.

For a corner seal and/or Doypack bag a folding station (5) forms the folds for the corner seal seams. It is a change part that must be changed as a complete unit for different bag sizes and/or seam widths of the corner seals.

The following parts form a forming set that must be changed as a whole unit for different bag widths and/or bag forms:

- shoulder (1)
- shoulder plate (2)
- forming tube (3)
- mouthpiece/spreader (4)
- film guide roller (if provided)

Various bag forms require various mouthpieces or spreaders, e.g.:

- a. Spreader with two spreader springs for flat bags (A),
- b. Spreader with four spreader springs for gusseted pillow bags (B),
- c. rectangular mouthpiece with cut-aways for block-bottom bags (C) and corner seal bags (D) (special model to avoid product obstructions),
- c1. Right-angled mouthpiece for block-bottom bags (C) and corner seal bags (D)
- e. A finger on the left and two fingers on the right for Doypack bags (E).  
Fingers not dismountable.

Options: Each machine version requiring interchangeable parts is supplied with the required parts, e.g. in the gusseting device, other gusset spoons are needed when changing from gusseted pillow bags to block-bottom bags.



### 6.3 Overview of size and/or product changes and/or film changes

Below a list if given of the actions that are necessary to carry out a size and/or product change and/or a film change.

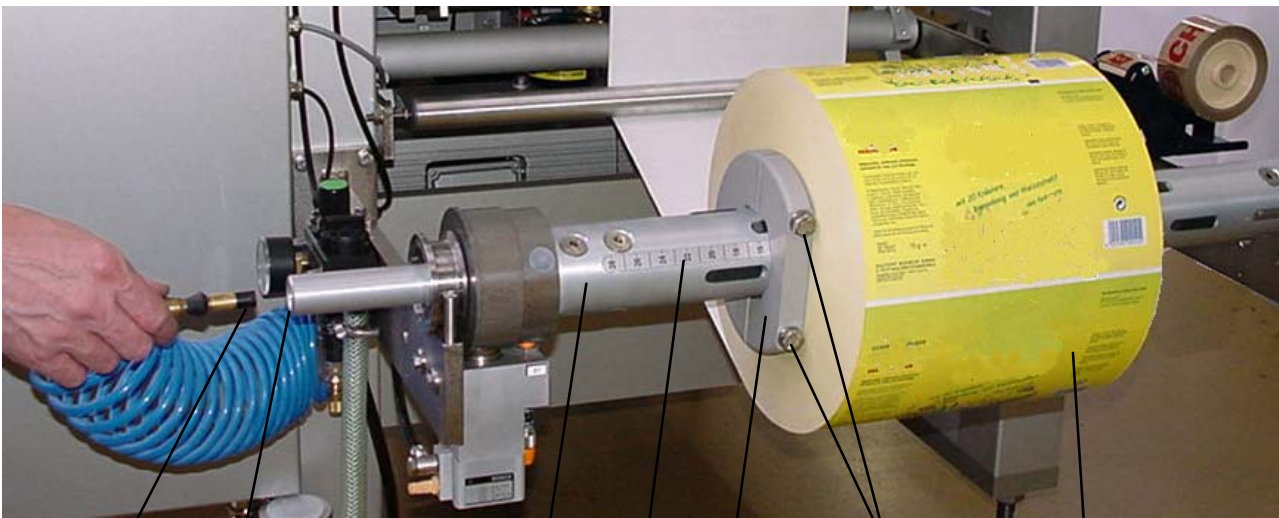
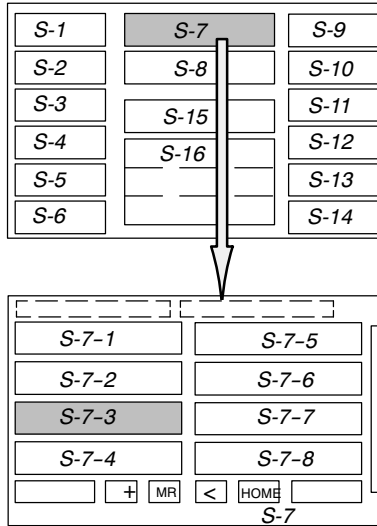
Continue with the next action when an action has already been carried out or has become superfluous.

#### Attention: carry out all actions for a new recipe.

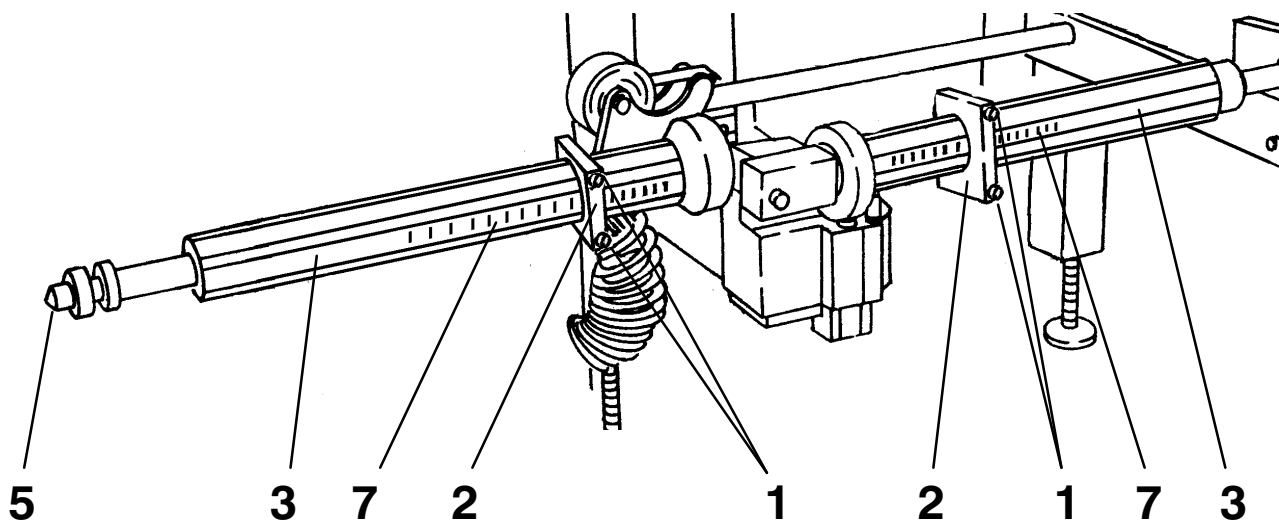
- Change of product and/or machine speed \_\_\_\_\_
- Change of bag length \_\_\_\_\_
- Change of bag width \_\_\_\_\_
- Different type of film (e.g. HS or PE) and/or serration \_\_\_\_\_
- From flat, gusseted or block-bottom bags to corner seal bags and vv \_\_\_\_\_

ACTIONS	See chapt.					
Select existing recipe	4.4.7	x	x	x	x	x
Set/correct the film reel on the film-reel shaft	6.4	x	x	x		
Replace film (other film thickness, width or type) and guide it through	6.4.1	x	x	x	x	
Change folding station and other corner seal settings	6.5	x		x		
Change the long-seam jaw	6.6	x	x			
Change the cross-seam jaws	6.7	x	x			
Change the forming set	6.8		x	x		
Guide the film from the film reel to the cross-seam jaws	6.9					
Set the film-web roller prior to shoulder	6.10	x	x	x		
Set the film guide roller (option)	6.11					
Set the draw-off belts	6.12	x	x	x		
Set the long-seam heat seal (HS) (option)	6.13	x	x	x		
Set the long-seam polyethylene (PE) (option)	6.14		x	x		
Set the film-web tracking	6.15		x	x		
Set the automatic control for the film-web tracking (option)	6.15.1	x	x	x		
Set the print mark control (option)	6.16	x	x	x	x	
Set the overprinter (option)	6.17	x	x	x	x	
Set the cross-seam heat seal (HS) (option)	6.18	x	x	x		
Set the cross-seam polyethylene (PE) (option)	6.19		x	x		
Set other option(s)	6.21 etc.	x	x	x	x	x
Test run and optimisation		x	x	x	x	x

x = carry out  
empty = usually no action required



6 5 3 7 2 1 4



5 3 7 2 1 2 1 7 3

## 6.4 Set/correct the film reel on the film-reel shaft

A temperature of 18 to 20 °C and a relative air humidity of 50 to 60 % are regarded as the most favourable processing climate for the film and as a good operation and storing condition for the machine. The dimensions of the film must comply with the size drawing involved. Quality and processing must meet the requirements of the machine.

Before machine processing let the film, if possible 24 hours, adjust to the constant temperature of the processing room.

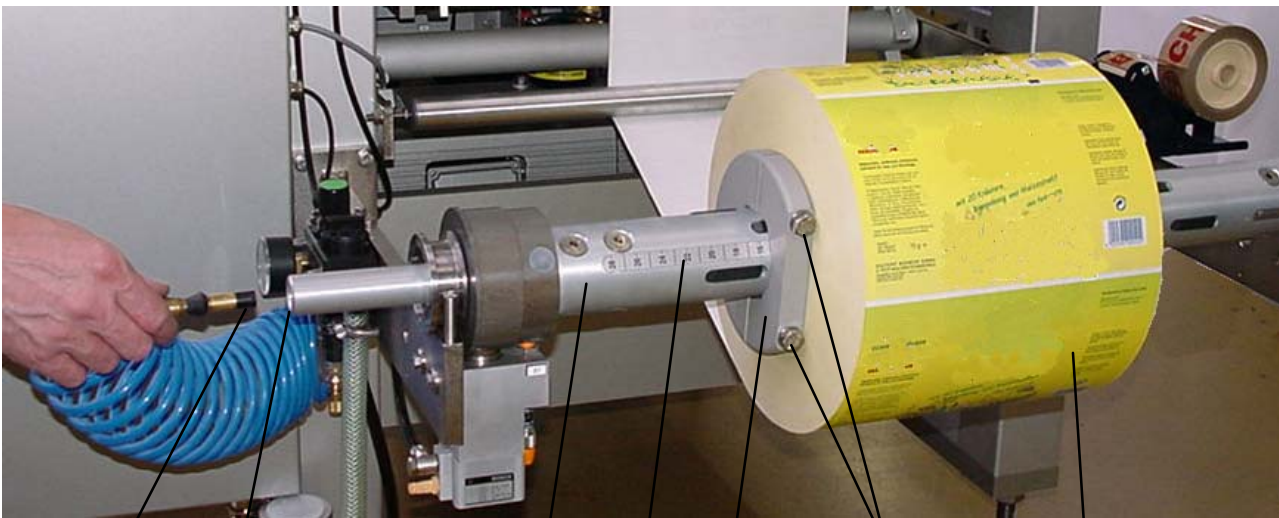
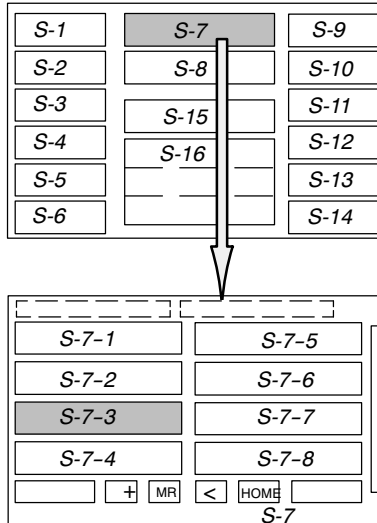
The film reel (4) must be placed on the film reel shaft (3) in such a way, that with a centred tracking frame (central position) a correct long seam is formed before the film-web control.

Carousel (option): The maximum allowed weight of the film reel is 40 kg.

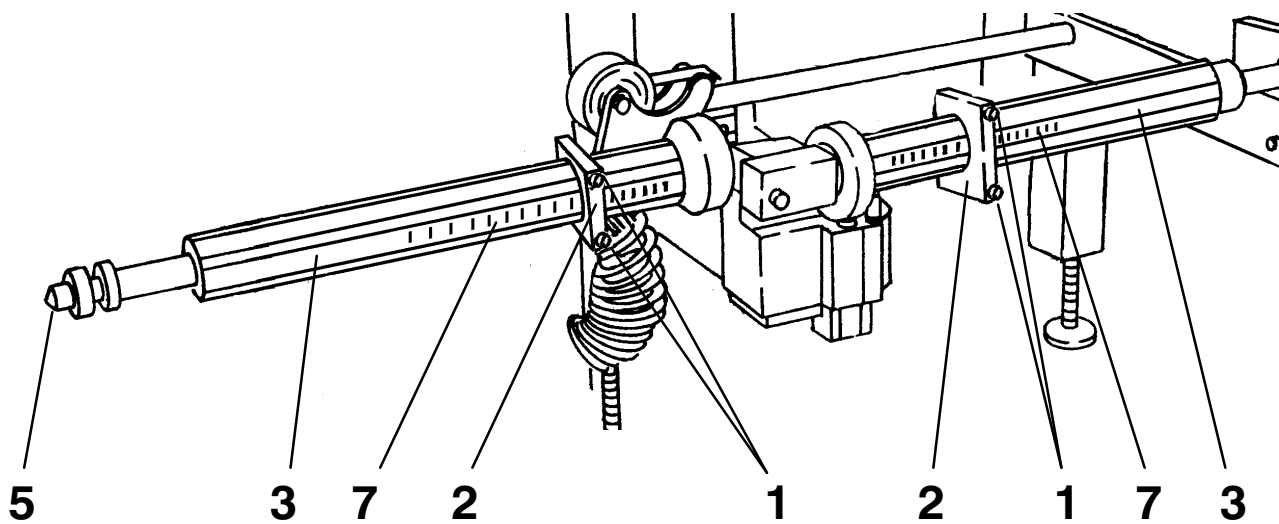
The carousel may also be with the hinge point on the other supporting arm.

OPERATION	METHOD	REMARKS
Set the stop (2) on an empty shaft (3)	See S-7-3 or (level 2) S-7-8-1-1 for information about the position of the stop (2). If this information is missing, than take half the film reel width as starting value. Loosen screws (1). Set the stop (2) according to the scale (7). Tighten screws (1).  Repeat the operations for a second shaft.	The number, for example 22, on the scale means 22 cm from the centre of the machine.  Read the value on the side the film reel is slid against.  If applicable.
Mount the film reel (4) on an empty shaft and lock	Slide the shaft (3) through the core of the film reel or with a carousel (option) slide the film reel over the shaft. Slide the film reel against the stop (2). Install the air gun (6) on the valve (5) and blow compressed air into the shaft until the film reel is fully locked. Note: The opening between the core and the shaft (3) must be equal all round.	Place the reel on the shaft in such a way, that the outside or printed side of the film is directed forward/downward when feeding.  For example: Rotate the reel (4) while supplying compressed air or during supplying compressed air when the film reel is on the floor.
Put or turn the film reel and shaft into the machine	The method is the same as the method of changing the film reel. If necessary , see 4.9	Pay attention to the limit ranges for lifting and carrying weights (loads).

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6 5 3 7 2 1 4



5 3 7 2 1 2 1 7 3

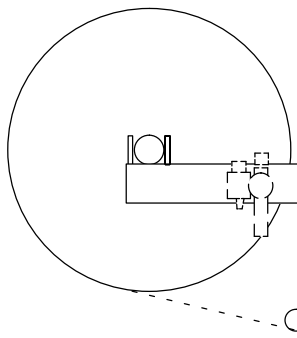
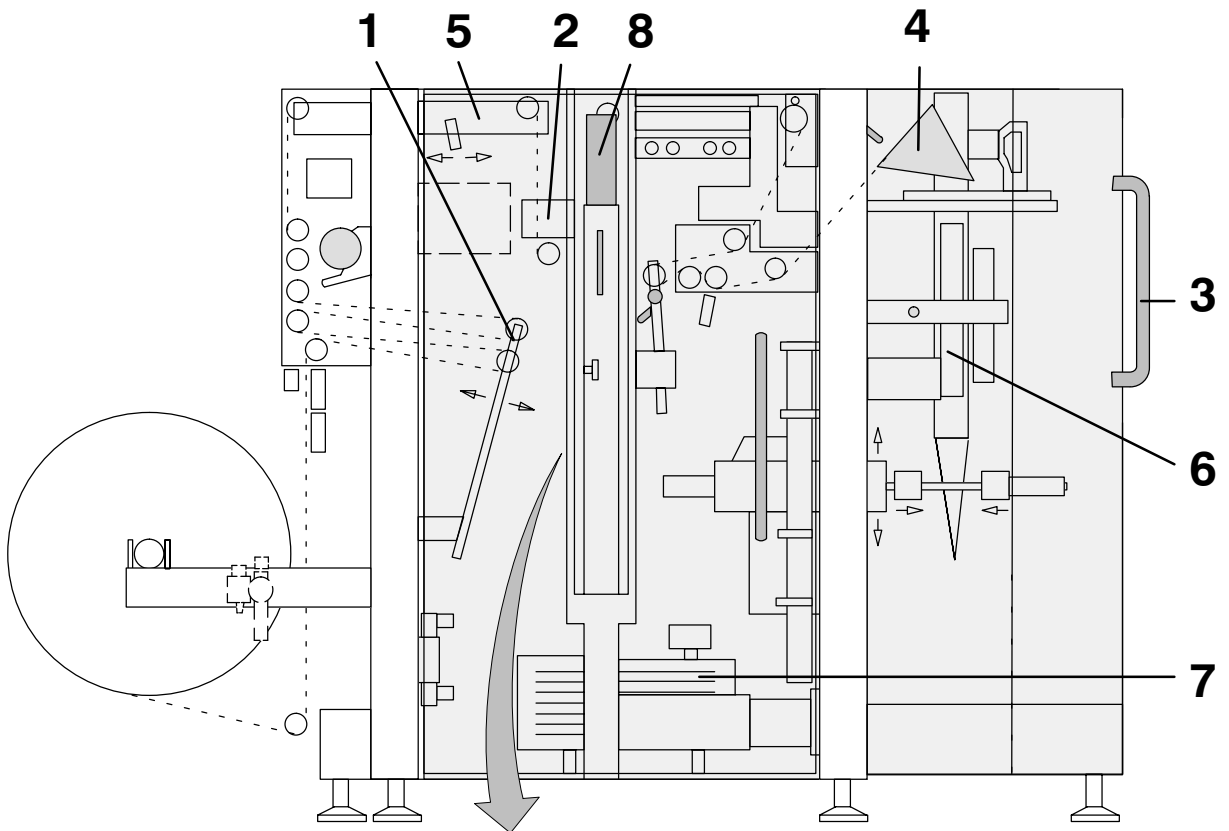


## 6.4 Set/correct the film reel on the film-reel shaft (continued)

OPERATION	METHOD	REMARKS
Correct the position of the film reel on the shaft	<p>Press the valve (5) in order to vent the shaft. Loosen screws (1). Slide the stop (2) in accordance with the scale (7) over the required distance. Tighten screws (1). Slide the reel against the stop (2). Install the air gun (6) on the valve (5) and blow compressed air into the shaft until the film reel is fully unlocked. Note: The opening between the core and the shaft (3) must be equal all round. Correct information concerning the position of the stop in S-7-3 or (level 2) S2-7-8-1-1.</p> <p>Repeat the operations for a second shaft.</p>	<p>Displacement must be identical to the distance that the tracking frame of the film-web control has turned away from the centred position (central position).</p> <p>For example: Rotate the reel (4) while supplying compressed air or during supplying compressed air when the film reel is on the floor.</p> <p>If applicable.</p>

S-1	S-7	S-9
S-2	S-8	S-10
S-3	S-15	S-11
S-4	S-16	S-12
S-5		S-13
S-6		S-14

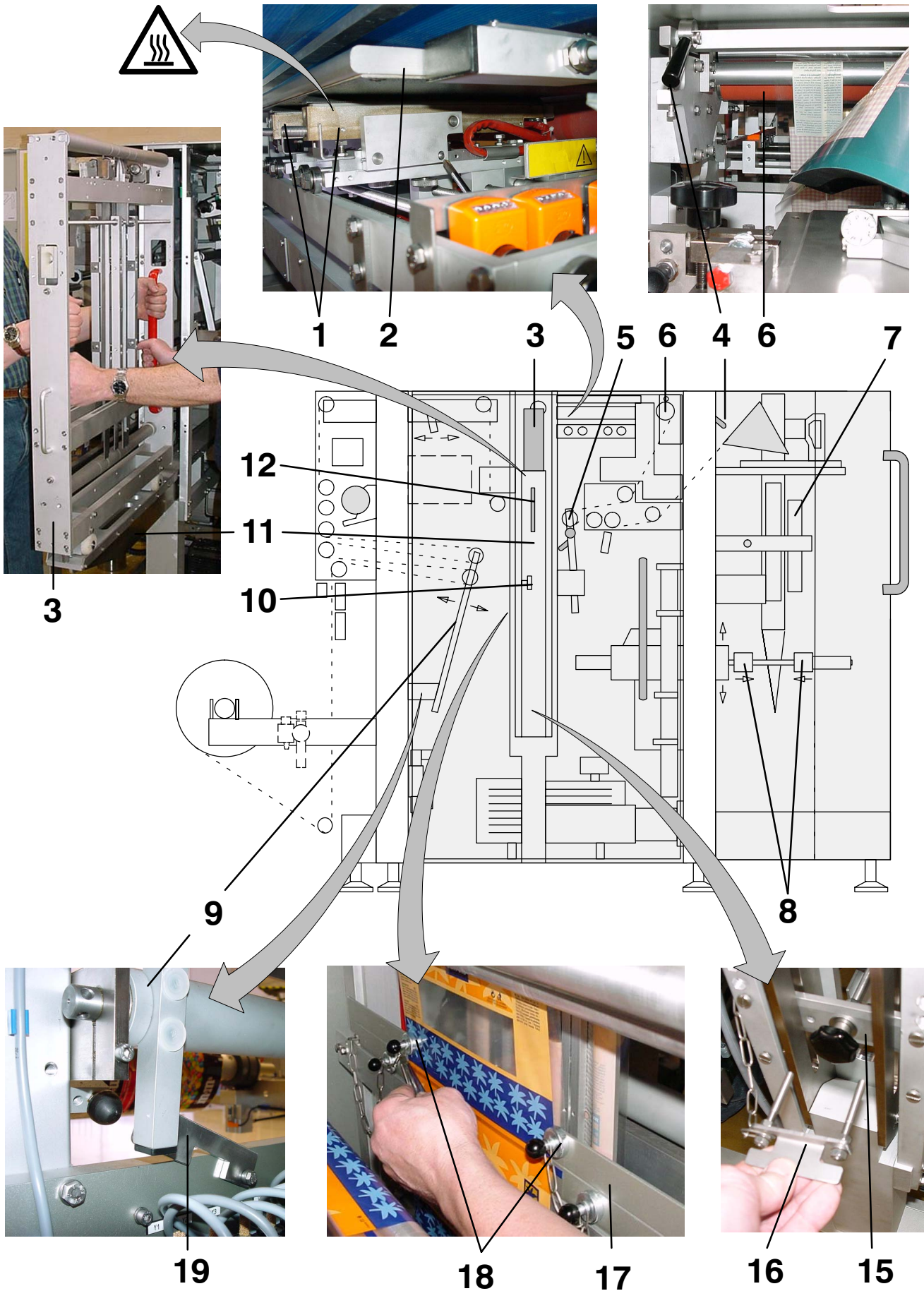
S-4a-1	S-4a-5
S-4a-2	S-4a-6
S-4a-3	S-4a-7
S-4a-4	S-4a-8
[ ] + MR < HOME [ ]	S-4a



### 6.4.1 Replace film (other film thickness, width or type) and guide it through

The film reel is changed before the forming parts are changed in order to facilitate and accelerate the change. The new film web, after being attached to the end of the previous film web, can be transported over the film-web rollers.

OPERATION	METHOD	REMARKS
Centre tracking frame (5)	If necessary, see 6.15 or 6.15.1.	
Change film reel	<p>Activate film clamp, cut film web, remove film reel with shaft, bleed shaft and remove film reel.</p> <p>Adjust the stop on the film-reel shaft if the new film reel has a different width.</p> <p>Install the new film reel on the shaft, place the film reel and shaft in the machine, attach the film-web ends to each other. If there is no film web in the machine, see 6.9.</p>	<p>If necessary, see 4.9 for a more detailed description.</p> <p>If necessary, see 6.4.</p> <p>If necessary, see 4.9.</p>
If no forming set change and no folding station change is needed, transport the spliced connection of the film-web ends over shoulder (4)	Produce empty bags or Press S-5 (repeatedly) or stop the vacuum pump (7) using S-4a-3; open the draw-off belts (6) using S-4a-2 and pull the film web through by hand.	Carefully check the transport of the spliced connection through the shoulder (4) and down along the forming tube.
If a change of forming set and folding station (8) is necessary	The method is equal to the forming set change described below, but transport the spliced connection unto the splicing table (9). For further actions, see 6.5.	
If a forming-set change is needed, but a folding station change is not needed, transport the spliced connection of the film-web ends as far as the shoulder (4)	<p>If the new film web is wider, push the sensor (2) (if present) aside.</p> <p>Produce empty bags or Press S-5 (repeatedly) or stop the vacuum pump (7) using S-4-3; open the draw-off belts (6) using S-4-2 and pull the film web through by hand until the spliced connection is positioned just behind the shoulder (4).</p> <p>Downstream of the shoulder, manually pull through the film web approx. 1.5 metres.</p> <p>Cut through the film web immediately downstream of the shoulder (4).</p>	<p>If necessary, see 6.15.1.</p> <p>The tension arm (1) may not pull the film web back into the machine.</p>



## 6.5 Change folding station and other corner seal settings

Only required for forming a corner seal and/or Doypack bag. For explanation see 3.2.2 and 3.2.3.  
Note: Remove the folding station for a flat, gusseted or block-bottom bag.



### Danger of burns!

The jaw(s) (7, 8 and 1) and anvil (2) can be hot just after machine operation.

### 6.5.1 Change folding station

A folding station (3) must be changed for different bag sizes and/or seam widths of the corner seals. In the folding station the folding plates may in principle not be changed.

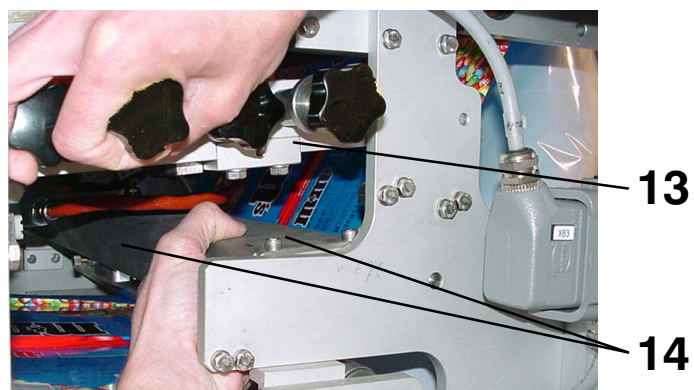
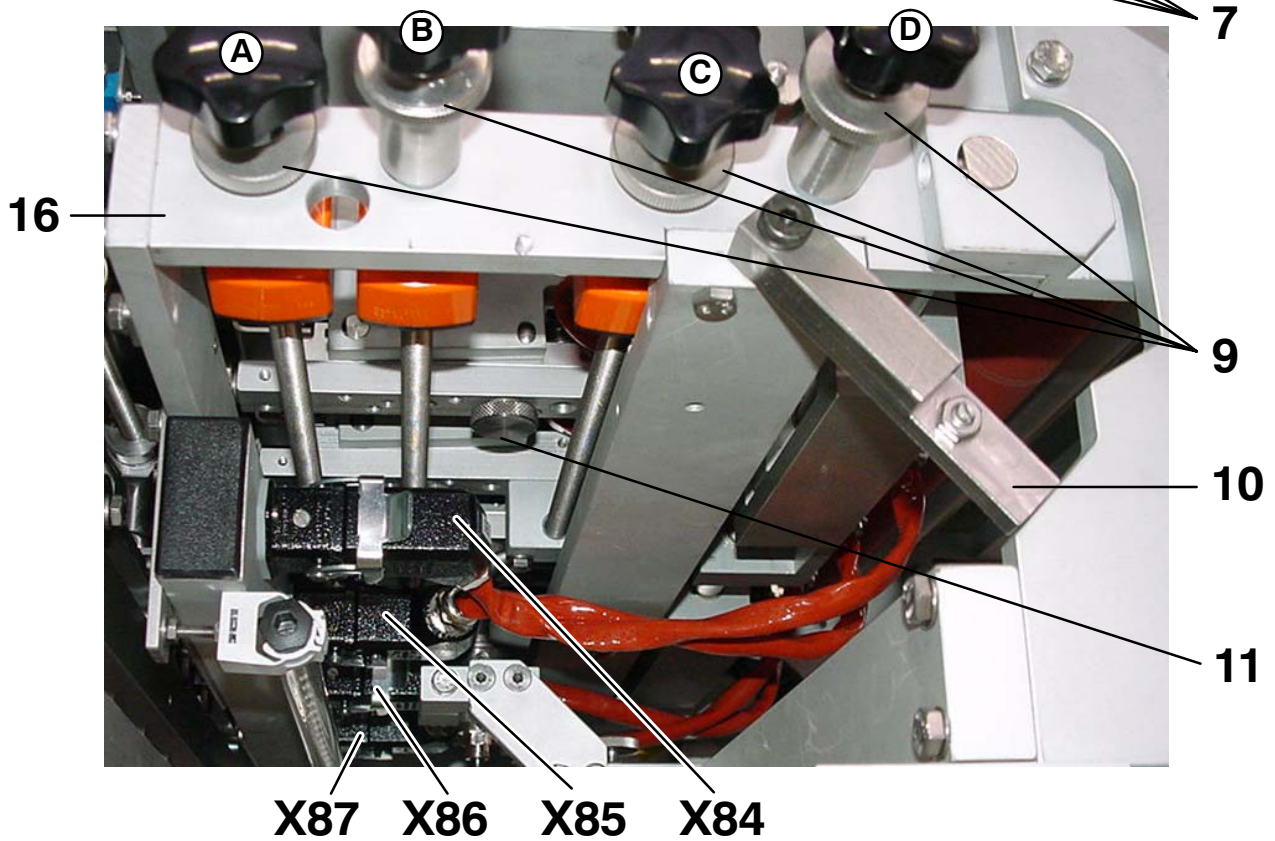
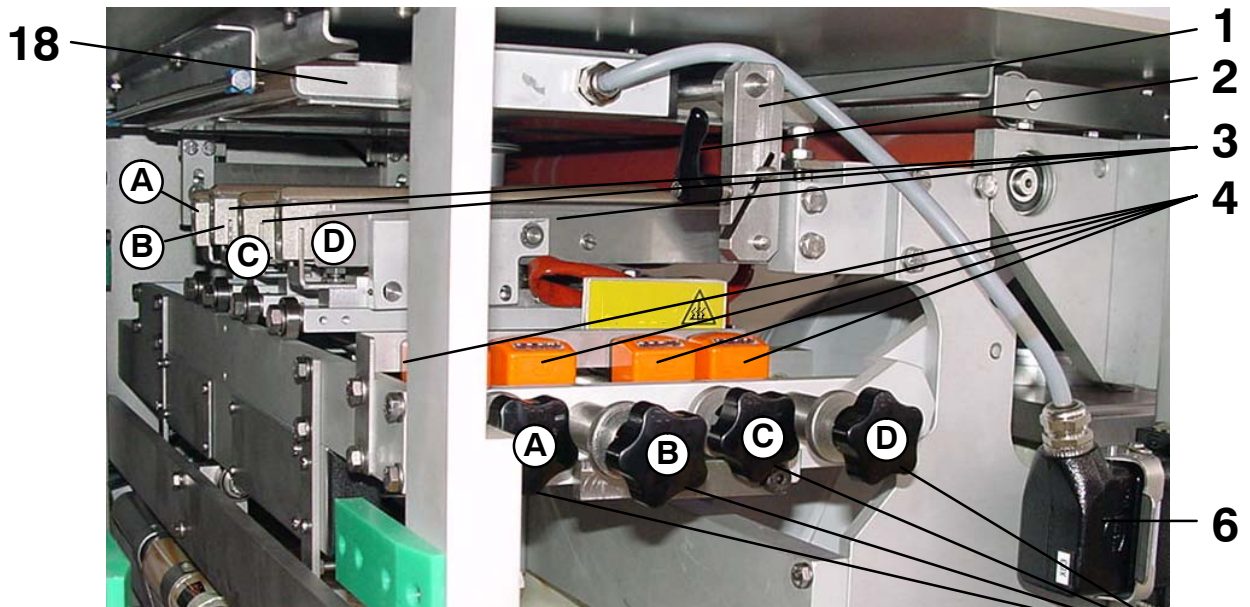


### Danger of injury and damage!

The guide (11) can tumble/fall into the horizontal position when pulling the knob (10). Stay outside the falling circle of the guide (11)!

Two people are required to change the (28 kg) folding station (3).

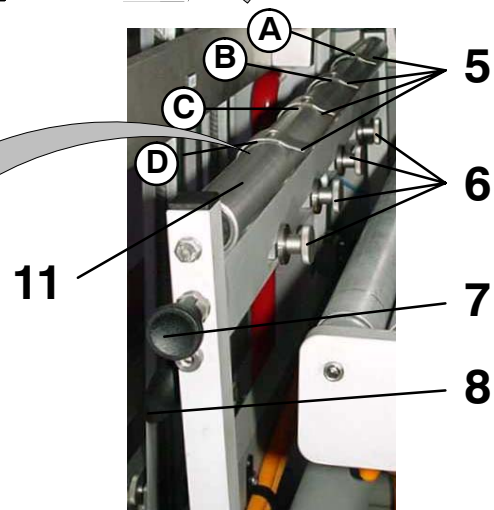
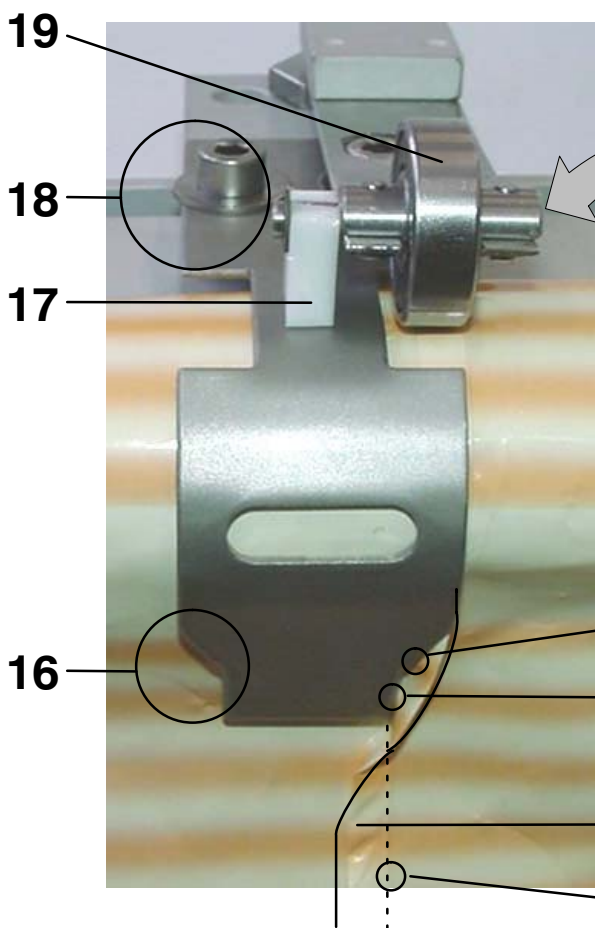
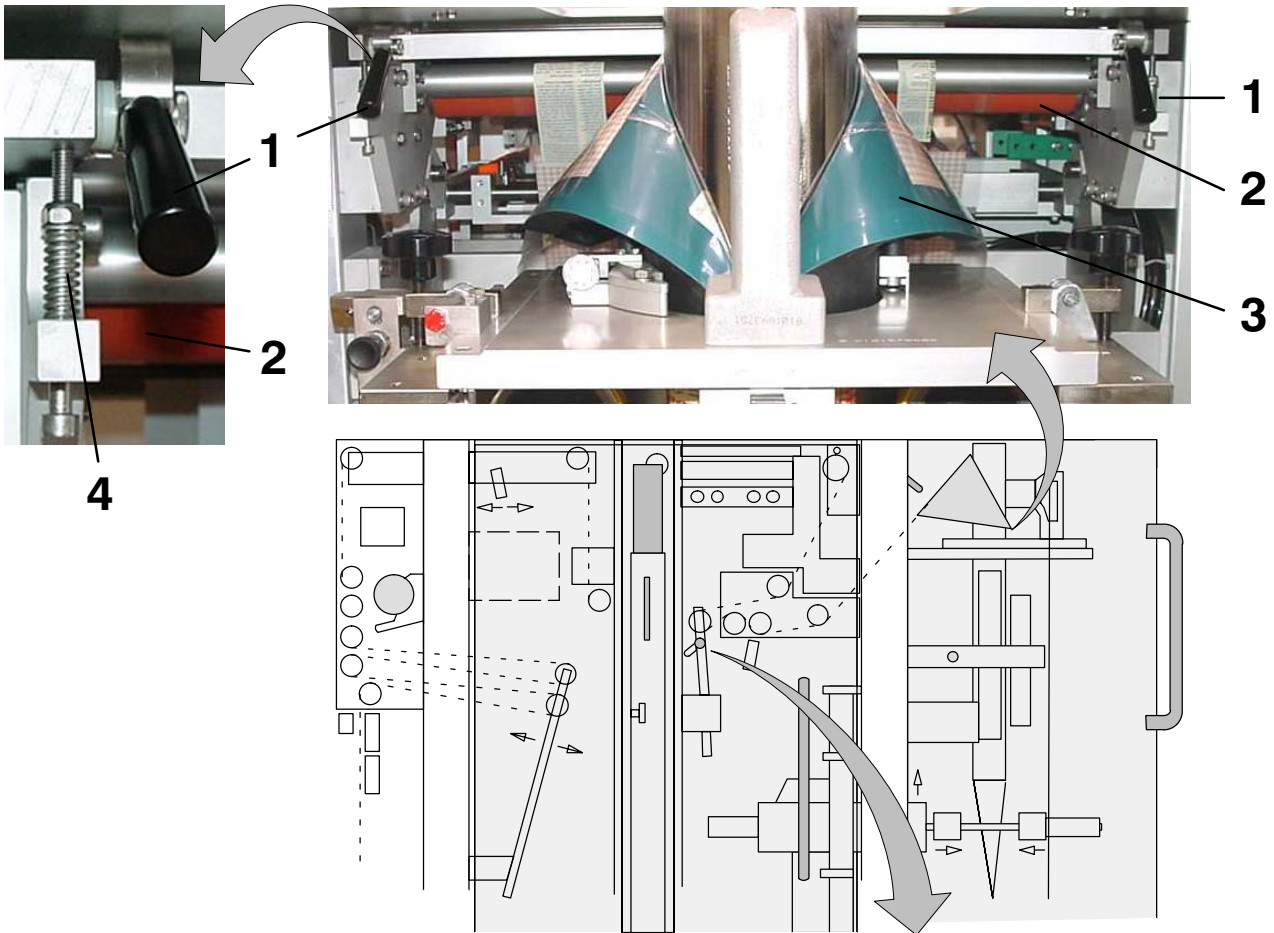
OPERATION	METHOD	REMARKS
Preparatory activities	Change film reel, splice the film web ends of the old and new film reels together and transport the splice unto the splicing table (17).	If necessary, see 6.4.1 for a more detailed description.
Cut through the film web before (left from) and behind (right from) the folding station	Move the tension arm (9) backwards; turn the lock upwards and let the tension arm (9) carefully rest on the lock (19). Fasten the film web with magnets (18). Cut through the film web on the splicing table (17). Cut through the film web from the front side of the machine just below the auxiliary driving reel (6).	Better access to the splicing table (17).  Quicker change is possible when the film web remains in the folding station.
Auxiliary driving roller	Open the auxiliary driving roller (6) with two handles (4).	
Change folding station	If present, turn the lock (15) with the accessory (16) into the vertical position.  Pull out the knob (10) and carefully move the guide (11) to the horizontal position using the handle. Pull the tension arm (5) forwards and carefully pull the folding station out of the machine and hold it. With two persons lift the folding station (3) from the guide and store it carefully. Only for corner seal bags mount a new folding station in reverse order.	Depends on model delivered.  Take the above warnings into account!  This to avoid damaging the folding plates, for example.



## 6.5 Change the folding station and other corner seal settings

### 6.5.2 Replace and set the corner seal jaws

OPERATION	METHOD	REMARKS
<p>To provide more space above the corner seal jaws: -remove the anvil</p> <p>or</p> <p>-lower the corner seal unit (13) (if possible)</p>	<p>Disconnect the plug (6). Loosen the clamp (2) and take out the connecting strip (1) in the direction of the door. Remove the anvil (18). Replace Teflon and/or silicone cloth if necessary.</p>	<p>Note: temperature is about 50 °C.</p>
<p>To provide more space below the corner seal jaws</p>	<p>Carefully push the unit (16) up and support with turnable support (10).</p>	<p>Attention: The unit may fall! Danger of clamping.</p>
<p>Dependent on the bag type, remove and/or mount the corner seal jaw(s) (3)</p>	<p>Disconnect the plugs (X84 and/or X87) of the jaw(s) concerned (e.g. A and/or D). Unscrew screw (11) of the jaw involved. Remove the jaw. Replace the Teflon cloth, if necessary. Mount the jaw(s) in reverse order.</p>	<p>Corner seal bag, see 3.2.2. Doypack bag (if provided) see 3.2.3.</p>
<p>Switch on en off the relevant temperature controls and drivers</p>	<p>Switch on or off the function switch 'corner seal' in S-3 or (level 2) S-7-8-1-2. Shifted long seam: switch on the appropriate switch in (level 3) S-4a-7b. Long seam in the middle: switch off both switches.</p>	<p>Dependent on the selected bag type the relevant zones will appear.</p>
<p>Check or change the temperature settings</p>	<p>Establish the temperature by experience. Set the anvil to 50 °C.</p>	<p>If required, see 4.4.15.</p>
<p>Set the cross position of the corner seal jaws</p>	<p>Look for position (counter position) of the jaw concerned in S-7-3 or level 2 (S-7-8-1)-1. Choose the order in which the jaws do not touch each other. Hold the knob (7) concerned and loosen the clamping knob (9) with the other hand. Turn knob (7) to the required counter position (4). Hold the knob (7) and tighten the clamping knob (9) with the other hand.</p>	<p>Closer to the folding line gives a broader seam. One rotation is 1.25 mm and thirty on the counter.</p>

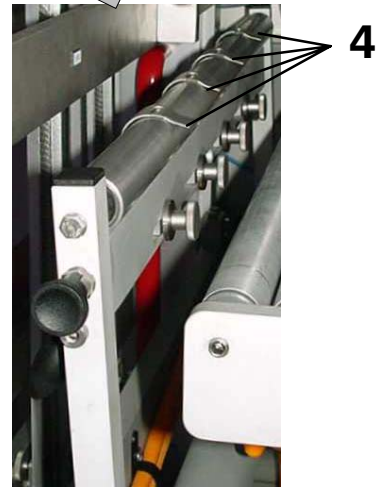
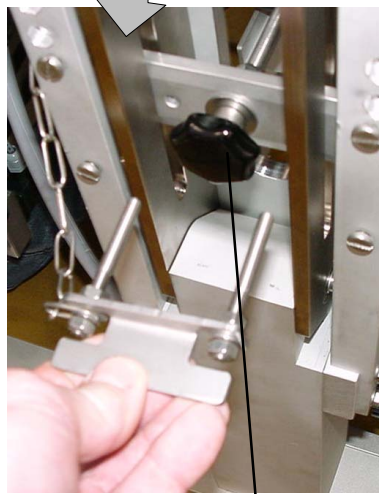
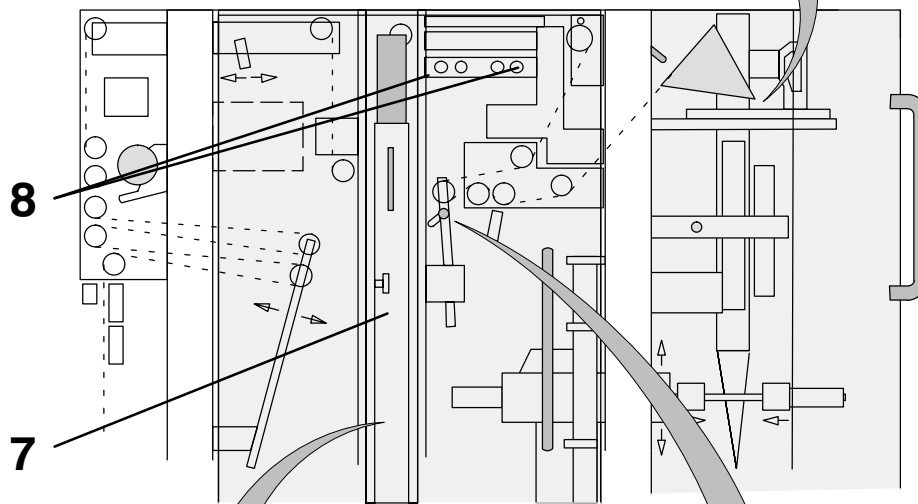
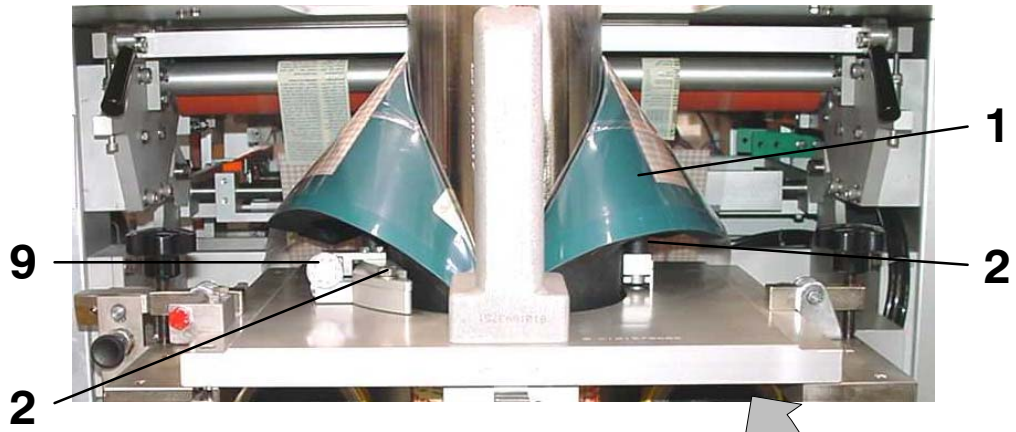




## 6.5 Change the folding station and other corner seal settings

### 6.5.3 Guide through the film web and set the folding plates

OPERATION	METHOD	REMARKS
Turn away the folding plates (5) of the film web roller	Pull out knob (7) and turn away the folding plates (5) with handle (8) over the film web (11) with little force.	Better accessibility.
Splice the film webs in front of (on the left side of) the folding station together	Splice the film web end from the folding station and the film web end on the splicing table (9) together.	Just like when changing a film reel. If necessary, see 4.9.
Transport the film web from the folding station unto or over the shoulder (3)	Guide the film web end from the folding station over the corner seal jaws and over the opened auxiliary driving roller (2) unto the still present film web end. Splice the film-web ends together. Dependent on any forming set change pull the film web through unto or over the shoulder (3).	If there is no film web in the machine, guide the film through, see 6.9.  If necessary, see 6.4.1.
Put the anvil and the corner seal unit in production position	Mount the anvil. Put the support of the corner seal unit back in the rest position or put the drive in the production position.	If necessary, see the previous page.
Close the auxiliary driving roller (2) and operate it manually	Close the auxiliary driving roller (2) with two handles (1). Transport the film web using S-4b-6 until the corner seal seams (14) no longer wander sideways. If necessary, pull/guide the film web above the closed door.	The clamping power is determined by the springs (4) in the handle (1) left and right.
Set the cross position of folding plates (5) and the pressure bearing (19) (option)	Loosen screw (6). Slide rounded end (13) against the inside of the fold (see dotted line 15). Use curve (16) for shift to the left. Activate or deactivate the pressure bearing (19) when turning the block (17). In order to be able to start, stick each seam with adhesive tape in the correct folding direction on the film web in front of the folding plates. Check whether the folds keep pointing into the right direction up to the mouthpiece. Correct, if necessary.	Curve (12) shifts seam (14) from left to right. Bearing (19) is then in position (18).  Note: adhesive tape may not get stuck in the shoulder.



## 6.5 Change the folding station and other corner seal settings

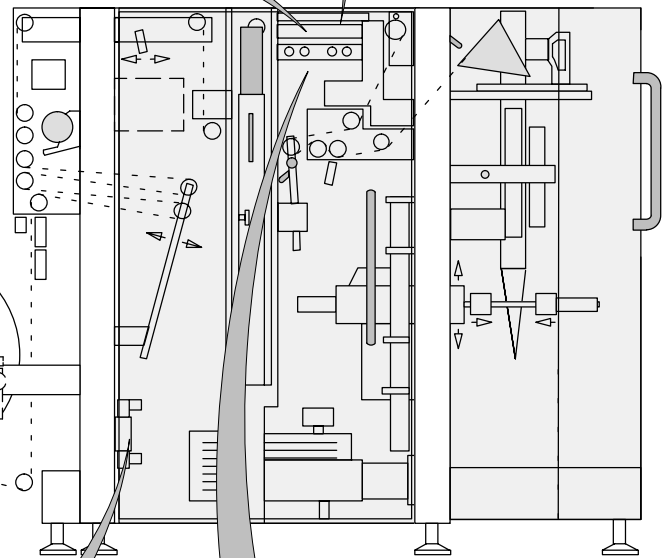
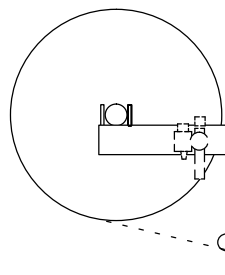
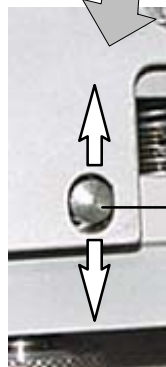
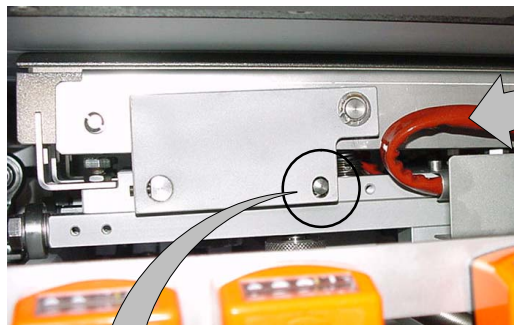
### 6.5.4 Set the position of the corner seal seams and the mouthpiece

The folding station (7) determines the mutual distances between the folds/corner seal seams. When the corner seal seams do not correspond with the required position on the mouthpiece, this can be corrected by (dependent on the model delivered):

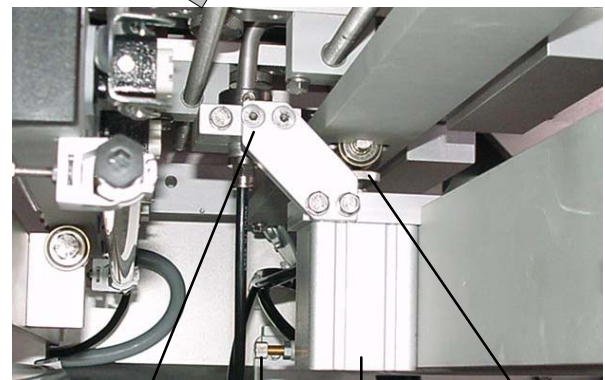
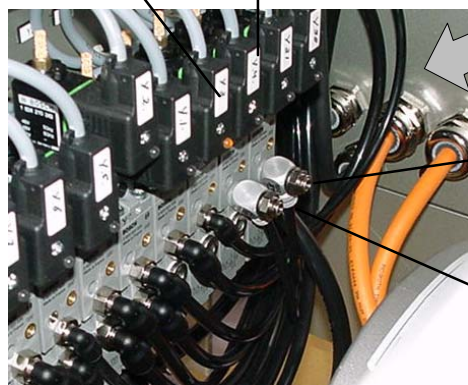
- crosswise moving the folding station (7), corner seal jaws (8) and folding plates (4) or
- turning the shoulder.

Remark: crosswise moving the film web does not affect the position of the corner seal seams on the mouthpiece.

OPERATION	METHOD	REMARKS
Crosswise move the folding station (7), corner seal jaws (8) and folding plates (4)	Correct the shoulder setting when the folding station cannot be set crosswise.  Crosswise adjust the folding station with knob (6) until the corner seals coincide with the corner points of the mouthpiece. Crosswise slide the corner seal jaws (8) and the folding plates along the same distance.	Depends on the model delivered.  One rotation is 1.25 mm.  If necessary, see 6.5.2 and 6.5.3.
or		
turn shoulder (1)	When the folding station can be set crosswise, do not change the shoulder setting!  Unscrew two screws (2). Turn the shoulder with knurled bolt (9); do a test run; turn shoulder (1), etc. until the seams correspond with the corner points of the mouthpiece. Tighten screws (2).	Depends on the model delivered.  In conformity with the illustration on the shoulder plate.



Y31 Y38



## 6.5 Change the folding station and other corner seal settings

### 6.5.5 Other settings

When the film transport is stopped, the corner seal unit moves down (open) so the corner seal jaws can heat/damage the film as little as possible.

Then the cooling (4) (option) blows the rising warm air away from the corner seal jaws.

Cooling (6) blows cooling air between the film and the anvil when the anvil becomes warmer than the set value.

OPERATION	METHOD	REMARKS
Set the anvil	If necessary, set the anvil parallel with the face plate and in line with the auxiliary driving reel (1) using settings (2 and 5).	On the left side the conical roller gives a distorted view.
Set the closing and opening movement of the corner seal unit	During the starting and stopping procedures check whether the station moves steadily. If necessary, correct with pneumatic setting (12).  Correct delayed/early closing and opening movement in (level 3) S-4a-7a-3b until no open or burnt corner seal seams are created during the starting and stopping procedures.	A negative value makes the movement start earlier.
Check the corner seal pressure	Check during the production whether the pin (8) is about in the middle of the hole in vertical direction. If necessary, correct the vertical position with screw (10) in the piston shaft.	The seal pressure is determined by a compression spring below the seal jaw.
Set the cooling (6)	Turn the cooling pipe (6) until the cooling air flows between the film web and the anvil. Set the amount of cooling air using the throttle valve (15) on valve Y31.	The cooling starts when the anvil gets warmer than the set value.
Set the cooling (4)	Set the amount of cooling air using the throttle valve (16) on valve Y38. If necessary for access e.g., remove the cooling (4) by dismantling the suspension (13).	Cooling (4) must not touch the anvil and the corner seal jaws.



## 6.6 Change the long-seam jaw



### **Danger of burns!**

The long-seam jaw(s) and the cross-seam jaws can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts.

Dismount heat-seal jaw, see page 7.11.





## **6.6** Change the long-seam jaw (continued)

**Reserve**



## 6.7 Change the cross-seam jaws



### Danger of burns!

The long-seam jaw(s) and the cross-seam jaws can be hot just after machine operation.

Do not touch parts that are at operating temperature.

Wear protective gloves when handling such parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw.



### Danger of cutting!

Touching the sharp, toothed cross-seam and/or perforation knife may cause serious injury.

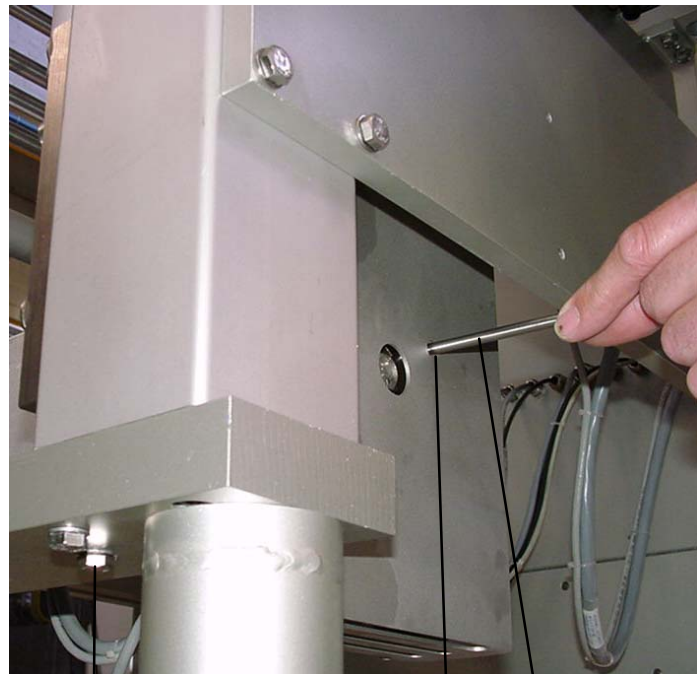
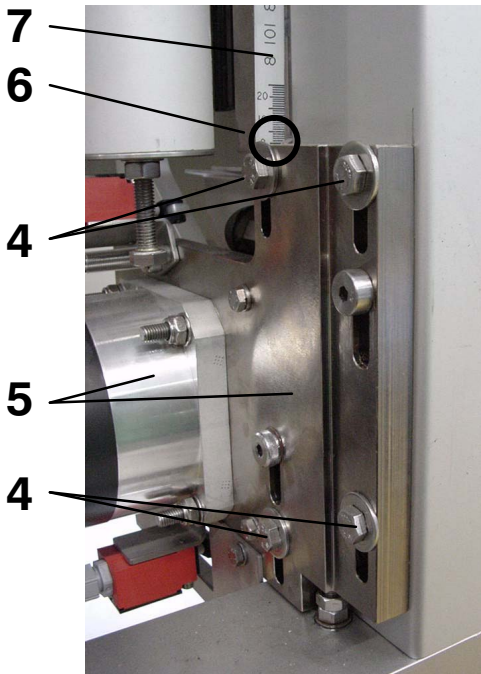


### Risk of damage!

The cross-seam jaws (with the parts built on them if applicable) can touch/damage parts of the forming set when the top vertical position of the cross-seam jaws housing has been incorrectly set for the selected recipe and/or machine model. Check and correct the top position of the jaws housing for the selected recipe and/or machine model, see the next page.

OPERATION	METHOD
Replace cross-seam jaws or PE clamping jaws	See the next page.
Check and/or set the top vertical position of the cross-seam jaws housing	See the next page.
Set sealing pressure or PE-clamp jaws pressure	See 6.20.1.
Check and set the position of the front jaw carrier	See 6.20.2.

*continued on next page*



## 6.7 Change the cross-seam jaws

### 6.7.1 Check/set the highest vertical position of the cross-seam jaws housing



#### Risk of damage!

The cross-seam jaws (with the parts built on them if applicable) can touch/damage parts of the forming set when the top vertical position of the cross-seam jaws housing has been incorrectly set for the selected recipe and/or machine model. Check and correct the top position of the jaws housing for the selected recipe and/or machine model.

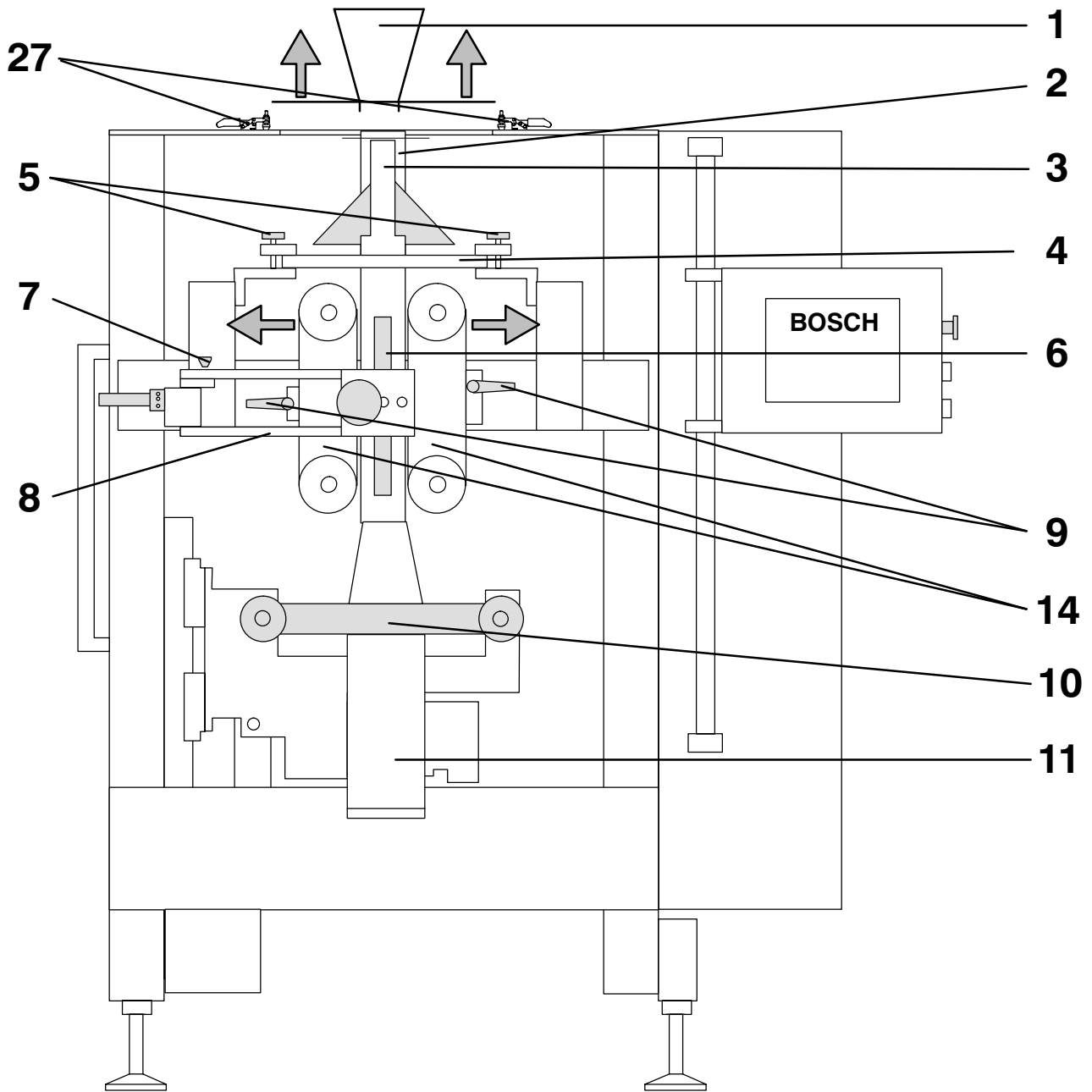
Attention: with a machine model without the vertical adjustment of the suspension (5), the top vertical position can be set in (level 2) S-7-8-1-3, see 4.4.13.

OPERATION	METHOD	REMARKS
Check scale (7) and if necessary correct highest position	Read the scale (7) on the position (6). The lowest position is "0" and suitable for most applications. Set back the the position in to the lowest position before that the jaw housing with higher jaws or options are moving to the highest position.	
Lock the jaws housing in the top position	One person lifts up the jaw housing and a second person inserts the delivered pin (1) into the hole (2) until the jaw housing is locked.	Usually the housing does not get any higher than this position.
Check for possible collision	Move the jaws and check whether parts touch each other. Correct the height if necessary.	
Correct the top position	Loosen screws (4) one turn. Set the height with the help of the scale (7) with screw (3). Tighten screws (4).	The suspension (5) remains hanging on the other screws.
Remove pin (1)	Slightly lift the jaws housing until the pin (1) can be pulled out of the hole (2). Carefully lower the jaws housing.	



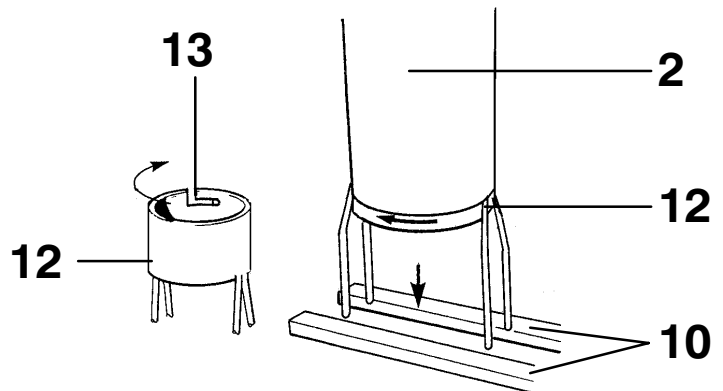
## **6.7** Change the cross-seam jaws (continued)

**Reserve**



S-1	S-7	S-9
S-2	S-8	S-10
S-3	S-15	S-11
S-4	S-16	S-12
S-5		S-13
S-6		S-14

S-4a-1	S-4a-5
S-4a-2	S-4a-6
S-4a-3	S-4a-7
S-4a-4	S-4a-8
+ MR	< HOME
S-4a	





## 6.8 Change forming set

**Danger of burns!**

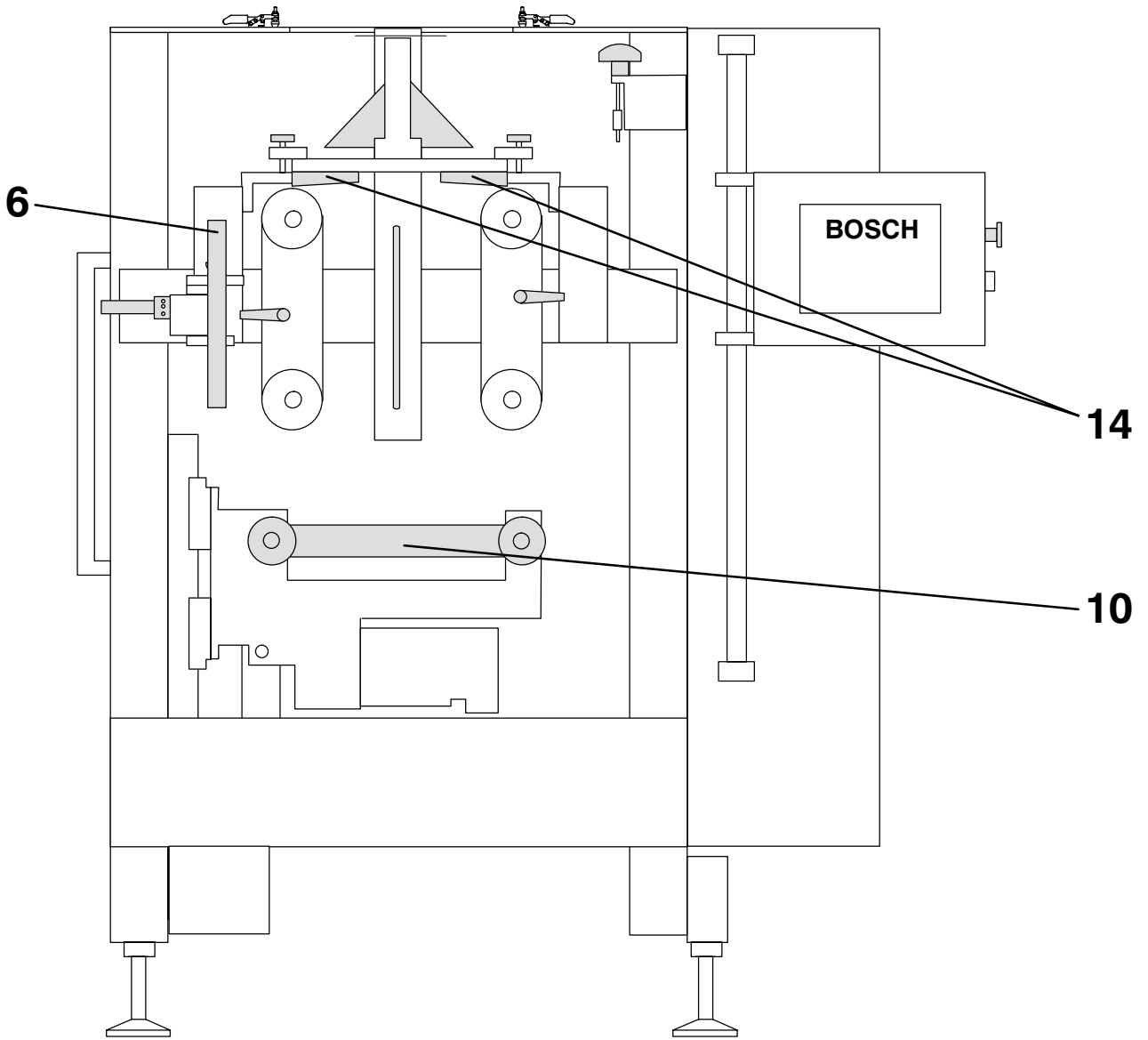
The long-seam jaw/s (6) and the cross-seam jaws (10) can be hot after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw/s (8).

**Danger of injury and damage!**

Do not stand on the cross-seam jaw housing.  
A plastic shoulder breaks easily.

OPERATION	METHOD	REMARKS
Run the dosing unit until it is empty	See page 4.10 and the manual of the dosing unit.	
Open up the long-seam arm and draw-off belts	If opened, close the draw-off belts (14) using S-4a-2. Pull the lock (7) upward and open the arm (8) far enough to make the lock (7) lock. Remove the film tube (11).  Loosen the clamps (9). Slide the draw-off belts (14) out. Remove the film tube (11).	The safety guard will no longer lock.  See arrows.
Remove the mouthpiece/spreader if necessary for the size change	Rotate the mouthpiece/spreader (12) into the direction of the arrow and pull the forming tube (2) downward. Let the mouthpiece/spreader (12) go down between the jaws (10) or remove upwards after the turn.	
Remove options if necessary for the size change	Example: release the quick-release clamps (27), remove the funnel (1), dismount the gassing pipe(s) (25), dismount the dust extraction hose (15), dismount the ionisation, etc. If necessary, see options concerned, from 6.21.	Depending on the dosing unit and the assemblies installed.
Unlock the shoulder plate (4)	Unlock the quick-release clamps (5).	

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## 6.8 Change forming set (continued)

**Danger of burns!**

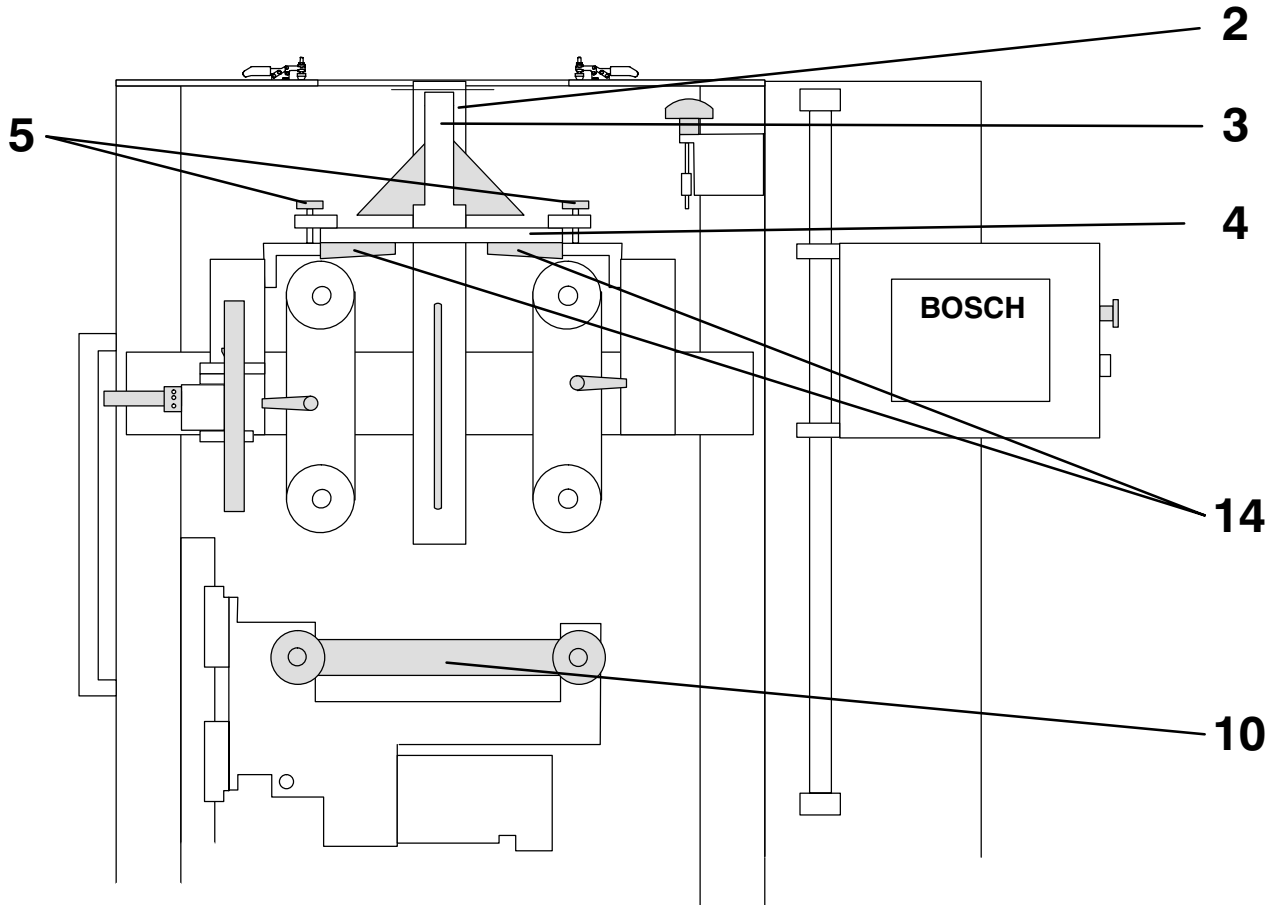
The long-seam jaw(s) (6) and the cross-seam jaws (10) can be hot after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw(s) (8).

**Danger of injury and damage!**

Do not stand on the cross-seam jaw housing.  
A plastic shoulder breaks easily.

OPERATION	METHOD	REMARKS
Extra operations with a auger-dosing unit	<p>Remove clips/screws (1) if a auger valve (option) has been mounted.</p> <p>In order to prevent the auger from falling, put a shelf on the cross-seam jaws or mount a auger support (option) under the forming tube.</p> <p>Dismount the auger (28) and carefully lower it.</p> <p>Open guides (14) (option), if present.</p> <p>Slide the forming set carefully forward.</p> <p>If necessary and if mounted, carefully remove the auger, auger tube (28), plate (26), gas flushing tubes, etc. from above.</p>	<p>See the manual of the dosing unit.</p>

*continued on next page*



## 6.8 Change forming set (continued)



### Danger of burns!

The long-seam jaw(s) and the cross-seam jaws can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw(s).

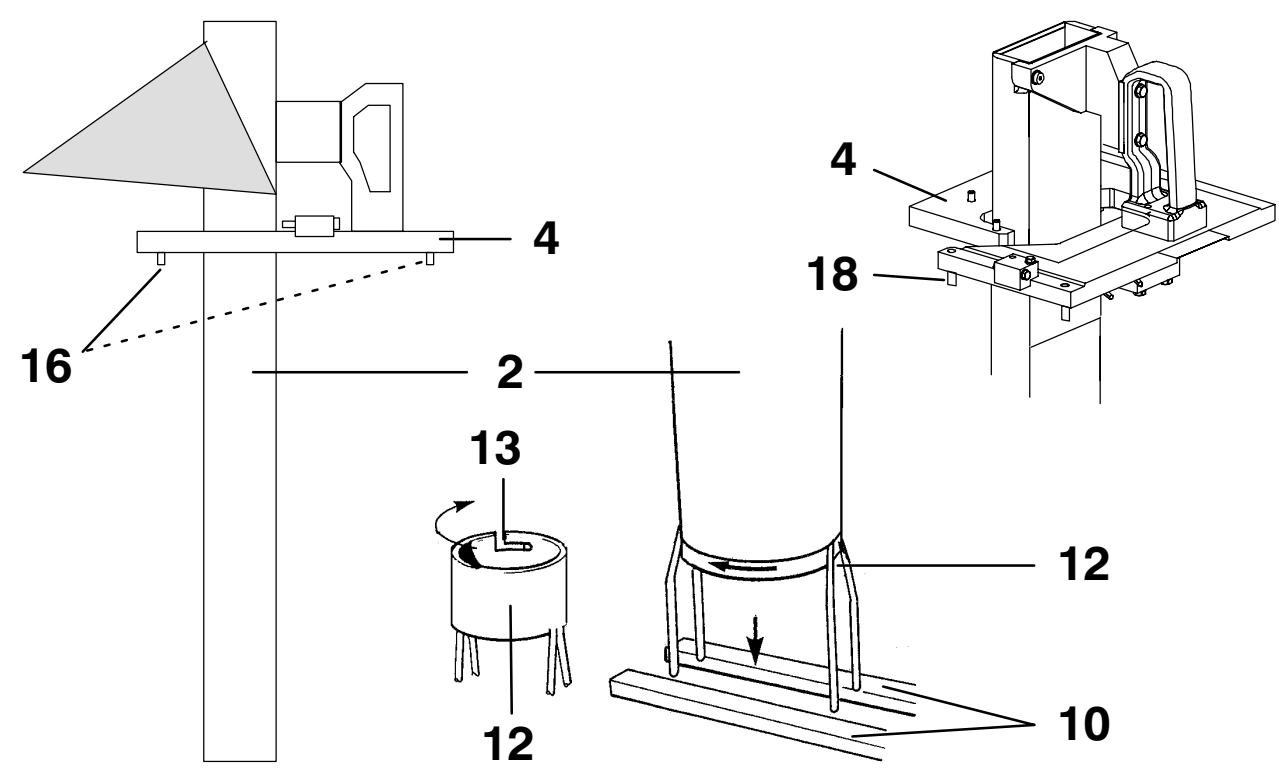
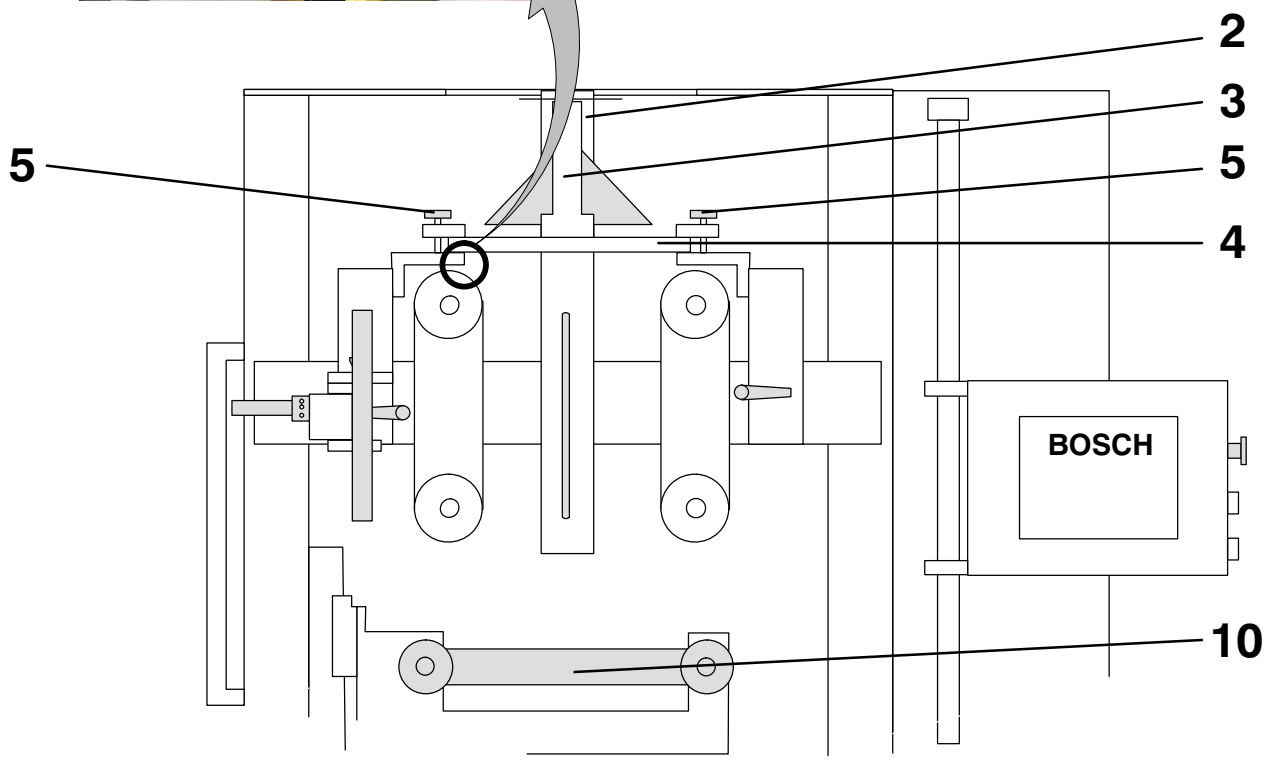
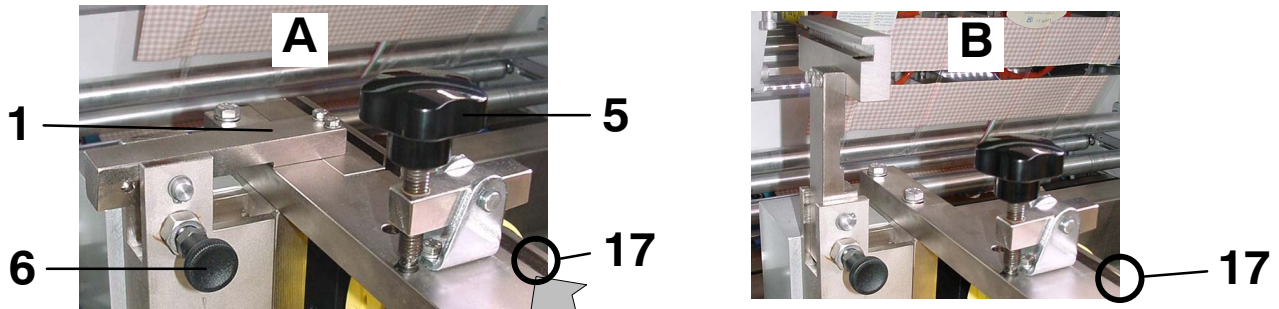


### Danger of injury and damage!

Do not stand on the cross-seam jaw housing.  
Two persons are needed when the forming set with options is heavy.  
A plastic shoulder breaks easily.

OPERATION	METHOD	REMARKS
Slide the format set forwards	Open guides (14) (option), if present. Slide the format set forwards until the shoulder plate (4) is just free from the clamping device.	
Lift the forming set manually out of the machine or Lift the forming set with a lifting device out of the machine	Support the forming set with one hand at the bottom of the forming tube and take the grip (3) with the other hand. Lift the forming set out of the machine and store it carefully. Attach a strap to the grip (3) and lifting device. Lift the forming set out of the machine with the lifting device and store it carefully.	Pay attention to the limit ranges for lifting and carrying weights (loads).  Do not lay the shoulder on the floor because of the risk of damage!
Prepare film, forming set and options	Cut the end of the film web tongue-shaped. Select the required new forming set and, if necessary, auger and options. Check whether these are clean and in a good condition. If necessary, mount the auger and/or options in the forming tube.	If necessary, see 6.9.

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## 6.8 Change forming set (continued)

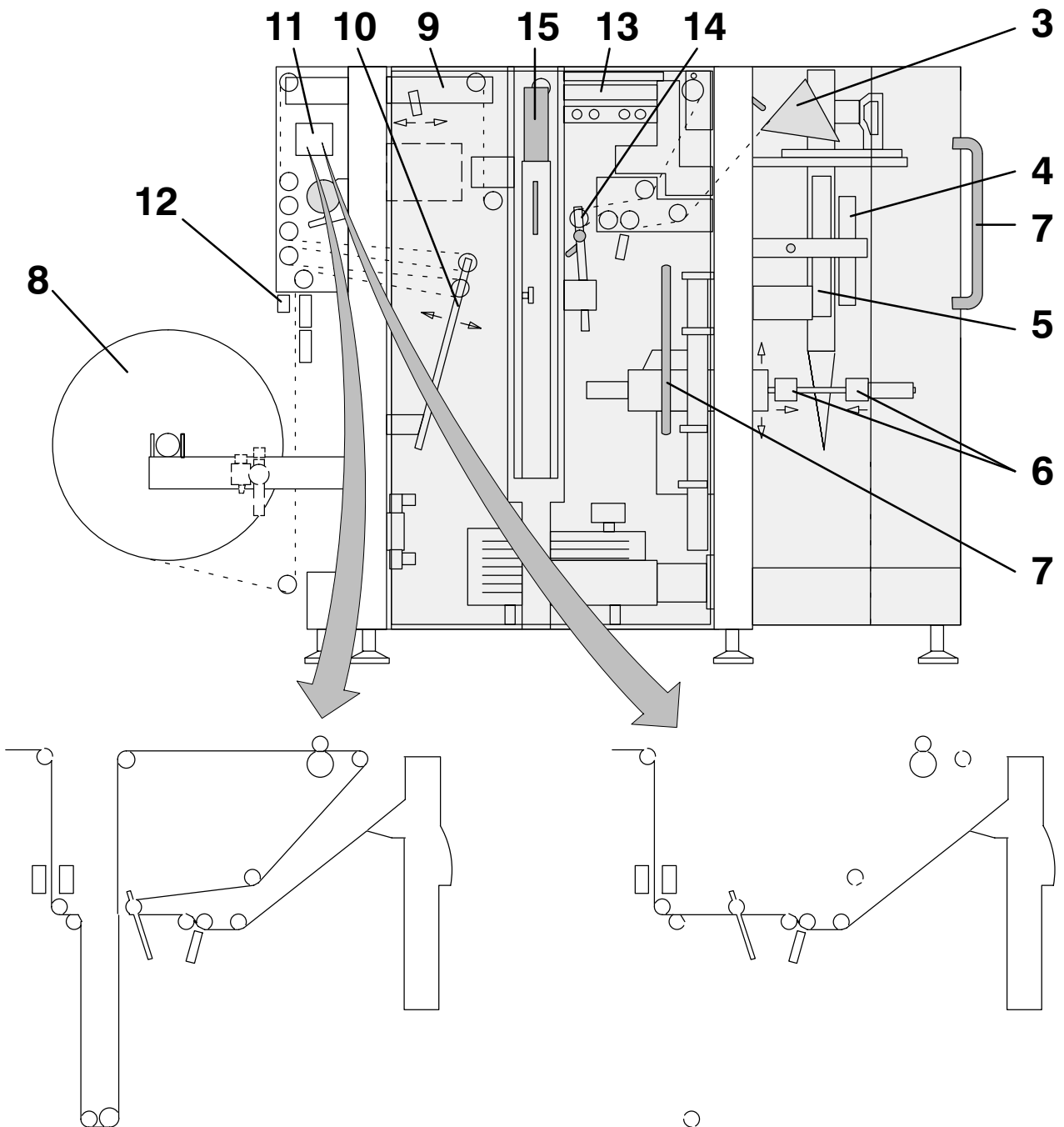
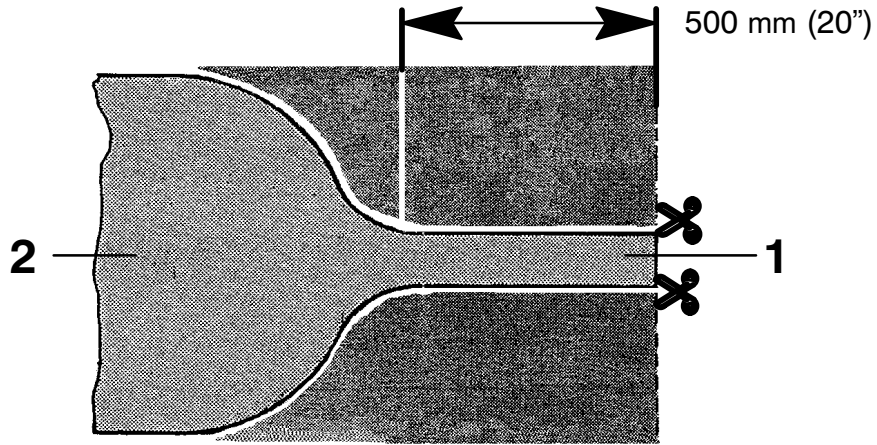
**Danger of burns!**

The long-seam jaw(s) and the cross-seam jaws can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw(s).

**Danger of injury and damage!**

Do not stand on the cross-seam jaw housing.  
Two persons are needed when the forming set with options is heavy.  
A plastic shoulder breaks easily.

OPERATION	METHOD	REMARKS
Set guide (1) for dowel pin (16) or (18)	With a shoulder plate (4) in which the pin (18) is placed further forwards, pull out the knob (6) and move the guide (1) into the vertical position (see B).	Horizontal (see A) with a standard position of the pin (16).
Place the forming set manually into the machine or Place the forming set with a lifting device into the machine	Support the forming set with one hand at the bottom of the forming tube and take the grip (3) with the other hand. Place the forming set into the machine, sliding the pins (16) into the guide (17). Attach a strap to the grip (3) and lifting device. Place the new forming set with a lifting device into the machine, sliding the pins (16) into the guide (17).	Pay attention to the limit ranges for lifting and carrying weights (loads).
Operations with an auger dosing unit	Mount the auger into the dosing unit. Close guides (14), if present.	See the manual of the dosing unit.
Lock shoulder plate (4)	Slide the forming set against the stop. Lock the quick-release clamps (5) on both sides.	
Mount mouthpiece/spreader (12)	Mount in reverse order. Align parallel with the cross-seam jaws.	The centre must correspond with the closed cross-seam jaws.
Mount options	Mount options in reverse order. If necessary, see options concerned, from 6.21.	





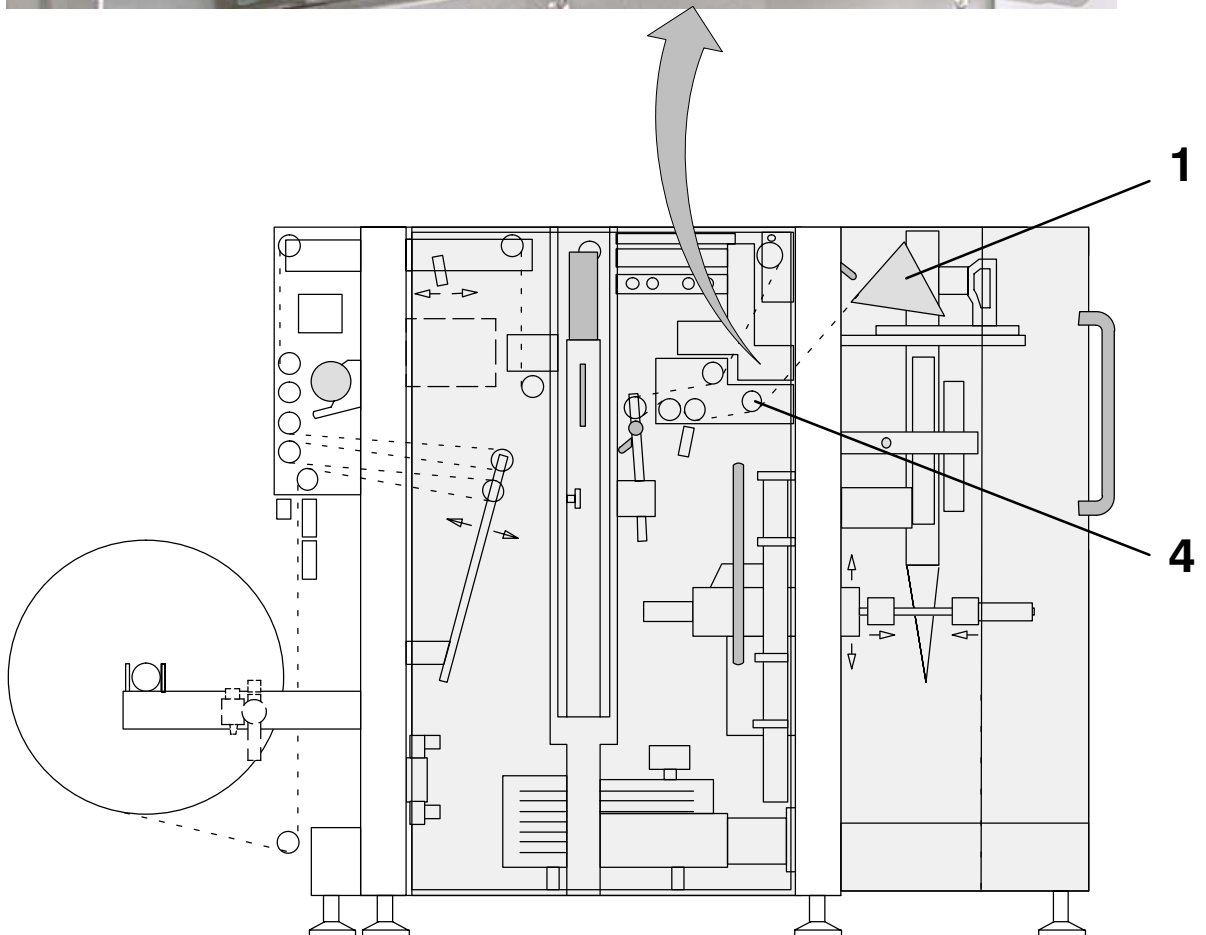
## 6.9 Guide film from the film reel to the cross-seam jaws



### Danger of burns!

The corner-seal jaws (13), the long-seam jaw(s) (4) and the cross-seam jaws (6) can be hot after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling these parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw(s) (4).

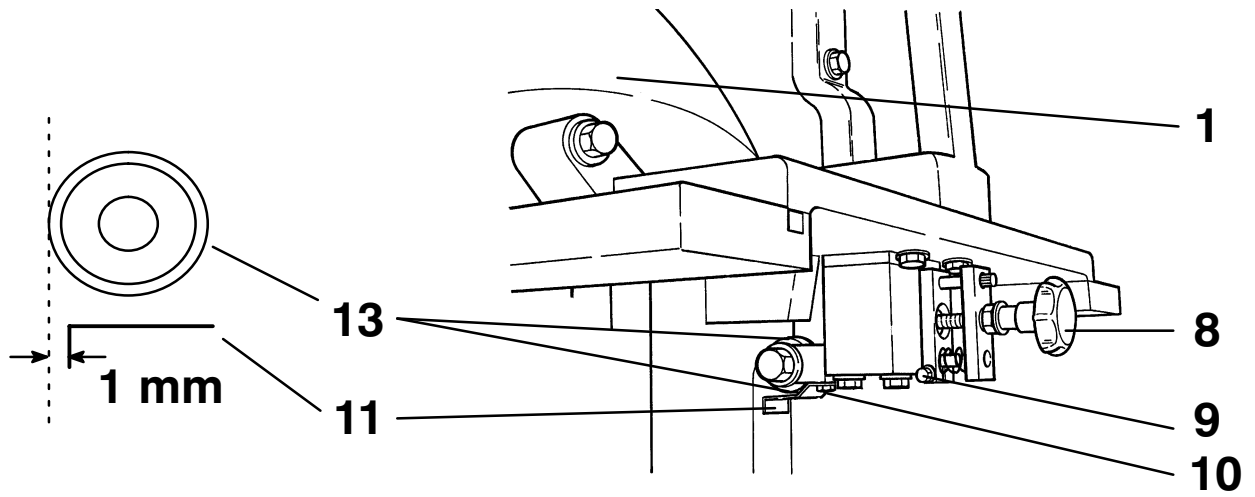
OPERATION	METHOD	REMARKS
Set the film reel on the film-reel shaft	If necessary, see 6.4.	
Place the film reel (8) and the shaft into the machine	If necessary, see 4.9.	Pay attention to the limit ranges for lifting and carrying weights (loads).
Centre tracking frame (9)	If necessary, see 6.15 or 6.15.1.	
Cut off the first part of the film web	Unwind film (2) off the reel (8). Cut the first part (1) of the film web in a tongue-shape, as illustrated on the facing page.	Facilitates the guiding through the shoulder (3).  Tongue length (1): 500 mm.
Guide the film through	If provided, turn the clamp (12) of the film clamping device upward. Open the safety guard (7). Lead the film web around the film web rollers to the shoulder (3), following the illustration (11). For flat gusset- or block bottom bags remove the folding station (15) and turn away the folding plates (14). If provided, turn the clamp of the film clamping device back.	Access improves.  The tension arm (10) may not pull the film web, otherwise the film will be pulled back into the machine.  If required, see 6.5.1 and 6.5.3.
Lead the first part (1) of the film web through the shoulder (3) downwards	Open the long seam (4). Slide the first part (1) of the film web through the shoulder. Pull the film web down until below the cross-seam jaws (6).	<b>Warning:</b> The jaws can be HOT.
Tension the film web	Slightly raise the film-reel shaft on the brake side and wind the film back onto the film reel (8).	The tension arm (10) must be free from the end stops.



## 6.10 Adjusting the film web roller prior to shoulder

This is necessary after the installation of a shoulder with another entry angle and/or height.

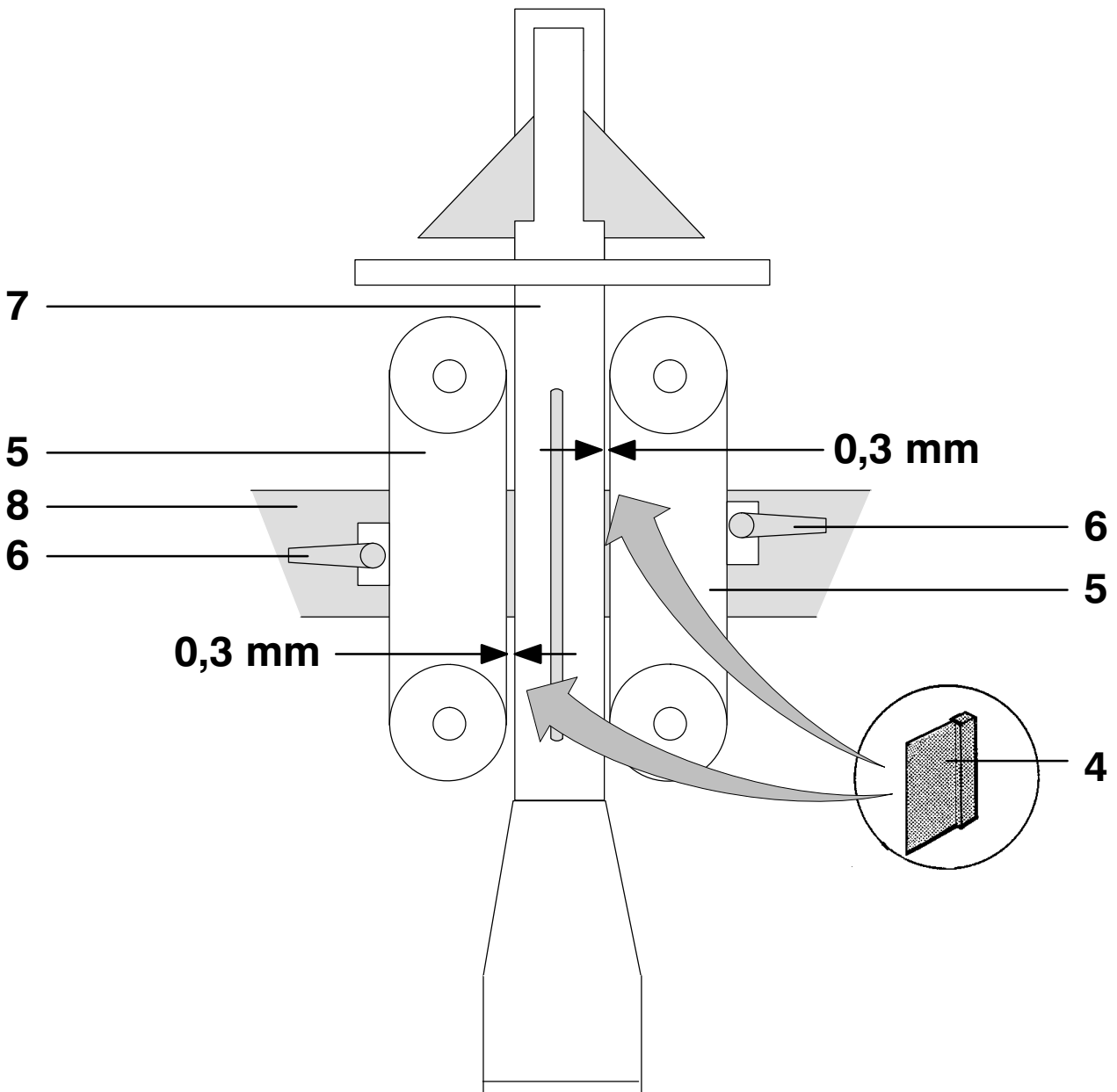
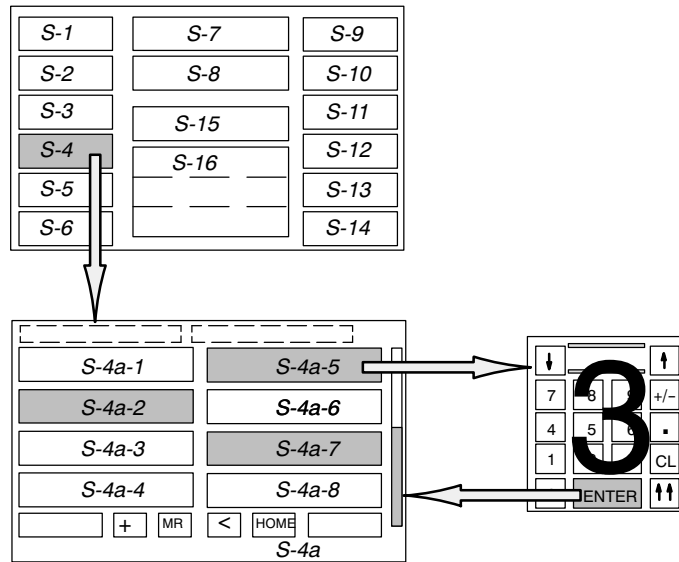
METHOD	REMARKS
<p>Hold knob (4) and use other hand to loosen clamping knob (3).</p> <p>Use knob (4) to adjust position of film web roller in such a way that:</p> <ul style="list-style-type: none"><li>- film web roller is aligned with shoulder (1) and</li><li>- no folds are formed while film web is running, and</li><li>- film web track does not rub against rear edge of shoulder (1).</li></ul> <p>Hold knob (4) and tighten clamping knob (3) with other hand.</p>	



### 6.11 Set film guide roller (option)

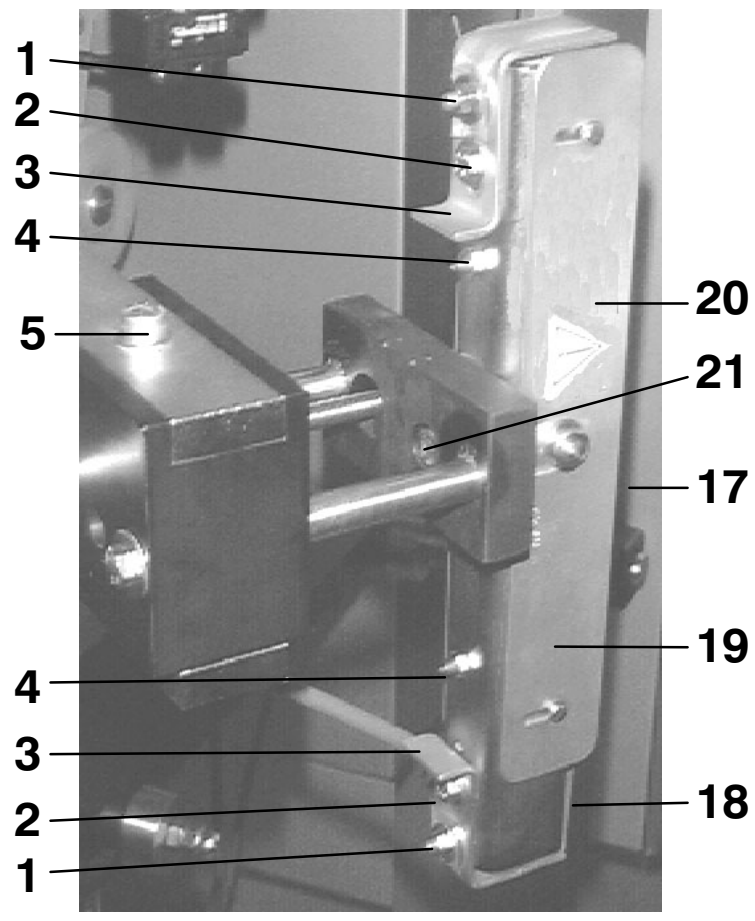
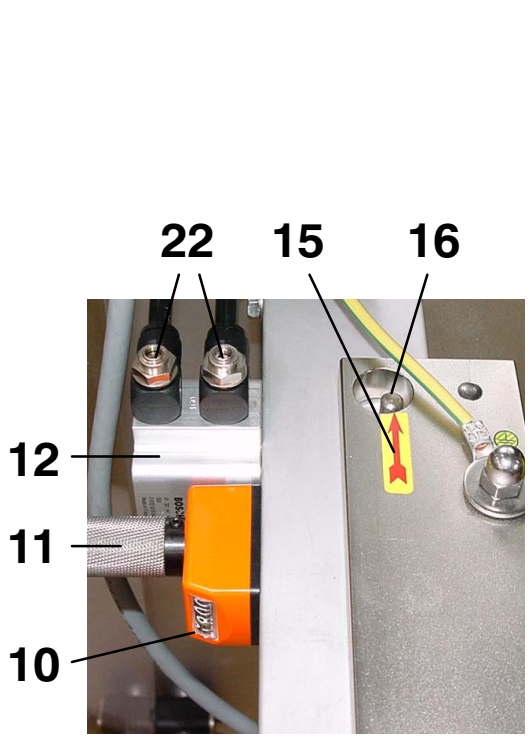
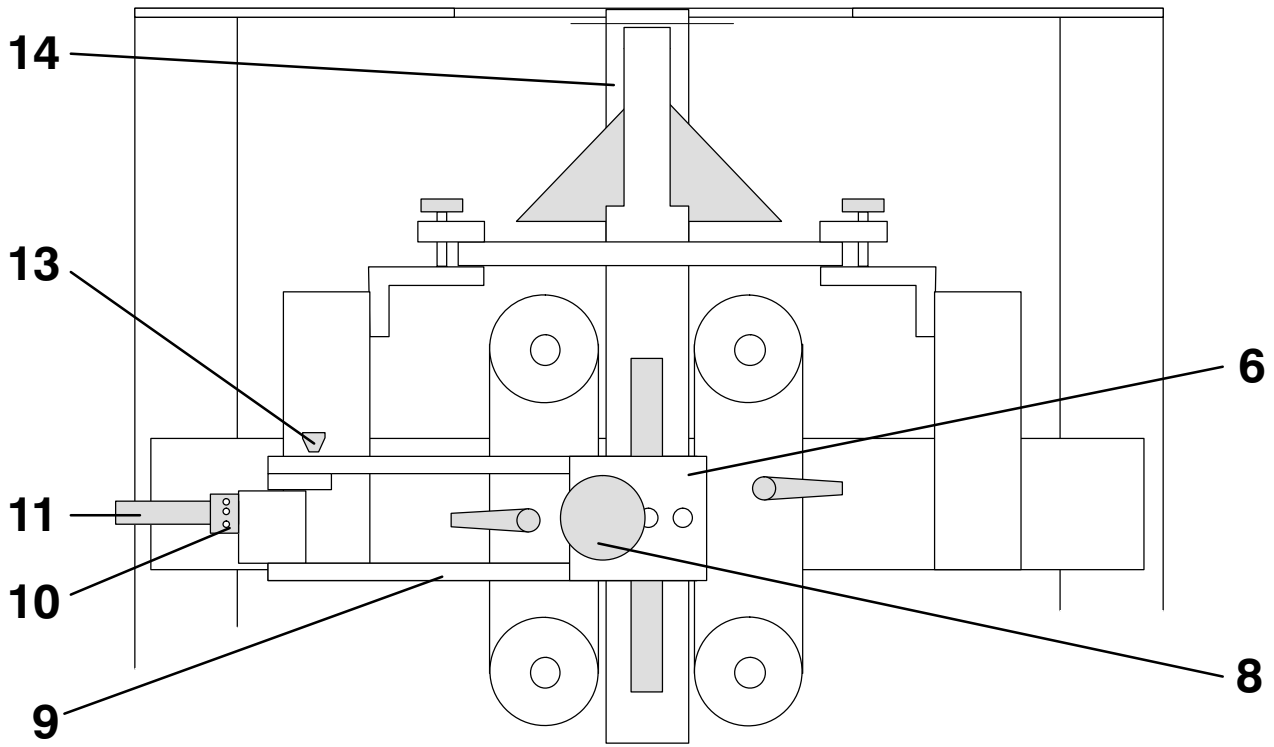
Under the shoulder a film guide roller or, if necessary, a guide can be mounted to prevent displacement of the film. The width of the long seam must have remain the same along the entire bag length and comply with the instructions.

OPERATION	METHOD	REMARKS
Set slope	Loosen screw (9). The upper film layer points to the left (right-hand shoulder): set the ball bearing (13) at the top slantingly to the right (at the bottom to the left). Tighten screw (9).	The setting may depend on the film. Slope may be required up to 5°.
Set the pressure	Increase pressure: turn the rotary knob (8) anti-clockwise. If the bottom layer slides as well, then the pressure is set too high.	Only the upper film layer may be controlled.
Set the guide plate (11)	Loosen the screws (10). Set the guide plate (11) to about 1 mm behind the ball bearing (13). Tighten screws (10).	See figure.



## 6.12 Set draw-off belts

METHOD	REMARKS
<p>Close the draw-off belts using S-4a-2. Loosen the clamp (6) and slide the draw-off belt unit (5) in until the adjusting plate (4) can just be slid in between the draw-off belt and the film. Tighten clamp (6). Set the other side in the same manner. Inspect the setting on both sides.</p> <p>The throttling valves at the back of the suspension (8) should be adjusted in such a way, that the draw-off belt units (5) open and close smoothly and noiselessly.</p> <p>If the machine starts before the belts are closed, the start delay concerned can be corrected in (level 3) S-4a-7a-3.</p>	<p>With the draw-off belt CLOSED, there should be a play of approx. 0.3 mm between the surface of the draw-off belt and the film that is present on the forming tube (7).</p>





## 6.13 Set the long-seam heat seal (HS) (option)

### 6.13.1 Drag long seam



#### Danger of burns!

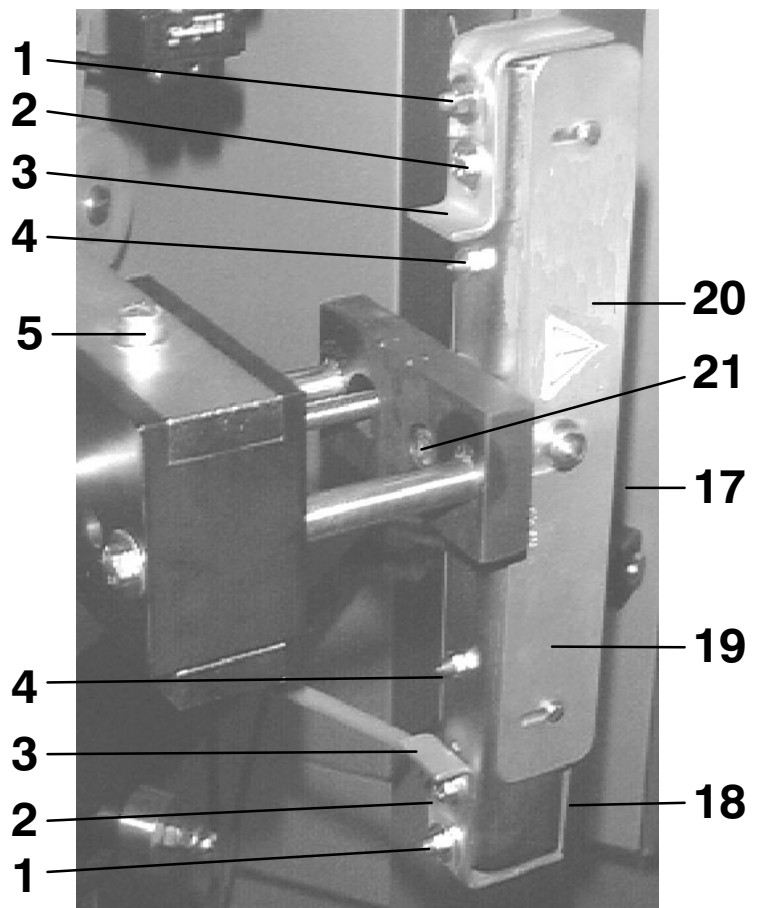
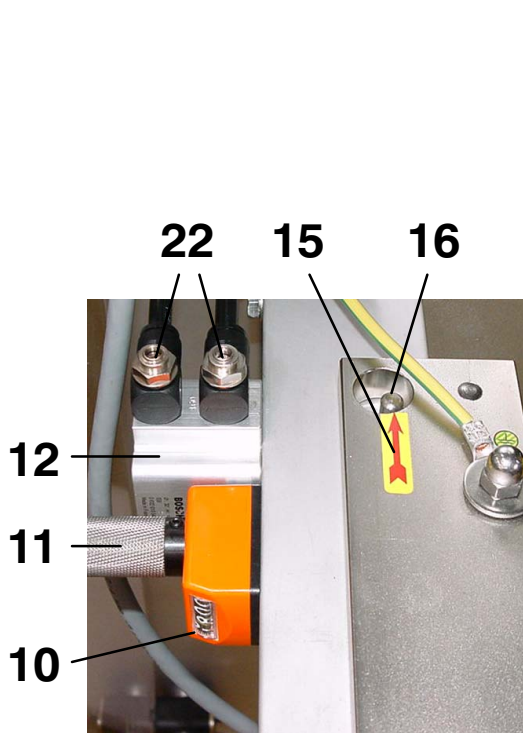
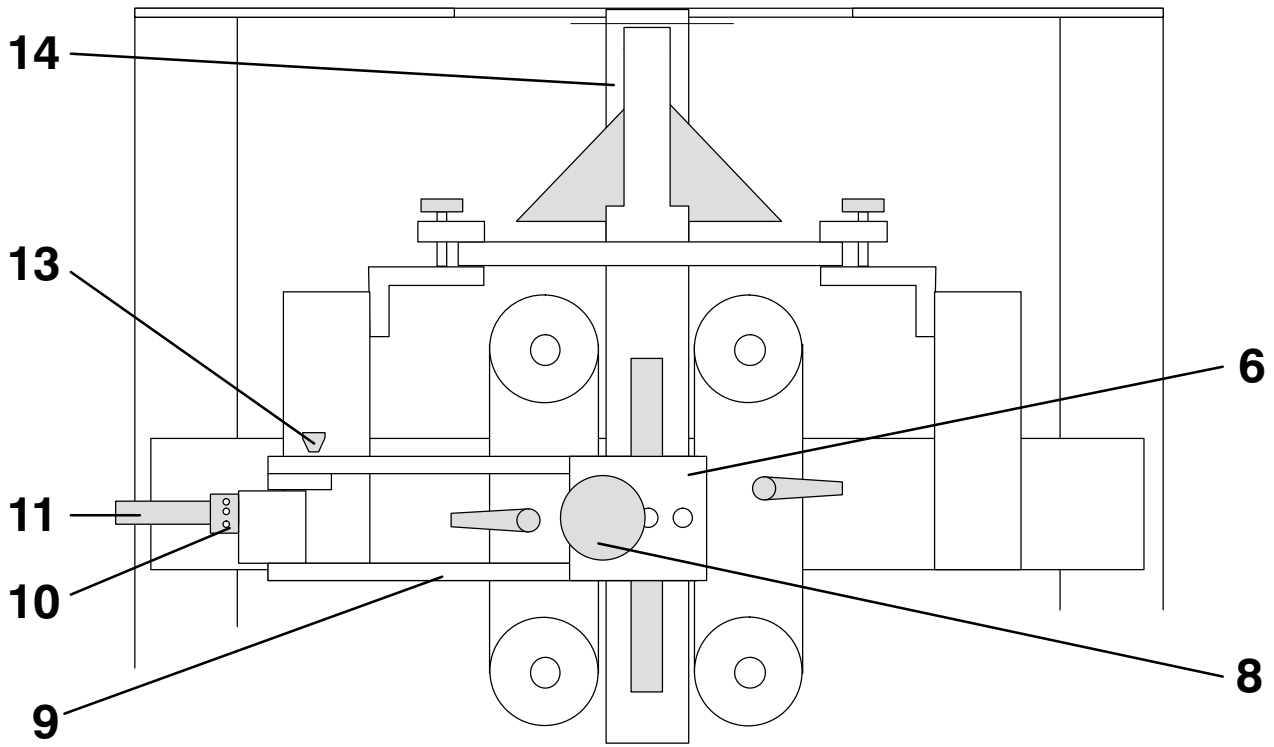
The long-seam jaw (17) can be hot when the machine has just been in operation. Do not touch this part while it is at operating temperature. Wear protective gloves when handling the part. When the long-seam arm has been opened, pay special attention of the hot long-seam jaw/s (17) at the left-hand side.

During film transport, the long-seam jaw (17) must close the film on the forming tube (14) with the set sealing pressure (using a tension spring) without blocking the film transport. When the film transported is stopped, the cylinder (12) lifts the jaw (17) off the film.

The sealing temperature, the sealing pressure and the sealing time are interdependent and must be determined by trial and error. For example, a shorter sealing time can (sometimes) be reached by a higher temperature.

OPERATION	METHOD	REMARKS
Set the distance between the jaw (17) and the forming tube (14)	Pull out the knob (13) and close the arm (9). Move the jaw back with knob (8) if knob (13) has not been locked. Against the pressure of cylinder (12), push the arm (9) towards the forming tube (14) and turn the knob (8) until the jaw (17) just contacts the forming tube. During film transport, check that the arrow (15) points to centre of the pin (16). If necessary, use knob (8) to correct.	Depending on the diameter of the previous forming tube.
Close and open arm (9)	Pull out knob (13) and close the arm (9) until knob (13) locks. Open in reverse order.	
Set plates (19)	During production, plates should just not touch the film and must provide protection when the arm is open (9).	Protection against burns.
Form a film tube	The film-web edges on the tube overlap; pull out knob (13) and close the arm (9) until knob (13) locks.	
Switch on the HS system	Switch this only off in S-3 of (level 2) S-7-8-1-2 if a function switch for PHS is present.	HS (heat seal) is activated.
Set temperature	View and/or select the zone concerned in S2-1a or level 2 (S-7-8-1)-8a. Enter the temperature in the entry field.	If necessary, see 4.4.15.

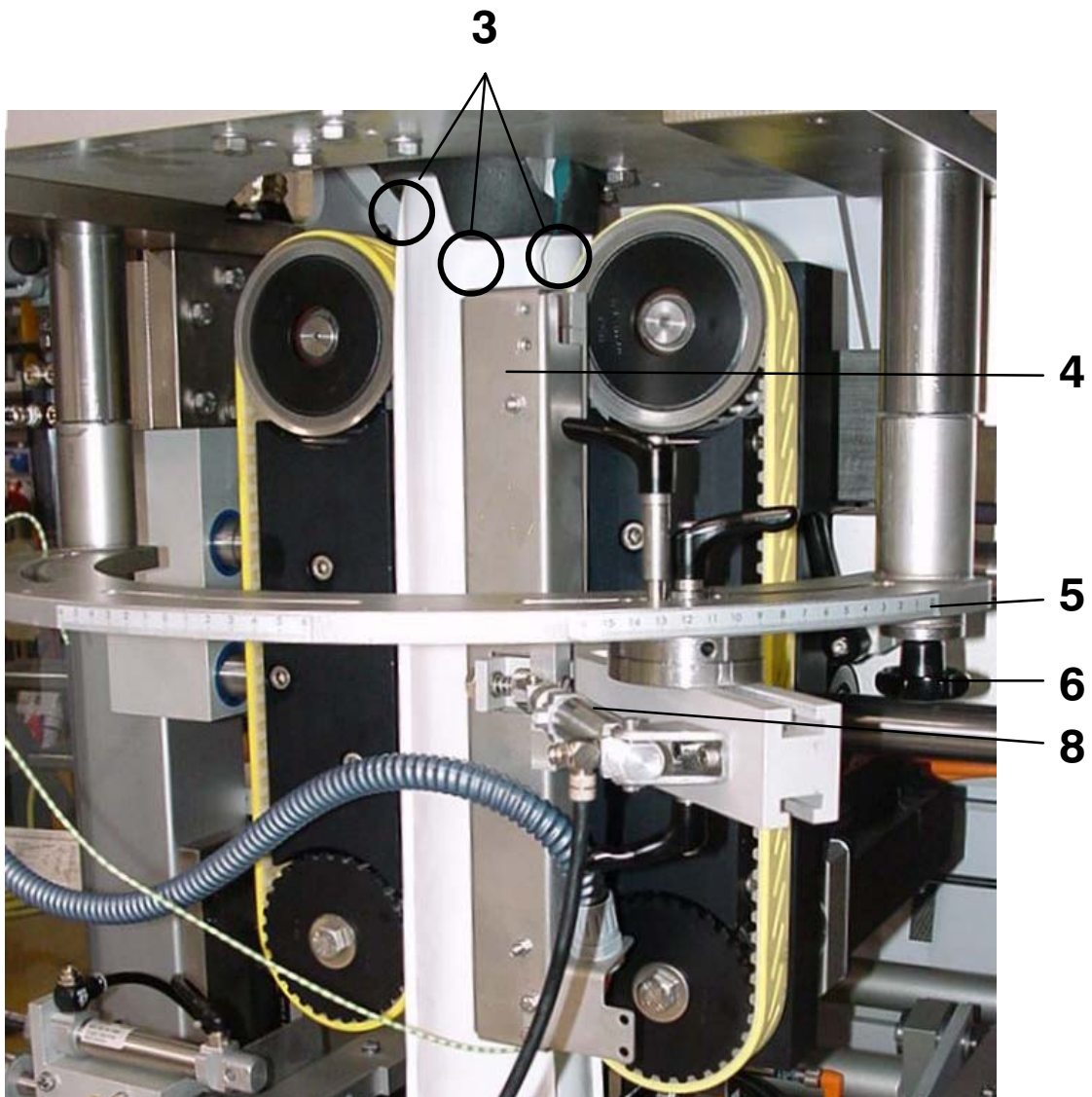
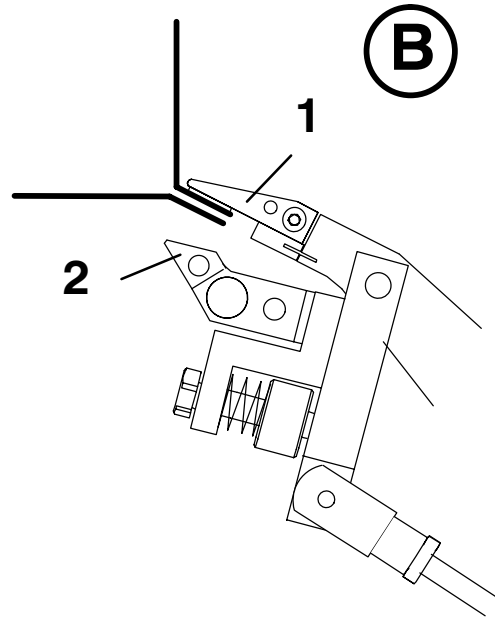
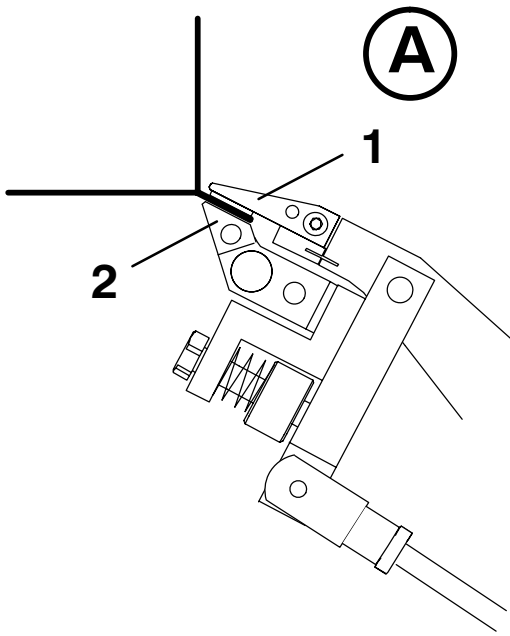
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## 6.13 Set the long-seam heat seal (HS) (option) (continued)

### 6.13.1 Drag long seam (continued)

OPERATION	METHOD	REMARKS
Set the sealing pressure	Transport the film and check the seams. If necessary, the sealing pressure: -reduce: turn knob (11) counter-clockwise. -increase: turn knob (11) clockwise. Install Teflon (18) if film is damaged or if an increase of the sealing pressure results in too much friction.	The optimum sealing pressure depends on the film, among other things.
Set top and bottom distances from the tube (14)	If the formed long seam is not even over its full length, correct the position of the jaw with screws (4). Note: during and after setting there must always be a noticeable play between the jaw and the screws (4) e.g. by moving the jaw.	The jaw (17) must be parallel when it contacts the forming tube.
Set vertical position	Loosen the screw (21) until the holder (20) can just be turned. Tighten the screw (21).	The formed seal must be equal to the jaw width.
Set sideways position	Loosen screw (5). In case of an overlapping seam, push the holder (6) until the centre of the jaw corresponds to the centre of the cut-out in the forming tube. In case of a folding seam (6), push the holder until the fold of the folding seam is just sealed. Tighten screw (5).	Normally, the seam must be in the centre of the bag.
Mount or replace Teflon (18)	Mount Teflon (18) on the strips (3) with the nuts (1). If necessary, mount the strips (3). Tension the Teflon (18) and fasten it with screws (2).	Use an old piece as an example.
Set jaw movement	Set the throttling valves (22) until the movements take place smoothly and without noise.	If necessary, see 7.6.4.
Synchronise the movement of the jaw with the film transport	If at every start of the film transport a part of the long seam: -burns, increase the long-seam delay in level 2 (S-7-8-1)-5. -is open, decrease the long-seam delay in level 2 (S-7-8-1)-5.	If necessary, see 4.4.14. The jaw moves forward too early. A negative value is possible.



## 6.13 Set the long seam heat seal (HS) (option) (continued)

### 6.13.2 Pinching long seam



#### Danger of burns!

The long seam jaw (2) can be hot when the machine has just been in operation. Do not touch this part while it is at operating temperature. Wear protective gloves when handling this part. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw(s) (2).

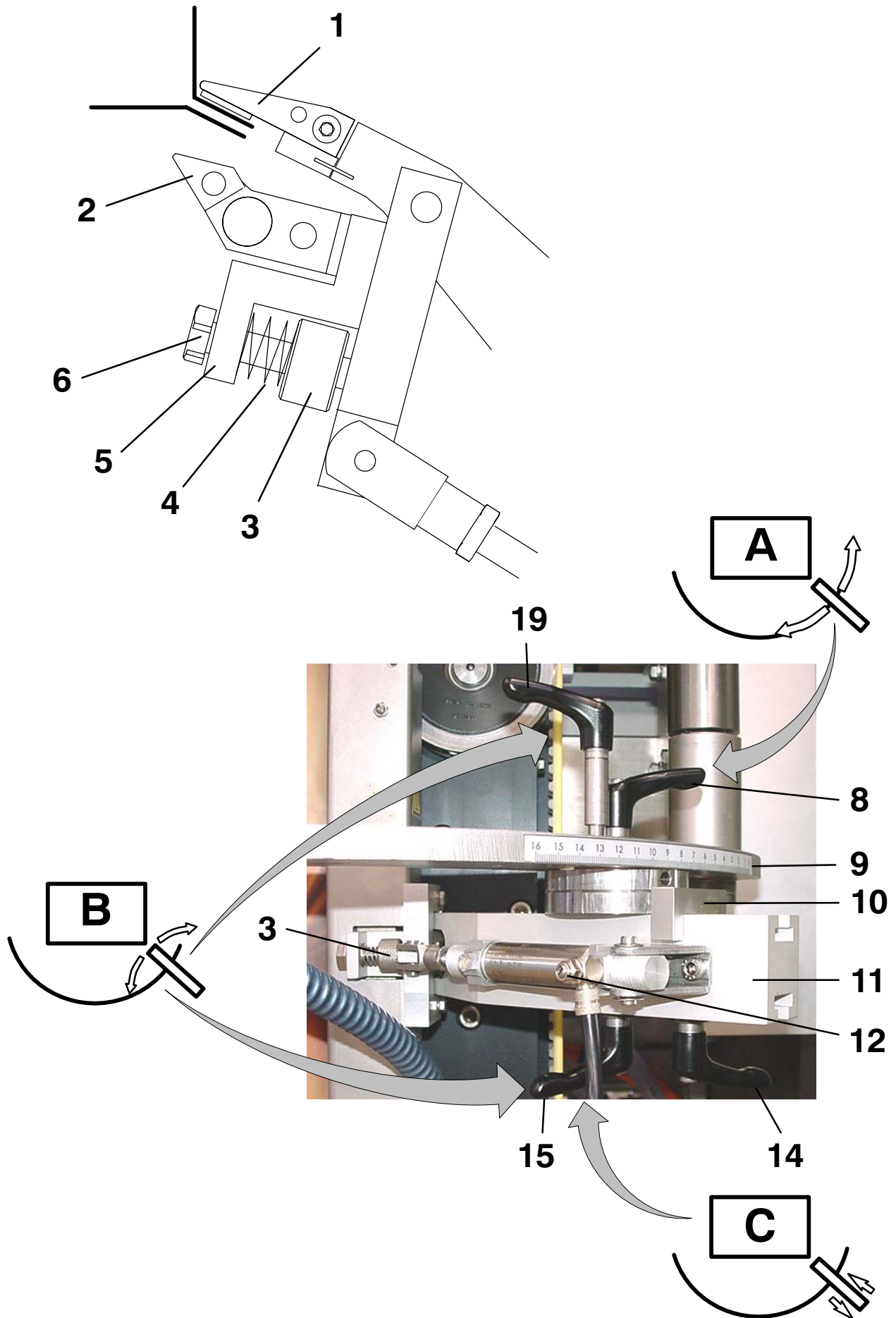
The shoulder lays the insides of the film web edges against each other. See figure A; during film transport the film web edges are clamped between drag jaw (2) and anvil (1) and sealed as corner seal or as long seam. If necessary, see 3.2.2 and 3.2.3. See figure B: when stopping the film transport, the jaw (2) is lifted by cylinder (8) from the film and anvil (1) to avoid heating of the seam.

Dependent on the seam position (3) the long seam unit is mounted left or right from the middle on arm (5).

The seal temperature, the seal pressure and the film speed are interdependent and must be established by experience.

OPERATION	METHOD	REMARKS
Switch on en off the relevant temperature control	Switch on the appropriate switch in (level 3) S-4a-7b. Long seam in the middle: switch off both switches.	Dependent on the selected bag type the relevant zones will appear.
Set the temperature	View and/or select the zone concerned in S-1a or level 2 (S-7-8-1)-8a. Enter the temperature in the entry field.	If required, see 4.4.15.
Open and close arm (5)	Loosen knob (6) and open arm (5). Close in reverse order. If necessary, put the long seam jaw in the production position, see the next page.	Required for, e.g., a size change.

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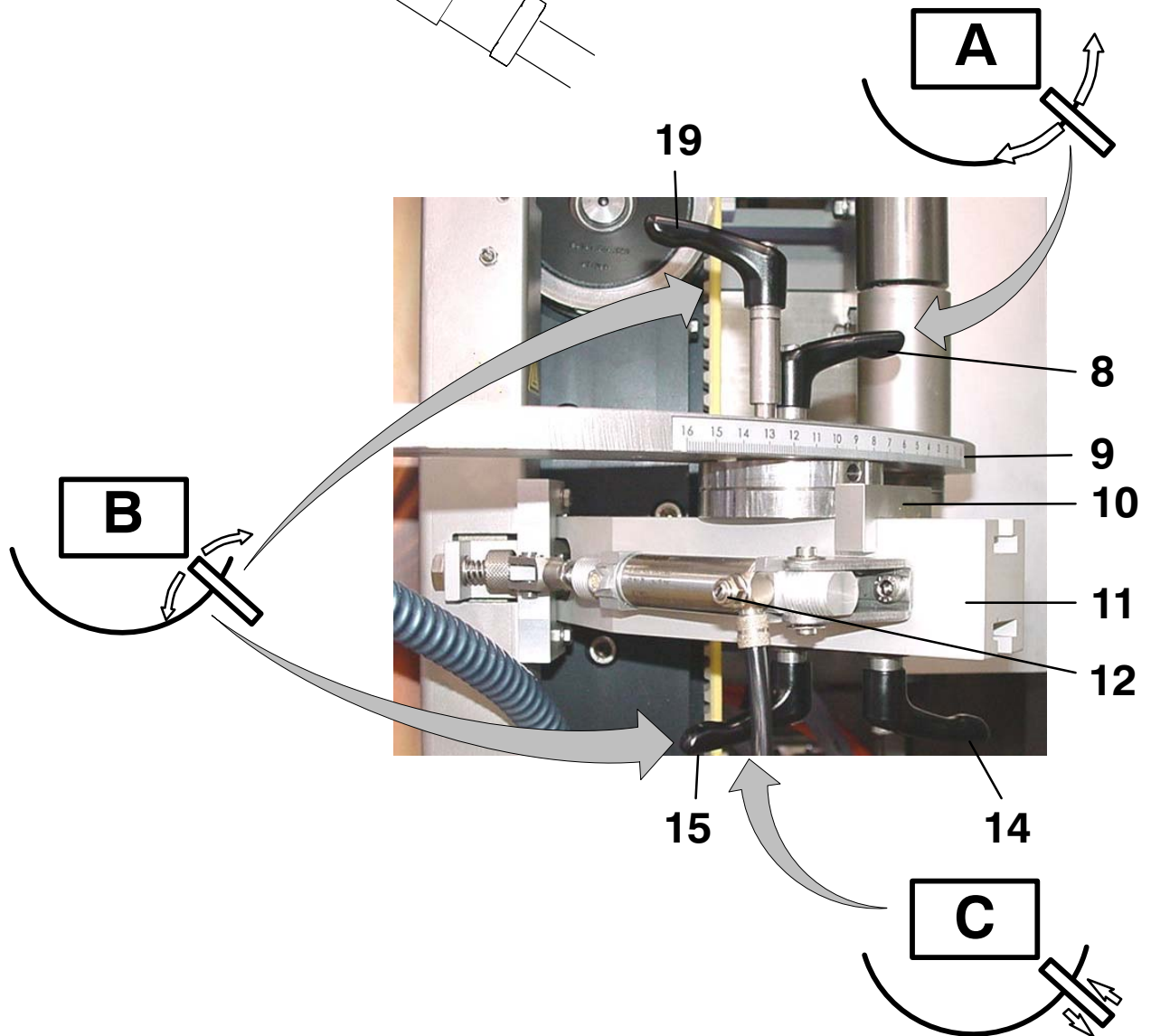
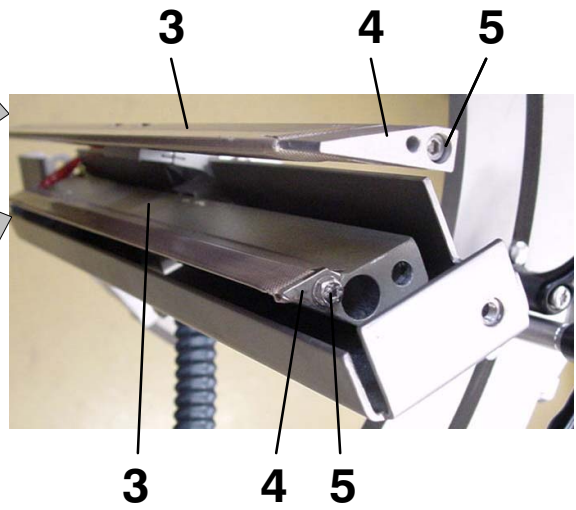
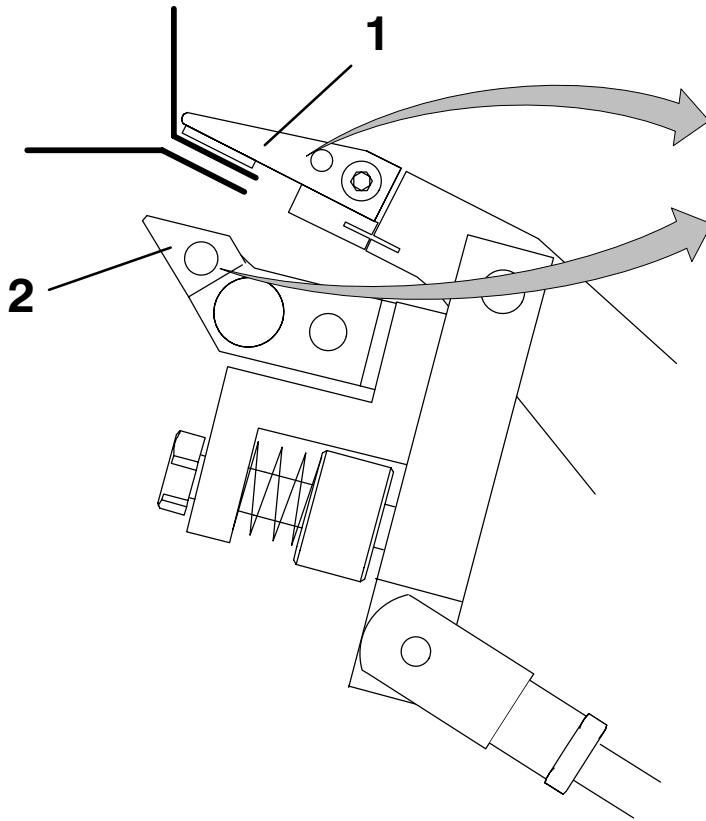


## 6.13 Set the long-seam heat seal (HS) (option) (continued)

### 6.13.2 Pinching long seam (continued)

OPERATION	METHOD	REMARKS
Slide the long seam unit away from the forming tube	Loosen hand clamp (15). Slide the unit (11) back. Tighten hand clamp (15).	Prevents the seam from warming up during longer standstill.
Put the long seam unit into the production position	Loosen hand clamp (15). Move unit (11) towards the forming tube or against the stop (10), making sure that the film web edges or an already formed long seam is between jaw (2) and anvil (1). Tighten hand clamp (15).	
Set the seal pressure	Transport the film and check the seams. If necessary, the seal pressure: -decrease: decrease the spring pressure with knob (3). -increase: increase the spring pressure with knob (3). Install Teflon when the film is damaged or when an increase of the pressure results in too much friction.	The optimum seal pressure depends on the film, among other things. The compression spring (4) determines the seal pressure. During production the bolt (6) is free from the holder (5).
Setting the anvil (1) with regard to the film outlet of the shoulder	Slide stop (10) backwards. Loosen hand clamps (8, 15 and 19). Set the anvil (1) parallel to the film outlet of the shoulder and it should just touch the film edge in this position. The anvil (1) should not touch the forming tube. Tighten hand clamps (8, 15 and 19). Slide stop (10) fully forward and tighten hand clamp (14).	Jaw (2) and anvil (1) can be set in all directions.  A hand clamp can be turned on its own shaft by pulling it out and turning it.

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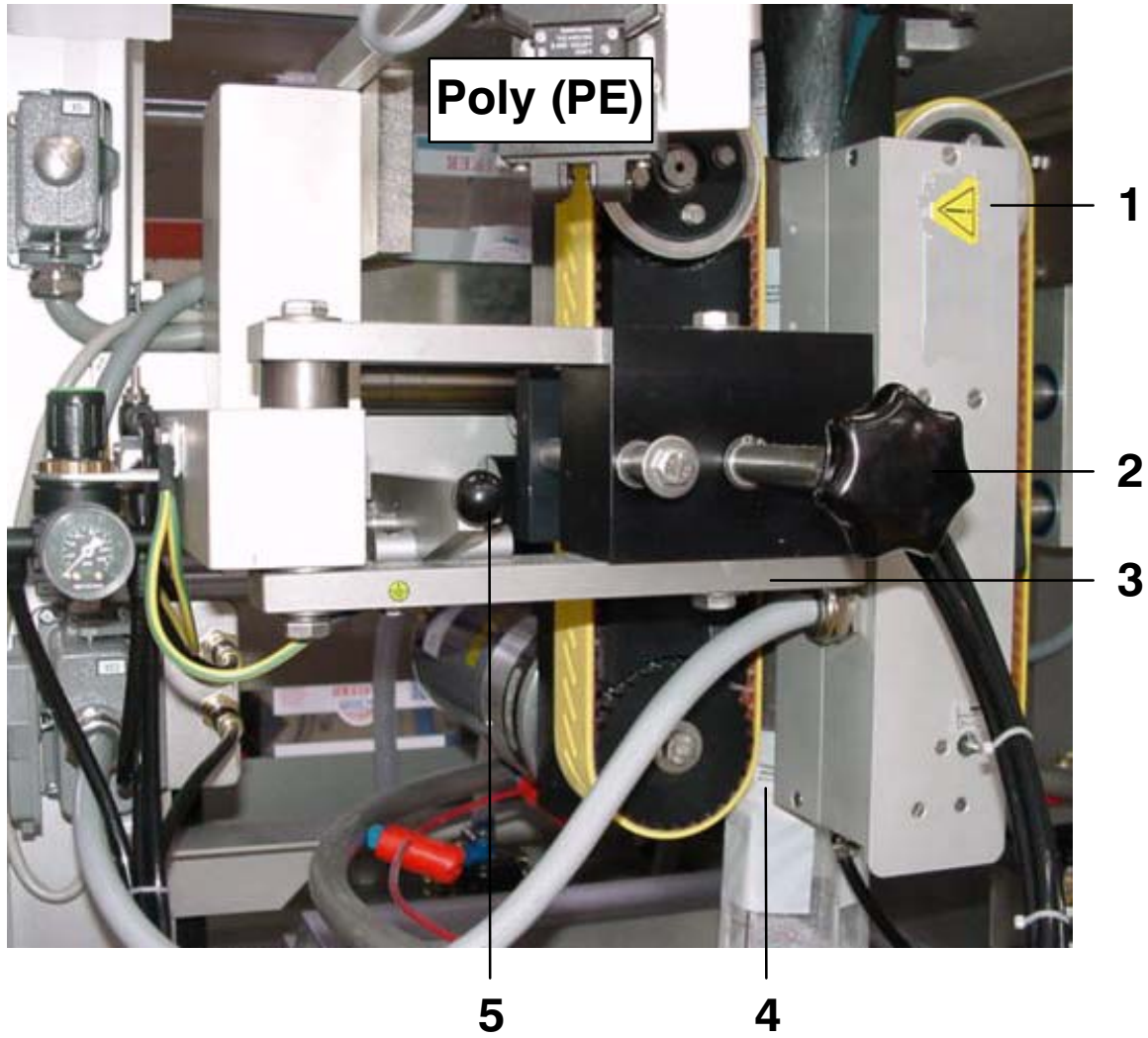




## 6.13 Set the long seam heat seal (HS) (option) (continued)

### 6.13.2 Pinching long seam (continued)

OPERATION	METHOD	REMARKS
Adjust the unit sideways in the slot of the arm (9), see A	Loosen hand clamp (8). Move the unit sideways. Tighten hand clamp (8).	Make circular motions around the centre of the forming tube.
Turn anvil (1) and jaw, see B	Loosen hand clamps (15 and 19). Turn anvil (1) and jaw. Note: moving backwards is possible as well, see C.	Make circular motions around the clamp (15).
Adjust the unit into the direction of the forming tube, see C	Loosen hand clamp (15). Move the unit towards the tube or back. Move stop (10) if necessary. Tighten hand clamp (15).	
Mount or replace Teflon (3)	Loosen the screws (5) at the bottom and the top of the jaw (2) and/or the anvil (1) and dismount the Teflon pieces (4). Clean the surface. Replace the silicone strip, if necessary. Fasten the Teflon (3). Carefully clamp the Teflon with the clamping pieces (4) and fasten it with the screws (5).	If provided.  Use an old piece as an example.
Set the jaw movement	Set the throttle valve (12) until the movements are made smoothly and noiselessly.	If required, see page 7.6.4.
Synchronise the movement of the jaw with the film transport	If at every start of the film transport a part of the long seam: -burns, increase the long-seam delay in level 2 (S-7-8-1)-5. -is open, decrease the long-seam delay in level 2 (S-7-8-1)-5.	If required, see 4.4.14. The jaw moves forwards too early. A negative value is possible.



## 6.14 Set the long-seam polyethylene (PE) (option)

Air, heated in a heated pipe, is blown through holes towards the overlapping film in order to weld the film. When the film transport is stopped the air supply is interrupted and the pipe is removed further from the film to prevent the film from burning out.

The set temperature of the pipe, the amount of hot air, the distance and the time available are interdependent and must be determined by trial and error.

A shorter time can (sometimes) be reached by a higher temperature.

The welding zone on the forming tube has been covered with a PTFE protection strip (Teflon).

Option: The hot weld is cooled off under the long-seam jaw.



### Danger of burns!

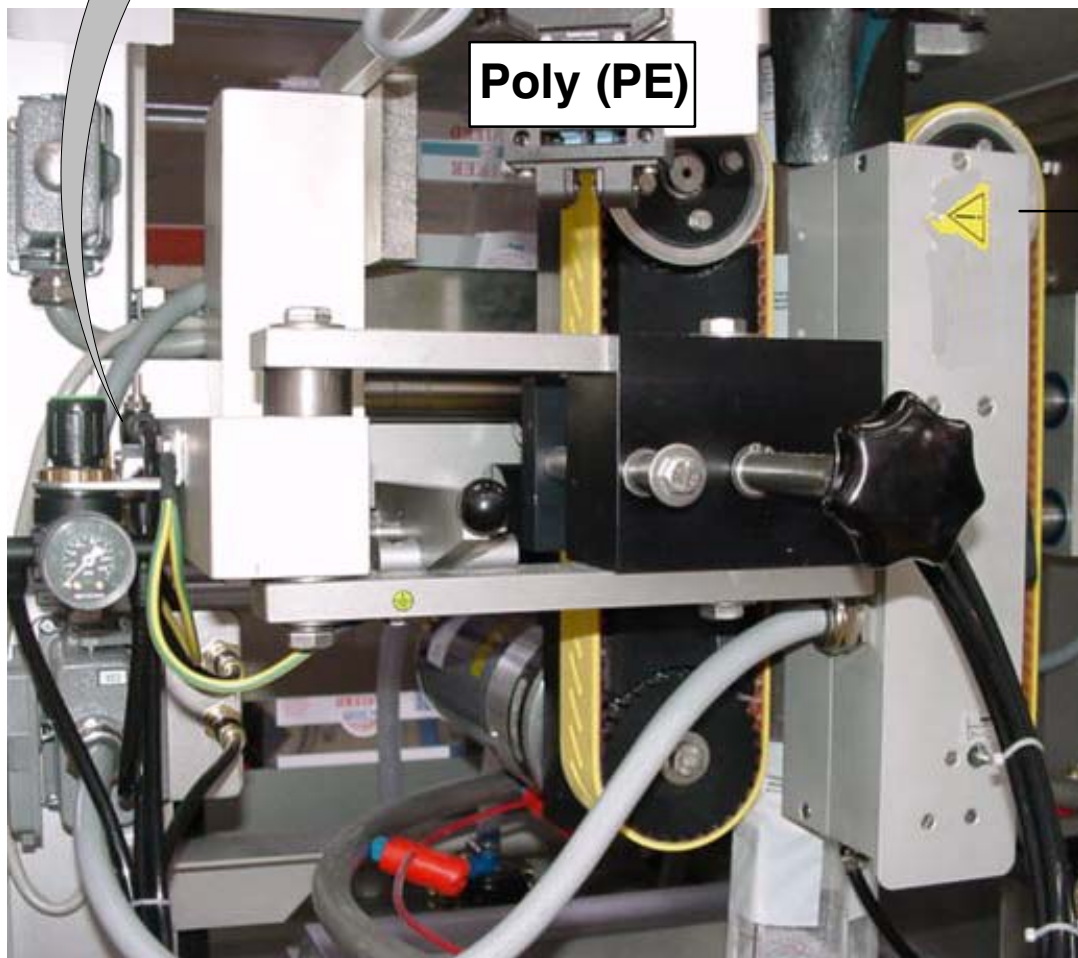
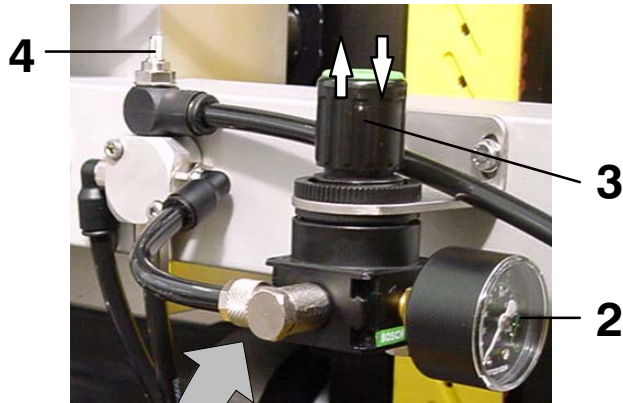
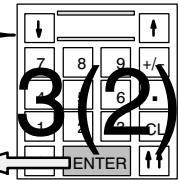
The long-seam jaw (1) can be hot when the machine has just been in operation. Do not touch this part while it is at operating temperature. Wear protective gloves when handling the part. When the long-seam arm has been opened, pay special attention of the hot long-seam unit at the left-hand side.

OPERATION	METHOD	REMARKS
Set the distance from the unit (1) to the forming tube (4)	<p>Close the long-seam arm (3) until the lock (5) closes. Turn knob (2) to the right when the lock (5) does not close because the unit touches the forming tube.</p> <p>Move with knob (2) the unit (1) to the forming tube (4) with film until a distance of about 1 mm. Produce bags and check the seams. If necessary, correct the distance with knob (2).</p>	<p>Unit (1) moves back.</p> <p>The weld gets wider when the distance gets larger.</p>
Close and open long-seam arm (3)	Close the long-seam arm (3) until the lock (5) closes. Open in reverse order.	

*continued on next page*

S-1	S-7	S-9
S-2	S-8	S-10
S-3	S-15	S-11
S-4	S-16	S-12
S-5		S-13
S-6		S-14

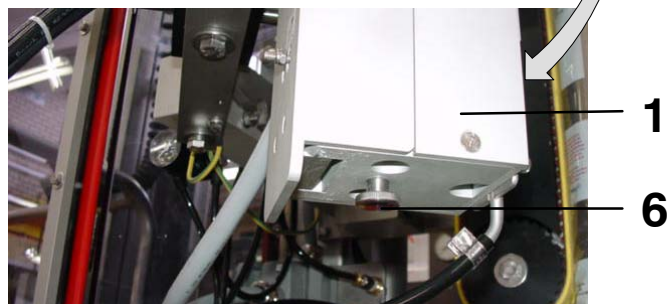
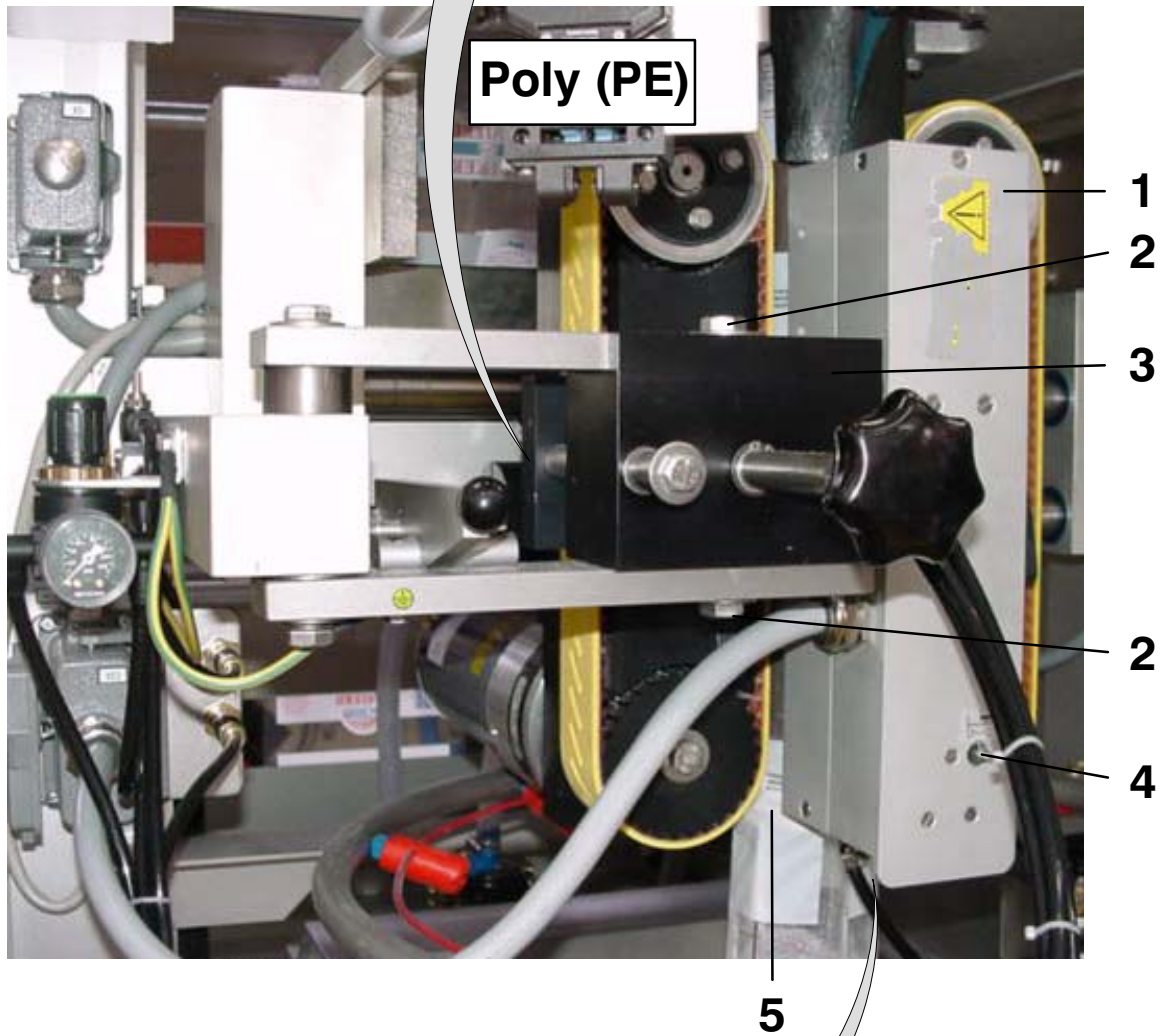
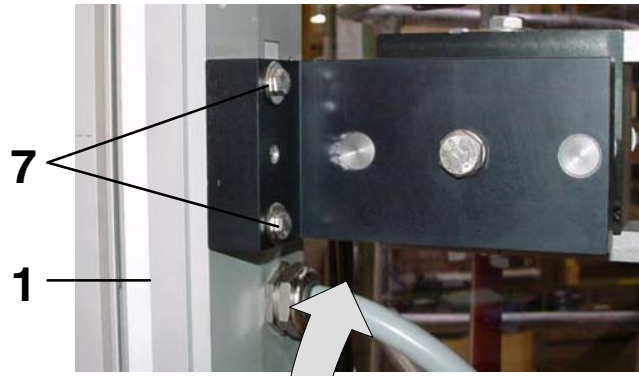
S-4a-1	S-4a-5
S-4a-2	S-4a-6
S-4a-3	S-4a-7
S-4a-4	S-4a-8
	+ MR < HOME
	S-4a



## 6.14 Set the long-seam polyethylene (PE) (option)(continued)

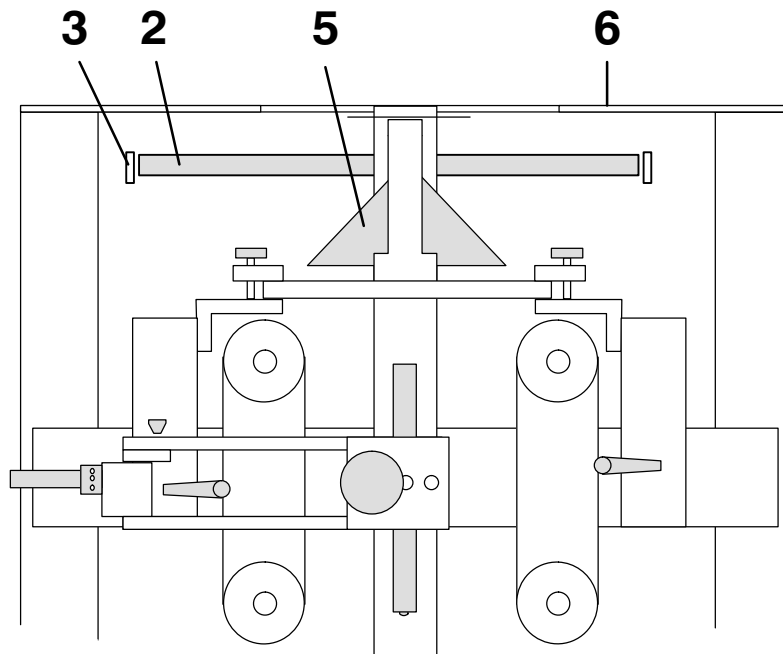
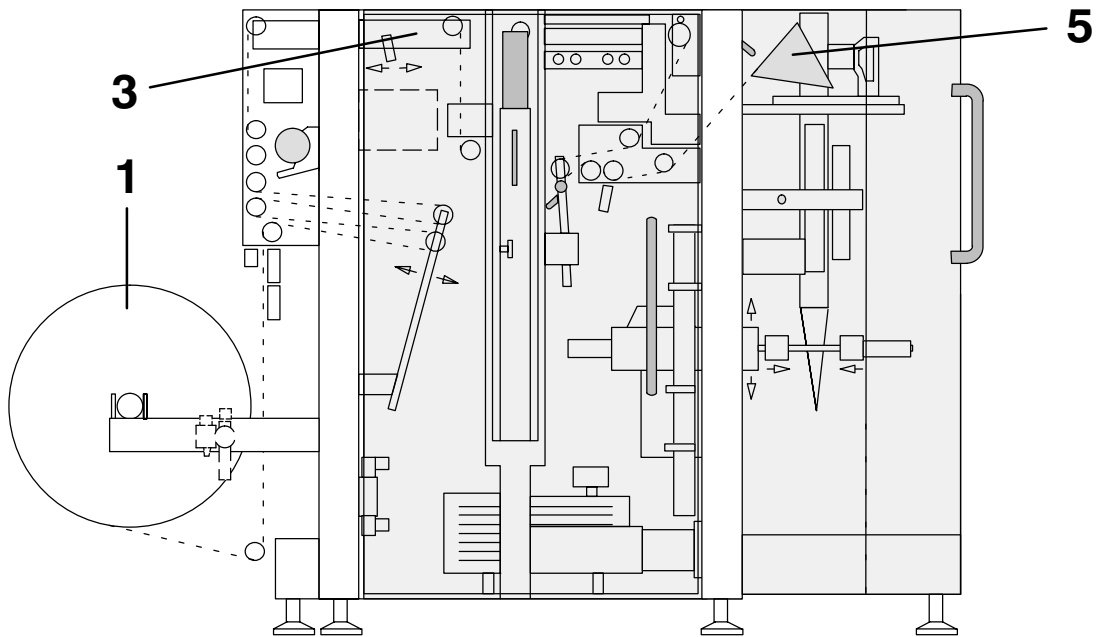
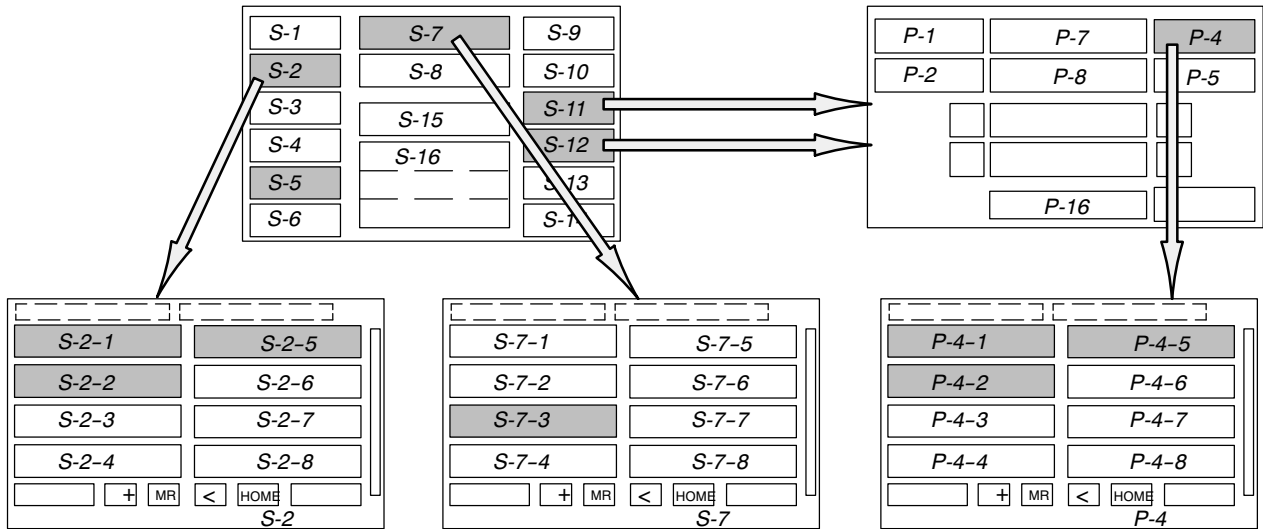
OPERATION	METHOD	REMARKS
Switch on PE-welding system	Switch on the function switch in S-3 or (level 2) S-7-8-1-2.	Switching off switches HS (heat seal) off.
Reset the error message of the control	Press S-4b-1 after an error message concerning the long seam.	
Calibrate the control	Solve the error message. Press the appropriate key in (level 3) S-4a-7a-5.	
Set temperature	View and/or select the zone concerned in S-1a or level 2 (S-7-8-1)-8a. Enter the temperature in the entry field.	If necessary, see 4.4.15.
Set the amount of air	Pull the setting knob (3) upward out of the lock. Less air: Turn the setting knob (3) anti-clockwise. More air: Turn the setting knob (3) clockwise. Lock the setting knob (3) downward.	During production the pressure is shown on the manometer (2).  The optimum amount of hot air depends on the film and the set temperature.
Set the amount of cooling air	Set by means of the control (4). Avoid noise.	Depending on the film and the set temperature.
Synchronise the movement of the heated pipe with the film transport	If at every start of the film transport a part of the long seam: -burns, increase the long-seam delay in level 2 (S-7-8-1)-5. -is open, decrease the long-seam delay in level 2 (S-7-8-1)-5.	If necessary, see 4.4.14.  The heated pipe moves forward too early.  A negative value is possible.

*continued on next page*



## 6.14 Set the long-seam polyethylene (PE) (option)(continued)

OPERATION	METHOD	REMARKS
Set the sideways position of the unit (1)	Loosen screws (2). Move the unit (1) sideways. Tighten screws (2).	Overlapping seam: the middle of the unit (1) must correspond with the middle of the cut-away in the forming tube (5).
Set top and bottom distances from the tube (5)	Loosen screws (7). Correct the position of the unit (1) until the distance between the pipe and the unit are equal at the top and at the bottom. Tighten screws (7).	
Open long-seam unit (1)	<b>Warning:</b> Pinching place at the bottom side and at the hot parts in the unit (1). Loosen screw (6). Tilt the housing forward.	Opening may be necessary in order to be able to clean the heated pipe with a dry cloth.





## 6.15 Set film-web tracking

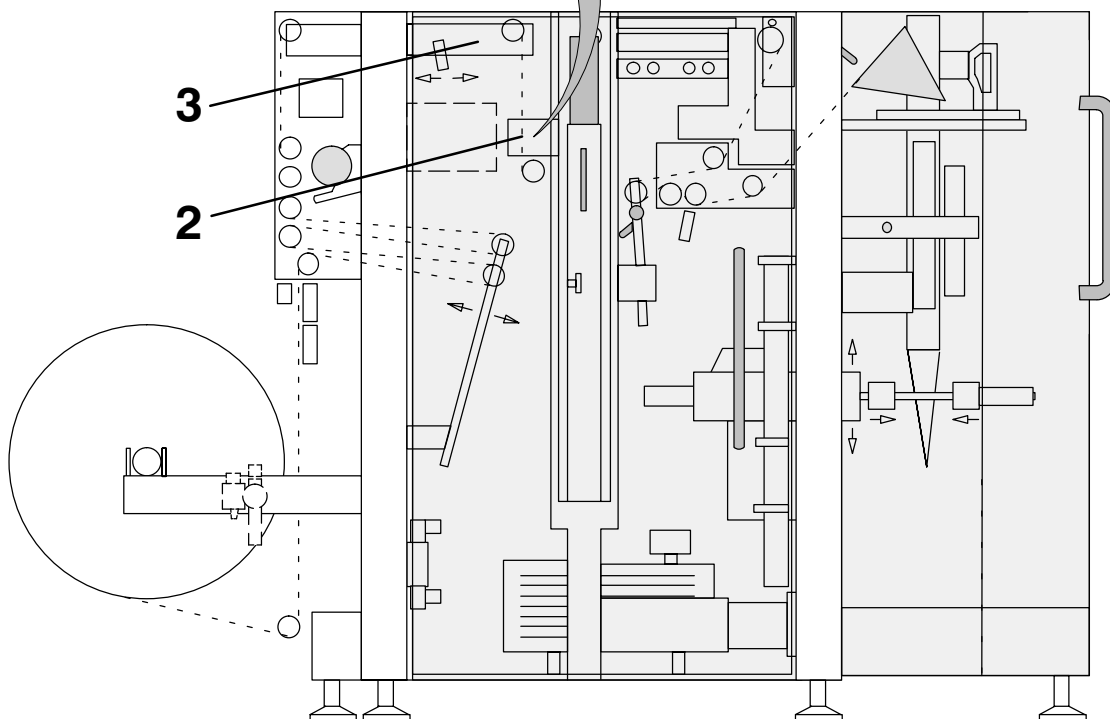
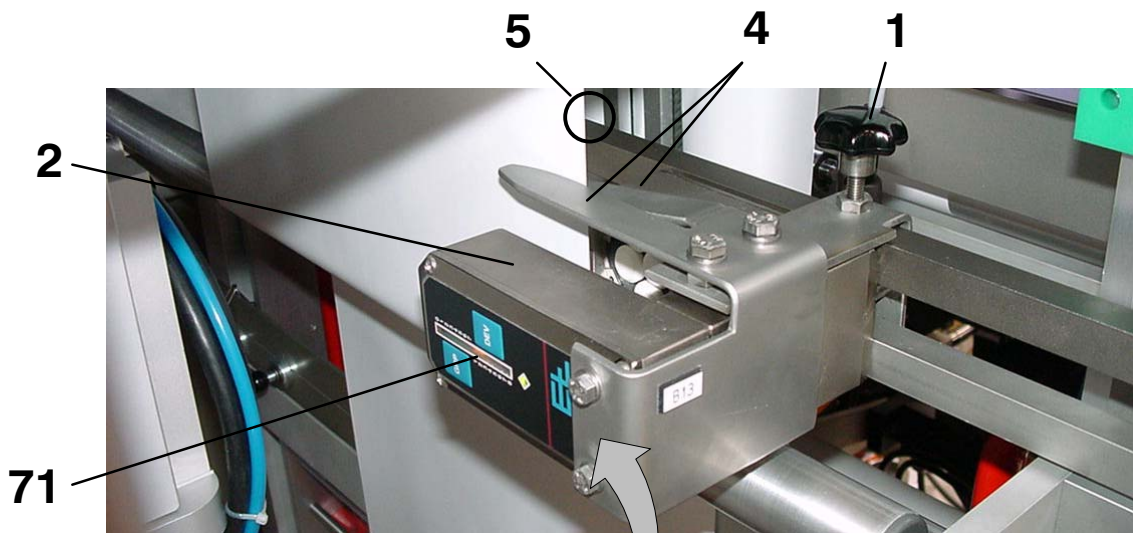
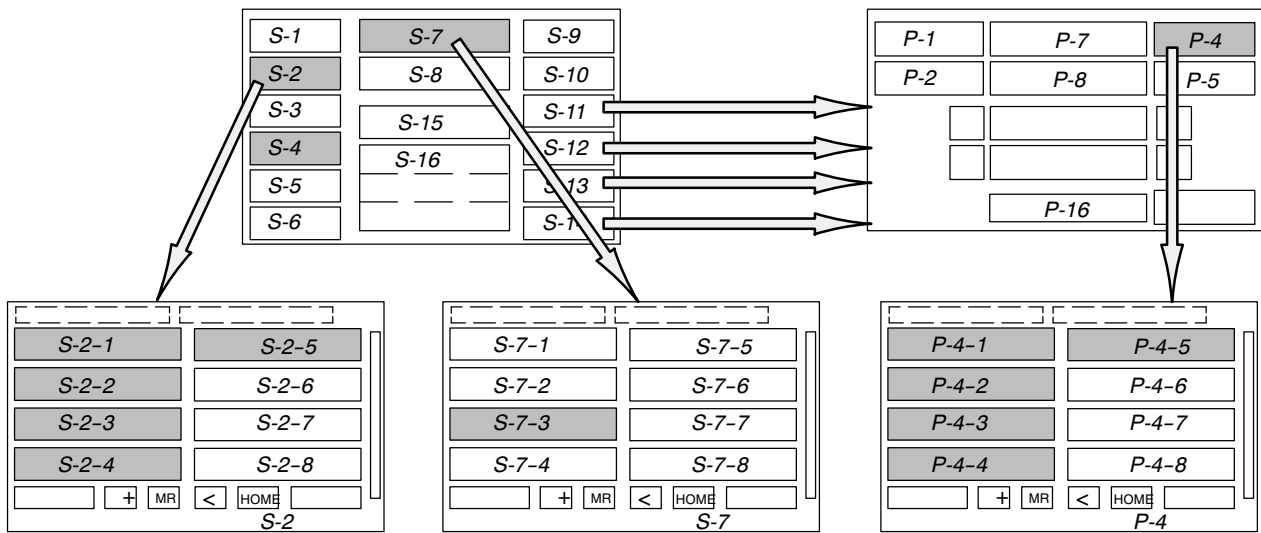
The film web is guided from the film reel (1) via the film-web rollers and a tracking frame (3) to the shoulder (5). If necessary, the tracking frame (3) can be turned with knob (4) or with one motor (option) to sideways correct the course of the film web to the shoulder in order to form a correct long seam.

Automatic film-web tracking (option): a sensor guards the film-web edge and a motor turns the tracking frame (3), if necessary. See the next page.

The film reel must be placed on the shaft in such a way, that with a centred tracking frame (central position) a correct long seam is formed.

OPERATION	METHOD	REMARKS
Check the position of the film reel (1) on the shaft	See S-7-3 or level 2 (S-7-8-1)-1 for information on the position. If necessary, correct the position of the film reel.	If necessary, see 6.4.
Centre tracking frame (3)	By one tracking frame driven by an electric motor press S-2-2 or P-4-2.	The film web roller (2) is placed parallel with the other rollers.
Check the position of film web during film transport or production	Transport film using S-5, S-11 or S-12 until film web no longer wanders sideways.  Check the long seam and the course of the film web over the shoulder (5).	Or check during production.  The overlap/fold must comply with the instructions.
If necessary, correct the position of the film web	By one tracking frame driven by an electric motor (option) or the disconnected automatic film-web edge control (option) correct the tracking frame (3) by using P-4-1 or P-4-5.	The best position for the tracking frame (3) is the central position.
Tracking frame (3) too much to the left or to the right	Move the film reel (1) along the shaft with the same distance as the tracking frame has turned away from the central position. Centre the tracking frame, see above. Correct information concerning the position of the film reel on the shaft in S-7-3 or level 2 (S-7-8-1)-1.	The best position for the tracking frame (3) is the central position.  If necessary, see 6.4.

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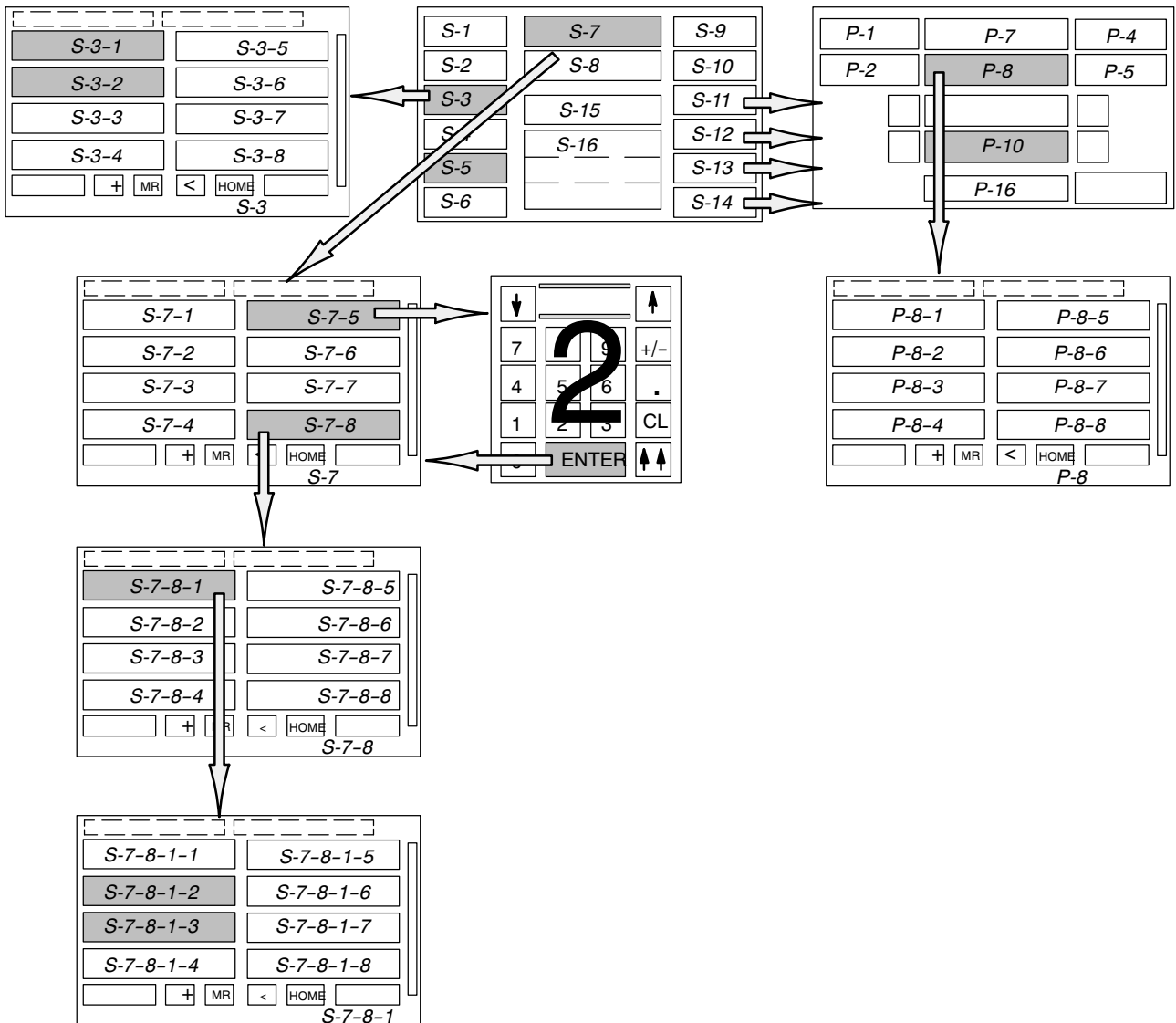
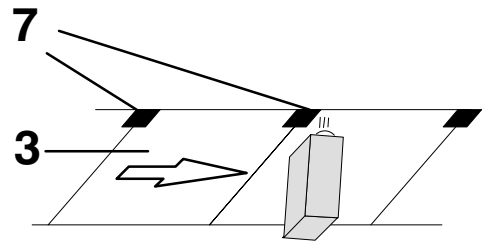


## 6.15 Set film-web tracking

### 6.15.1 Set automatic control for film-web tracking (option)

A sensor (2) guards the film-web edge (5). If necessary, a motor can turn the tracking frame (3) to sideways correct the course of the film web to the shoulder in order to form a correct long seam.

OPERATION	METHOD	REMARKS
Switch on option	Switch on option in (level 3) S-4a-7b-3	if necessary, see 7.17
Implement basic settings	Switch off control by using S-2-3. Centre tracking frame (3) with S-2-2. Check and/or correct the film-reel position until a correct long seam is formed.	If necessary, see 6.4.
Set the sensor on the film-web edge (5)	Loosen clamp (1). Move the sensor (2) and guide the film into the gaps of the film guides (4).  Move the sensor (2) until the two middle LEDs (71) light up or until the value in S-2-4 becomes about '1024'. Tighten hand clamp (1).	If present.  Indicates that the middle of the sensor corresponds with the film-web edge (5).
Switch on the control	Activate S-2-3. When deactivated, manual operation is possible.	See previous page.
If necessary, correct the position of the film web	Correct the tracking frame (3) according to the long-seam deviation with S-2-1 or S-2-5 or with P-4-1 or P-4-5. Alternative: enter a value in S-2-4.	Setting changes the central position of the sensor and moves the film web.
If the line reach has been fully used	Enter the value '1024' in S-2-4. Set the sensor again on the film-web edge (5), etc.	See above.
Tracking frame (3) too much to the left or to the right	Move the film reel on the shaft with the same distance as the tracking frame has turned away from the central position. Centre tracking frame with S-2-2. Correct information concerning the position of the film reel on the shaft in S-7-3 or level 2 (S-7-8-1)-1.	The best position for the tracking frame (3) is the central position.  If necessary, see 6.4.
Calibrate the sensor (2), for example after replacement of the sensor or in case of problems	Remove the film above the sensor (2) and press (level 3) S-4a-5b-6. Fully cover the sensor (2) with the film and press (level 3) S-4a-5b-7.	S-4a-7a-5b-8 shows the actual value. Maximum value: 2048. Minimum value: 0.

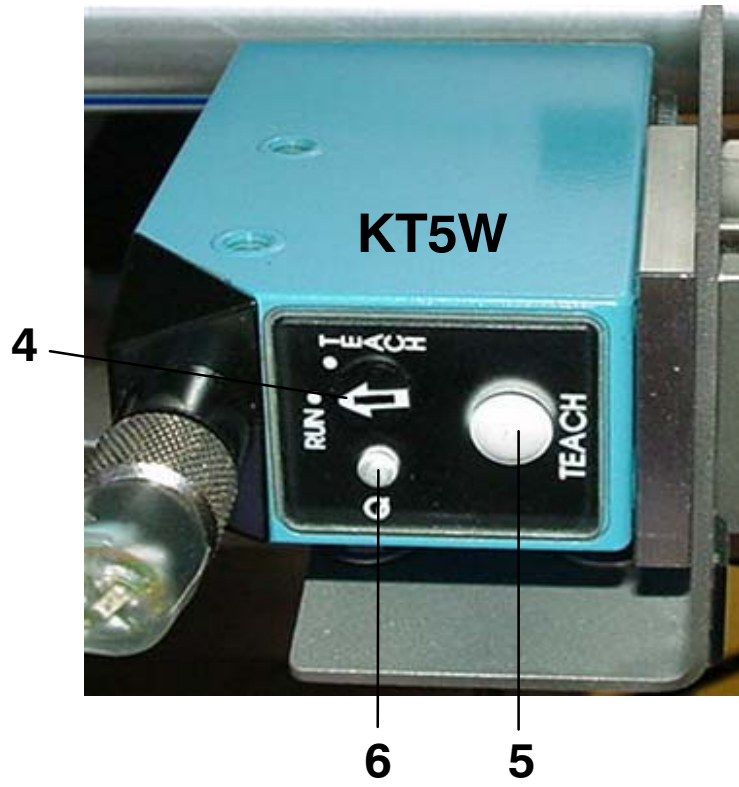


## 6.16 Set print mark control (option)

One bag length is the distance from a print mark (7) or other imprint on the film web (3) to the next identical print mark (7). A photocell (2) registers this print mark and the film transport is corrected. Only the print mark may generate a signal from the photocell.

OPERATION	METHOD	REMARKS
Activate/deactivate function	Switch S-3-1 or level 2 (S-7-8-1)-2-1 on or off.	
Activate or deactivate guard	Switch S-3-2 or level 2 (S-7-8-1)-2-1 on or off. The machine will stop when no print mark is detected.	
Set the cross position of the photocell (2)	Loosen knob (1). Slide the photocell (2) into the track of the print mark (7). Tighten knob (1).	
Adjust photocell	See the following page.	
Set cut-off position of the bags	Switch on S-3-1 or level -2 (S-7-8-1)-2-1. Press S-5 until the film transport stops. Produce some bags and check the cut-off position. Enter the print-mark displacement in level 2 (S-7-8-1)-3. After correction, press S-5 until film transport stops, etc. During production, implement checks in P-10.	Photocell in the bottom position.  Cut off lower, reduce value.
Checks and corrections during production	If the value for the displacement approaches the bag length and/or "0", loosen hand clamp (4), slide the photocell to the top position and set the cut-off position.  During production, implement checks in P-10.  In P-8, check the number of print marks per bag length. This must be '1'. If necessary, clean the lens and/or check the position and setting.  In P-8, compare the actual pulses with the number of pulses for the nominal print-mark position. If the number of actual pulses is more than 15 below the number of pulses for the nominal print-mark position, reduce the bag length in level 2 (S-7-8-1)-1. If the number of actual pulses is over 15 more than the number of pulses for the nominal print position, increase the bag length in level 2 (S-7-8-1)-1.  In P-8, check the length of the last bag produced.	Only model with photocell displacement.

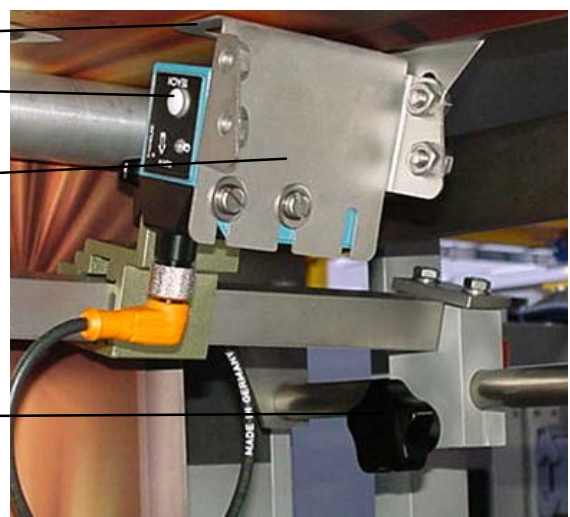
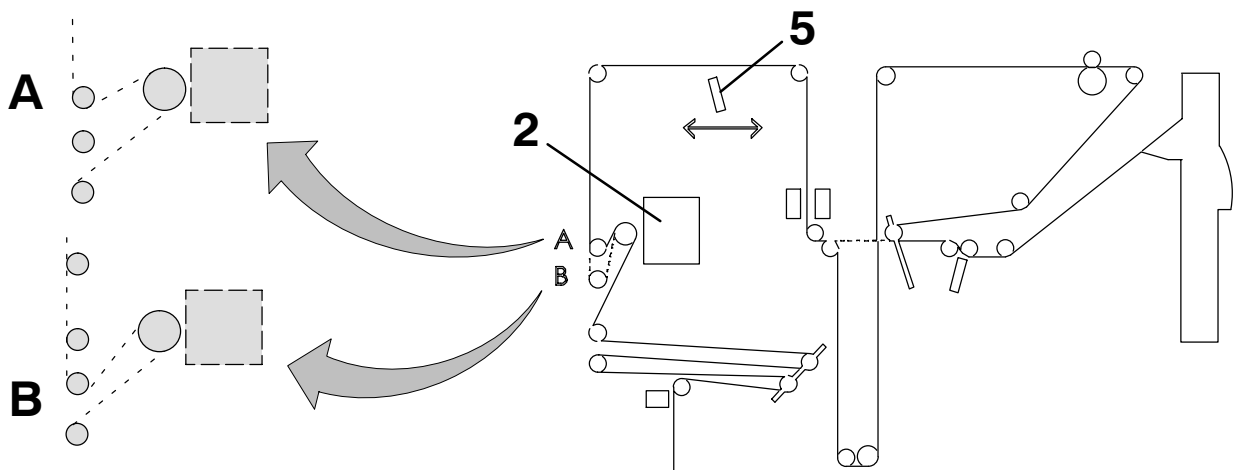
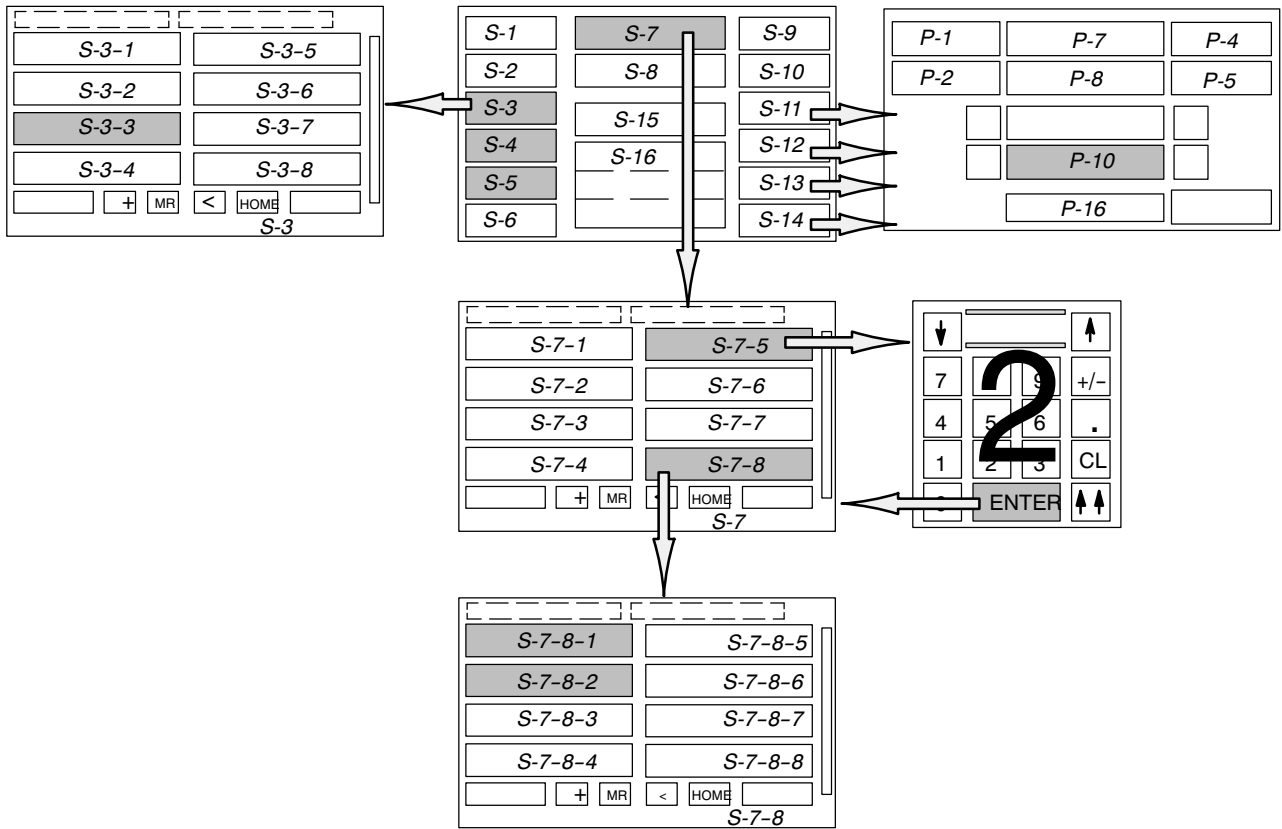
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## 6.16 Set print mark control (option) (continued)

See section 8 of the manual for a photocell that is not described here.

OPERATION	METHOD	REMARKS
Set photocell KT5W	<p>Clean lens. Turn the rotary knob (4) to "Teach". Slide the print mark on the film web in front of the light patch of the photocell. If necessary, move the photocell (7) until the light patch of the photocell is focused on the film. Press "Teach" knob (5). LED (6) and the red light patch on the film start to flash slowly. Slide part of the film web between the print marks (background) in front of the light patch of the photocell. Press "Teach" knob (5). If LED (6) and the red light patch on the film flash quickly, there is insufficient contrast. Turn the rotary knob (4) to "Run" to block "Teach".</p> <p>By moving the film by hand, check that the LED (6) only lights when the photocell detects the print mark. If necessary, repeat the setting method and/or select another print mark.</p>	<p>The distance is between 7 and 12.5 mm.</p> <p>When there is sufficient contrast, LED (6) no longer flashes.</p> <p>If necessary, see the manual for the photocell in section 8.</p>
Set photocell KT5G	<p>Clean lens. Using rotary knob (4), select "Fine" if there is a little difference in contrast or "Coarse" if there is a large difference in contrast. Slide the print mark on the film web in front of the light patch of the photocell. If necessary, move the photocell (7) until the light patch of the photocell is focused on the film. Press "Teach" knob (5). If necessary, turn the rotary knob (4) to "Run" to block "Teach".</p> <p>By moving the film by hand, check that the LED (6) only lights when the photocell detects the print mark. If necessary, repeat the setting method and/or select another print mark.</p>	<p>Depending on the film.</p> <p>The distance is between 7 and 12.5 mm.</p> <p>If necessary, see the manual for the photocell in section 8.</p>



- 4
- 5
- 6
- 8
- 2

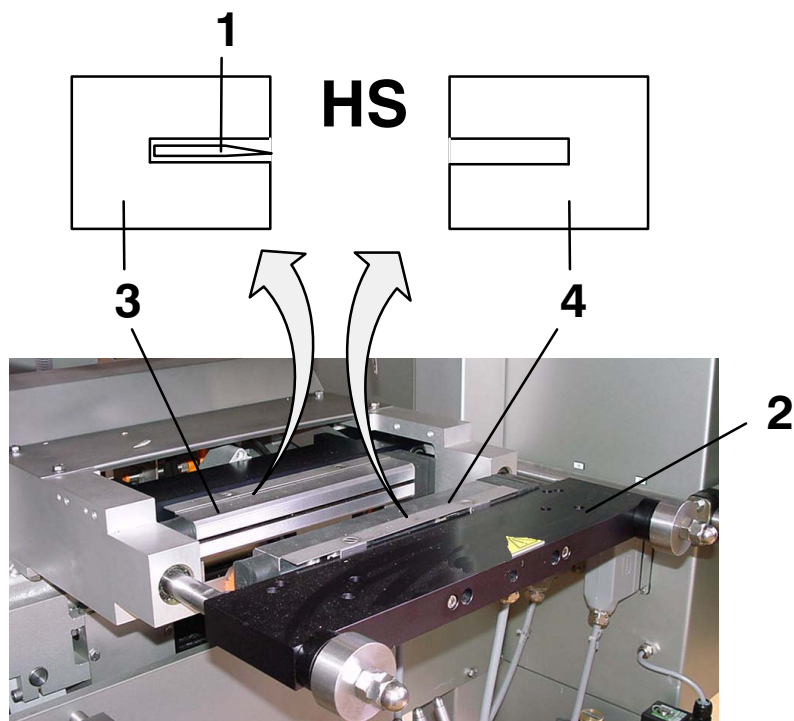
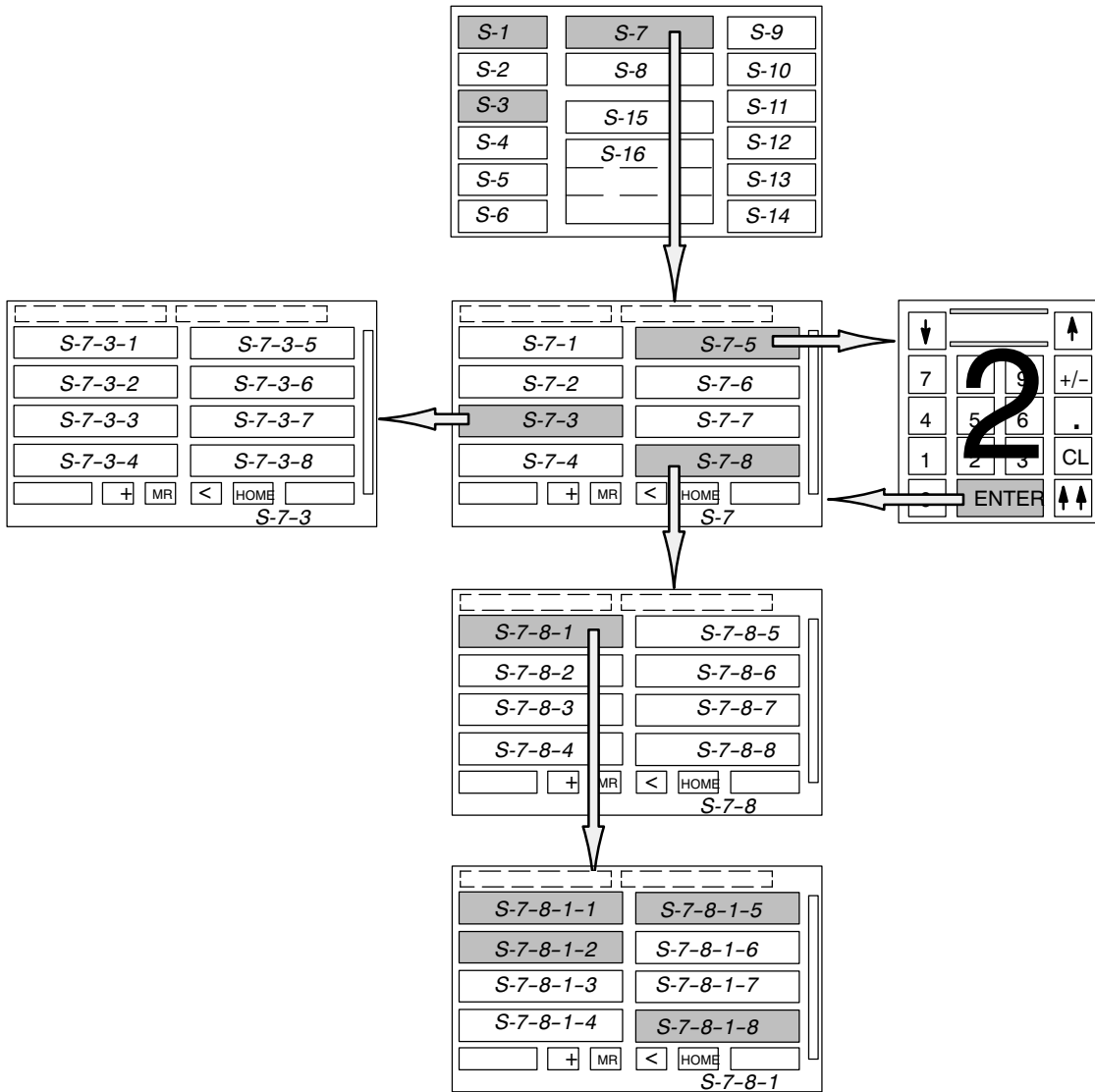


## 6.17 Set the overprinter (option)

The print and/or label must usually be positioned at a certain place on the film web. This page describes the applicable principles.

Note: Because of manual film transport, prints/labels may be missing on the film web!

OPERATION	METHOD	REMARKS
Switching a function on or off	Switching the appropriate key in S-3 or level 2 (S-7-8-1)-2 on or off.	
Set the equipment (2)	See the manual concerned in section 8.	
Set cross position of the equipment (2)	Loosen the appropriate clamps. Slide the equipment (2) into the required position.	Depending on the equipment.
Set the position in the longitudinal direction with: -switched off print mark control or -switched on print mark control without extra photocell (5) overprinter or -switched on print mark control and extra photocell (5) (option) for the overprinter	Enter the field(s) concerned in level 2 (S-7-8-1)-3. Produce bags and check the position. Make changes in P-10 during production.  Adjust print mark control, see 6.16. Enter field(s) in level 2 (S-7-8-1)-3 . Produce bags and check the position. Make changes in P-10 during production.  Adjust print mark control, see 6.16. Set the photocell (5) on the print mark. Move/remove plate (4) (if present on machine). Produce bags and check the position. Depending on the model delivered, move the photocell (5) or the roller reel (7) in the longitudinal direction.	Film without print mark.     See print mark control.  The position shifts.
When the film transport stops during printing/labelling	Lead the film web over the other film-web roller (A or B), adjust the roller (3) or enter a start delay in the overprinter. At level 2 (S-7-8-1)-3 correct the concerned fields.	Depends on the model delivered.
During manual film transport, switch printing/labelling on or off and adjust it	Switch on or off in (level 3) S-4a-7, in "Operating modes". Enter concerned field in level 2 (S-7-8-1)-3. Change the value when the print marks overlap.	For example, 50% = two print marks on one bag length.
Switch the print/label correction on or off for film without print mark	Switch on in (level 3) S-4b-5-1b, in "Operating modes". Read and follow the instructions. Enter the distance in level 3 (S-7-8-1)-3.	Film length between knife and device.



## 6.18 Set the cross-seam heat seal (HS) (option)



### Danger of burns!

The cross-seam jaw(s) can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts.



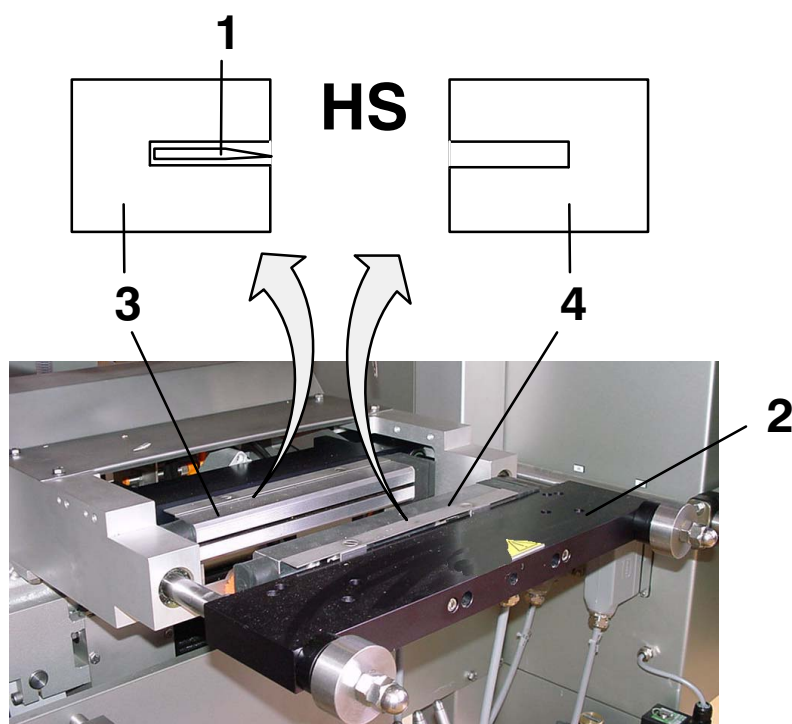
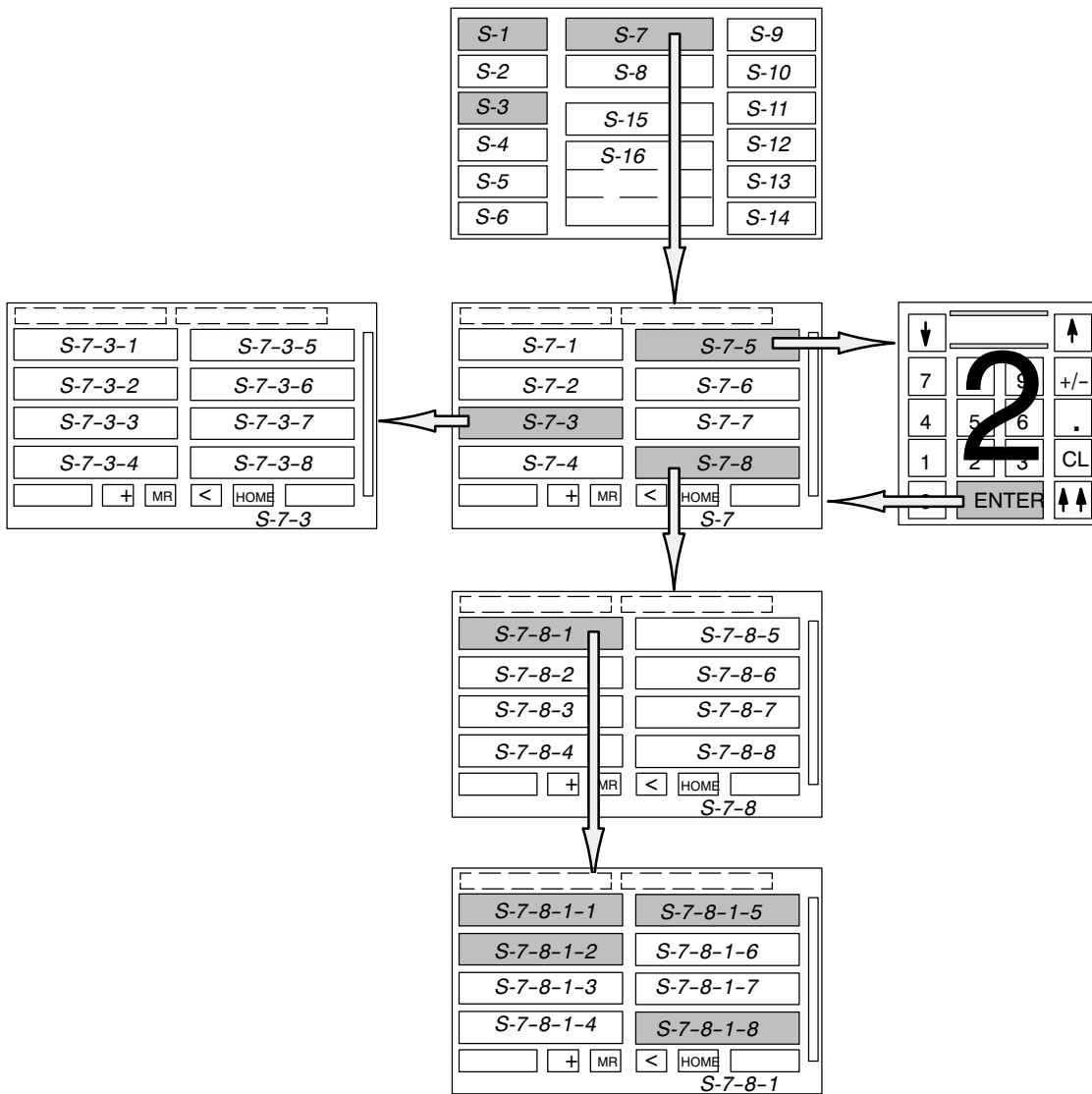
### Danger of cutting!

Touching the sharp, toothed cross-seam and/or perforation knife may cause serious injury.

Close the sealing jaws (3 and 4). The seams are sealed while the knife (1) cuts through the film tube. When the sealing jaws open, the cross seam must be able to carry the product. The sealing temperatures, the sealing pressure and the sealing time are interdependent and must be determined by trial and error. A shorter sealing time might be reached by, for instance, a higher sealing temperature.

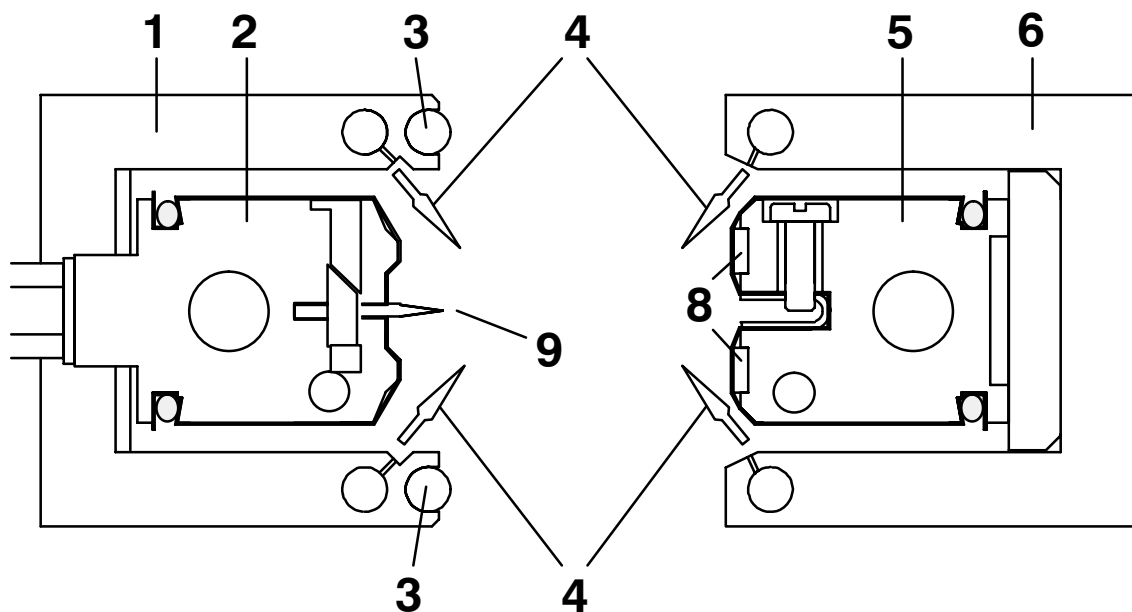
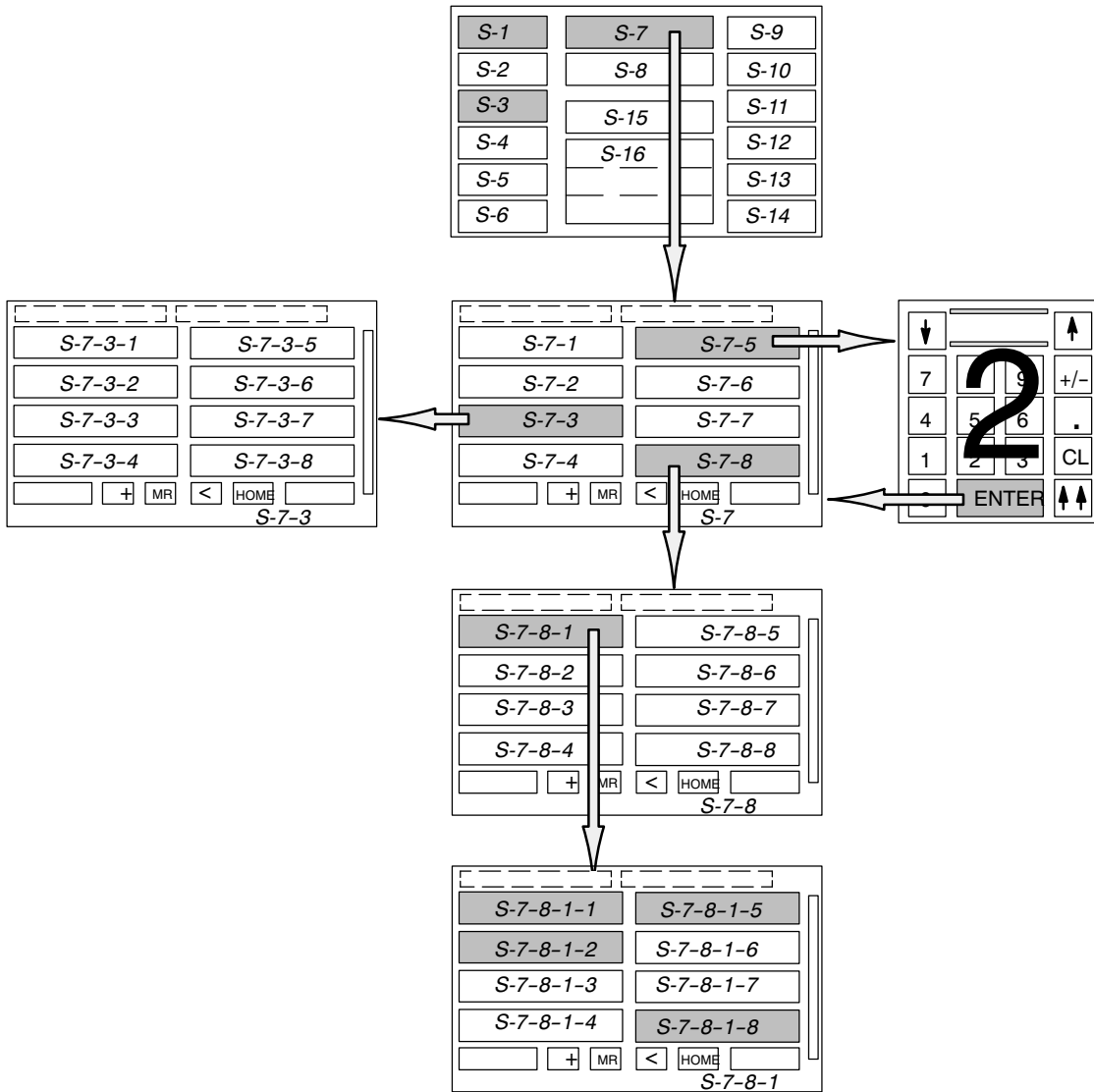
OPERATION	METHOD	REMARKS
Switch on the HS system	Switch off the function switch for PHS (if present) in S-3 or (level 2) S-7-8-1-2.	HS (heat seal) is activated.
Set temperature	View and/or select the zone concerned in S-1a or level 2 (S-7-8-1)-8a. Enter the temperature in the entry field.	If necessary, see 4.4.15. The maximum temperature depends on the film.
Set sealing time.	Enter in S-7-3 or level 2 (S-7-8-1)-1 or (S-7-8-1)-5 the time that is required to form the cross seals.	
Set sealing pressure	Set sealing pressure, see 6.20.1. Check and, if necessary, correct the position of the jaw holder (2). Produce bags and check the seams.	The pressure depends on the film.

*continued on next page*



**6.18 Set cross-seam heat seal (HS) (option)(continued)**

OPERATION	METHOD	REMARKS
Set knife (1) control	Set in level 2 (S-7-8-1)-5 the start delay in relation to the closing moment of the jaws and the operating time of the knife.	A negative value controls the knife earlier. A too early start can make the film tube slip out of the jaws.
Enter cooling time, if provided	Enter in level 2 (S-7-8-1)-5 the time that is required to cool off the cross seams sufficiently while the jaws remain open for a few mm.	If provided, see the option concerned in section 6.



## 6.19 Set cross-seam polyethylene (PE) (option)



### Danger of burns!

The cross-seam jaw(s) can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts.



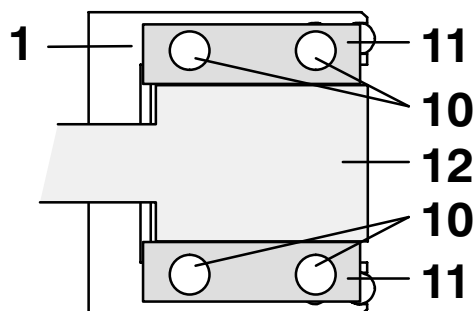
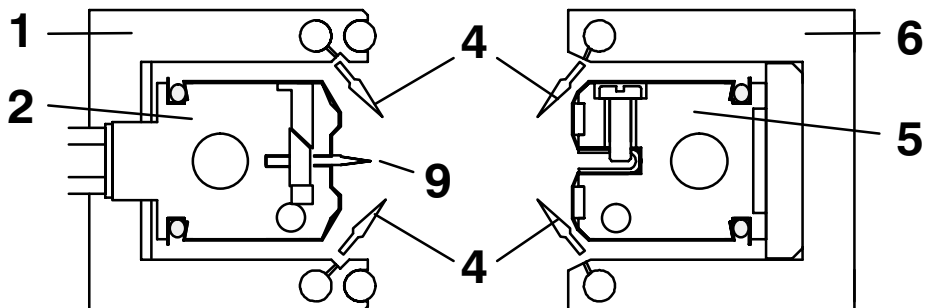
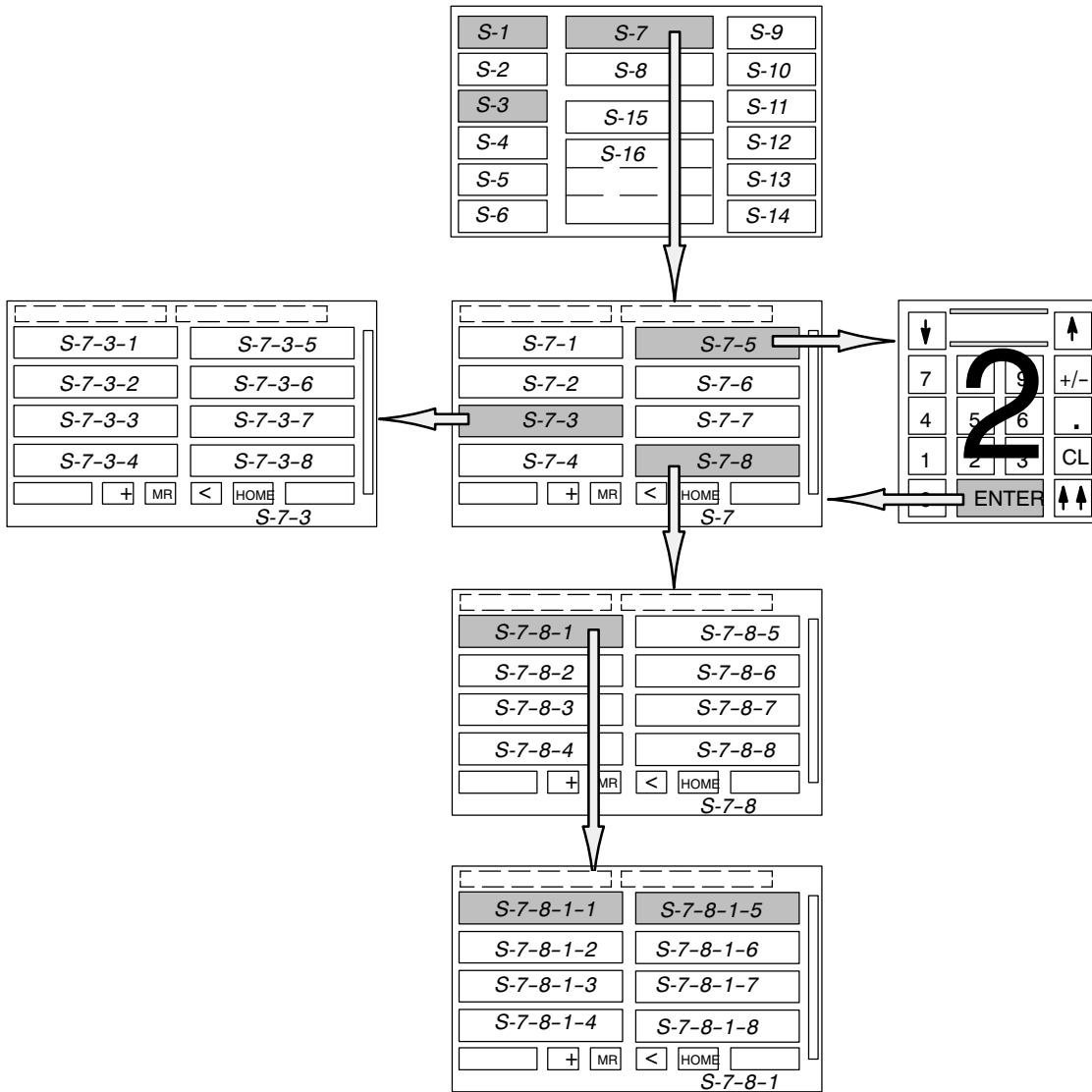
### Danger of cutting!

Touching the sharp, toothed cross-seam knife (and/or perforation knife) may cause serious injury.

The clamping jaws (1 and 6) close and clamp the film tube. Within the clamping jaws a welding jaw (2) is moving with a knife (9) towards a fixed counter-welding jaw (5) with silicon strips (8). The knife cuts through the film tube and subsequently the seams are welded. After welding the knife jaw (2) moves back and the seams are cooled off with air (4). When the sealing jaws open, the cross seam must be able to carry the product. The welding temperatures, the welding and cooling times, the splicing pressure and the cooling intensity are interdependent and must be determined by trial and error. A shorter welding time can be reached by, for instance, a higher welding temperature.

OPERATION	METHOD	REMARKS
Switch on the PE-system	Switch on the function switch for PE (PHS) and cooling (if present) in S-3 or (level 2) S-7-8-1-2.	HS (if present) is switched off.
Set temperature	View and/or select the zone concerned in S-1a or level 2 (S-7-8-1)-8a. Enter the temperature in the entry field. The maximum temperature depends on the film.	If necessary, see 4.4.15. The temperature of the counterjaw (5) is usually lower.
Check and place the cords (3)	Replace the cords if they are in a bad condition. Place the cords in such a way, that the air in the bag can escape through the openings between the cords.	Determine by trial and error.
Set clamping-jaw pressure	Check cords (3), see above. Set clamping-jaw pressure such that the film tube cannot slip out of the clamping jaws. Check and, if necessary, correct the position of the first clamping-jaw holder.	See 6.20.1. See 6.20.1.

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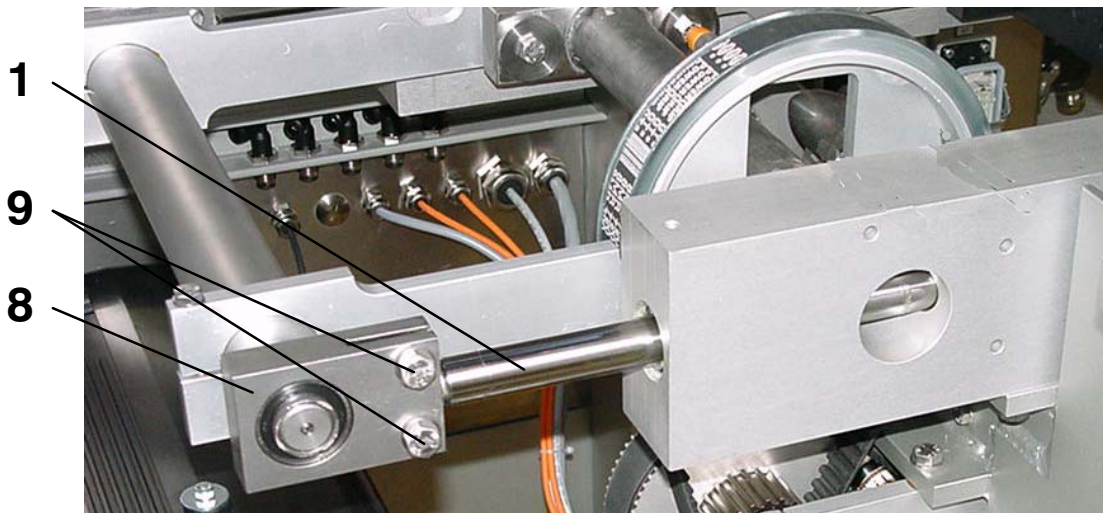
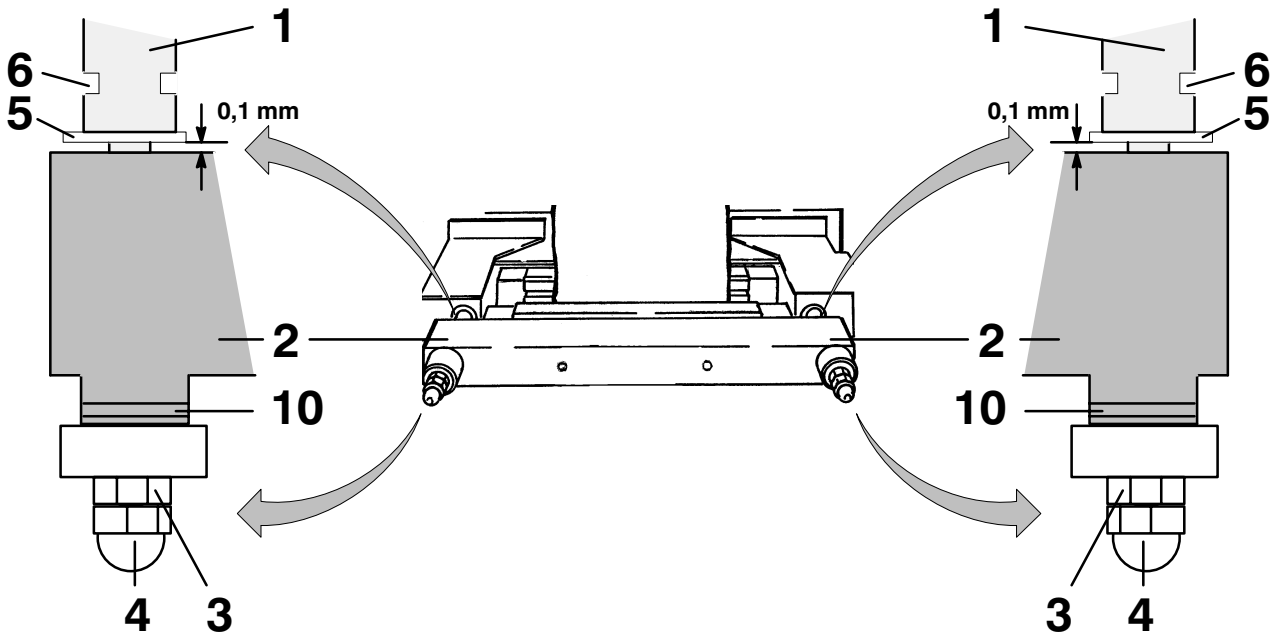




## 6.19 Set cross-seam polyethylene (PE) (option)(continued)

Attention: With the settings below take the reaction time of the pneumatic valves into account .

OPERATION	METHOD	REMARKS
Set the speed of the knife jaw (2)	Set the throttle valve(s) (if provided) on the knife-jaw cylinder(s).	The film may not be damaged.
Set the start of the knife jaw (2)	Set in level 2 (S-7-8-1)-5 the start delay of the knife jaw in relation to the closing moment of the clamping jaws. When the control is too early, the knife will cut poorly or the film tube is pressed against the counterjaw (5).	A negative value controls the knife jaw earlier. Note: The operating time of the knife is only active with heat seal.
Set welding time	Enter in S-7-3 or level 2 (S-7-8-1)-1 or (S-7-8-1)-5 the time that is required to form the cross seals.	
Enter cooling time	Enter in level 2 (S-7-8-1)-5 the time that is required to cool off the seams with cooling air (4) while the clamping jaws are closed.	When the clamping jaws open and the product starts pressing the seam, the seams must be cooled off sufficiently to be able to carry the weight of the product.
Enter extra cooling time	Enter in level 2 (S-7-8-1)-5 the extra time that cooling can take place with cooling air (4) while the clamping jaws open and the product does not yet press on the cross seam.	Correct if necessary.
Set cooling intensity	If provided, set the throttle valves concerned for the cooling air (4). Higher intensity (usually) results in more cooling.	Avoid noise.
Set the guides (11) of the knife jaw	Mount the jig (12) into the clamping jaw (1). Loosen the screws (10). Press the guides (11) against the jig (12) and tighten the screws (10). Repeat on the other side.	In the case of a faulty setting the knife (9) may damage the counterjaw (5).



## 6.20 Cross seam miscellaneous

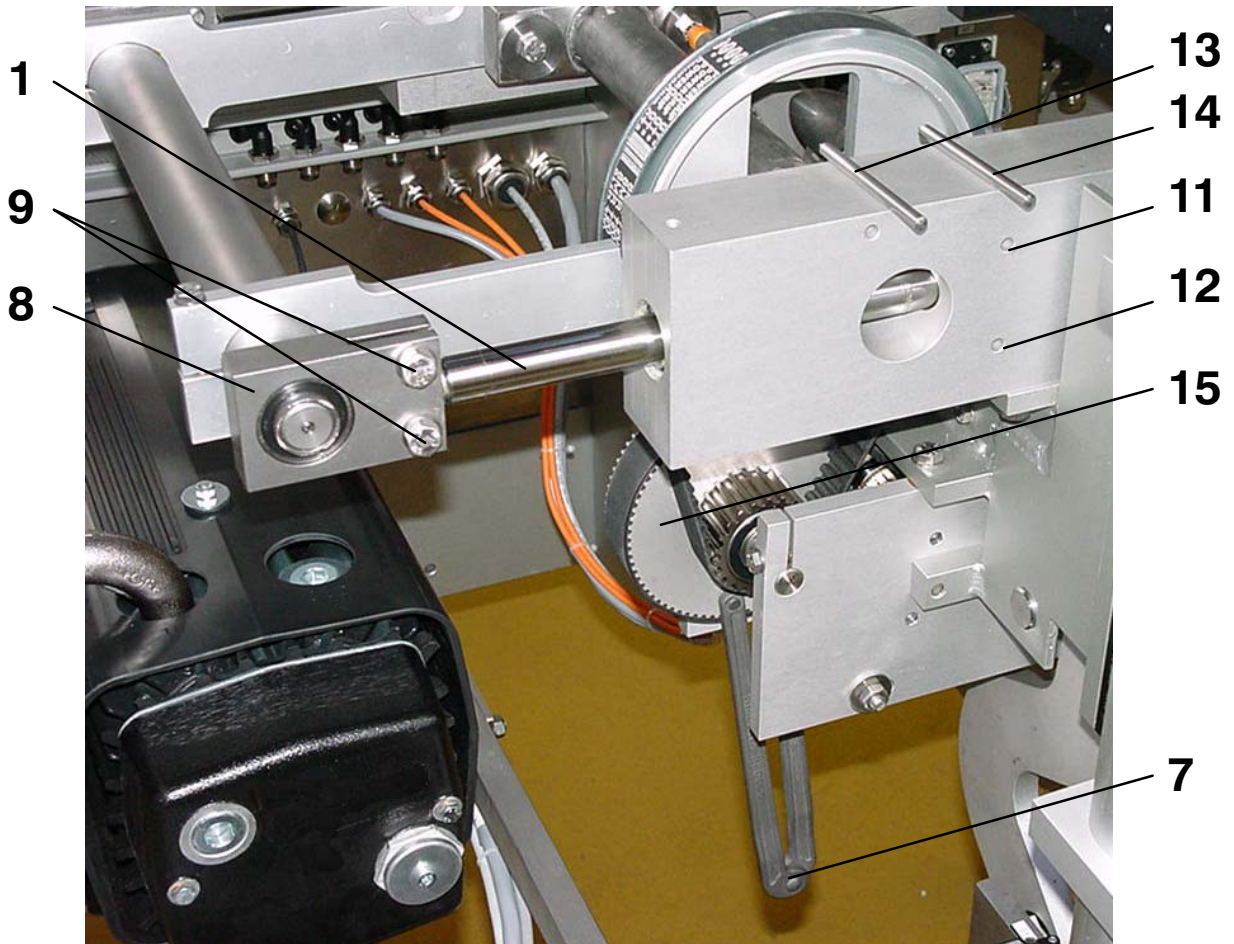
### 6.20.1 Set sealing pressure of cross-seam or PE-clamp jaw pressure

When the jaws close, the first jaw carrier (2) slides minimally back against the pressure of the two springs in the jaw carrier (2). The sealing pressure may be set with these springs.

METHOD	REMARKS
<p>Check and, if necessary, adjust the position of the jaw carrier (2). See below. Retain the nut (3) with a wrench in its position and loosen the nut (4). Damage of the bearing is prevented. Repeat on the other side.</p> <p>Increase or reduce pressure: turn the nuts (3) clockwise or anti-clockwise respectively. Retain the nut (3) with a wrench in its position and tighten the nut (4). Damage of the bearing is prevented. Repeat on the other side. Produce bags and check the seams. Check and, if necessary, adjust the position of the jaw carrier (2). See below.</p>	<p>HS: Pressure depends on the film. PE: The film may not slide out of the clamping jaws.</p> <p>The number of grooves (10) that remains visible is an indication for the pressure. The pressure must be equal at the left and at the right.</p> <p>The sealing pressure cannot be increased by changing the position of the jaw carrier (2).</p>

### 6.20.2 Check and set the position of the first jaw carrier

METHOD	REMARKS
<p>Close the jaws with the film tube, see next page. Measure the play using a feeler gauge between the jaw carrier (2) and the rings (5). The play must be about 0.1 mm and must be equal left and right. Can be felt by the rings (5). If necessary, correct the play by correcting the position of the jaw carrier (2), see below.</p> <p>Loosen screws (9) half a turn. Turn the shafts (1) with a wrench into position (6). Measure the play left and right and turn the shafts (1) until the required play has been reached. Tighten screws (9). Open jaws. If necessary, see the next page.</p>	<p>Required if:</p> <ul style="list-style-type: none"> <li>-the jaws jam hard onto each other or cannot build up the pressure or</li> <li>-in the case of a substantial change of the sealing pressure or</li> <li>-in case of a substantial difference in seam thickness with different bag forms.</li> </ul> <p>One rotation is 1.5 mm.</p> <p>The play must be equal at the left and at the right, otherwise the jaws do not close parallel.</p>



## 6.20 Cross seam miscellaneous

### 6.20.3 Manually place cross-seam jaws in the closed position

OPERATION	METHOD	REMARKS
Close cross-seam jaws	<p>Insert the pin (14) into the hole (12). Manually turn the pulley (15) until the jaws touch each other. Place the tool (7) into the holes of the pulley (15) and move forward until the driving rod lies on the pin (14). Insert the pin (13) into the hole (12) so that the jaws can no longer open.</p>	<p>The pins (13 and 14) are delivered.  The cross-seam jaws are closed.</p>
Open the cross-seam jaws	<p>Place the tool (7) into the holes of the pulley (15) and pull slightly upward. Pull the pin (13) out of the hole (11). Carefully move the tool downward until the jaws do no longer touch each other. Pull the pin (14) out of the hole (12).</p>	<p>Open the cross-seam jaws.</p>



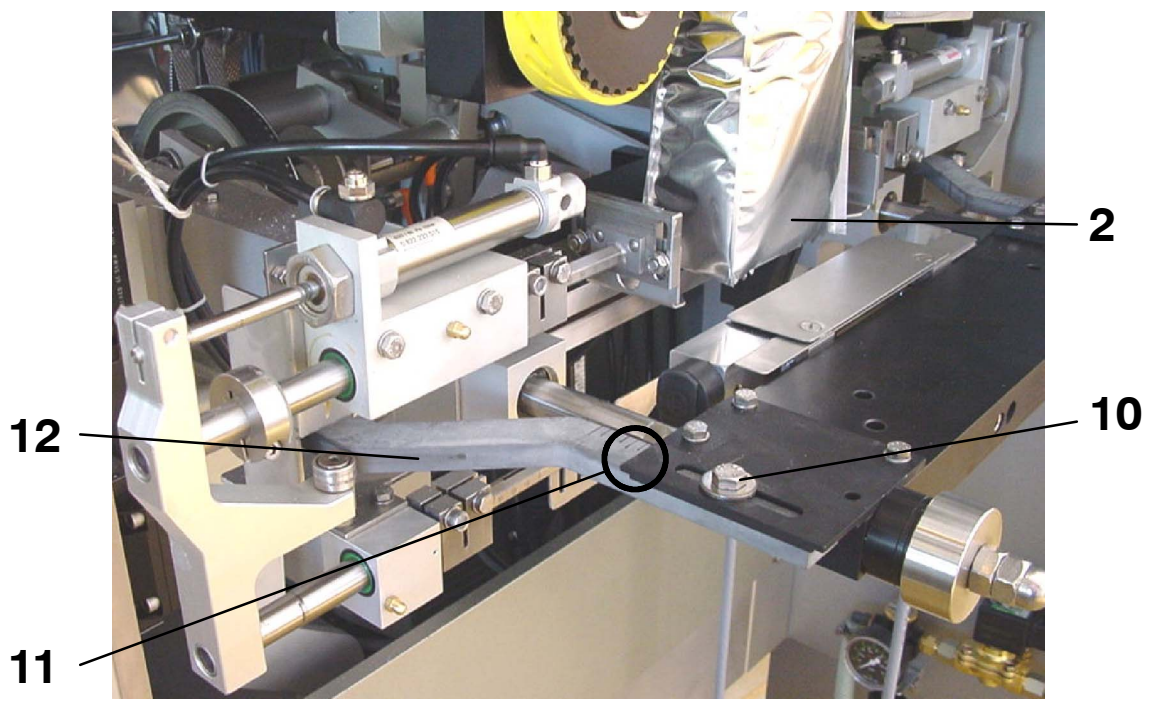
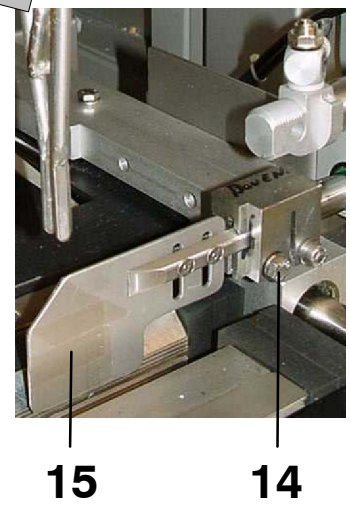
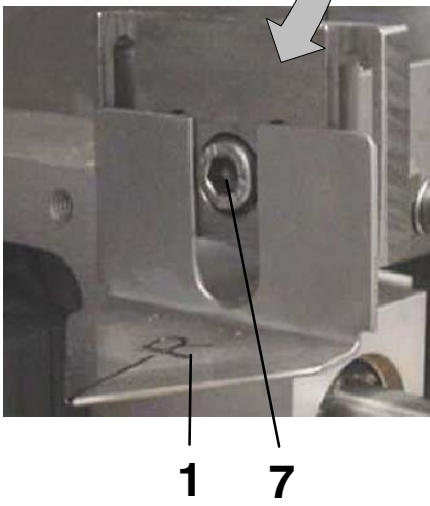
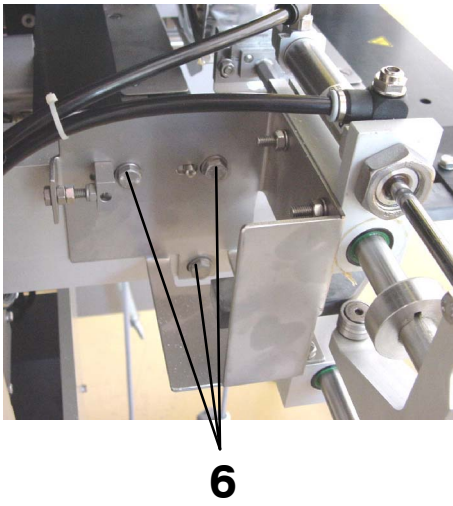
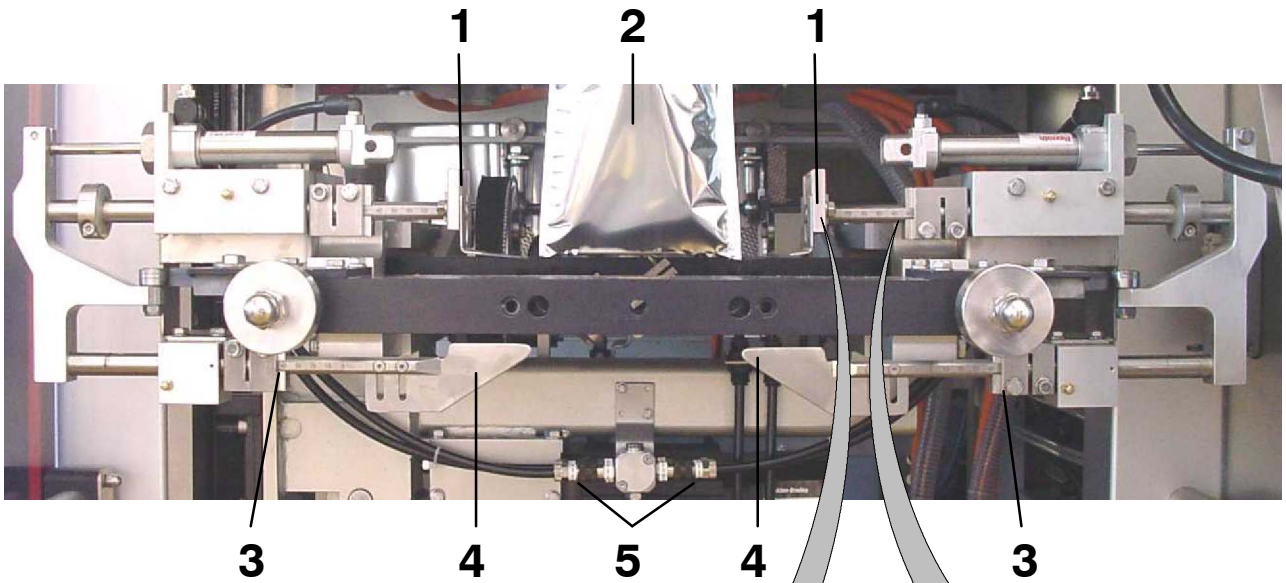
**6.20 Cross seam miscellaneous (continued)**

**Reserve**





**6.21 Set other option(s)**



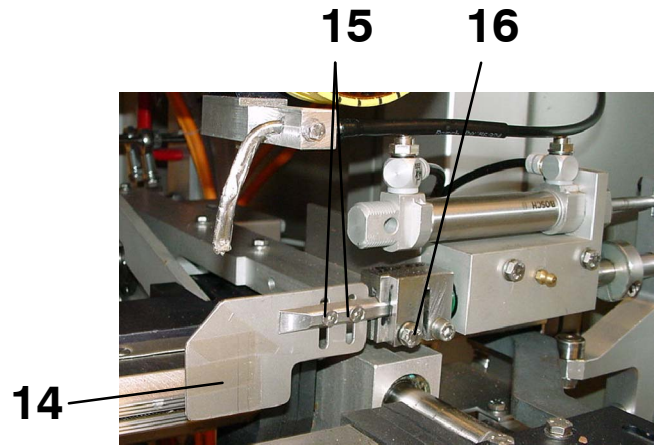
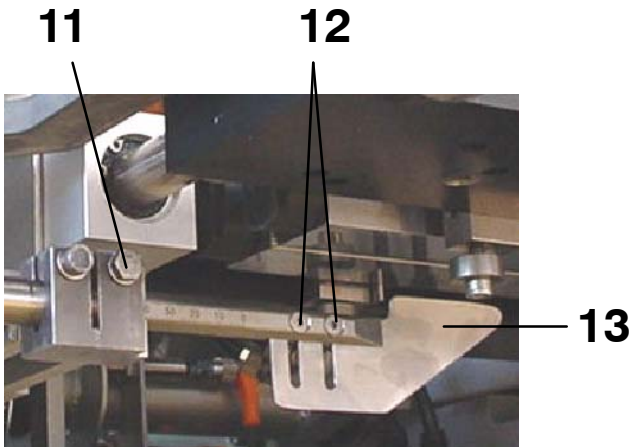
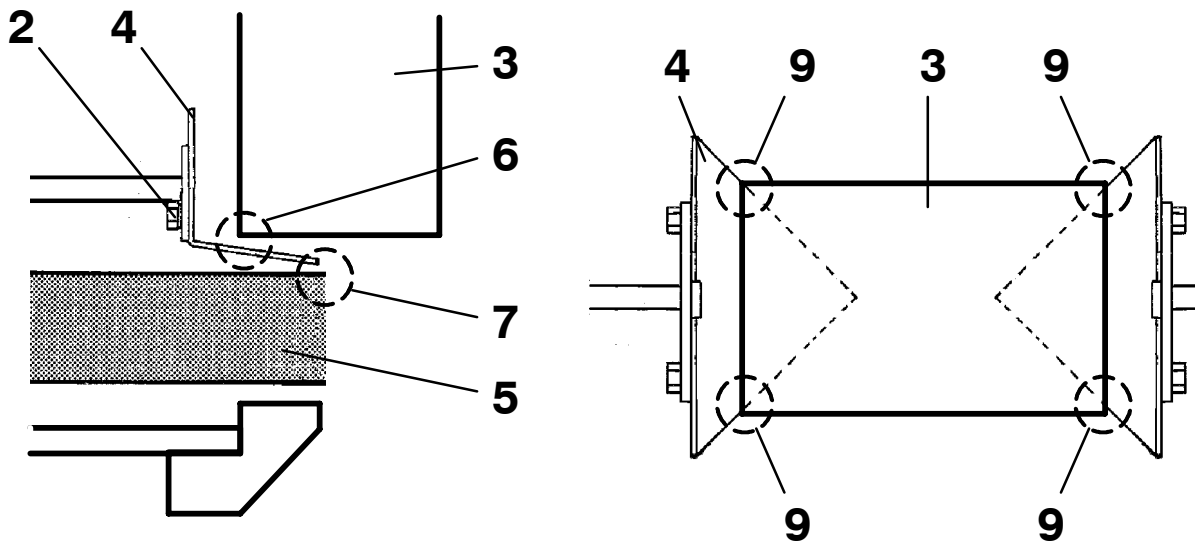
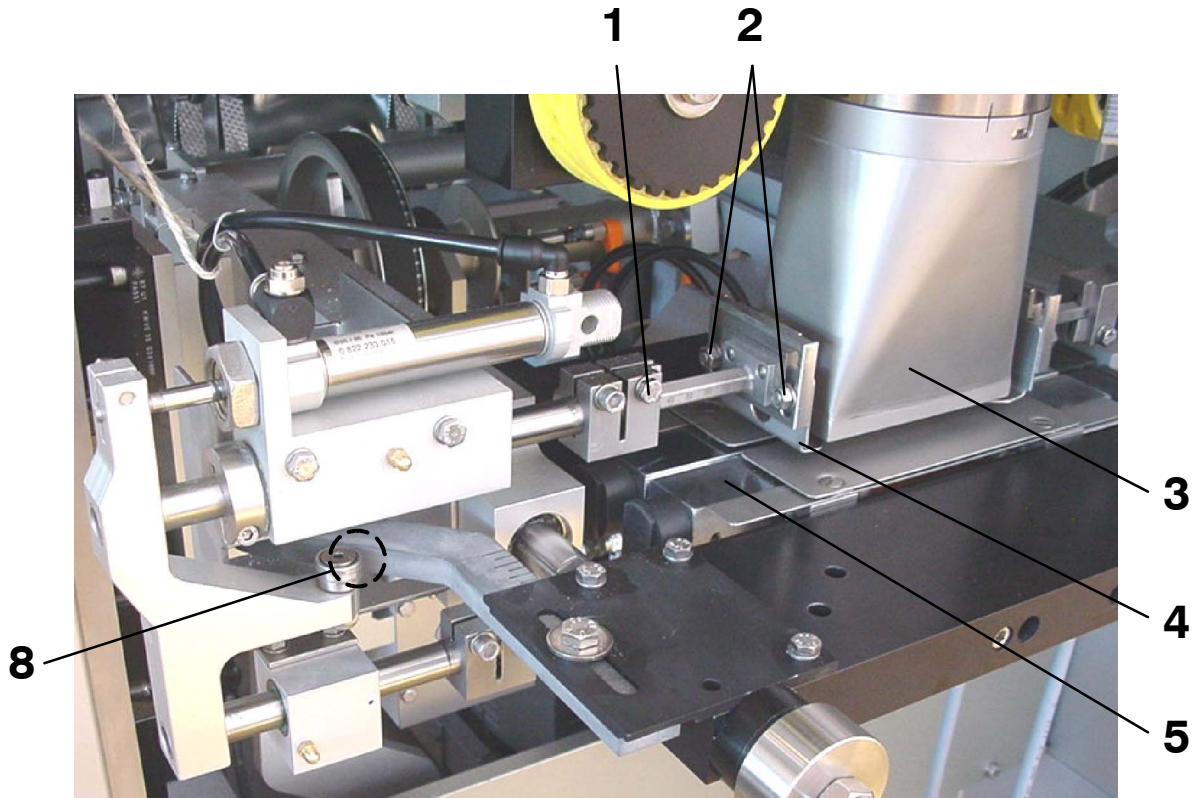
## 6.21 Gusseted/block-bottom bag device (option)

The two gusset blades (1) above the cross-seam jaws form the gussets in the bottom of a bag (2). The two gusset blades (4) below the cross-seam jaws form the gussets in the top seam of the filled bag. All gusset blades close synchronously with the cross seam jaws through two curves (12) and withdraw after closing the cross seam jaws.

Corner seal and Doypack bags: if necessary, see 3.2.2 and 3.2.3.

ACTION	METHOD	REMARKS
Preparatory activities	Set the machine to the selected recipe. Align the mouthpiece parallel with the jaws.	
If necessary, remove or install the gusseting device	Disconnect quick release couplings (5). Remove screws (6). Completely remove the gusseting device. Repeat on the other side.  Place in reverse order.	The pins determine the position.
Activate or deactivate function	Switch the appropriate key on or off in S-3 or level 2 (S-7-8-1)-2.	Depending on the form of the bag, see 6.2.
If necessary, replace upper blade (1).	Loosen screw (7) and mount blade (1). Block-bottom bag: the blade must be a bit broader than the depth of the mouthpiece. Corner seal bag: the blade width is equal to the depth of the mouthpiece. Repeat on the other side.	The pins determine the position.
for Doypack model	Loosen screw (14); mount vertical blade (15) with a shaft.	Only on the right-hand side.
If necessary, replace lower blade (4).	Loosen screw (3). Exchange blade (4). Repeat on the other side.	Only necessary for some bag forms.
Set the position of the curves (12).	Search the set bag depth in S-7-3 or level -2 (S-7-8-1)-1. If necessary, loosen the screw (10) and move the curve (12) until the value corresponds with the set bag depth. Repeat on the other side.	If required, see 4.4.11.

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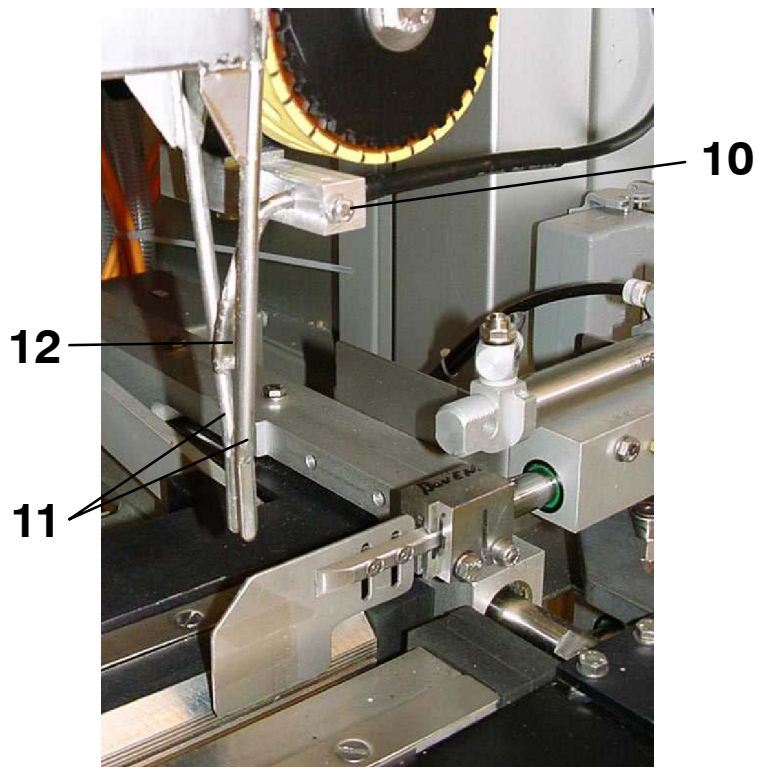
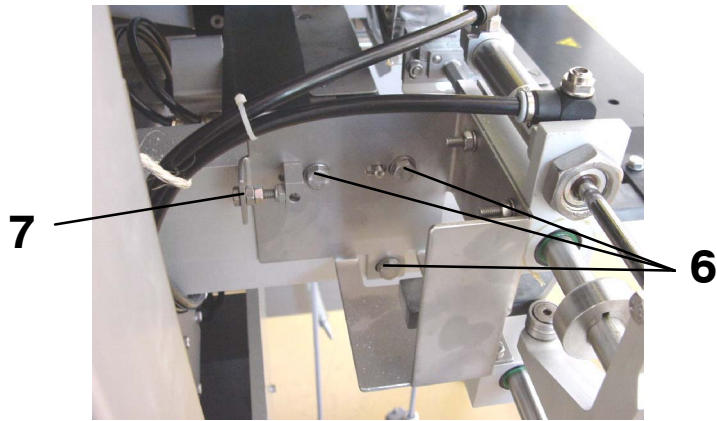
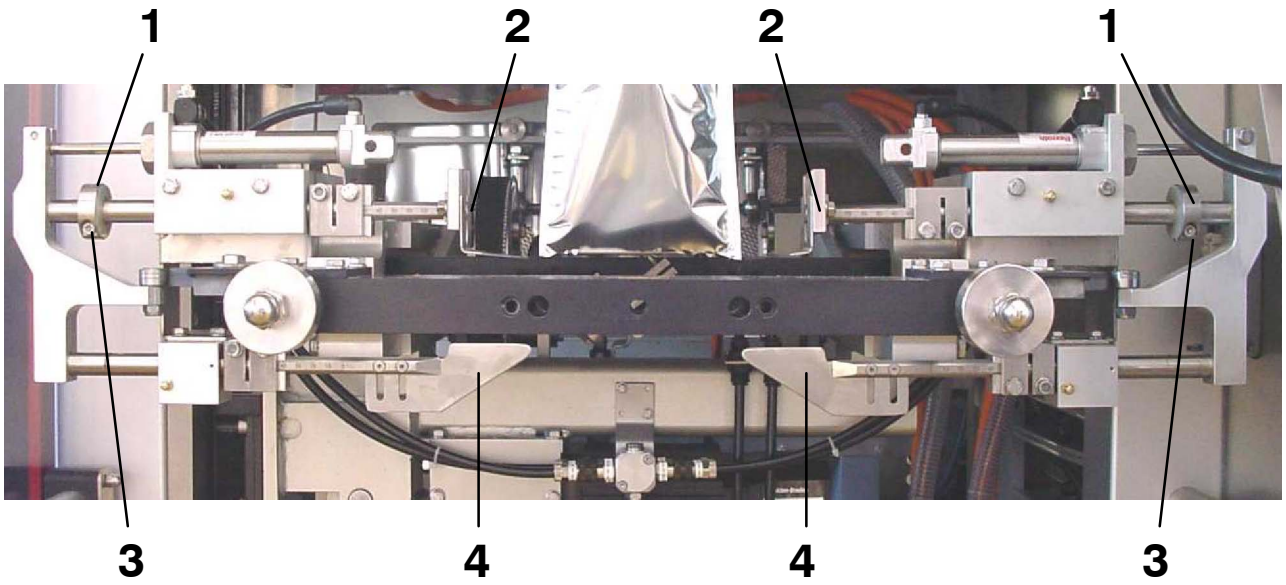


## 6.21 Gusset/block-bottom bag device (option) (continued)

The settings can be made easiest with closed cross seam jaws, the jaw housing in the top position and the compressed air switched off.

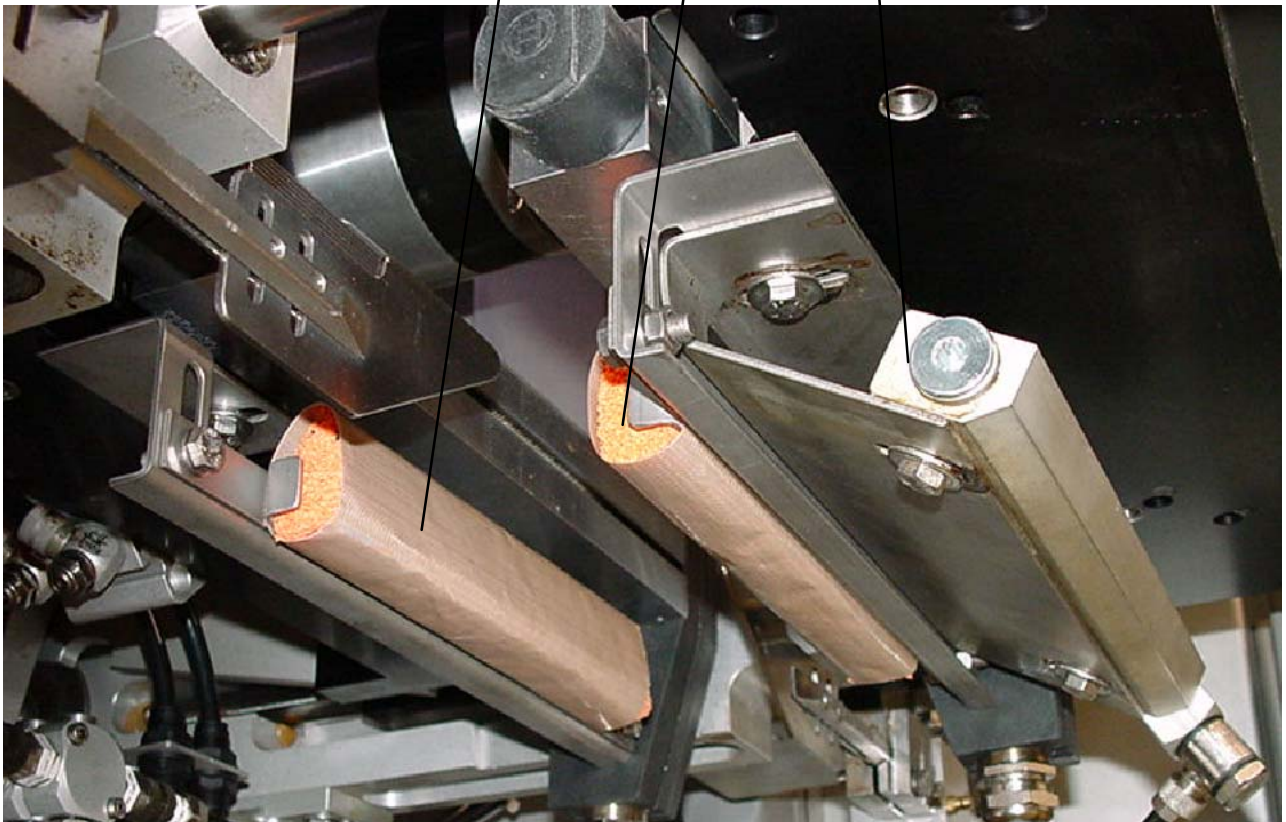
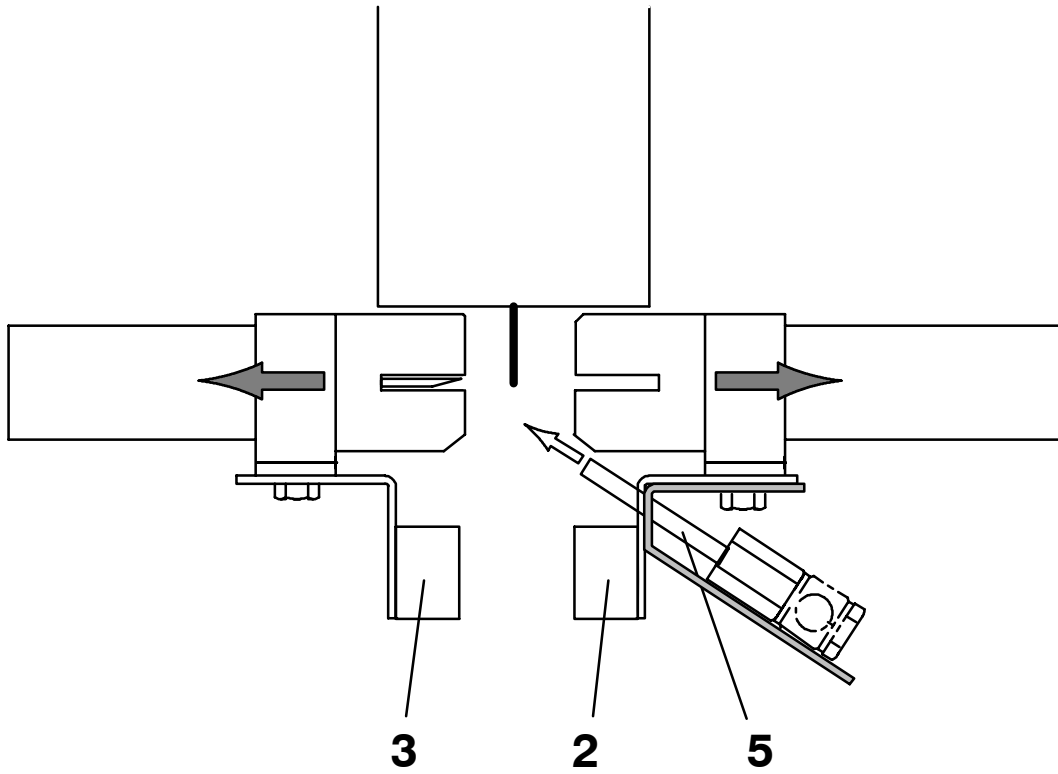
ACTION	METHOD	REMARKS
If necessary, set the height of the upper blade (4) in relation to the jaws.	Loosen screws (2). Set the distance between the blade (4) and the jaws (5) to about 2 mm, see position (7). Hold the blade (4) in the horizontal position and tighten the screws (2). Repeat on the other side.	The distance is dependent on the film.
Set the upper gusset depth	Doypack: Unscrew the screws (15), set the distance between the blade (14) and the jaws to about 4 mm and tighten the screws (15).  Lock the jaw housing in the highest position. Close the jaws and push the bearing against the curves. Loosen screw (1). Move blade (4) until it is in one line with the outside edge of the mouthpiece (3). If necessary, adjust the highest position of the jaw housing until the gap between the mouthpiece (3) and the blade (4) is about 2 mm, see position (6). Tighten screw (1). Repeat on the other side. Take the jaw housing out of the highest position.	The distance is dependent on the film.  See 6.7.1. See position (8).  See position (9).  See 6.7.1. The distance is dependent on the film.  See 6.7.1.
for Doypack model	Unscrew screw (16); move the vertical blade (14) unto the required gusset depth.	The film rolls up when the insert is too deep.
If necessary, set the height of the blade (13)	Loosen screws (12). Set the distance between the blade (13) and the jaws to about 2 mm. Hold the blade (13) and tighten the screws (12). Repeat on the other side.	The distance is dependent on the film.
Set the bottom gusset depth	First set the upper gusset depth. Loosen screw (11). Move blade (13) until the front side of the bottom blade (13) is in one line with the front side of the upper blade (4). Tighten screw (11). Repeat on the other side.	

*continued on next page*



## 6.21 Gusset/block bottom bag device (option) (continued)

ACTION	METHOD	REMARKS
Set stop (1) when the film is damaged around the blade (2)	Loosen screw (3). Place the stop (1) such, that the last part of the forward movement of the blade stops before the cross seam jaws are closed. Tighten screw (3). Repeat on the other side	The quality of the formed gusset can be improved.
Align the upper blade (2) with the centre line of the jaws.	Loosen screws (6). Unscrew screw (7) until blade (2) corresponds with the centre line of the closed jaws. Tighten screws (6). Repeat on the other side	The bottom blades (4) move along.
Set the forming tube	The centre of the forming tube must be aligned with the closed cross-seam jaws.	See 7.10.4.
Doypack: Set the folding tube (12)	Align the folding tube (12) with the setting block (10) on the centre line of the jaws. Place the folding tube (12) between spreader fingers (11) until the folding is deep enough without the film rolling up.	The left corner seal must run exactly across the left spreader finger.
Doypack: Set the compressed air on the folding tube (12)	Set the amount of compressed air with a throttle valve so that the friction on the folding tube decreases and the friction of the film tube on the spreader fingers does not get too high.	

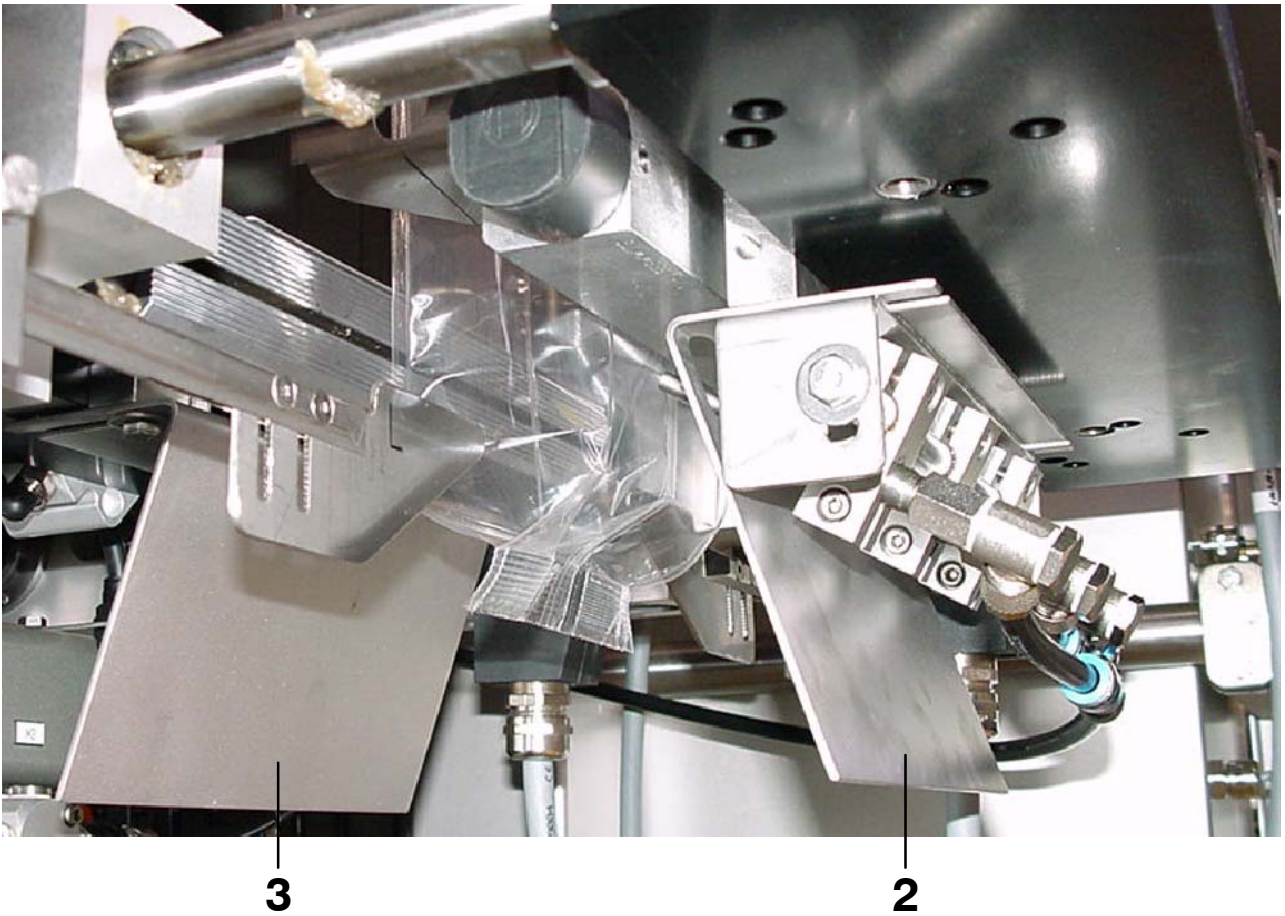
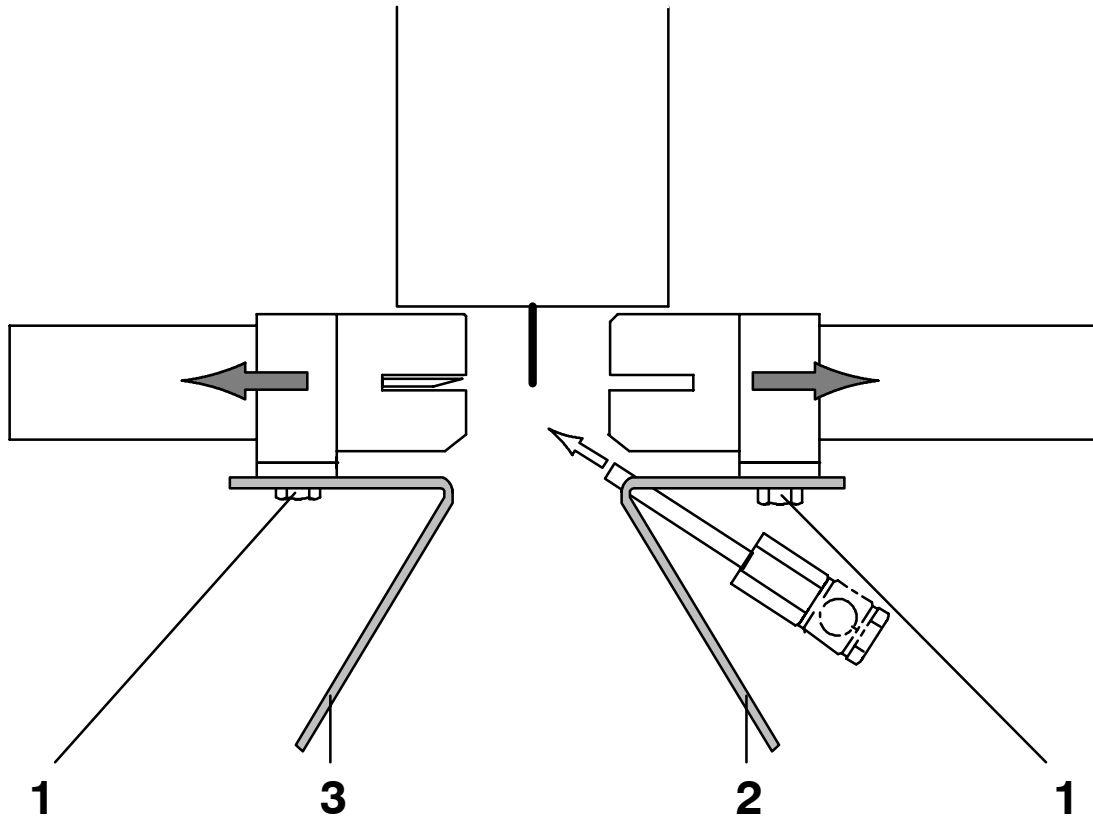




## 6.21 Bottom-seam folding (option)

While the cross-seam jaws open, the bottom seam is folded and cooled by air from one or more nozzles (5).

OPERATION	METHOD	REMARKS
Setting the fold direction	Move the air nozzle(s) (5), along with the air expeller (if present), to the other side. Adapt the pneumatic connections.	Depends on the model delivered.
Adjust the air expellers (2 and 3)	See relevant option in 6.21.	
Switching a function on or off	Switching the appropriate key in S-3 or level 2 (S-7-8-1)-2 on or off.	
Setting the end of the function	Adjust the delay time in level 2 (S-7-8-1)-5 so that the blast air can reach the seam when the jaws are sufficiently opened.  Adjust duration in level 2 (S7-8-1)-5 towards the maximum until the blast air can not fold the bottom seam further.	Delay time begins when the jaws start to open.



## 6.21 Air expellers (option)

Air expellers (2 and 3) will drive all air present inside the bag out while the cross-seam jaws are closing.

OPERATION	METHOD	REMARKS
Less air inside the bags	Loosen screws (1). Repeat on other side. Move the air expellers (2 and 3) closer to each other and to equal distances from the sealing surface of the jaws. Tighten screws (1). Repeat on the other side.	Depends on the shape of the bags and the product.  The product may not be pushed up between the closing jaws.
More air inside the bags	Loosen screws (1). Repeat on the other side. Move the air expellers (2 and 3) further away from each other and to equal distances from the sealing surface of the jaws. Tighten screws (1). Repeat on the other side.	Depends on the shape of the bags and the product.
Installing and removing the air expellers (2 and 3).	Remove screws (1). Completely remove the air expeller. Repeat on the other side. Mount in the reverse order.	



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## 7.1 For your safety (see also section 1, 'Safety measures')



**You are responsible!**  
**Observe the 'safety measures'**

### Personal conditions

#### Who is allowed to carry out maintenance activities on the machine?

- Persons who are authorised to do so on the basis of their education and qualification
- Persons who have been ordered to do so by the owner

**Instruction!**

Activities on the electrical installation may only be carried out by an electrician or by personnel trained for this under the supervision of an electrician according to the electrotechnical regulations.

**Instruction!**

Activities on compressed-air systems may only be carried out by trained personnel with special knowledge and experience in this area.

### Measures prior to maintenance activities

- Switch off the machine following this manual and protect it against switching on unexpectedly
- Close down the main operating elements and remove the key from the lock and/or place a warning plate on the main switch
- Amply close off the area in which the repairs are carried out
- Inform the operators and appoint supervisors

### Measures before switching on again the machine after having carried out maintenance activities

- Check the safety measures
- Check whether the doors of the control cabinets and cabinets containing equipment are closed.

## 7.2 Maintenance instructions

**Attention!**

Dirt and poor maintenance shorten the life of the machine.  
Maintain the machine regularly and in accordance with the instructions and always keep the working area clean.

- Observe the in the manual dictated setting-, maintenance- and inspection activities and -intervals, including the data with respect to replacement of parts
- Stick to the procedure for switching the machine on- and off described in this manual
- In order to be able to carry out the maintenance activities good workshop equipment is absolutely required
- Instruct the personnel on where to find the fire extinguishers and how to operate these
- Keep the possibilities for fire alarm and fire fighting
- Before carrying out maintenance and repair activities, make the machine and particularly connections and couplings free from oil, fuel and cleaning agents
- Do not use any corrosive cleaning agents

### Storage/processing of batteries/storage batteries, lubricants and harmful substances

**Protect the environment!**

Harmful substances that cannot be reused, such as lubricants or batteries, should not be disposed of on the refuse dump or in the sewer system.

Hand substances that cannot be used over to the disposal depot intended for this.

First discharge oil and all substances harmful to water before dismantling parts for reuse or processing into scrap.

**Attention!**

Observe the legal stipulations and environmental regulations!

### 7.3 Directions for cleaning



#### Risk of injury!

While the machine is running, there is a larger chance of accidents through moving masses and rotating or hot parts.

While the machine is running no activities may be carried out on moving parts of packaging - and auxiliary packaging machines.

#### Working regulations

Pos.	Measure
1	Clean and disinfect the machine according to the company cleaning plan.
2	Only use suction air for cleaning. When using blowing air there is a risk of dirt particles entering sensitive parts, such as bearings, bushes or electrical parts and so cause damage.
3	Cleaning the machine with a high-pressure cleaner is forbidden! Before cleaning the machine with water, cover all openings through which no water may enter (in particular electromotors and switch boxes).
4	After cleaning check all fuel-, motor oil- and hydraulic-liquid pipes for leaks, loose connections, abrasions and damages! Immediately remedy detected failures and defects!
5	Incompetent cleaning may be dangerous to health. Check whether the cleaning agents can be used without constituting a danger to personnel and machine. Observe the instructions from the manufacturer!
6	Using solvating agents is forbidden!
7	For normal contamination: Normally available non-flammable cleaning agents.

#### Composition of the cleaning agents



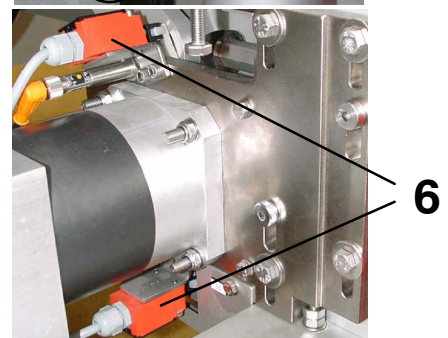
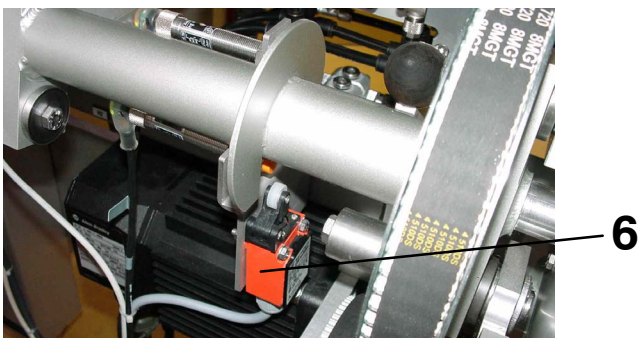
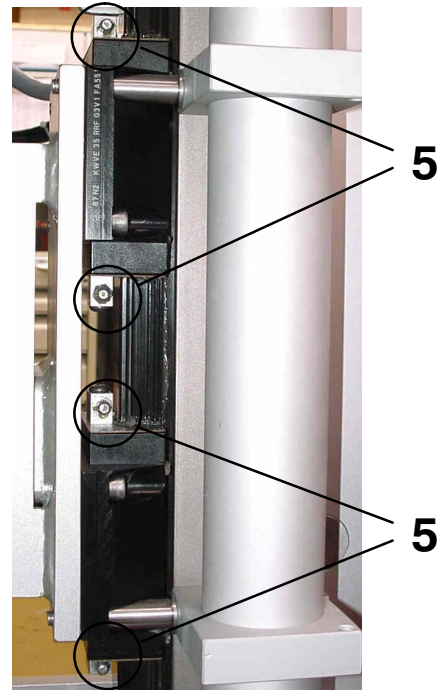
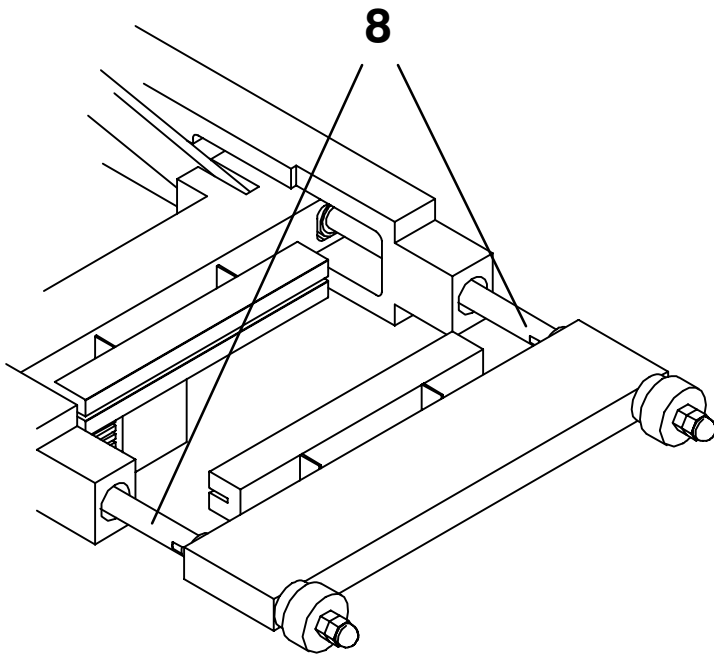
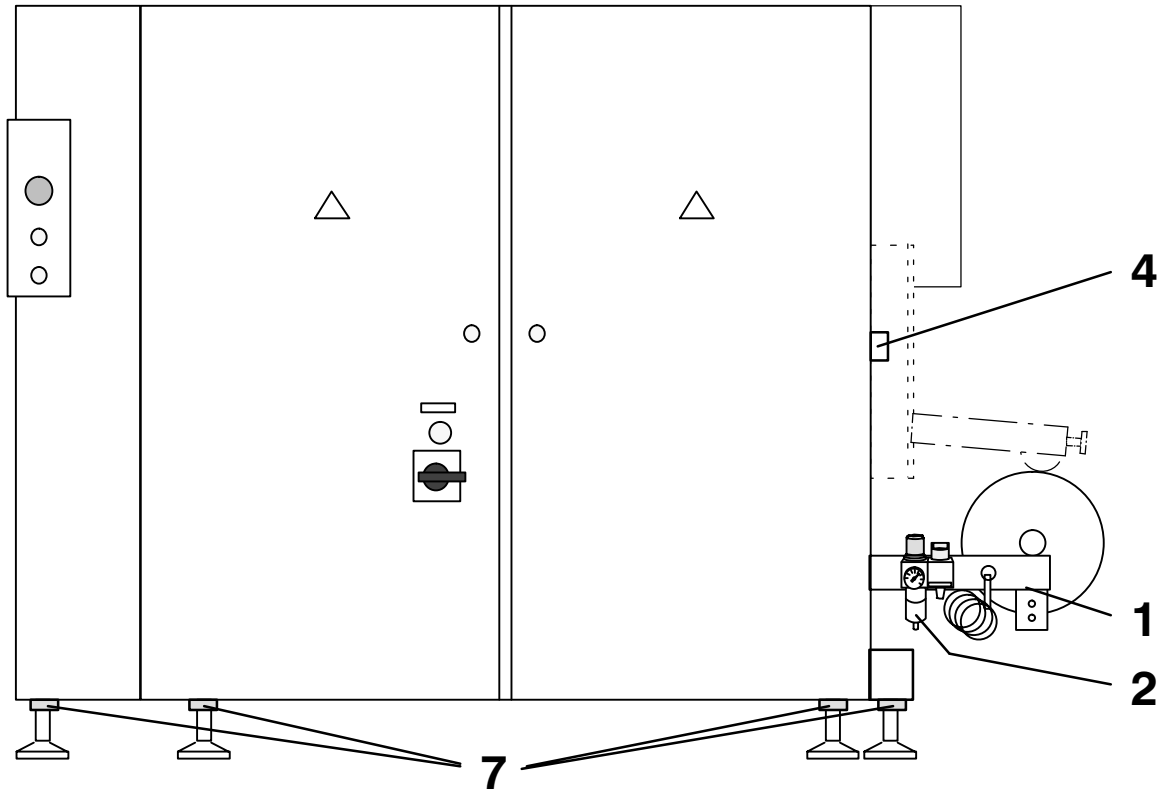
#### Damage caused by cleaning agents!

Do not use any corrosive or aggressive cleaning- agents and disinfectants.

Only use cleaning- agents or disinfectants that have proven in the past that they do not damage the machine.

New agents must be tested before use.

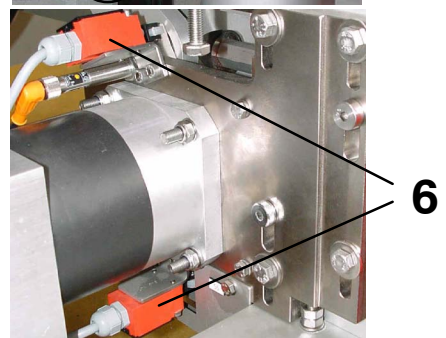
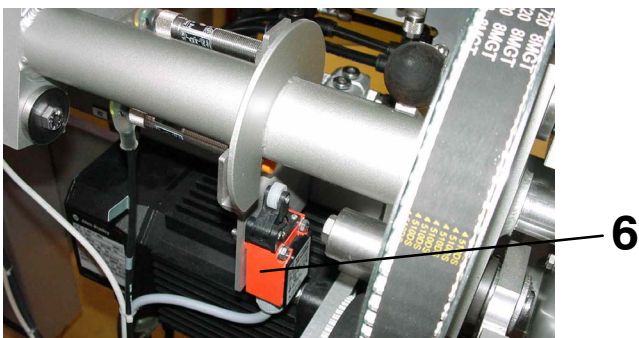
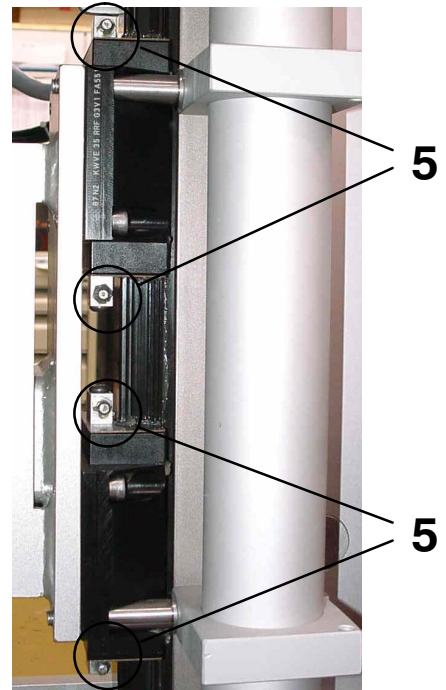
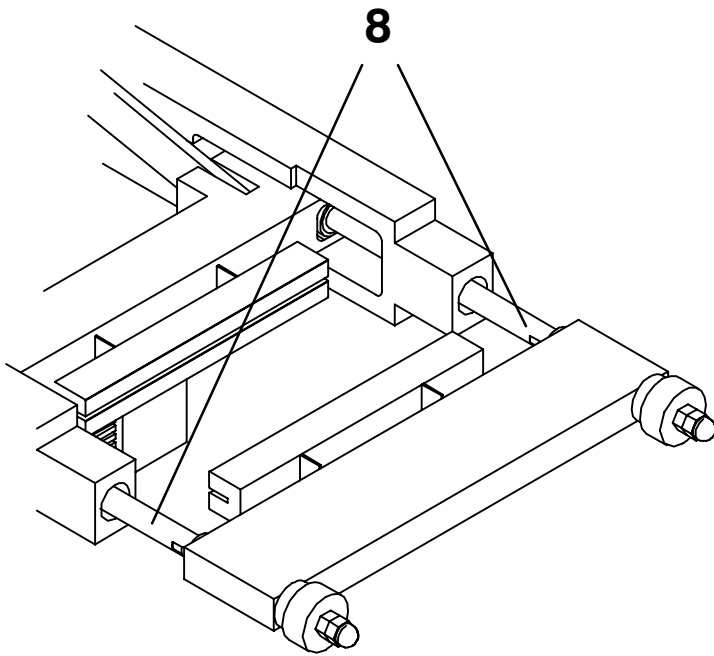
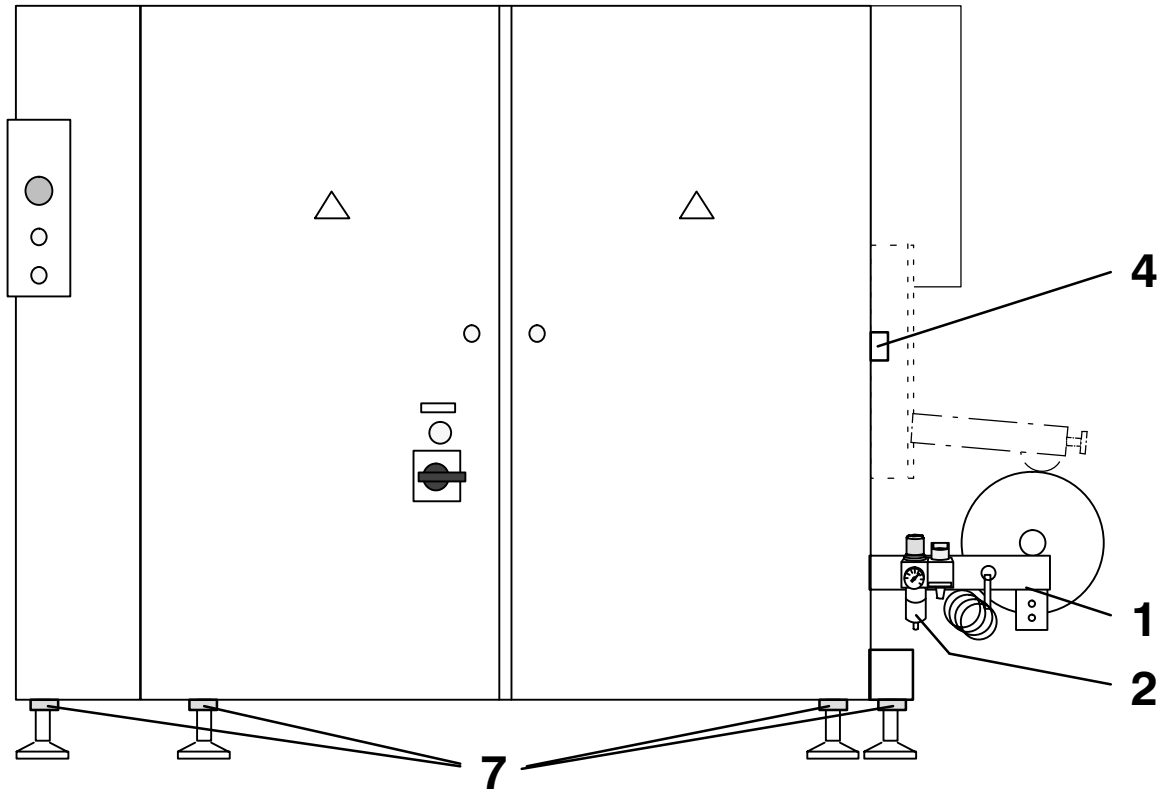
In case of doubt, contact our customer service and give the name of the agents as well as the chemical composition.



## 7.4 Maintenance schedule (1-shift service)

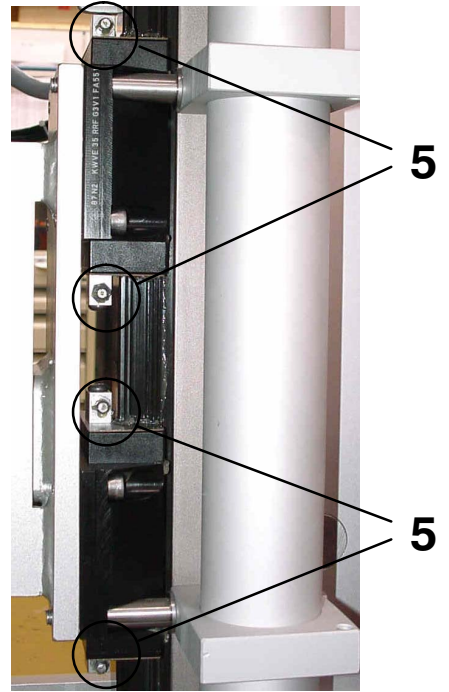
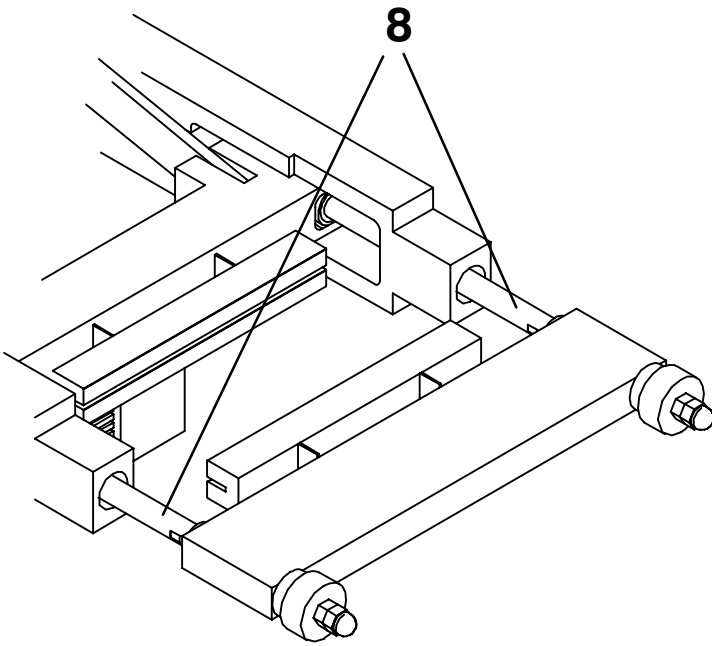
INTERVAL	PART	TASK
Daily	Vacuum pump. See 4.11 etc.	See 8.1.
Weekly	Cross-seam knife	Check cutting function. Replace if necessary. See 7.13 or 7.14.
	Pipes and connections	Check for leaks and safety. Replace if necessary.
	Electrical components and cables	Check for leaks and safety. Replace if necessary.
	All adjusting points, threads, hinges, shafts, bearing faces, etc.	Clean.
	Forming tube	Check condition of Teflon strip and underlay strip. Replace if necessary. See 7.10.
	Long-seam jaw	Check condition of Teflon strip. Replace if necessary. See 6.13.
	Corner seal jaws and anvil	Check the condition of the Teflon and the silicone. Replace if necessary. See 6.5.2.
Monthly	Compressed-air moisture exuder (2)	Check for empty reservoir, see 7.6.1.
	Film-web rollers	Check friction arm for rotation. Set the centres if the play is too large or too small. Replace film-web rollers if necessary.
	Guiding shafts (8) of the cross-seam jaws	Clean. Check for leaks and safety. Spray oil or apply with brush.

*continued on next page*



## 7.4 Maintenance schedule (1-shift service) (continued)

INTERVAL	PART	TASK
3-Monthly	Pneumatic components	Check for functioning and pressure setting. If necessary, set the movements of the cylinders, see 7.6.
	The adjusting feet of the machine	Check the locking (7).
	The draw-off belt system	Check for damage and wear. Replace if necessary. See 7.9.2.
	Limit switch(es) (6) of the movement of the cross-seam jaws and the cross-seam jaw housing	Check for damage of the switches and the cam rollers.
	Check belt tensions of the drive of the cross-seam jaws	Check belt tensions, see 7.15.1. Set if necessary.
	Vertical guiding of the cross-seam jaw housing	Clean. Lubricate the nipples (5) with the grease gun.
6-Monthly	All adjustment points, threads, hinges, shafts, bearing faces, etc.	Lubricate if necessary.
	Brake (1) of the film-reel shaft	Check the brake plug. Replace if necessary. The brake plug must lift an empty film-reel shaft about 1 mm. If necessary vertically move the entire brake holder. Motor-driven film unwinding (option): the brake plug only has to push against the shaft without lifting it upwards.
Annually	Outside surfaces/coatings	Clean and repair damage to the surface.
	Rubber of the film clamp (4)	Replace.





## 7.5 Lubrication

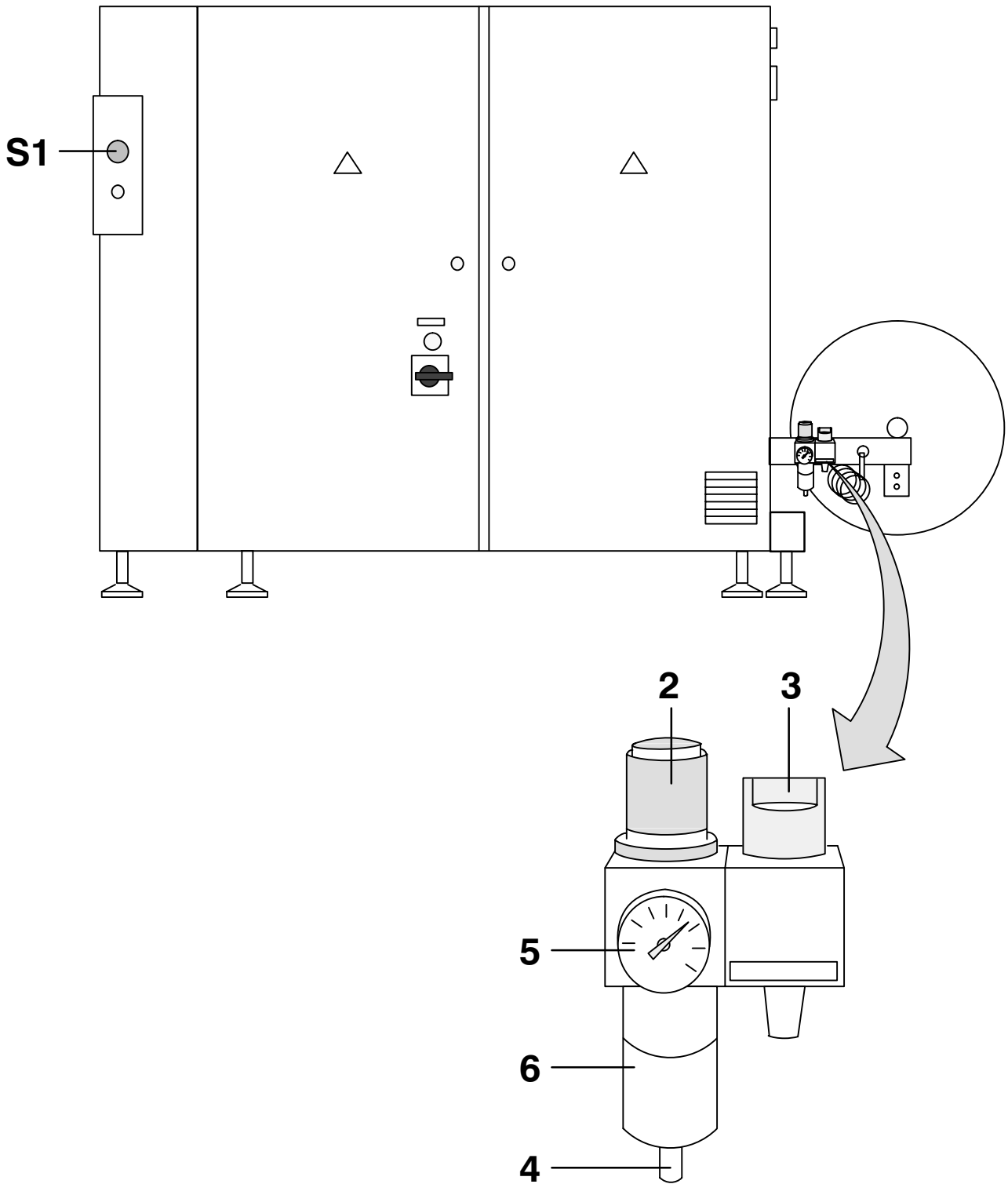
### Lubrication schedule (1-shift service)

Only provide those components that are to be lubricated with lubricants. Remove dirt and old lubricant before applying new lubricant. After application remove surplus lubricant with a clean cloth. This prevents the forming of possible contamination.

Lubricating point	Method	Interval	Lubricant	Remarks
Guiding shafts (8) cross-seam jaws	Spray or apply with brush	Monthly or when required	Oil A	Let the machine run for a short time. Wipe the shafts dry.
All setting points, threads, hinges, etc.	Spray or apply with brush	Every three months or when required	Oil A	To guarantee free movement
Lubricating nipples (5) of the vertical guide	Grease gun	Every three months or when required	Grease	Do not grease excessively.

### Lubricants table

REFERENCE	SUITABLE OIL AND GREASE TYPES			
	SHELL	BP	ESSO	MOBIL
Oil A	Good quality			
Grease	Alvania EP Grease 2	Energrease LS-EP 2	Beacon EP 2	Mobilux EP 2



## 7.6 Pneumatic system



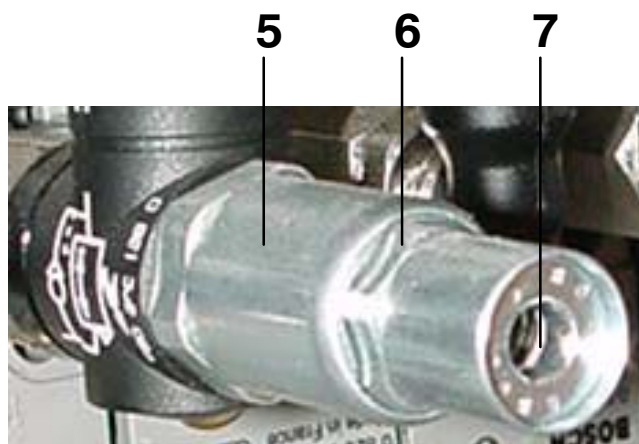
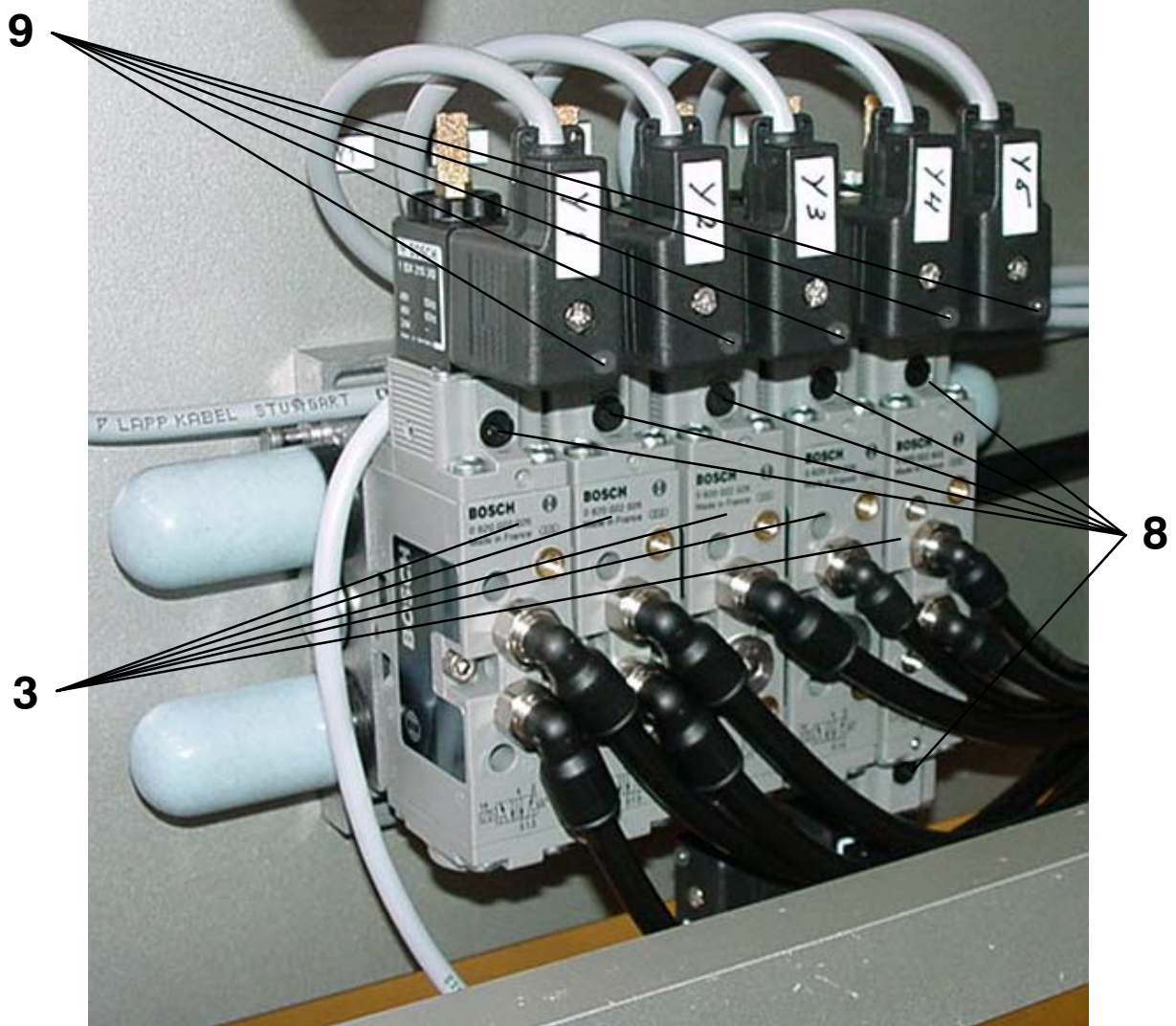
### Risk of injury!

Activities on compressed-air systems may only be carried out by trained personnel with special knowledge and experience in this area.

Prior to replacing pneumatic parts close down the compressed air supply.

### 7.6.1 Air-conditioning unit

OPERATION	METHOD	REMARKS
Activate compressed air or switch off	Turn valve (3) in direction of flow (clockwise), see position shown.  Turn valve (3) cross in relation to the direction of flow (counter-clockwise).  Option: main shut-off valve (1).	Attention: always turn the valve (3) fully into the end positions. Do not let it stand in an intermediate position.  The pneumatic system is vented.  The compressed air is switched off when the Emergency-Off button (S1) is pressed.
Set the compressed air pressure	Read manometer (5). Pull setting knob (2) up out of the locking and turn until the manometer reads "5". Lock setting knob (2) by pushing it down.	With machine standing still.
Drain reservoir (6)	Is automatically drained or when the compressed air is switched off.	Manual draining is possible by turning the screw (4) counter-clockwise.
Clean reservoir (6) and sintering-bronze filter cartridge	Switch off compressed air. Loosen reservoir (6). Dismount filter cartridge. Clean the cartridge exclusively with paraffin, water or dry-cleaning naphtha. Replace filter cartridge when heavily contaminated. Blow dry from the inside to the outside. Mount in reverse order. Switch on compressed air.	See manual in section 8.  Do not use agents containing trichloroethylene, such as benzene, acetone and other liquids with softeners.



## 7.6 Pneumatic system

### 7.6.2 Solenoid valves

An overview of the built-in solenoid valves (3), their functions, positions and control number are delivered.

Valves can (as required) be mounted with or without regulator (5) for regulating the air-cylinder speeds, pressure or amount.

The solenoid valves have LED indications (9) that light up while controlling the valve but do not indicate whether the function is carried out.



#### Risk of injury!

By manually switching a solenoid valve an unexpected movement of, for example, a cylinder may lead to injuries. Nobody may be near this movement.

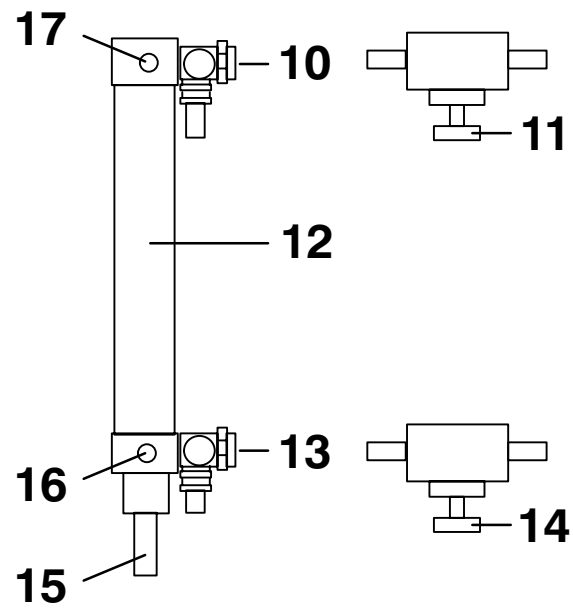
For service activities a solenoid valve may be manually operated with knob (8).

### 7.6.3 Set the pressure regulator on a solenoid valve

A regulator (5) can control the piston speed of an air cylinder, pressure or amount.

A lower setting reduces the noise.

METHOD	REMARKS
Loosen lock nut (6). Increase pressure: turn set screw (7) clockwise. Reduce pressure: turn set screw (7) counter-clockwise. Tighten lock nut (6). If provided, correct the pneumatic settings of the cylinder involved, see next page.	Do not fully unscrew.



## 7.6 Pneumatic system

### 7.6.4 Set pneumatic cylinders

The pneumatic settings of a cylinder (12) must be such that the required machine speed can be reached without abrupt and/or noisy movements.



#### Risk of injury!

The cylinder may make an unexpected movement that may lead to injury. Nobody may be near this movement.

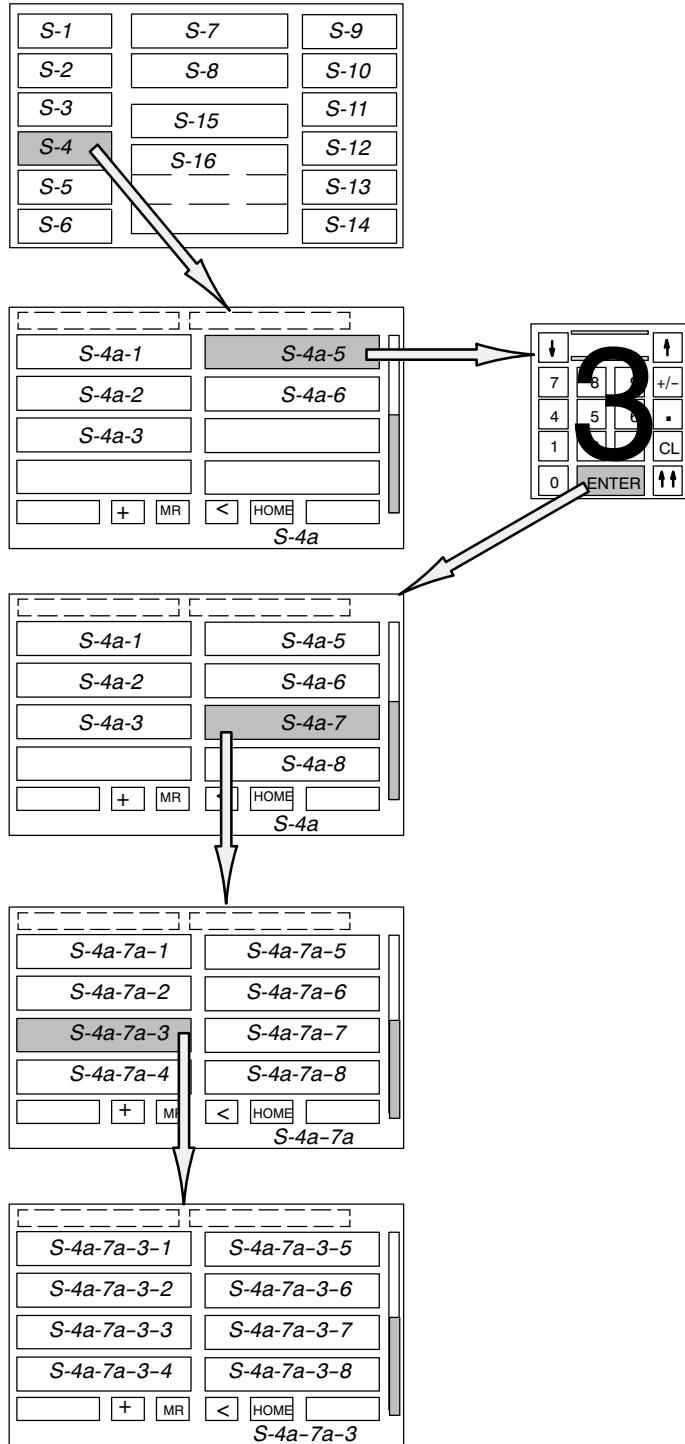
OPERATION	METHOD	REMARKS
Set the outgoing movement of the piston (15)	Set the outgoing movement of piston (15) to the required speed with throttle valve (13 or 14). Set the last part of the outgoing stroke of piston (15) with end damping (16).	Depends on model.
Set the ingoing (return) movement of piston (15)	Set the ingoing movement of piston (15) to the required speed with throttle valve (10 or 11). Set the last part of the ingoing stroke of piston (15) with end damping (17).	Depends on model.





## **7.7 Hydraulic system**

**Not applicable**



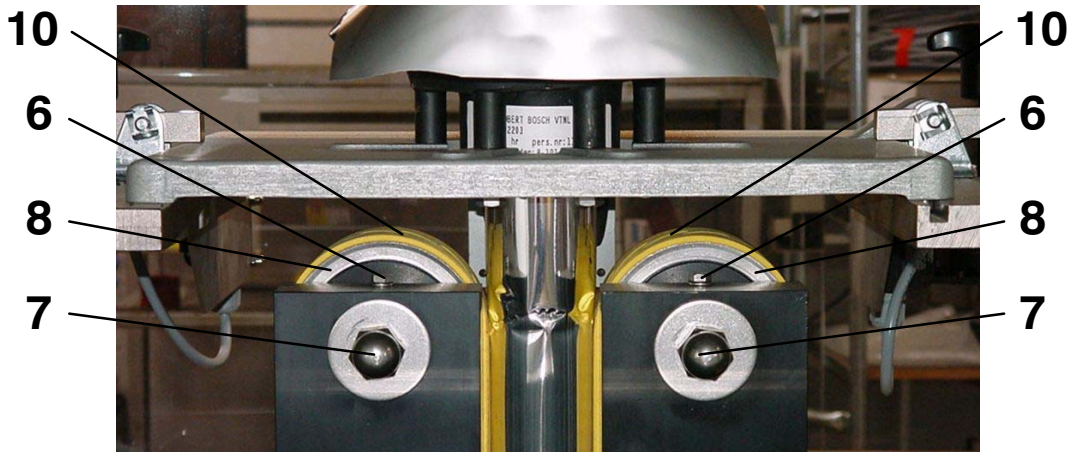
## 7.8 Vacuum system

### 7.8.1 Maintenance vacuum pump

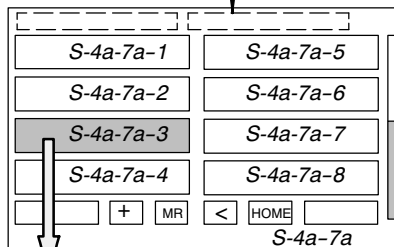
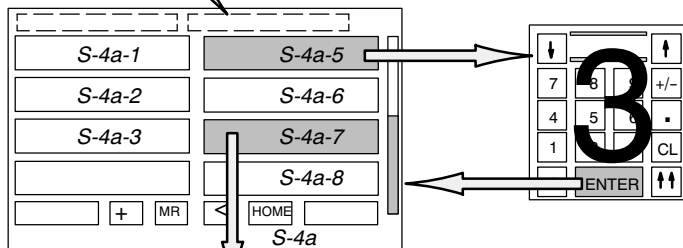
It is absolutely necessary to read the manual for the vacuum pump (section 8) and 8.1 before the machine is taken into operation. All maintenance should be done according to the manual.

### 7.8.2 Set activating and deactivating delay vacuum pump

OPERATION	METHOD	REMARKS
Set the activating delay	Delay the start of the machine in the key concerned in level 3 (S-4a-7a-3). The vacuum pump must be allowed to create a sufficiently deep vacuum before the film transport starts.	Particularly applicable with machines the pump of which has been placed further away from the machine.
Set deactivating delay	Enter in the key concerned in level 3 (S-4a-7a-3) the time that the vacuum pump must remain activated after a machine stop.	After this time the pump is switched off to prevent useless running. The pump keeps running with an activated vacuum table (option).



S-1	S-7	S-9
S-2	S-8	S-10
S-3	S-15	S-11
S-4	S-16	S-12
S-5		S-13
S-6		S-14



## 7.9 Film transport

### 7.9.1 Set the tension of the draw-off belts

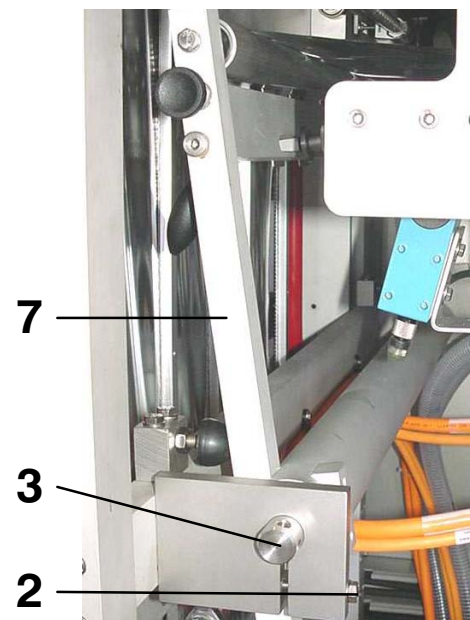
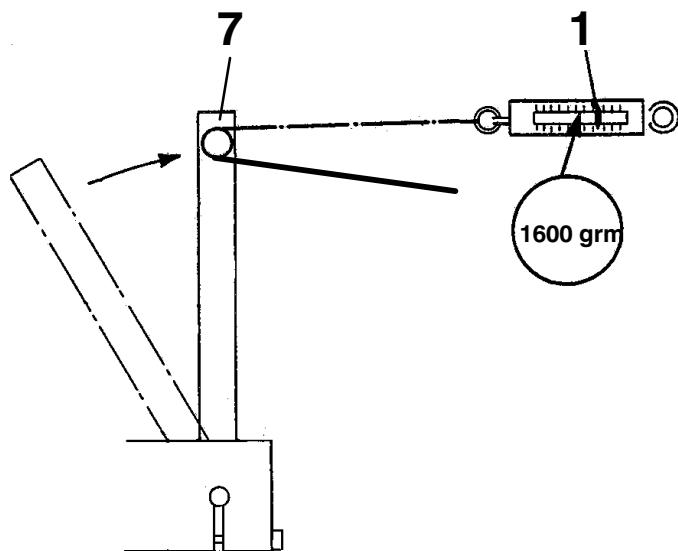
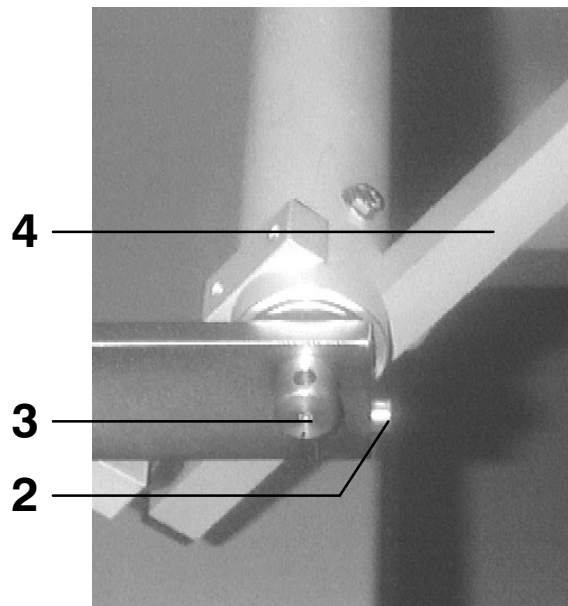
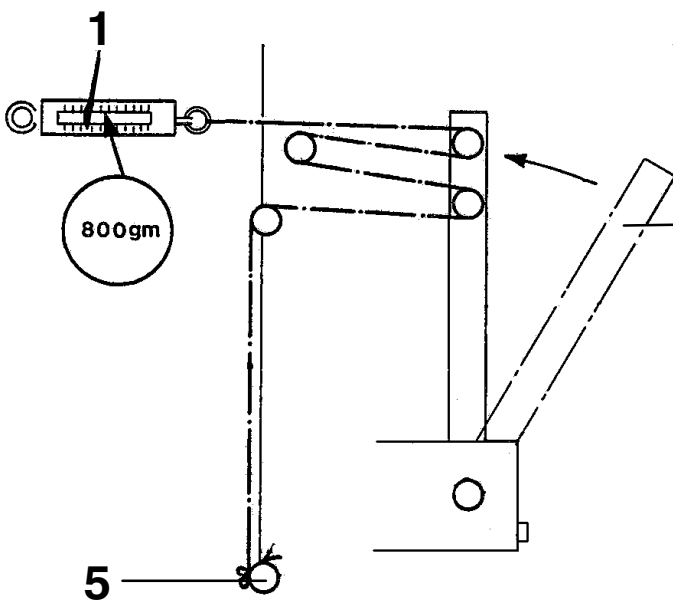
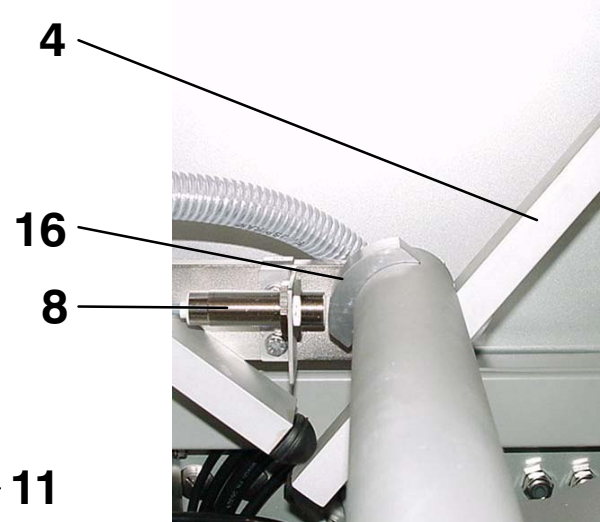
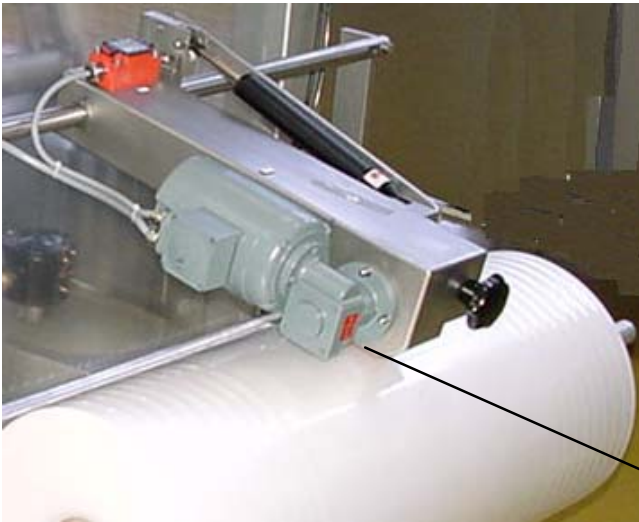
METHOD	REMARKS
<p>Loosen cap nut (7) a little. Warning: do not loosen the other three nuts because this will cause the vertical set-up of the belt in relation to the forming tube to be lost.</p> <p>Turn the screw (6) clockwise to increase the tension.</p> <p>Tighten the cap nut (7) again after the correct tension has been reached. Make sure that the gear wheel (8) is in a horizontal position.</p>	<p>The draw-off belts must neither be too loose or too tight.</p>

### 7.9.2 Remove and place draw-off belts

METHOD	REMARKS
<p>Loosen screw (6) and cap nut (7).</p> <p>Slide draw-off belt (10) of the gear wheel forwards.</p> <p>Install a new draw-off belt in reverse order. Note: as seen from the front, the openings (near the forming tube) in the draw-off belt should slope down backwards.</p> <p>Check function of the draw-off belts.</p>	<p>The gear wheel (8) is loosened. Draw-off belt will be loose.</p> <p>The draw-off belts are different left and right.</p> <p>Tension, see above.</p>

### 7.9.3 Set opening and closing movement of the draw-off belt

METHOD	REMARKS
<p>Closing movement draw-off belt left: set throttle valve (1).</p> <p>Closing movement draw-off belt right: set throttle valve (3).</p> <p>Opening movement draw-off belt left: set throttle valve (2).</p> <p>Opening movement draw-off belt right: set throttle valve (4).</p> <p>Delay the start of the machine in the key concerned in level 3 (S-4a-7a-3) to give the draw-off belts the opportunity to move towards the forming tube.</p>	<p>The draw-off belt units must move smoothly and noiselessly.</p> <p>The draw-off belts must be closed before the film is transported.</p>



## 7.9 Film transport

### 7.9.4 Set the brake of the film-reel shaft

See 7.4.

### 7.9.5 Motor-driven film unwinding (option):

In order to determine the position of the tension arm (4), the distance between the initiator (8) and the curve (16) on the tension arm is constantly measured. The frequency controller controls the speed of the unwinding roller (11) in such a way, that during production the tension arm remains in the vertical position.

ACTION	METHOD	REMARKS
Select the unwinding direction	Switch the appropriate switch on or off in S-3 or level 2 (S-7-8-1)-2.	
Set the initiator (8)	See 7.9.7.	
Replace and/or initialise the frequency controller	See 8.3.	

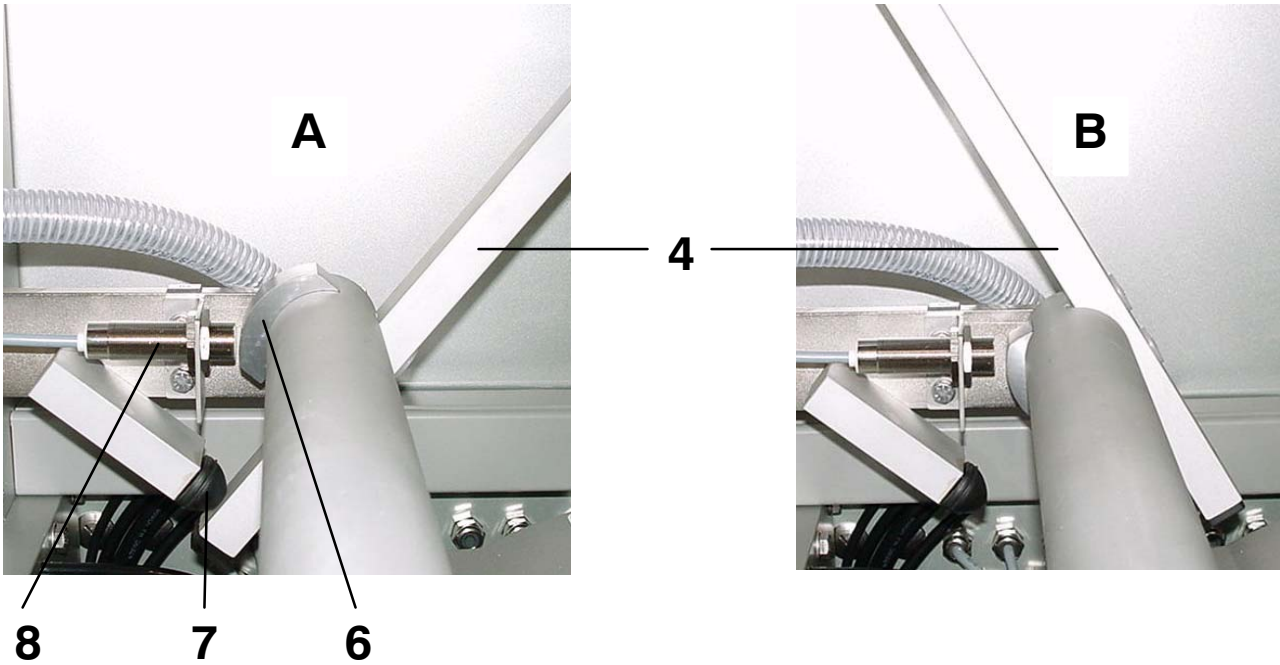
### 7.9.6 Set the film web tension



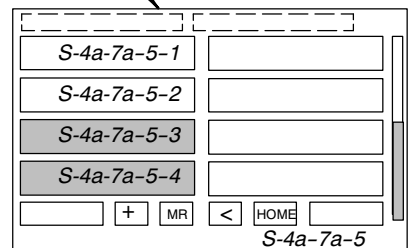
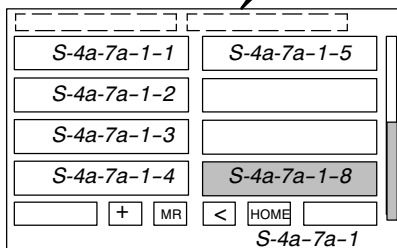
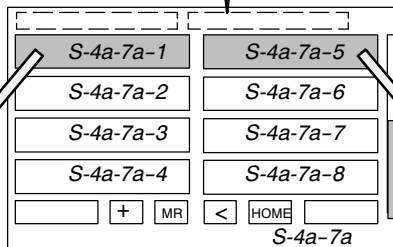
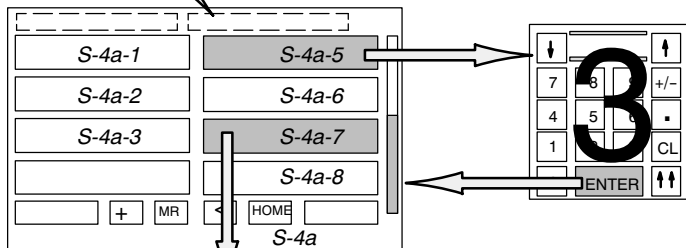
#### Risk of injury!

When screw (2) is loosened, the spring inside the tension arm will try to release. During the setting below a motion and/or force can be exerted on the shaft/tube (3) that may lead to injury.

METHOD	REMARKS
<p>Tie a rope in the centre of the fixed film-web roller (5) and lead the rope over the film-web rollers backwards out of the machine; see figure. Fasten a tension gauge (1) to the end of the rope and pull backwards until the tension arm (4) is vertical.</p> <p>If the tension deviates, firmly hold the shaft/tube (3) with a tool. Loosen screw (2); turn the shaft/tube into the desired direction and tighten screw (2). Clockwise turning will increase the tension.</p> <p>Auxiliary driving roller with second tension arm (if provided): set the tension of the tension arm (7) following the above method.</p>	<p>The tension in vertical position is 800 grams.</p> <p>See the warning above.</p> <p>The tension in vertical position is 1600 grams.</p>



S-1	S-7	S-9
S-2	S-8	S-10
S-3	S-15	S-11
S-4	S-16	S-12
S-5		S-13
S-6		S-14





## 7.9 Film transport

### 7.9.7 Replace and/or calibrate the initiator of the tension arm

Alternative: the steps below are shown step-for-step in S-4b-5, see 7.18.

METHOD	NOTES
<p>Replace initiator (8) if necessary.</p> <p>Select window (level 3) S-4a-7a-5a. Let the tension arm (4) rest on the stops (7), see fig. "A". Move and lock the initiator (8) with tools (e.g. 2 open-end spanners) until the lowest value in (level 3) S-4a-7a-5a-3 displays the number 22, 23 or 24. Press S-4a-7a-5a-3. The value has been accepted if the beeper gives a fast beep that stops after about 10 seconds. If the beeper does not stop and/or beeps slower, the initiator has not been set correctly. Readjust the initiator, see above.</p> <p>Press S-4a-7a-5a-4. Pull the tension arm (4) backwards, see fig. "B". The beeper starts beeping fast and the lowest value in S-4a-7a-5a-4 will be between 230 and 254. The value has been accepted when the beeper gives a fast beep that stops after about 10 seconds.</p>	<p>Calibration is required when the initiator (8) has been replaced or moved.</p> <p>The distance between initiator (8) and curve (6) is about 2 mm.</p> <p>The beeper beeps slowly.</p> <p>The distance between initiator (8) and curve (6) decreases.</p>

### 7.9.8 Load standard settings for the tension arm

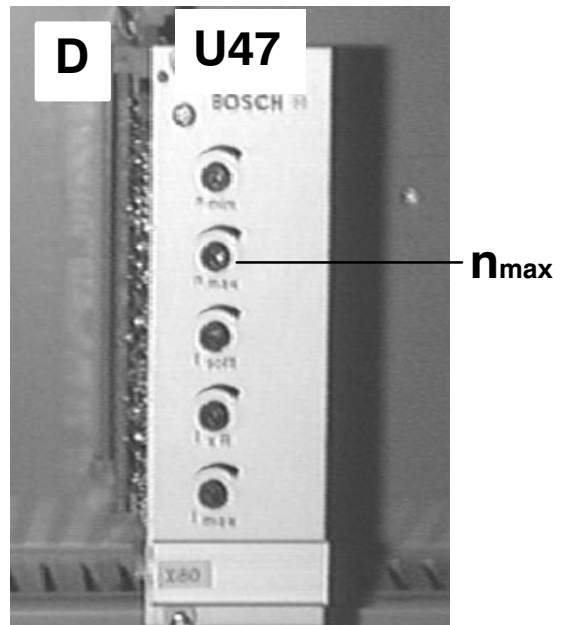
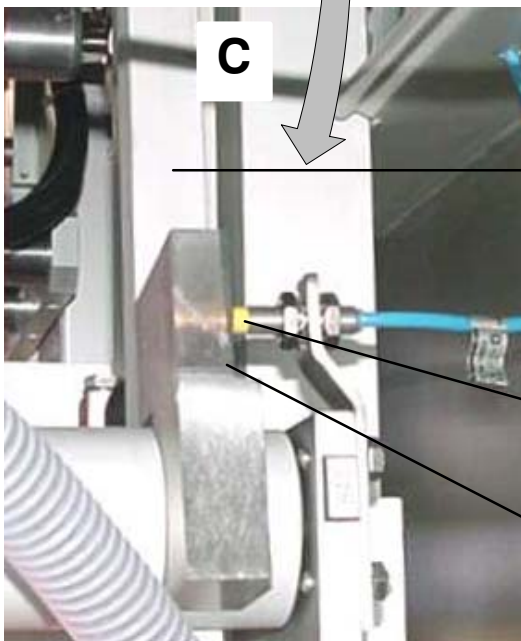
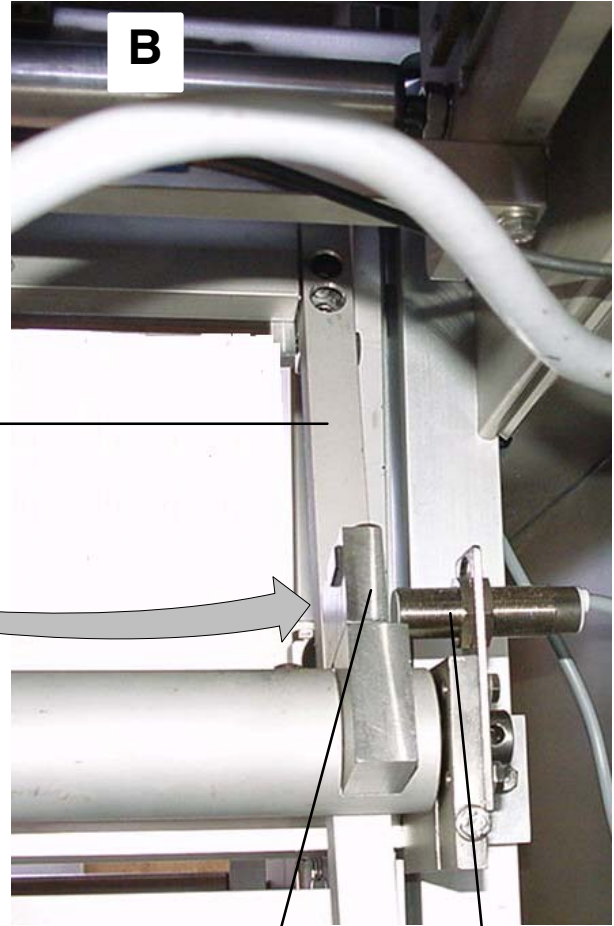
METHOD	NOTES
<p>The initiator (8) of the tension arm must have been calibrated, see above. Press the key level 3 (S-4a-7a-1-8) to load the standard values. Adjust the values if necessary.</p>	<p>These values apply to most films.</p>

### 7.9.9 Film-web rollers

Check all film-web rollers for low-friction rotation. Set the centres when the play is too large or too small. If necessary, replace the film-web rollers.

### 7.9.10 Replace, set or initialise stepper or servo drive

The stepper drive (if provided) is set at the factory.  
Servo drive (if provided), see relevant description in section 8.



## 7.9 Film transport

### 7.9.11 Set the auxiliary driving roller with the second tension arm



#### Danger to life!

Touching live wires or components can be dangerous to life.

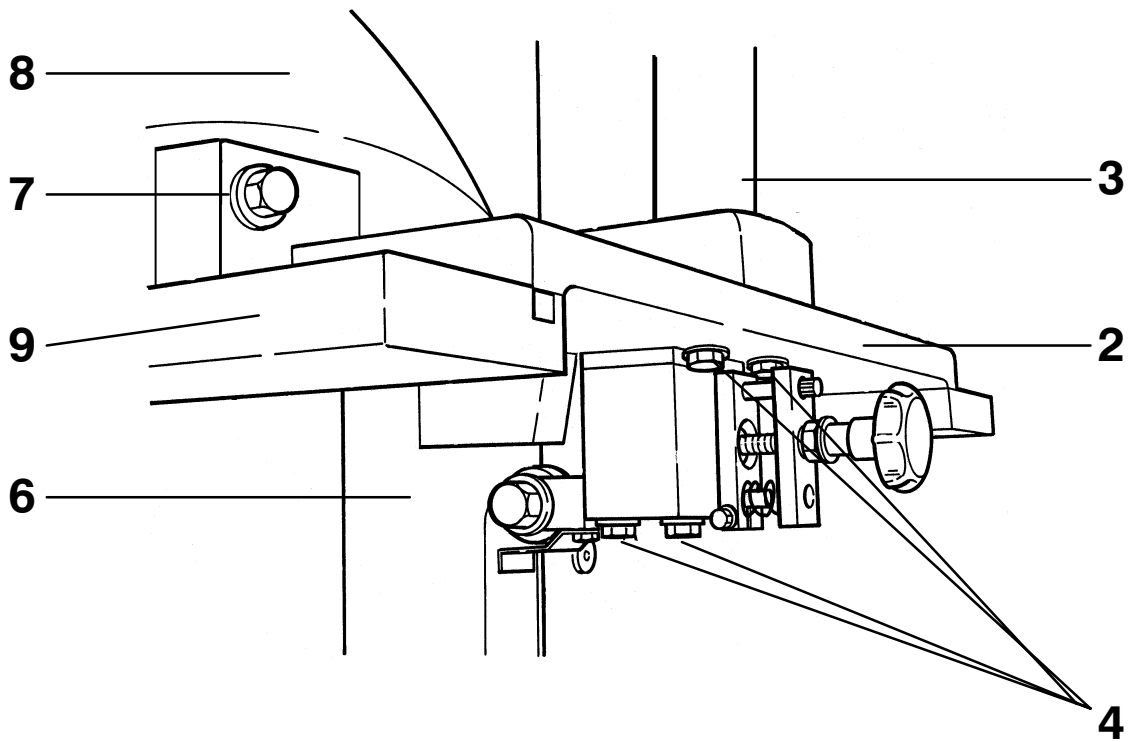
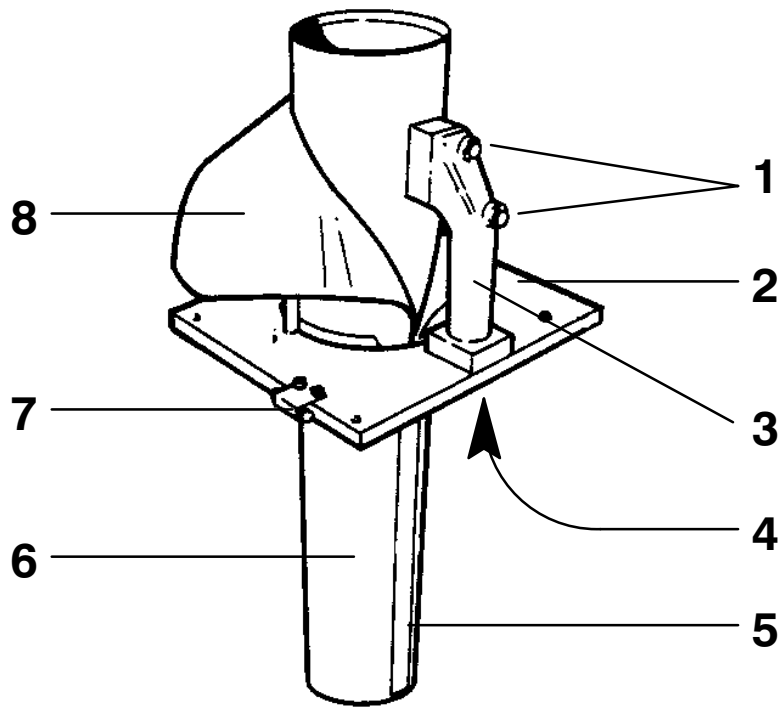


#### Instruction!

Activities on the electrical parts/components may only be carried out by an electrician in accordance with the electrotechnical regulations.

In order to determine the position of the tension arm (1), the distance between the initiator (2 or 5) and the curve (3) on the tension arm (1) is constantly measured. The control makes the auxiliary driving reel rotate faster as the tension arm (1) moves further forwards.

OPERATION	METHOD	REMARKS
Replace the initiator (2) or (5)	Change the initiator (2) or (5).	See the electrical diagrams.
Set the initiator (2) for the model with frequency controller	Pull the tension arm (1) fully forwards. Move the initiator (2) until 3.0 Volt is measured between X2-219 and X2-220. Tighten the initiator (2).	See figures A and B. See the electrical diagrams.
Set the initiator (5) for the model with the DC-motor	Let the tension arm (1) rest on the rubbers. Set the distance between the initiator (5) and the curve (3) until the auxiliary driving roller starts turning as soon as the tension arm of the rubbers is released.	See figure C. About 0.5 mm.
Replace / initialise the frequency controller	See 8.3.	
Set the potentiometer to U-47 for the model with the DC-motor	Turn $n_{\min}$ and $t_{\text{soft}}$ maximally anti-clockwise. Turn $I_{\text{x}}R$ maximally clockwise.  $I_{\max}$ : turn the potentiometer counter-clockwise; open the auxiliary driving roller; pull the tension arm (1) forwards; let the roller with S-4b-6 turn, but stop the roller; turn $I_{\max}$ clockwise until 0.85 Amp is measured between terminals HB-GA.  $N_{\max}$ : Pull the tension arm (5) forwards and set $N_{\max}$ until the roller rotates with about 180 rpm.	See figure D.  Set with several persons.  Position $I_{\max}$ is about 40 %.



## 7.10 Forming set



### Risk of damage!

A plastic shoulder breaks easily and cannot be cleaned with a high-pressure cleaner, water jet or hot water.  
The guide (9) has been set at Bosch and may not be adjusted.

### 7.10.1 Set shoulder

METHOD	REMARKS
<p>Loosen the four screws that attach the shoulder (8) to the plate (2). Fill the gap between the shoulder (8) and the tube (6) with sheets of paper. Turn the shoulder until the film tube is not twisted on the forming tube and the long-seam is located in the middle of the bags during production. Attach the shoulder to the shoulder plate (2) with four screws. Remove the sheets of paper; produce the bags and check them.</p>	<p>Method to make the gap around the tube equally wide.</p>

### 7.10.2 Remove and replace the shoulder for cleaning purposes

METHOD	REMARKS
<p>Remove the forming set carefully from the machine. Remove the screws (4). Attention: Do not loosen screws (1)! Carefully pull the shoulder plate (2) with shoulder (8) from support (3). If necessary, fasten a screw in the auxiliary threaded hole under support (3). Clean with a non-corrosive cleaning agent, see warnings above. Mount in reverse order and position in machine.</p>	<p>See 6.8. Inside and outside must be clean and undamaged.</p>

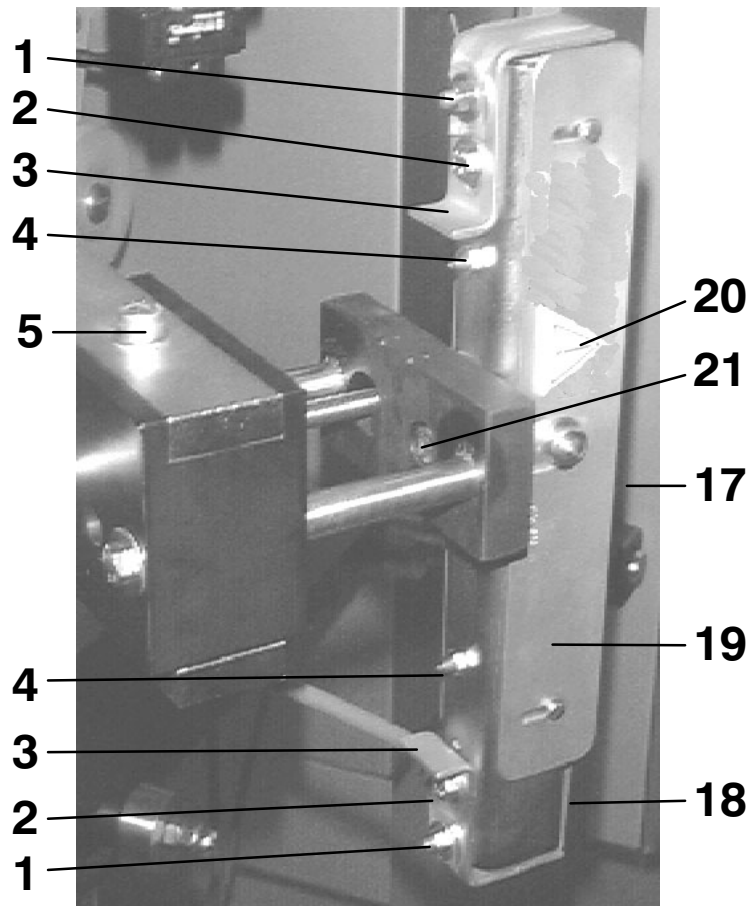
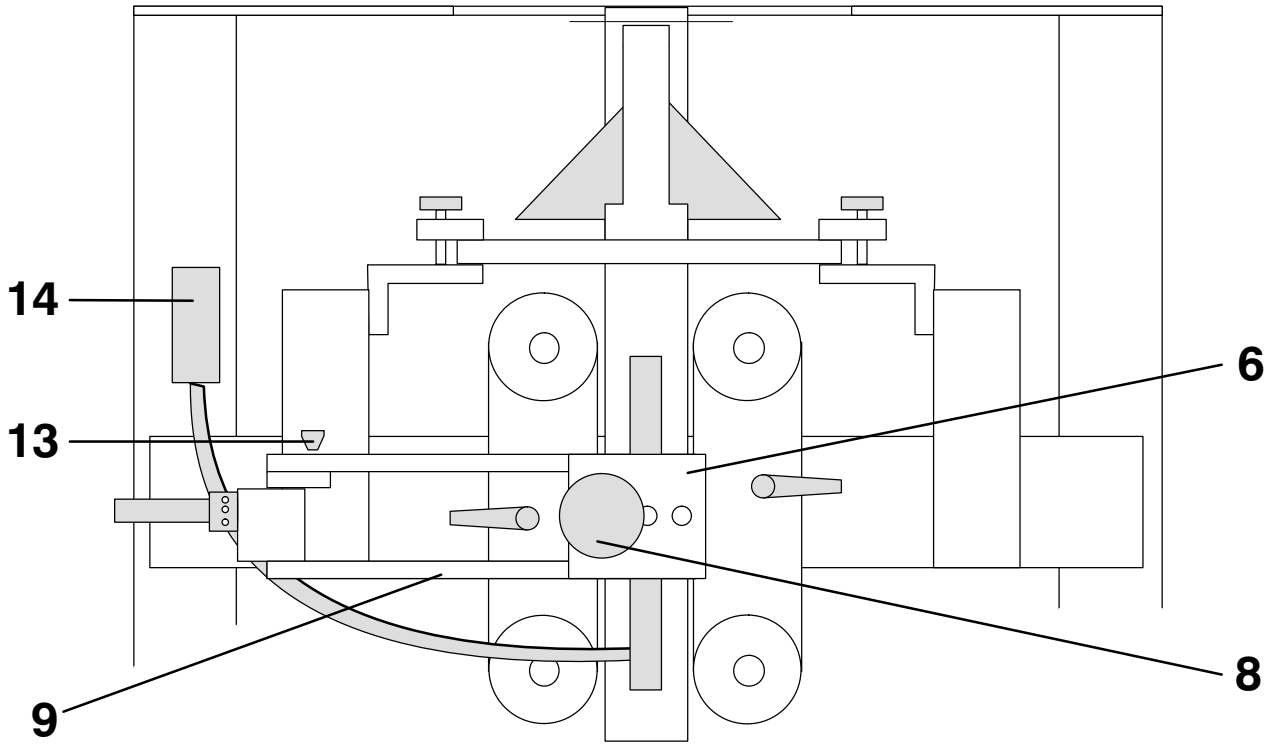
### 7.10.3 Maintain forming tube

Clean the forming tube (2) with spirit.

Check the condition of the PTFE (teflon) (5) strip (and silicone underlay strip, if present) on the forming tube (6) and replace if necessary.

### 7.10.4 Set forming tube

METHOD	NOTES
<p>Close the cross-seam jaws, see 6.20.3. Push forming set to the rear and adjust seating (7) until the middle of the tube corresponds with the contact surface of the jaws.</p>	<p><b>Only correct if absolutely necessary!</b></p>



## 7.11 Long-seam heat seal (HS)



### Danger of burns!

The long-seam jaw (17) can be hot when the machine has just been in operation. Do not touch this part while it is at operating temperature. Wear protective gloves when handling this part. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw(s) (17).

### 7.11.1 Replace temperature sensor and/or heating element

OPERATION	METHOD	REMARKS
Dismount the holder (20) with jaw (17)	Deactivate the voltage. Disconnect the plug (14). Pull out the knob (13) and open the arm (9) until the knob (13) locks. Loosen screws (2) and remove the teflon (18) complete with strips (3). Hold the jaw holder (20) and loosen the screw (21). Remove holder (20) with jaw (17).	Access to screw (21) by turning a hole in the block (6) or knob (8).
Dismount the jaw from the holder (20)	Dismount the screw that attaches the jaw on shaft (22). Dismount shaft (22).	Access through the threaded hole of screw (21).
Replace temperature sensor and/or heating element	Dismount long-seam jaw. Loosen wiring of sensor/element. Sensor: loosen lock screw. pull sensor out of the jaw. Element: pull or drive element out of the jaw.  Grease the sensor/element with special grease. Mount in reverse order. Reconnect the connections. Mind the polarity with a thermocouple.	See above.  With e.g. a brass pin without damaging the bore hole.  Grease, e.g. NEVER SEEZ, must facilitate the heat transfer and future dismounting.
Mount holder (20) with jaw	Place in reverse order. Check the settings, see 6.13.	





## **7.11 Long-seam heat seal (HS)(continued)**

**Reserve**



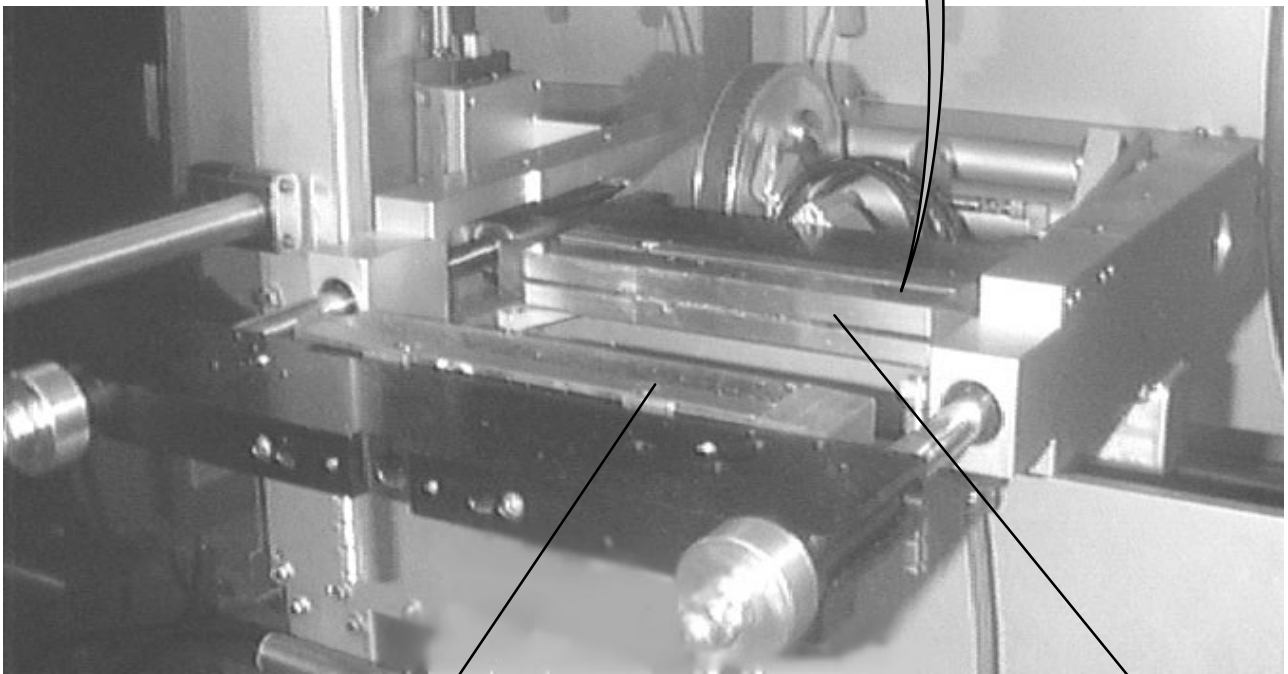
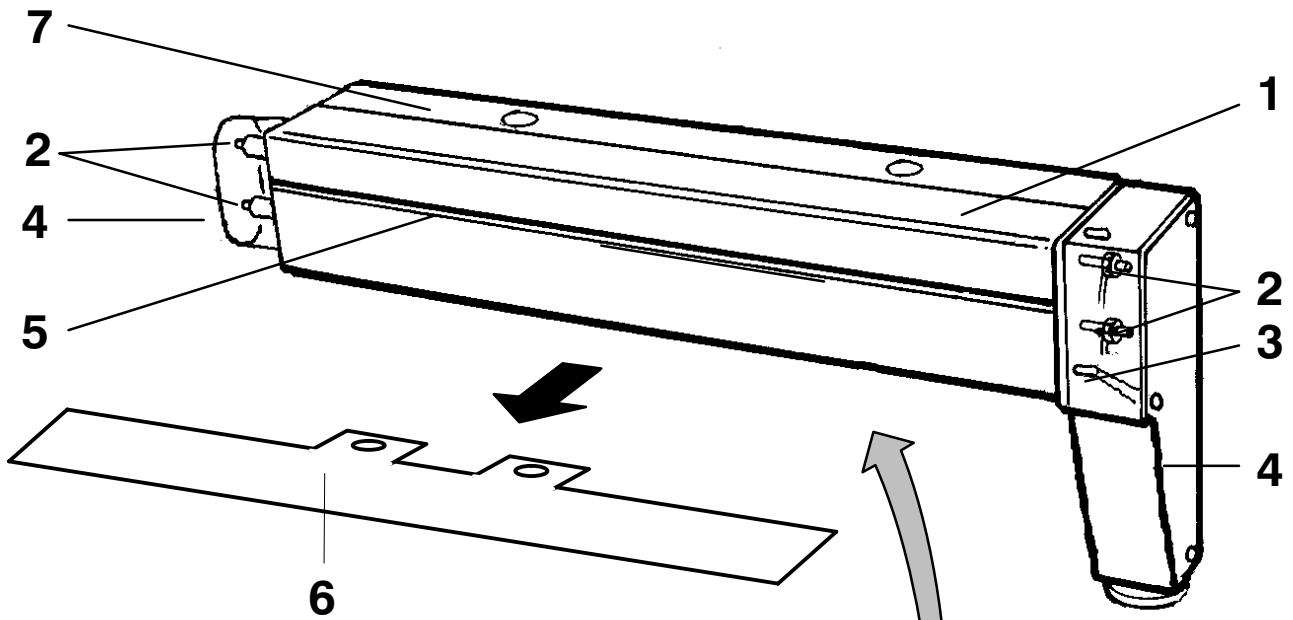
## **7.12 Long-seam polyethylene (PE)**

**See 6.14.**



## **7.12 Long-seam polyethylene (PE) (continued)**

**Reserve**



10

1

### 7.13 Cross-seam heat seal (HS)



#### Danger of burns!

The cross-seam jaws can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling these parts. When the long-seam arm has been opened, pay special attention to the left-hand side of the hot long-seam jaw.

#### 7.13.1 Remove and place knife



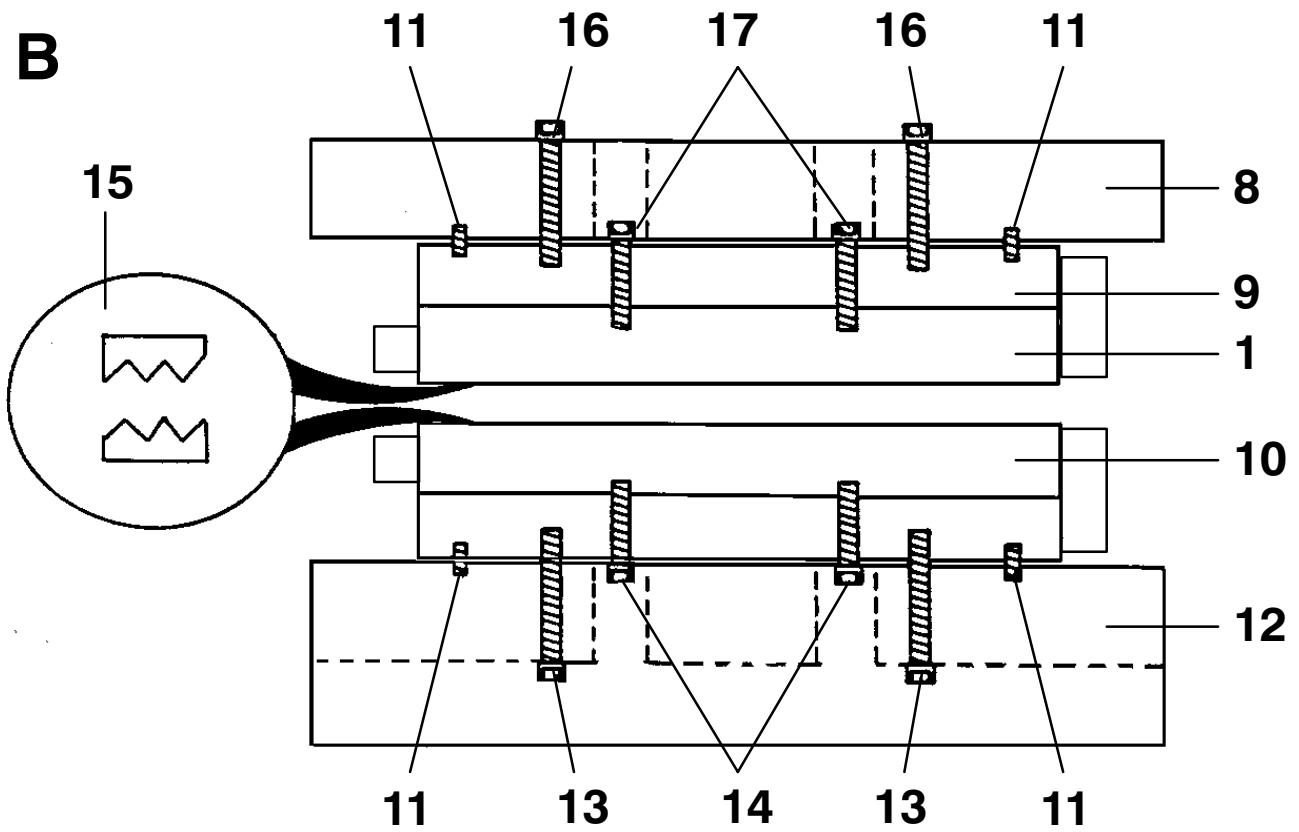
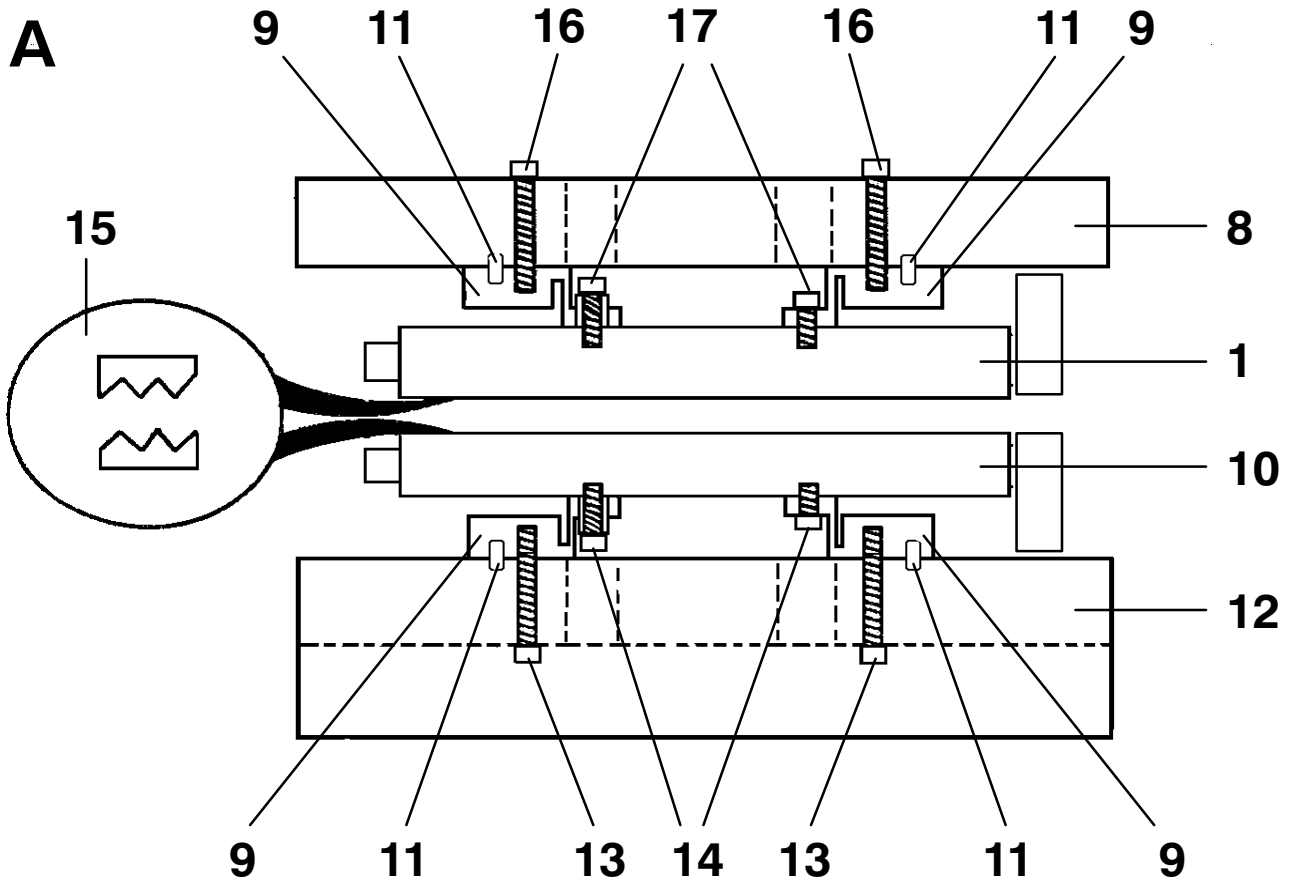
#### Danger of cutting!

Touching the sharp, toothed cross-seam knife may cause serious injury.

METHOD	REMARKS
<p>Remove plate (7) on the knife jaw (1) if present. Dismount options if necessary. Loosen both screw that have become visible then or dismount the screws if the knife movement is hindered. Move knife forwards with S-4a-1 while doors are closed. Open the safety guards. Pull knife (6) out of the slot (5). Clean and check the knife. Replace if blunt or damaged. Place in reverse order.</p>	<p>Rear jaw = knife jaw (1). Front jaw = counterjaw (10).  Model without plate (7): dismount both screws on the bottom side of the knife jaw (1).</p>

#### 7.13.2 Replace temperature sensor and/or heating element

METHOD	REMARKS
<p>Remove jaw, see the next page. In the junction box (4) loosen the wiring of sensor and/or element. Sensor (3):       loosen lock screw.                           pull sensor out of the jaw. Element (2):      pull element out of the jaw or e.g. drive out                           with a brass pin.  Grease the sensor/element with special grease. Mount in reverse order. Reconnect the connections.</p>	<p>Careful: do not damage the bore hole.  Grease, e.g. NEVER SEEZ, must facilitate the heat transfer and future dismounting.</p>





## 7.13 Cross-seam of heat seal (HS)

### 7.13.3 Remove and replace cross-seam jaws



#### Risk of damage!

While mounting the higher jaws, the cross-seam jaws may hit parts of the forming set. The highest allowed position of the cross-seam jaw housing must be corrected, see 4.4.13 and/or 6.7.1.

METHOD	NOTES
<p>If necessary, disassemble options for removal.            Remove knife, see previous page.            Remove the screws (16). <b>Attention:</b> the jaw may fall.            Remove knife jaw (1), together with isolating block(s) (9).            Remove the counterjaw (10) in the same way.</p> <p>Place in reverse order.            Mount options (if present).</p>	<p>Depends on the model.</p> <p>Dowel pins (11) determine the position.</p>

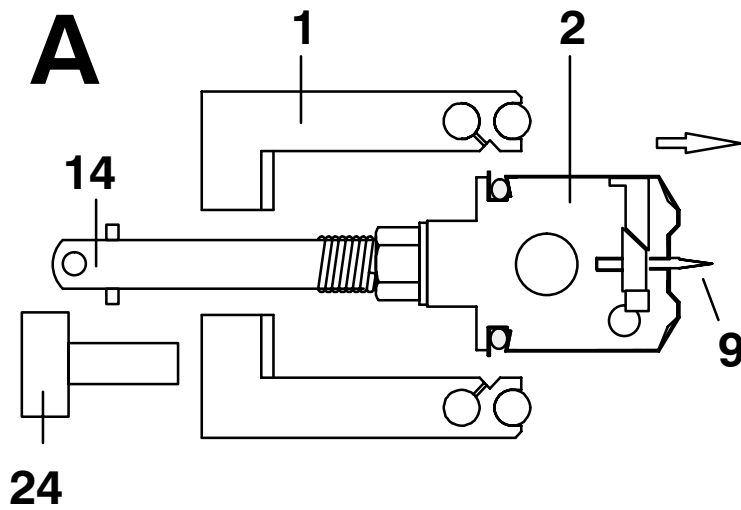
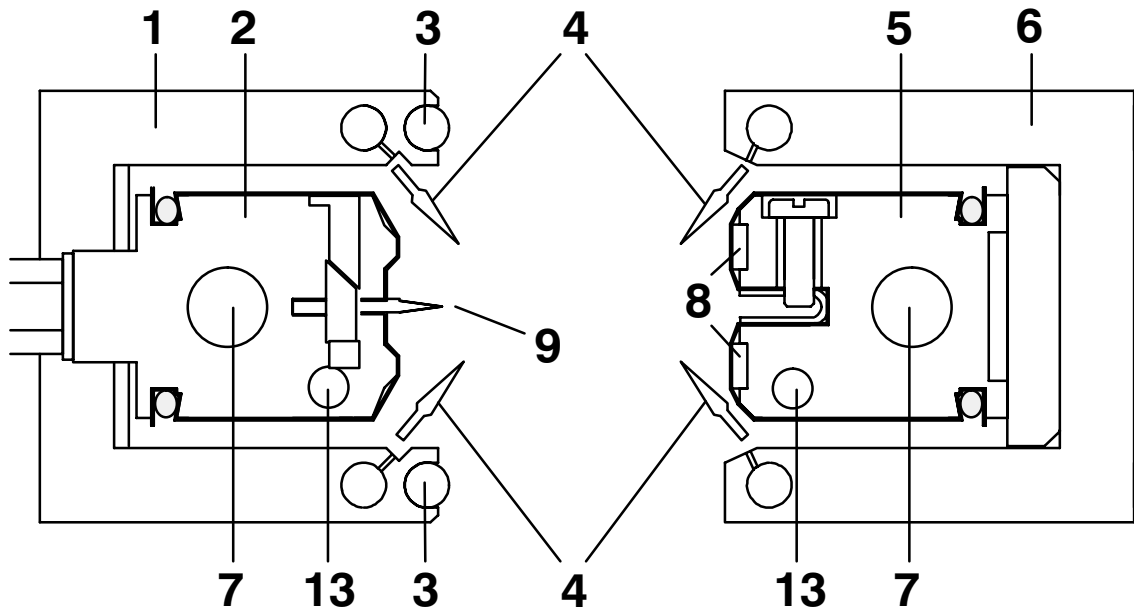
### 7.13.4 Cross-seam jaws, replacement and alignment

METHOD	NOTES
<p>Remove options, jaws and knife, see above.            Mount the jaws on the carrier (8 and 12), but do not tighten the screws (13, 14, 16 and 17).            Fit the knife (6) in the reverse order.            Set the knife jaw (1) horizontally. The knife must be easily moveable.            Tighten screws (16 and 17).</p> <p>Close the cross-seam jaws.            Accurately align the knurls (15) horizontally and vertically and tighten the screws (13 and 14).</p> <p>Set the sealing pressure and check the position of the first jaw carrier.            Open the jaws, see 6.20.3.            Mount options (if present).            Check and correct the highest allowed position of the cross-seam jaws if the jaws are mounted at another height.</p>	<p>With model A with 4 isolating blocks (9), the extra blocks do not need to be adjusted.</p> <p>See 6.20.3.</p> <p>See 6.20.2.</p> <p>See 6.7.1.</p>



### **7.13 Cross-seam heat seal (HS)(continued)**

**Reserve**



## 7.14 Cross-seam polyethylene (PE)



### Danger of burns!

The cross-seam jaw(s) can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts.



### Danger of cutting!

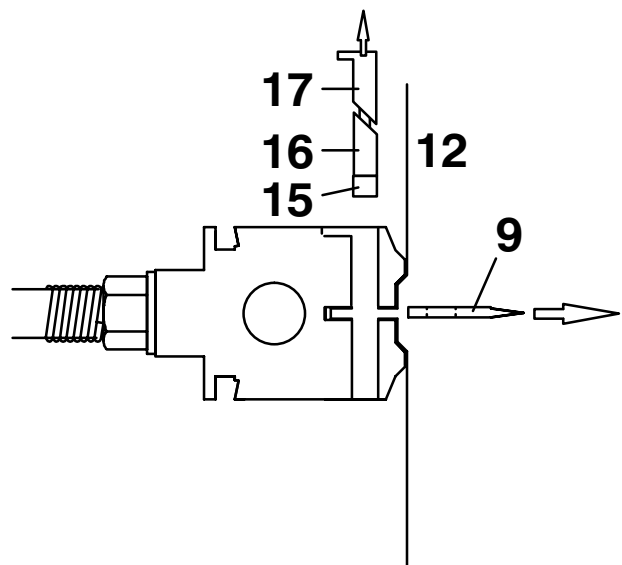
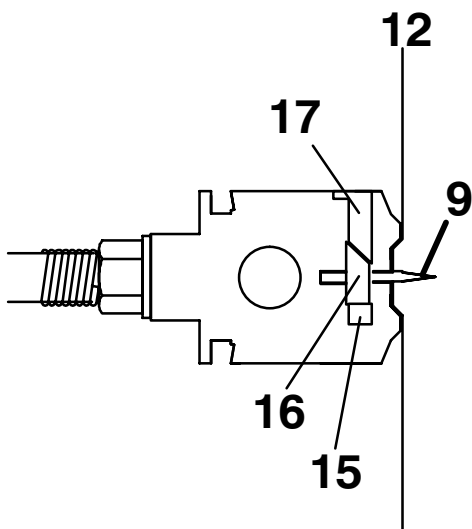
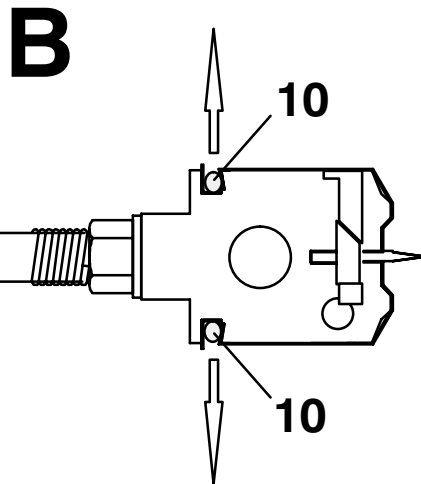
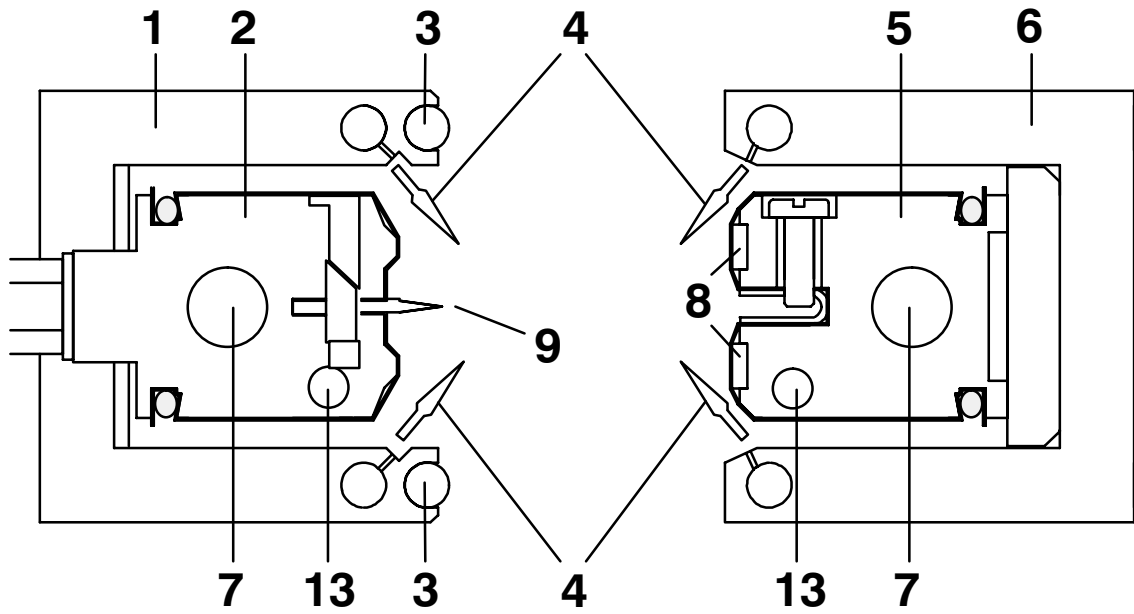
Touching the sharp, toothed cross-seam knife (9) and/or perforation knife (option) may cause serious injury.

### 7.14.1 Replace cords in the clamping jaws

METHOD	REMARKS
Replace the cords (3). Film displacement at the seam may be prevented by making openings in the cord. The product may not come into the openings.	Enclosed air can escape.

### 7.14.2 Remove and place knife-welding jaw

METHOD	REMARKS
Loosen plug connection. Unlock the knurled rods (14), for example with a screwdriver and remove the welding jaw (2). Place in reverse order.	See illustration A.



## 7.14 Cross-seam polyethylene (PE)



### Danger of burns!

The cross-seam jaw(s) can be hot just after machine operation. Do not touch parts that are at operating temperature. Wear protective gloves when handling such parts.



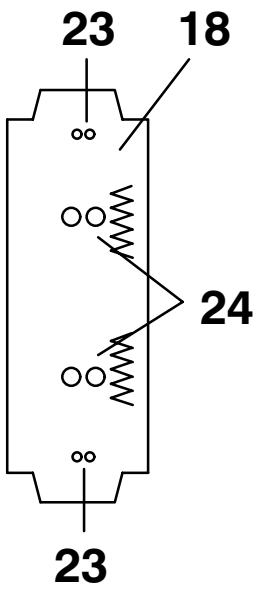
### Danger of cutting!

Touching the sharp, toothed cross-seam knife (9) and/or perforation knife (option) may cause serious injury.

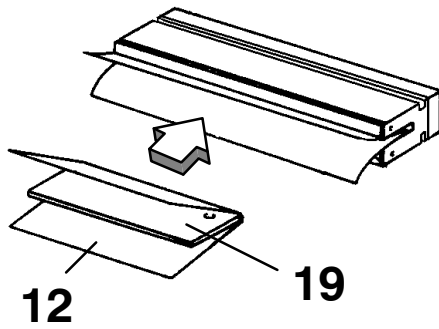
### 7.14.3 Replace knife and/or Teflon of the knife-welding jaw

METHOD	REMARKS
<p>See illustr. B. Pull the clamping tubes (10) out of the slots.            See illustr. C. Loosen the screw (15) a few turns.            Tap against the screw (15) to tap the upper part loose (17) from the lowest part (16).            Press against the screw (15) to remove the knife fastening (16 and 17) from the jaw with an upward movement.            Remove the other knife fastening.            Pull the knife (9) out of the slot.            Wipe the knife or clean it with a brush.            Check the knife. Replace if blunt or damaged.            Replace Teflon (12) if necessary, see below.            Mount the knife (9) in reverse order.</p> <p>Remove the knife (9), see above.            See illustr. C. Remove Teflon (12) when torn or burnt.            Clean the surface of the jaw.</p>	<p>The Teflon (12) is no longer clamped.</p> <p>The knife (9) is no longer clamped.</p> <p><b>Warning:</b> teeth are sharp.</p> <p>The Teflon must be clean and in a good condition.</p>

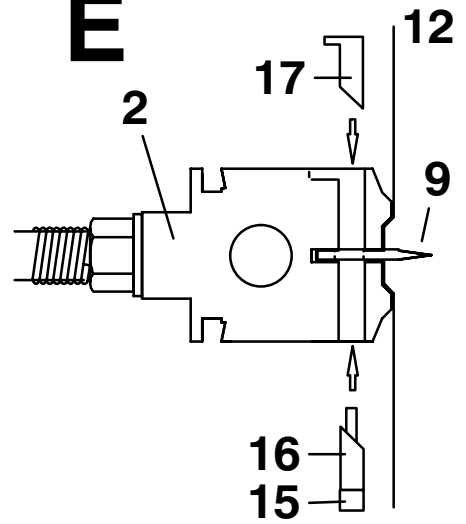
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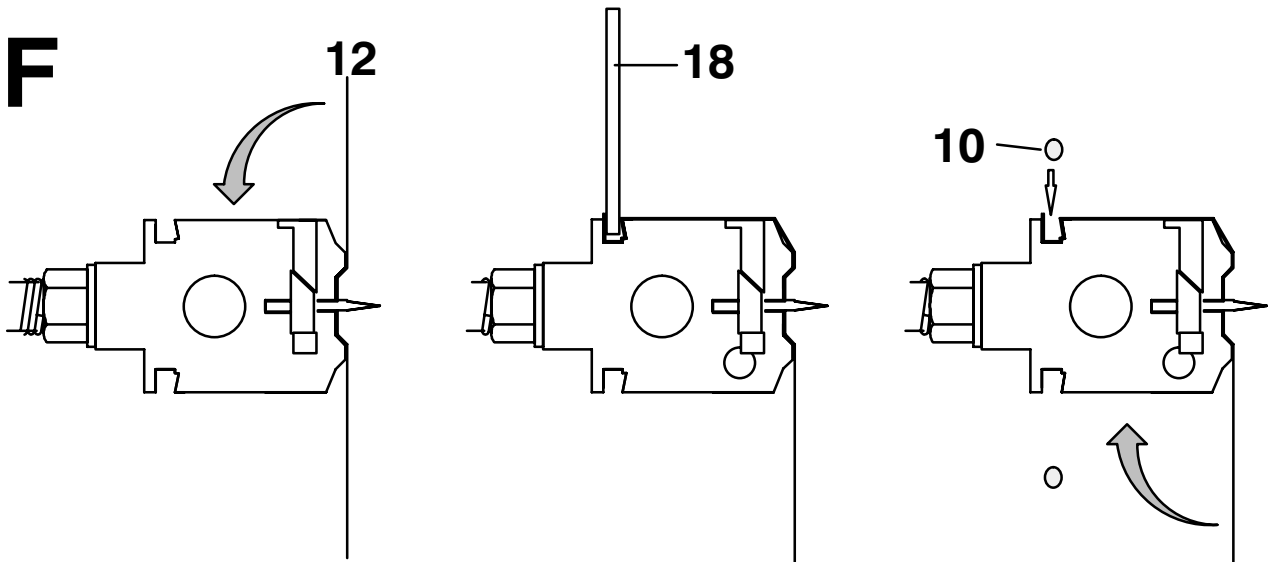
**D**



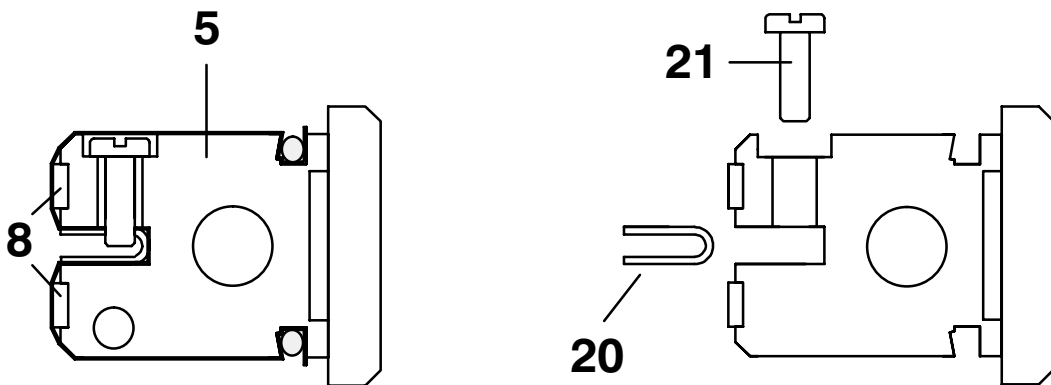
**E**



**F**



**G**





## 7.14 Cross-seam polyethylene (PE)

### 7.14.3 Replace knife and/or Teflon of the knife-welding jaw (continued)

The Teflon used must be the same as the material used by Bosch.

Use the jig (18) supplied to obtain the required shape. Attention: cut out the holes (24) for the knife jaw and the holes (23) for the counter jaw!

METHOD	REMARKS
<p>See figure D. Fold the Teflon (12) in half. Use a plate (19) or possibly the knife (9) to push the Teflon into the groove. <b>Warning:</b> the teeth are sharp.</p> <p>See illustr. E. Replace the plate (19) with the knife (9). Loosen screw (15) to separate the upper (17) and lower parts (16) from each other. Place the upper part (17) in the top of the jaw. Place the screw (15) and the lower part (16) in the bottom part of the jaw and tighten the screw (15). Fit the other knife attachment.</p> <p>See figure F. Fold the Teflon sides. Press the Teflon with the jig (18) into the slot. Remove the jig (18). Press the clamping hose (10) into the slot, but be careful not to stretch it. Repeat the procedure on the other jaw side. Keep the knife parallel to the jaw and cut off excess Teflon.</p>	<p>The Teflon is 80 micrometres thick, see the parts book.</p> <p><b>Warning:</b> the teeth are sharp.</p> <p>Fits in only one way.</p> <p>The knife (9) and the Teflon (12) are clamped.</p> <p>The Teflon must not be folded and may not cover the guides (if present) at both ends of the jaw. If necessary, cut away the Teflon.</p>

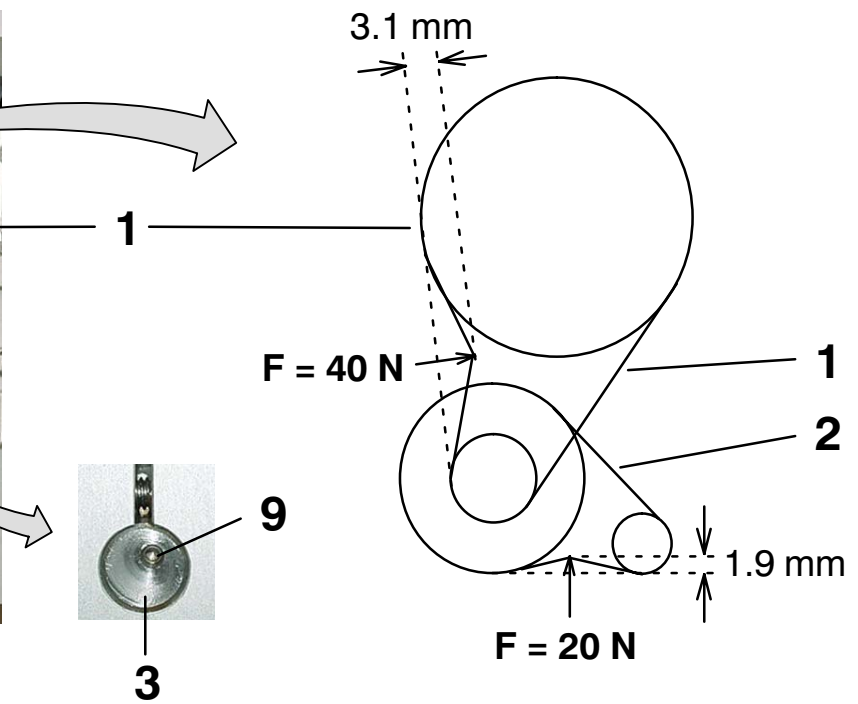
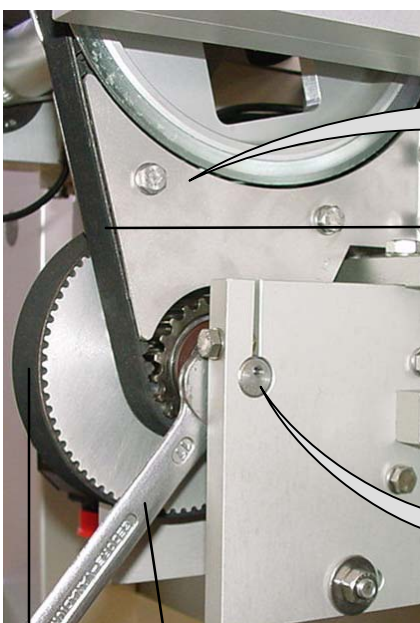
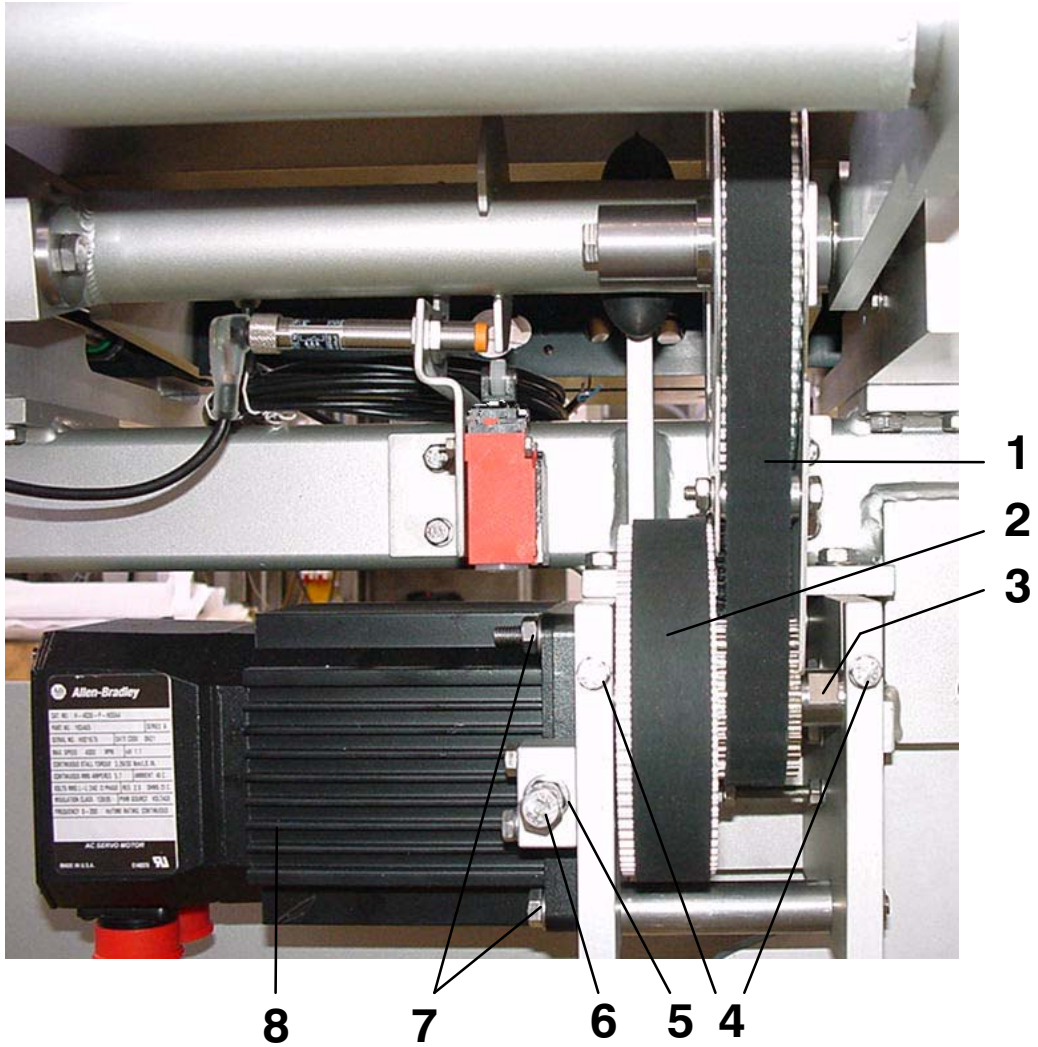
### 7.14.4 Replace Teflon of the counter-welding jaw

METHOD	REMARKS
<p>See figure G. Remove screws (21). The procedure is the same as that for the knife jaw. Instead of a knife, a folded plate (20) is used. Check the condition of the silicone inlay strips (8). Replace if necessary. Fit jaw (5)</p>	<p>The Teflon is 80 micrometres thick, see the parts book.</p> <p>The jaw is fixed with (a) screw(s) or (a) clamp(s).</p>



## **7.14 Cross-seam polyethylene (PE)(continued)**

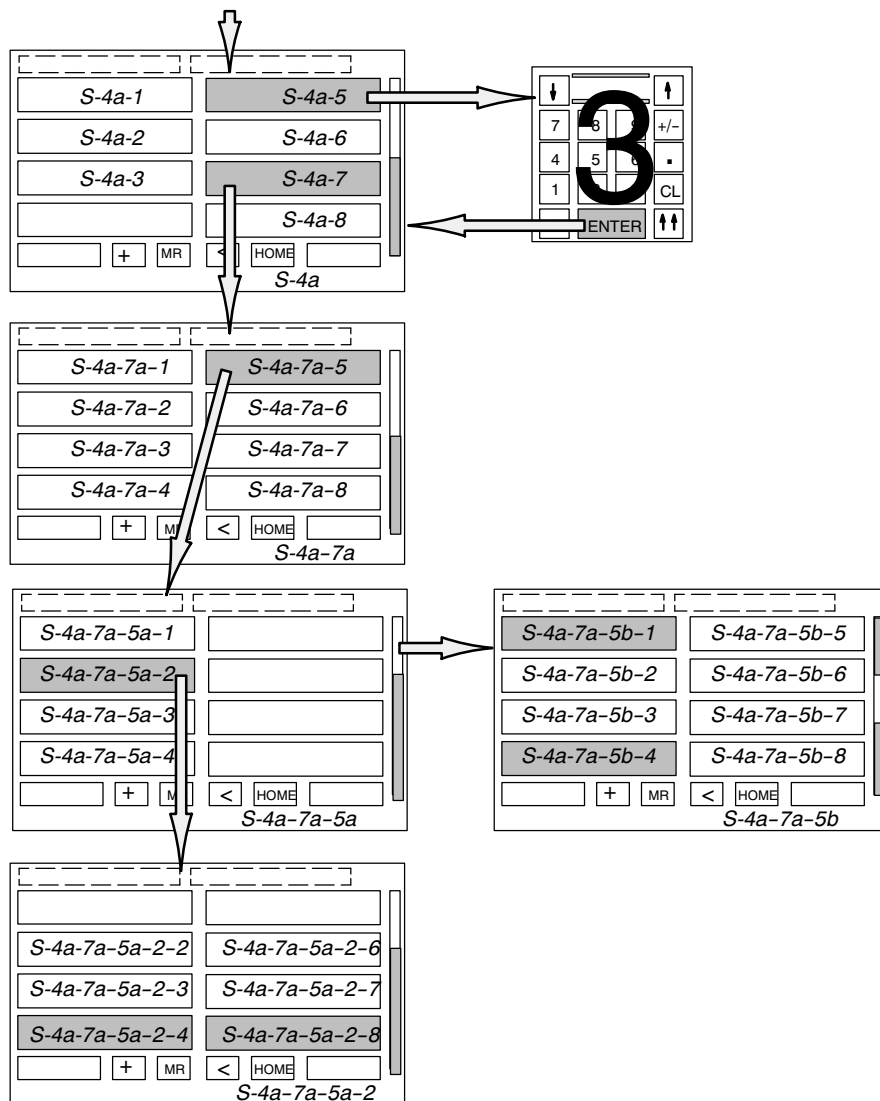
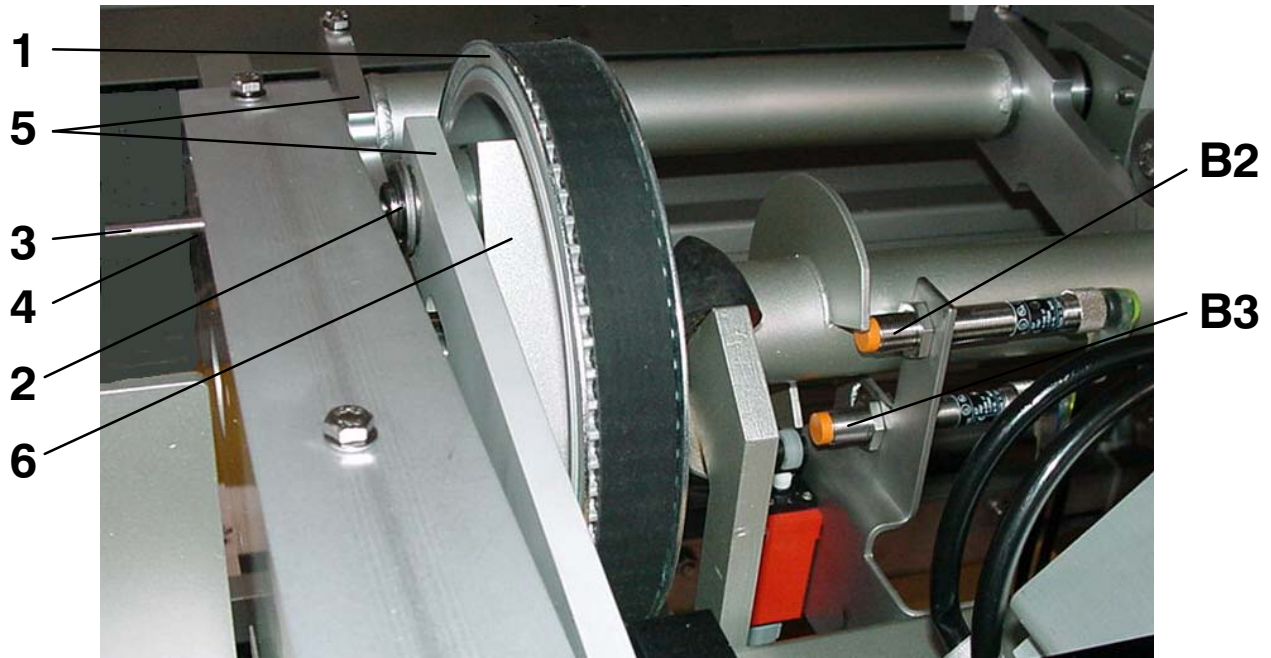
**Reserve**



## 7.15 Cross-seam jaw drive horizontal

### 7.15.1 Check and set belt tensions

OPERATION	METHOD	REMARKS
Check belt (1) tension	Determine the centre of the part of the belt (1) that is free from the two pulleys. Exert a power of 40 N on the centre and measure the impact distance, see drawing. Tension the belt if the impact exceeds 3.1 mm.	For example, lay a ruler on both pulleys and measure the impact.
Set belt (1) tension	Loosen screws (4) until the eccentric shaft (3) can be turned. Tension belt by turning the eccentric shaft (3) clockwise with tool (10). Check belt tension (1), see above Tighten screws (4).	Centre (9) in shaft (3) must be in the top position.
Check belt (2) tension	Check and/or set belt tension (1). Determine the centre of the part of the belt (2) that is free from the two pulleys. Exert a power of 20 N on the centre and measure the impact distance, see drawing. Tension the belt if the impact exceeds 1.9 mm.	See above.  For example, lay a ruler on both pulleys and measure the impact.
Set belt (2) tension	Loosen the four screws (7) of motor (8). Loosen lock nut (5) of screw (6). Tension belt by turning screw (6) clockwise until the impact is 1.9 mm. Tighten lock nut (5). Tighten the four screws (7) of motor (8).	



## 7.15 Cross-seam jaw drive horizontal

### 7.15.2 Calibration horizontal

Calibration determines the positions of the initiators (B2) and (B3) with respect to the calibration position (start position of the calibration). Among other things, calibration is required after operations on initiators and/or initialising the motor. The calibration position is reached by turning pulley (1) until the pin (3) can be pressed into the cut-out in the shaft (2). The position of the pulley (1) is defined as 0° when the drive rods (5) and the cranks (6) are in the horizontal position. The calibration position corresponds with 114.2 degrees of the pulley (1) related to the 0°-position.

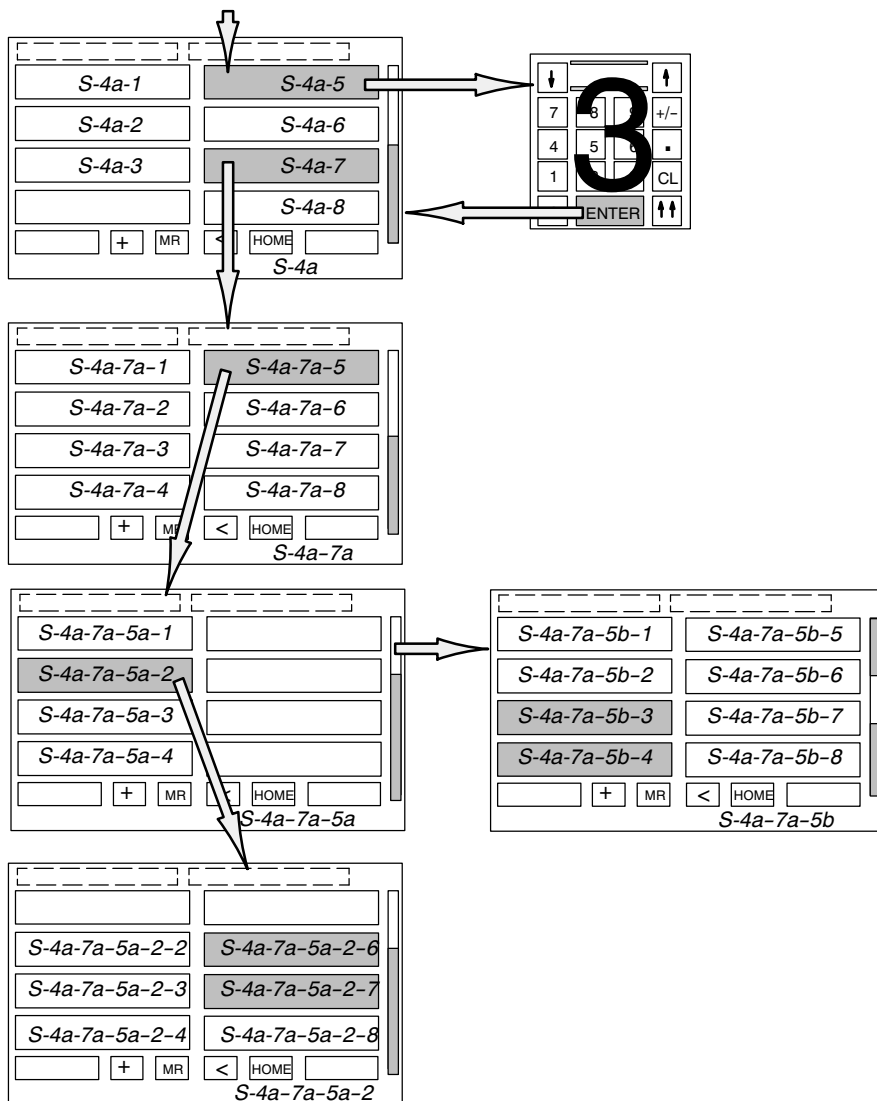
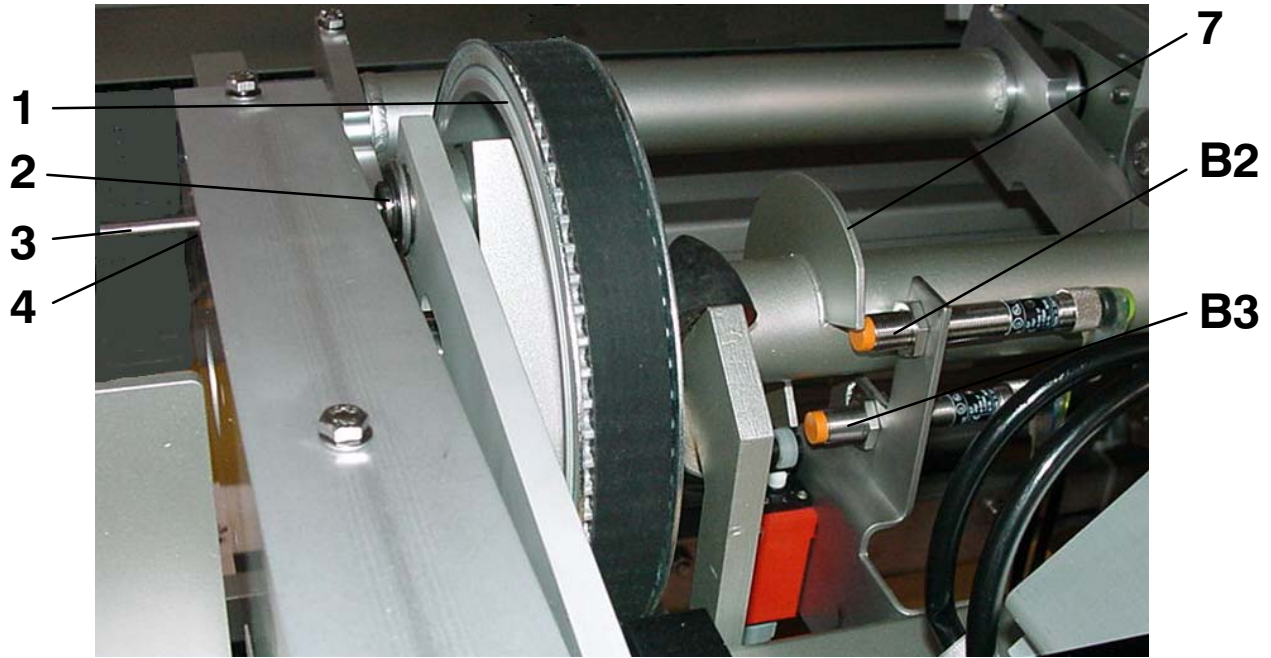
OPERATION	METHOD	NOTES
Put the jaws into the calibration position	Insert pin (3) into hole (4). Manually turn the pulley (1) until the pin (3) can be pressed into the cut-out in the shaft (2). Remove pin (3).	The jaws are opened about 135 mm.
Carry out calibration	Press key (level 3) S-4a-7a-5a-2-8. Pay attention to the status report in field S-4a-7a-5a-2-4. If necessary, the corresponding jaw opening (about 2 -3 mm) can be looked at in (level 3) S-4a-7a-5b-4.	The jaw movement stops when initiator (B3) gives a signal.

### 7.15.3 Set the closing angle (collision angle) of the jaws

The closing angle (collision angle) is the position of the pulley (1), expressed in degrees, when the jaws should clamp the film. At the moment of clamping (collision), the jaws speed has been reduced as much as possible.

Attention: Too low a value makes the jaws collide at too a high speed. Too high a value results in loss of time. The jaws close from the too high set collision angle at a too low speed until the film is actually clamped.

OPERATION	METHOD	NOTES
Set closing angle	Enter film thickness and long seam form, see 4.4.11. Select field (level 3) S-4a-7a-5b-1. Usually set to 5 degrees.	For example, side-folding bags with thick film: the closing angle is adapted internally.

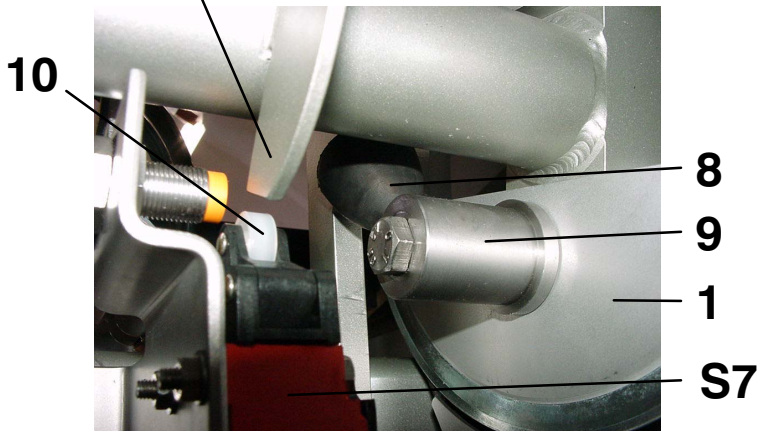
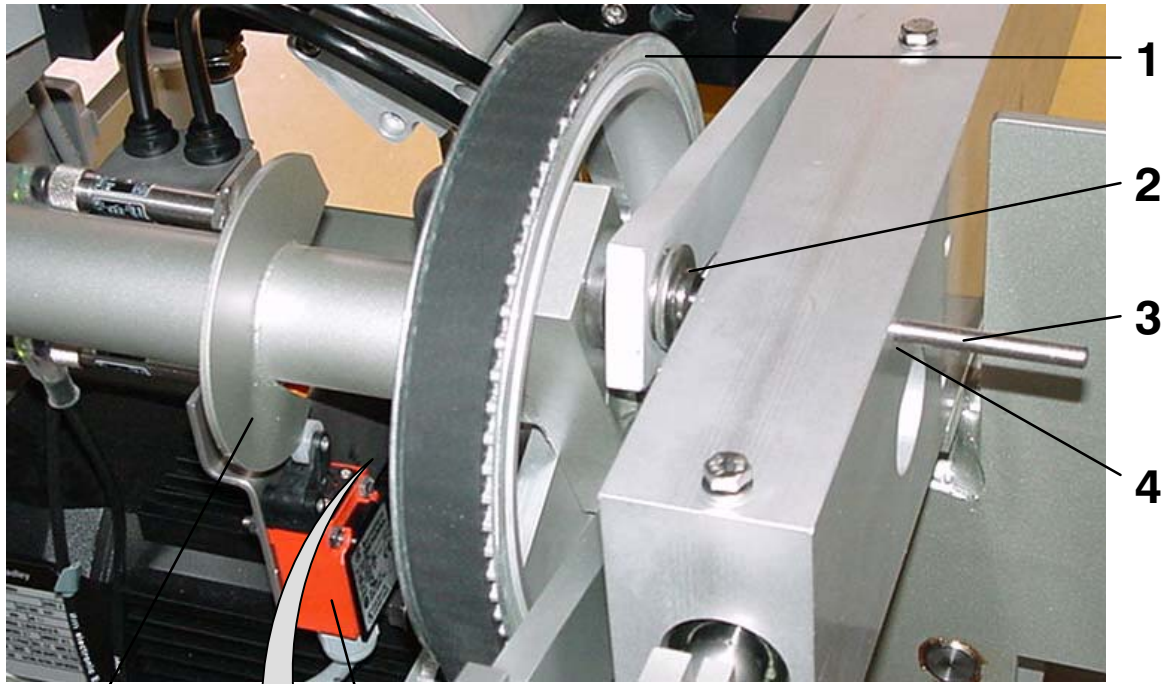




## 7.15 Cross-seam jaw drive horizontal

### 7.15.4 Replace and/or set and/or check initiators

OPERATION	METHOD	REMARKS
Replace and/or set initiator (B2)	<p>Remove the cover of the jaw housing.            Replace initiator (B2) if necessary.            Set the initiator at a distance of 2 mm from the side curve (7).            Insert pin (3) into hole (4).            Manually turn the pulley (1) until the pin (3) can be pressed into the cut-out in the shaft (2).            Move the initiator in the hole until the B2 led is just out. If this status cannot be reached, the distance between initiator and curve (7) may be increased.            Remove pin (3).            Check signal and setting initiator (B2), see below.            Carry out calibration, see the previous page.</p>	<p>For better accessibility.</p> <p>Starting position for the calibration (calibration position). If necessary, see the explanation on the previous page.</p>
Check settings of initiator (B2)	<p>At the calibration position the B2 led may not light up.            B2 led must light up immediately when the jaws are further closed from the calibration position.</p>	
Check B2 signal	<p>Press key (level 3) S-4a-7a-5a-2-6. The jaw movement stops when initiator (B2) gives a signal.            Corresponding jaw opening: see (level 3) S-4a-7a-5b-3.</p>	<p>Note: this is not the calibration position.</p>
Replace and/or set initiator (B3)	<p>Remove the cover of the jaw housing.            Replace initiator (B3) if necessary.            Set the initiator at a distance of 2 mm from the side curve (7).            Close the jaws leaving an opening of about 2 - 3 mm.            Slide the initiator into the slot until the B3 led is just out.            Check signal and setting initiator (B3), see below.            Carry out calibration, see the previous page.</p>	<p>For better accessibility.</p>
Check settings of initiator (B3)	<p>B3 led may not light up when the jaws are in the calibration position and may only light up when the jaws have been closed leaving an opening of about 2-3 mm.</p>	
Check B3 signal	<p>Press key (level 3) S-4a-7a-5a-2-7. The jaw movement stops when initiator (B3) gives a signal.            Corresponding jaw opening: see (level 3) S-4a-7a-5b-4.</p>	<p>Jaw opening is about 2-3 mm.</p>



## 7.15 Cross-seam jaw drive horizontal

### 7.15.5 Replace and/or set limit switch

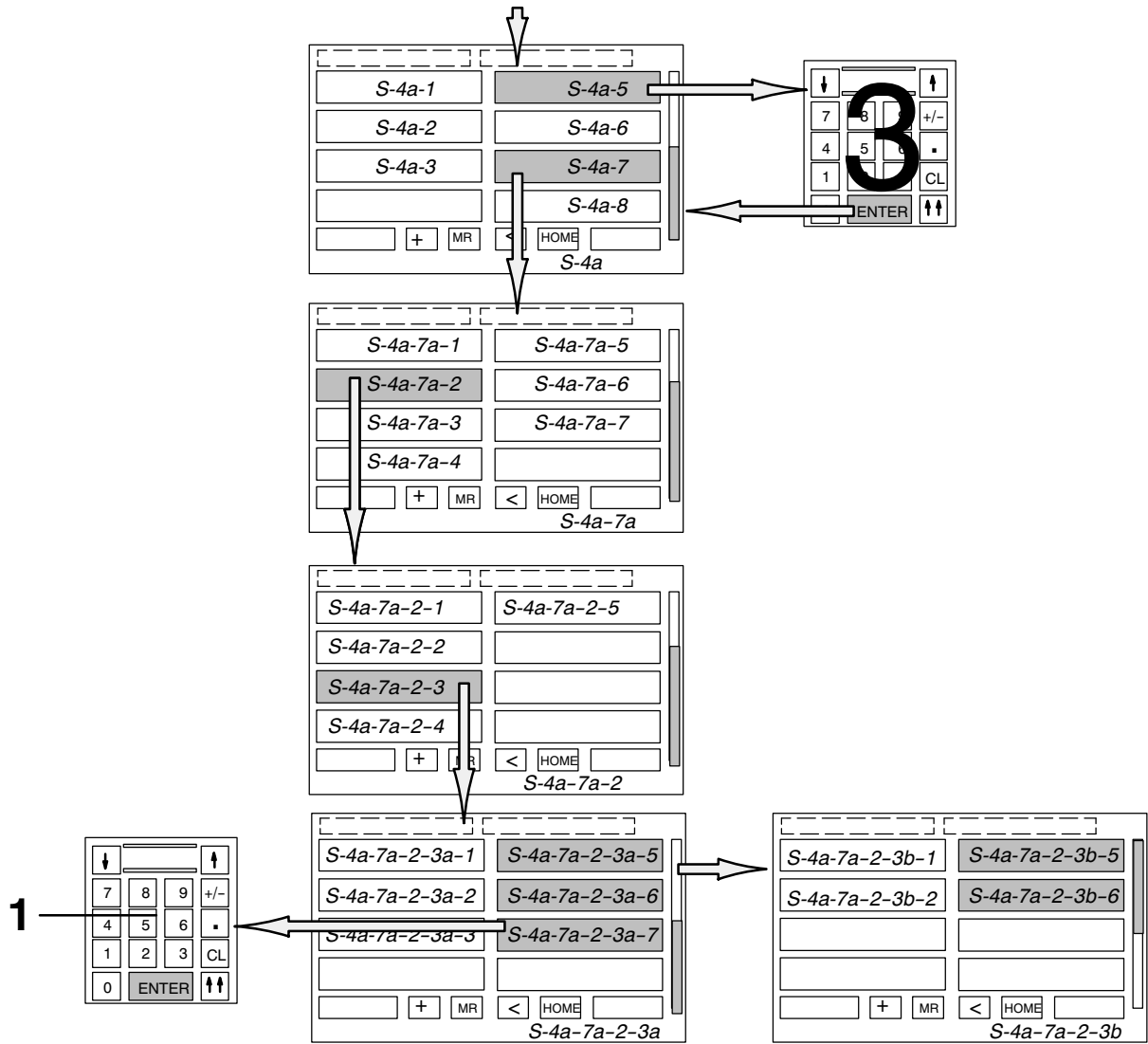
METHOD	REMARKS
<p>Remove the cover of the jaw housing. If necessary, replace the limit switch (S7) and mount it with the hinging point of the cam roller (10) backwards.</p> <p>Insert pin (3) into hole (4). Manually turn the pulley (1) until the pin (3) can be pressed into the cut-out in the shaft (2). Move the limit switch (S7) until the distance between cam roller (10) and curve (6) is about 0.5 mm. Remove pin (3).</p> <p>Check whether the switch switches when with pulley (1) the bush (9) is turned against the stop (8). Mount the cover on the jaw housing.</p>	<p>For better accessibility.</p> <p>Starting position for the calibration (calibration position).</p> <p>Maximum opening (end position) of the jaws.</p>



## **7.15 Cross-seam jaws drive horizontal**

### **7.15.6 Replace and/or initialise servo drive**

See concerning description in chapter 8

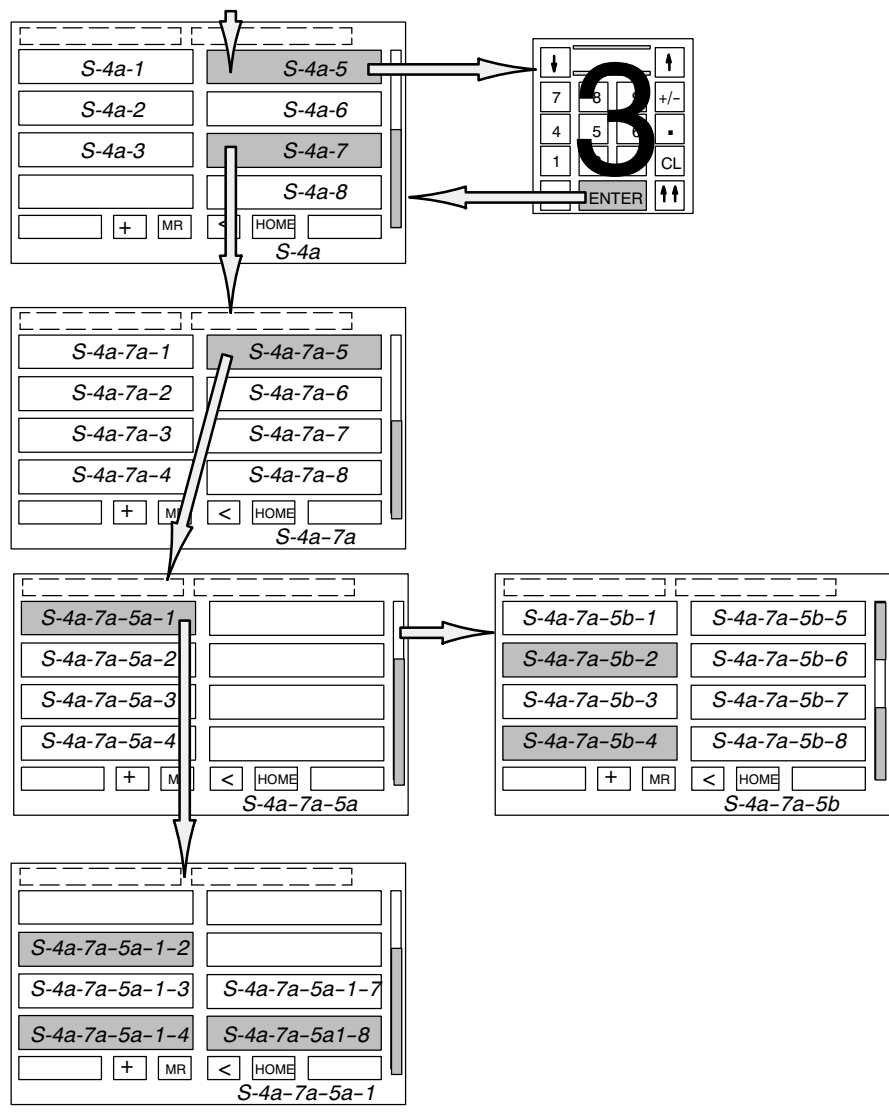
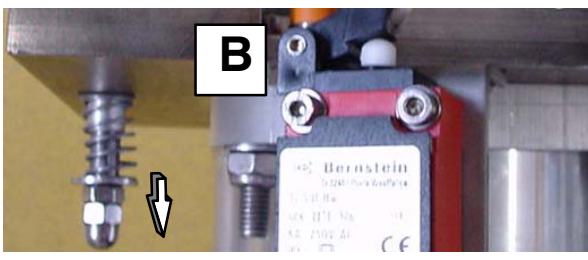
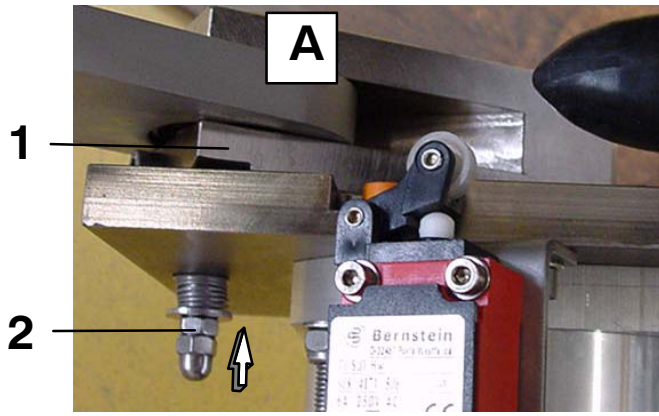


## 7.15 Cross-seam jaw drive horizontal

### 7.15.7 Open and close the cross-seam jaws

Use only for making adjustments.

OPERATION	METHOD	REMARKS
Open or close the cross-seam jaws	Press key (level 3) S-4a-7a-2-3b-5 or -6 until the jaws have reached the required opening. Alternative: (level 3) S-4a-7a-5a-2-1 or -2. Pay attention to any error message.	If the key remains depressed after the jaws are opened or closed, the drive will move outside the work area. Turn the crank back in the work area until the movement corresponds again with the text in the key.
Open or close the cross-seam jaws completely	Press key (level 3) S-4a-7a-2-3a-5 or -6. Alternative: (level 3) S-4a-7a-5a-2-5 or -6.	
Move cross-seam jaws to an adjustable opening	Press key (level 3) S-4a-7a-2-3a-7. Push S-4a-7a-2-3a-5 if field is grey. Enter required opening. Press "Enter" in entry field (1).	Entry field (1) appears.  Jaws move towards the entered opening.



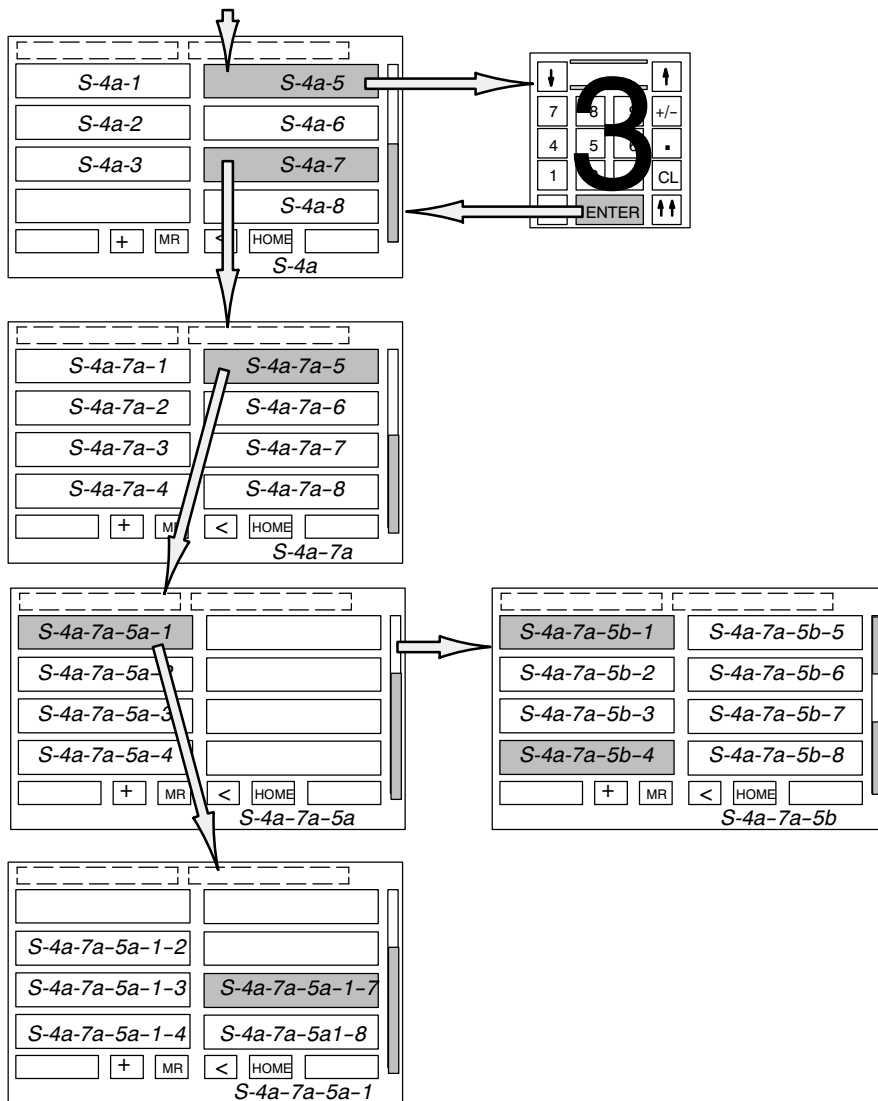
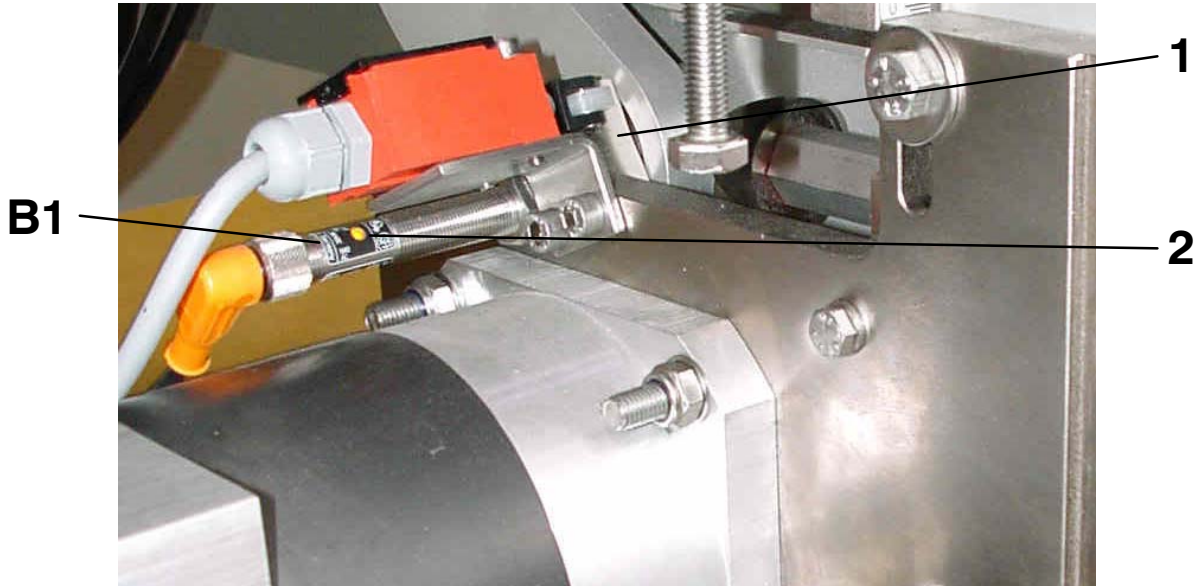


## 7.16 Cross-seam housing drive vertical

### 7.16.1 Calibration vertical

Calibration determines the position of the initiator (B1) related to the calibration position (start position of the calibration). Calibration is required, among other things, after operations on the initiator and/or initialising of the motor. The calibration position is reached by having the crank (1) rest on the calibration pin (2) that has been moved forward.

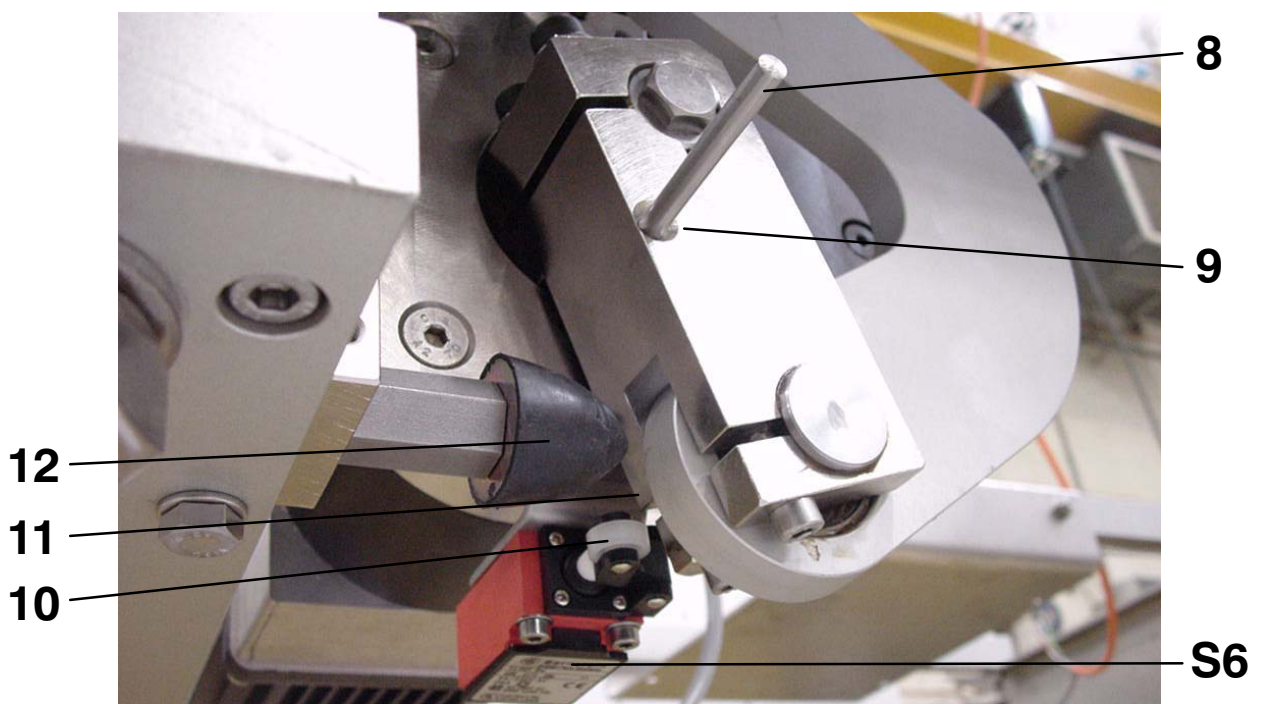
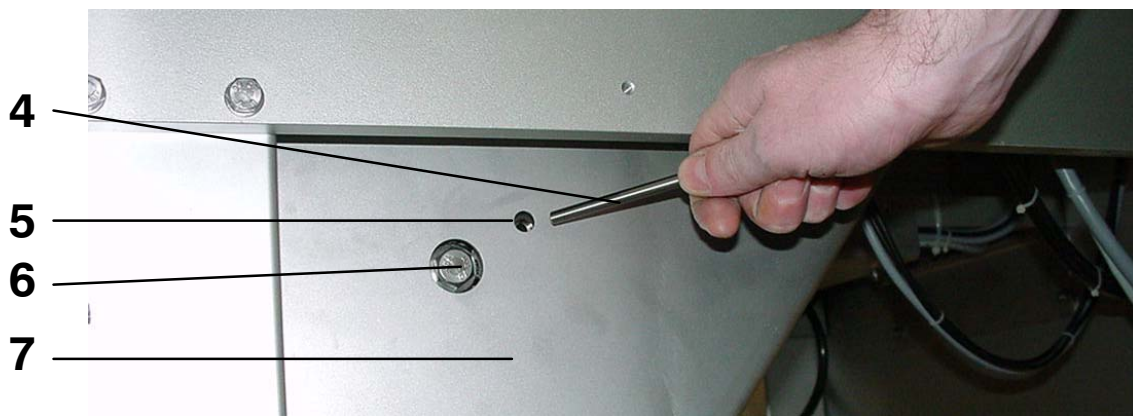
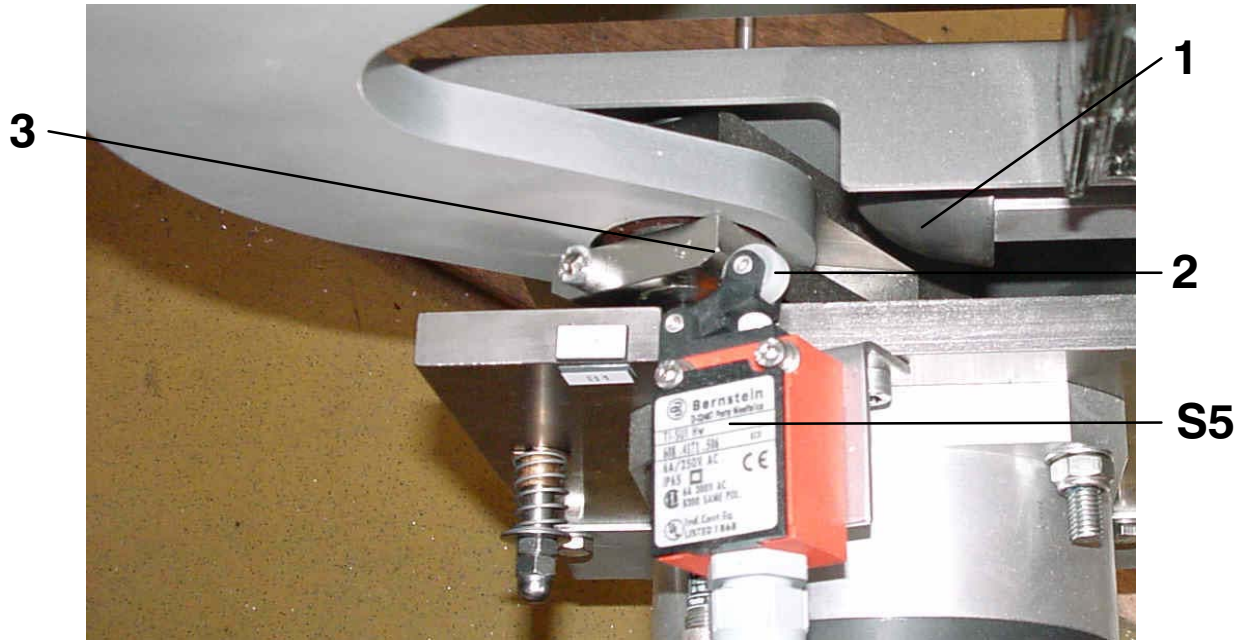
OPERATION	METHOD	REMARKS
Put the jaw housing into the calibration position	<p>Check moving direction by pressing (level 3) S-4a-7a-5a-1-2. If the movement deviates from the text of the key, the running direction of the motor must be changed, see electrical diagrams.</p> <p>See figure A. Lift the jaws housing; press the calibration pin (2) (see arrow in fig. A) and lower the jaw housing until the crank (1) rests on the pressed calibration pin (2).</p>	The movement must correspond with the text of the key.
Carry out calibration	<p>Press key (level 3) S-4a-7a-5a-1-8. The jaws housing moves upwards. Pay attention to the status report in field S-4a-7a-5a-1-4.</p> <p>See figure B. Check whether during the upward movement the calibration pin (2) has sprung back into the operation position (see arrow in fig. B). Put back manually if necessary.</p> <p>If necessary the movement of the jaw housing from the calibration position until the initiator can be looked at (level 3) S-4a-7a-5b-2.</p>	<p>The movement stops when initiator (B1) gives a signal.</p> <p>You can hear it spring back.</p> <p>About 15 - 20 mm.</p>



## 7.16 Cross-seam housing drive vertical

### 7.16.2 Replace and/or set and/or check initiator

OPERATION	METHOD	REMARKS
Replace and/or set and/or check initiator (B1)	<p>Replace initiator (B1) if necessary.</p> <p>Set the initiator at a distance of 2 mm from the side of the crank (1).</p> <p>Check initiator signal, see below.</p> <p>Calibrate movement, see the previous page.</p>	
Simple check of B1 signal (2)	Manually move the jaw housing up and down and check whether led (2) responds to the crank (1).	
Check B1 signal (2)	Press key (level 3) S-4a-7a-5a-1-7. The vertical movement stops when initiator (B1) gives a signal.	



## 7.16 Cross-seam housing drive vertical

### 7.16.3 Take jaws housing out of the upper or lower end position



#### Risk of injury

During turning out of the end position the tool may make an unexpected jerk and the jaw housing may move up or down.

OPERATION	METHOD	REMARKS
Take crank (3) out of an end position	Place tool on position (6). Carefully turn the crank (3) out of the end position, see warning above.	When crank (3) turns too far this can block in an end position.

### 7.16.4 Replace and/or set limit switches

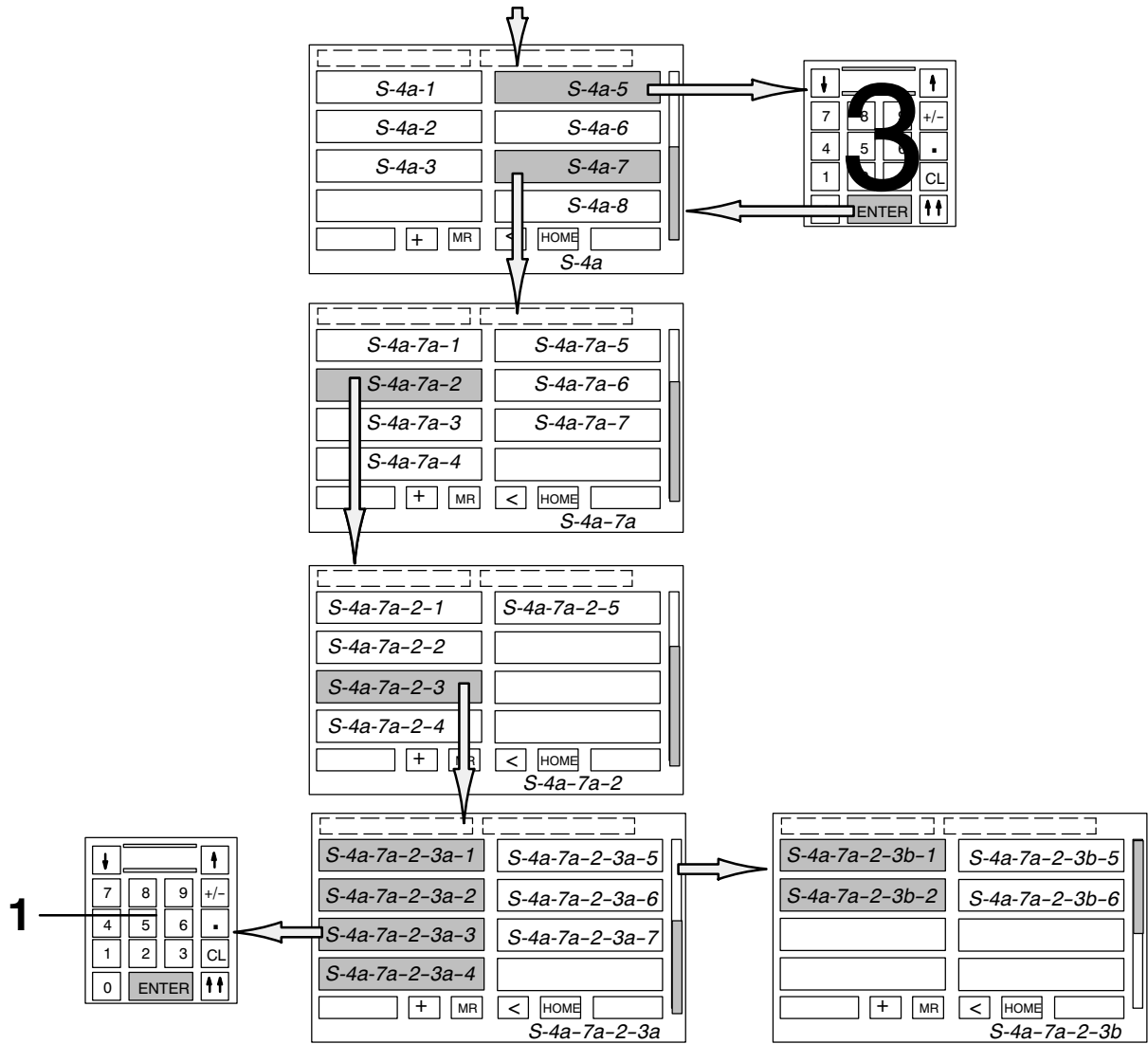
OPERATION	METHOD	REMARKS
Replace and/or set limit switch (S5)	If necessary, replace and mount limit switch (S5) as shown. One person lifts up the jaw housing and a second person inserts the delivered pin (4) into the hole (5) until the jaw housing is locked. Move the limit switch (S5) until the distance between the cam roller (2) and the crank (3) is about 0.5 mm. Lift up the jaw housing (4) and remove it.	While running the crank (3) and the cam roller (2) do not touch each other. Outside the working area the crank (3) is stopped by the stop (1).
Replace and/or set limit switch (S6)	Remove the cap (7). If necessary, replace and mount limit switch (S6) as shown. One person presses the jaw housing down and a second person inserts the delivered pin (8) into the hole (9) until the jaw housing is locked. Move the limit switch (S6) until the distance between the cam roller (10) and the crank (11) is about 0.5 mm. Press the jaw housing down and remove pin (8). Mount the cap (7).	While running the crank (11) and the cam roller (10) do not touch each other. Outside the working area the crank (11) is stopped by the stop (12).



## **7.16 Cross-seam housing drive vertical**

### **7.16.5 Replace and/or initialise servo drive**

See concerning description in chapter 8.



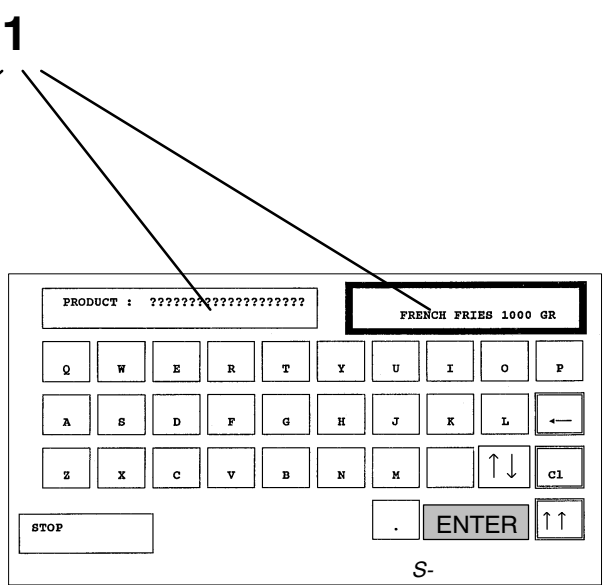
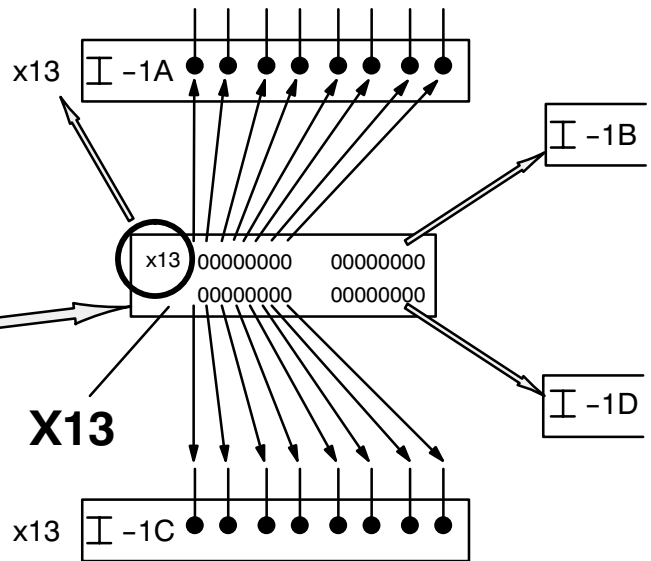
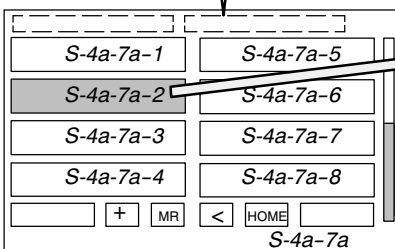
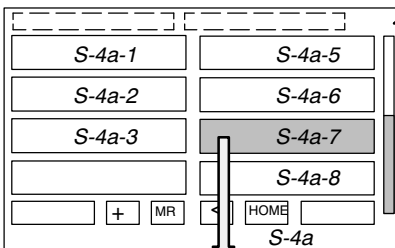
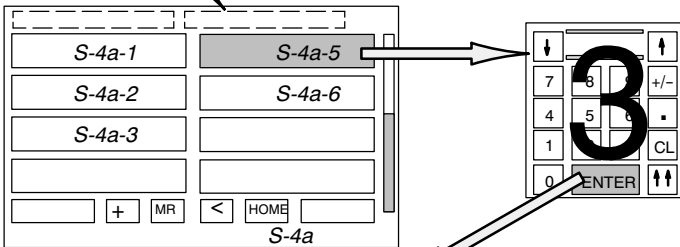
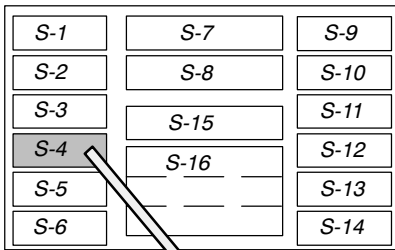


## 7.16 Cross-seam housing drive vertical

### 7.16.6 Move jaws housing up and down

Use only for making adjustments.

OPERATION	METHOD	REMARKS
Move jaws housing upwards or downwards	Press key (level 3) S-4a-7a-2-3b-1 or -2 until the jaws housing has reached the required position. Alternative: (level 3) S-4a-7a-5a-1-1 or -2. Pay attention to any error message.	
Move jaws housing to top position	Press key (level 3) S-4a-7a-2-3a-2. Push S-4a-7a-2-3a-5 if field is grey.	
Move jaws housing to B1	Press key (level 3) S-4a-7a-2-3a-6. Alternative: (level 3) S-4a-7a-5a-1-3.	
Move jaws housing to an adjustable position	Press key (level 3) S-4a-7a-2-3a-3. Enter required position. Press "Enter" in entry field (1).	Entry field (1) appears.  Jaws housing moves towards the selected position.



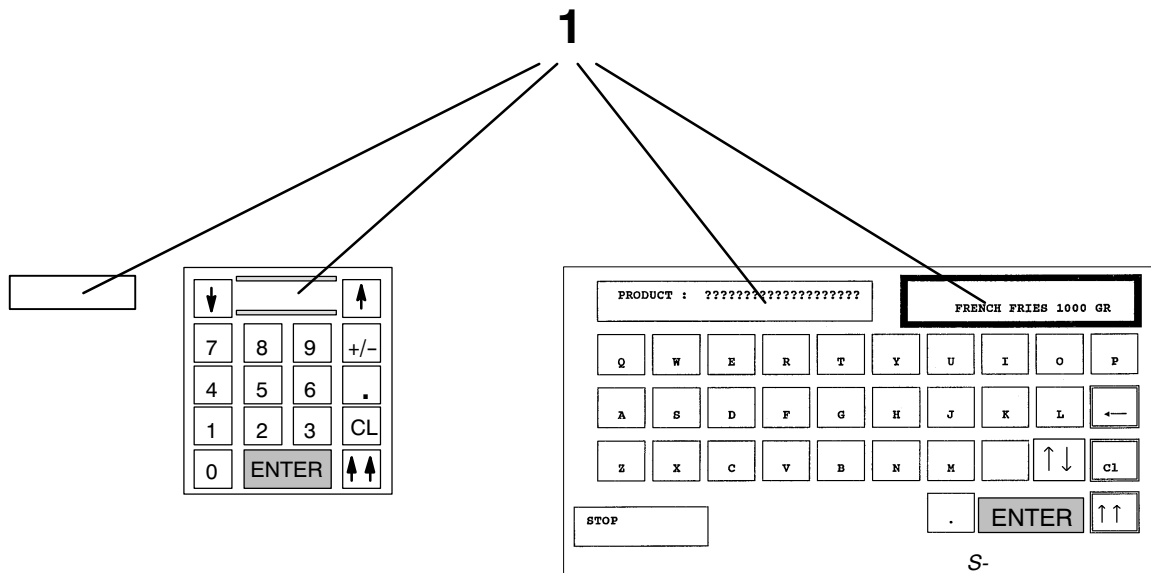
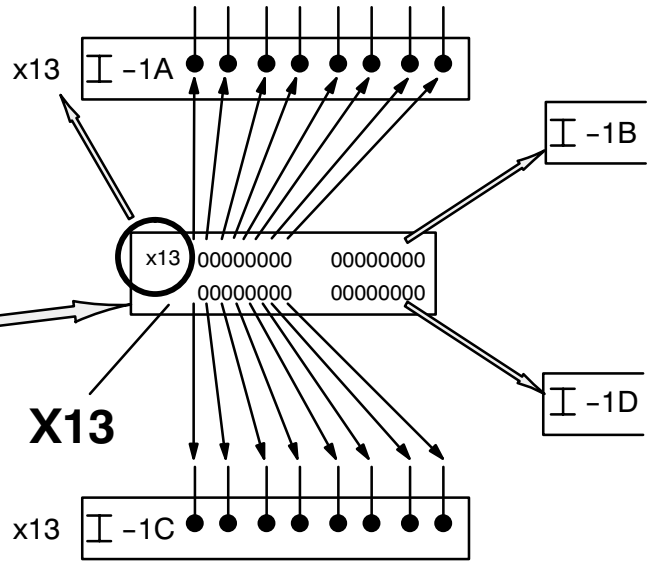
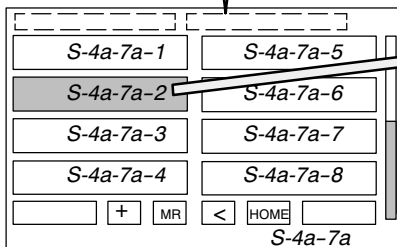
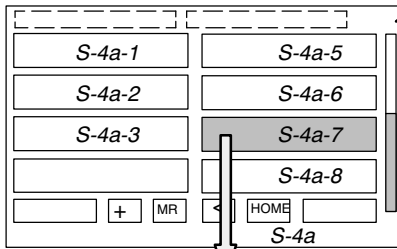
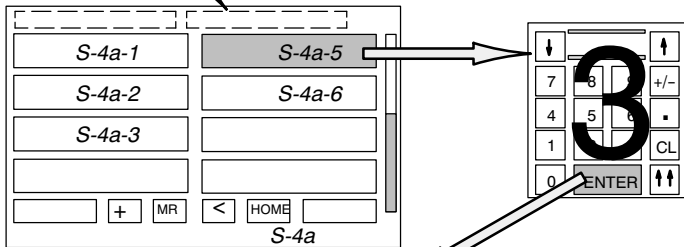
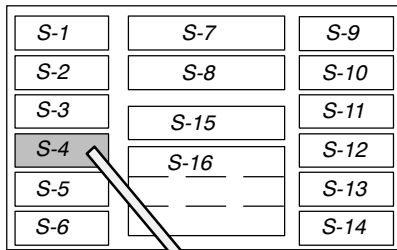
## 7.17 Machine parameters

In (level 3) S-4a-7, there are machine parameters, a number of which have been described in the previous sections. Missing information, see options from 6.21 onwards.

In (level 3) S-4b, a set-up is possible, in which the operations are shown step by step for each setting, see next section.

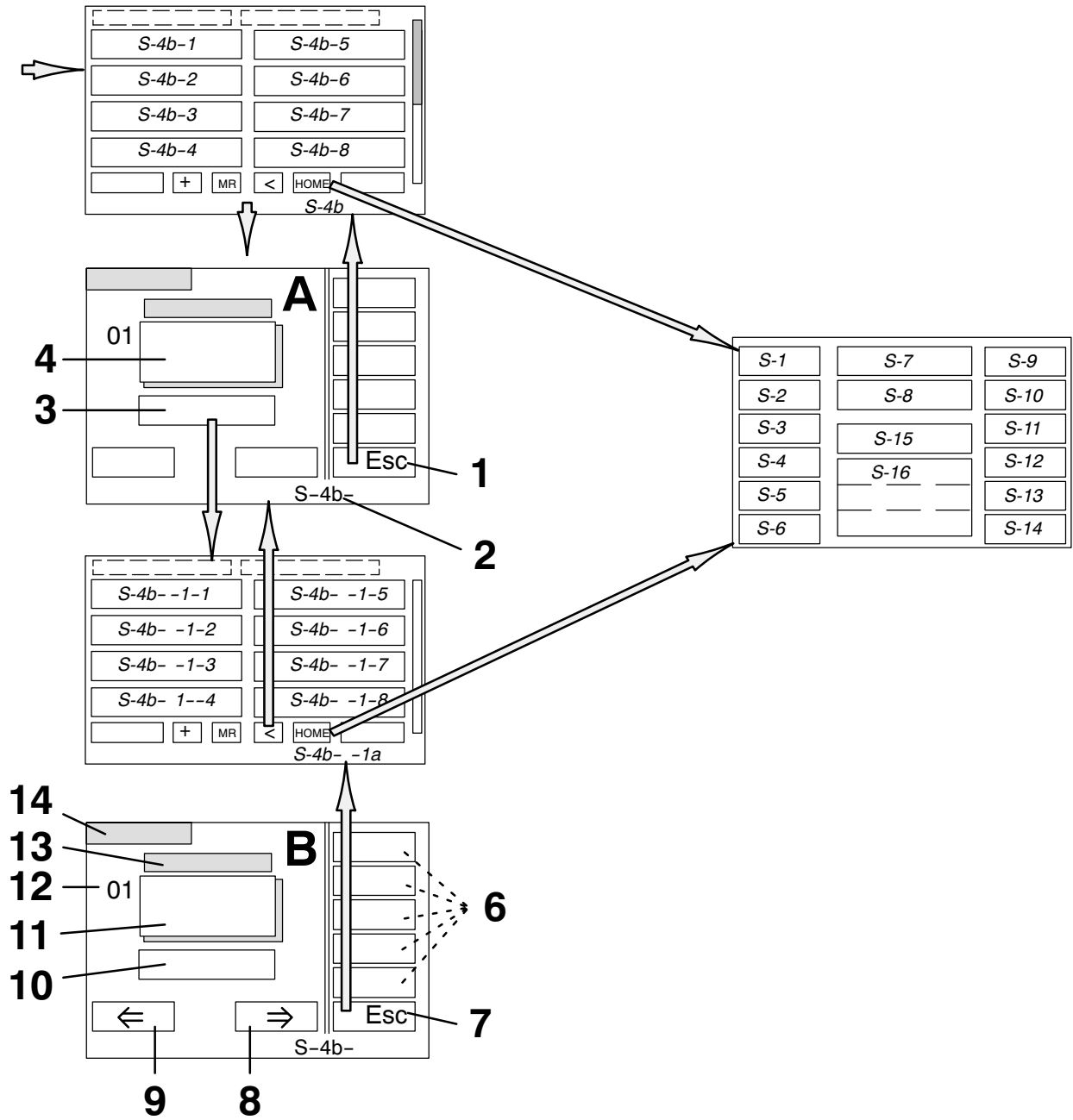
SETTINGS	REMARKS
Tension arm	See 7.9.8.
Service	<p>Machine information: provide this information to the manufacturer when a failure cannot be repaired.</p> <p>Software configuration: information for Bosch personnel.</p> <p>Monitor the status of the digital inputs and outputs: see e.g. X-13 on the left-hand page. The 8 digits at the top left correspond with the inputs (X-13) 1A in the electrical diagrams; the 8 digits at the top right correspond with the inputs (X-13) 1B in the electrical diagrams etc. A "1" means that the function is active.</p> <p>Jaws housing service: see 7.15.7 and 7.16.6.</p> <p>Initialise servo: see 7.9.10, 7.15.6 or 7.16.5 and 8.2.</p>
Times	<p>Duration of dosing demand.</p> <p>Pre-warning end of film reel: the number of minutes that the operator warning precedes the end of the film reel. The calculation depends on the film thickness and the outside diameter of the film-reel core, see 4.4.11.</p> <p>Various switching on and off delays of the various motors to give the drives/motors/controls the opportunity to start up and switch off, e.g.:</p> <ul style="list-style-type: none"> <li>-Open/close draw-off belts, see 7.9.3.</li> <li>-Vacuum pump settings, see 7.8.2.</li> <li>-Servo switching delays, see 7.9.10, 7.15.6 of 7.16.5 en 8.2.</li> <li>-Duration help window: this duration must be set sufficiently long to be able to read the information window (1) in an entry field.</li> <li>-Corner seal jaws (option), see 6.5.5.</li> </ul>
Counters	

*continued on next page*



## 7.17 Machine parameters (continued)

SETTINGS	REMARKS
Calibration	Vertical movement of the cross-seam jaw housing: see 7.16. Horizontal movement of the cross-seam jaws: see 7.15. Tension arm, see 7.9.7. Control for the long seam PE: see 6.14. Further: see the related actions and/or options in section 6 or 7.
Lamps	Set the flashing frequency of the warning lamps.
Dosing	Select dosing and the synchronisation required.
Password	See 4.4.4.
Machine options and function mode	Automatic repositioning: the cross-seam jaws move to their starting position as soon as the safety guards have been closed. Further options: See option concerned in section 6.
Cross jaws protection	See related option in section 6.
Corner seal settings	Option, see 6.5.
Further	See related actions in sections 6 or 7.



## 7.18 Set-up (if provided)

In (level 3) S-4b-5 the operations for each setting are shown step by step.

OPERATION	METHOD	REMARKS
Select set-up screen	Select the field concerned in (level 3) S-4b making screen (A) appear.	Back to the previous screen S-4b with ESC (1).
Select adjustment	Read information field (4). Press field (3) making selection screen S-4b-x-1 appear. Select the required setting in the selection screen making screen (B) appear.	Back to the start screen with HOME. Back to the previous screen (A) with < .
Implement setting	Check in field (13) whether the required setting has been selected. Read the instructions in field (11). If not applicable, press arrow (8) for the next instruction. Dependent on the instruction retrieve an entry field in field (10) or press one or more keys (6).  After having carried out the instruction, press arrow (8) for the following instruction, see field (12) for the current page number of the instructions.	Back to the selection screen with ESC (7) or arrow (9).  Back to the selection screen with ESC (7) or arrow (9). When all instructions have been carried out, after pressing arrow (8) the selection screen appears.
Back to the start screen	Press HOME.	
Return to (operator) level 1	Press S-4a-5 or S-7-5 or P-7-5. Press "ENTER" on the entry field without entry.	





<b>8.1</b>	<b>Vacuum pump</b> .....	<b>1</b>
8.1.1	Vacuum pump BECKER VT 4.25 (if supplied) .....	1
8.1.2	Vacuum pump BUSCH SV1025 (if supplied) .....	1
<b>8.2</b>	<b>Replace and/or initialise servo drive</b> .....	<b>3</b>
8.2.1	Allen Bradley DDM-019 Ultraseries and Bosch Rexroth Ecodrive .....	3
<b>8.3</b>	<b>Replace and/or initialise frequency controller</b> .....	<b>5</b>
8.3.1	Hitachi frequency controller .....	5

**Further documentation of mounted equipment, for example:**

Photocell of print mark control (if supplied)



## **8.1 Vacuum pump**

### **8.1.1 Vacuum pump BECKER VT 4.25 (if supplied)**

It is absolutely necessary to have read the BECKER Vacuum Pump Manual (section 8) before the machine is taken into operation. Also, any maintenance should be done exactly according to the instructions in the manual.

A suction filter cartridge is installed in the vacuum pump, which should be cleaned on a regular basis. See the pump manual.

An extra suction filter cartridge is installed above the vacuum pump, which becomes accessible after removing the lid. This should be cleaned on a regular basis. Interval depends on the environment.

### **8.1.2 Vacuum pump BUSCH SV1025 (if supplied)**

It is absolutely necessary to have read the BUSCH SV1025 Vacuum Pump Manual (section 8) before the machine is taken into operation. Also, any maintenance should be done exactly according to the instructions in the manual.

A suction filter cartridge is installed in the vacuum pump, which becomes accessible after removing the lid (to be removed with three hexagonal nuts).

In addition, an extra suction filter cartridge is installed above the vacuum pump, which becomes accessible after removing the lid.

The slides have a life span of approximately 4000 – 8000 operating hours, and have to be inspected.







## 8.2 Replace and/or initialise servo drive

### 8.2.1 Allen Bradley DDM-019 Ultraseries and Bosch Rexroth Ecodrive



#### Danger to life!

Touching live wires or components can be dangerous to life. Before carrying out any activities on the electrical provisions, the entire system must be disconnected from the mains. This can be done by switching off the main switch and/or by pulling the plug from the socket.



#### Instruction!

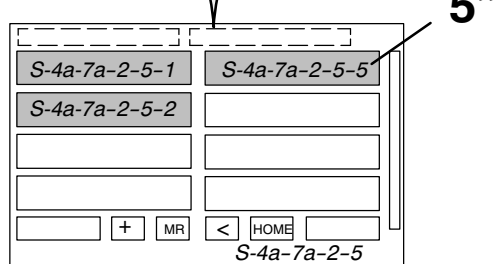
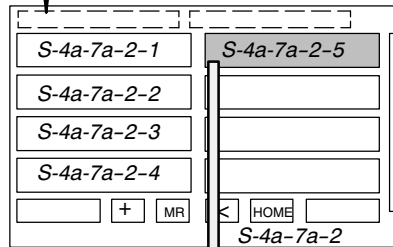
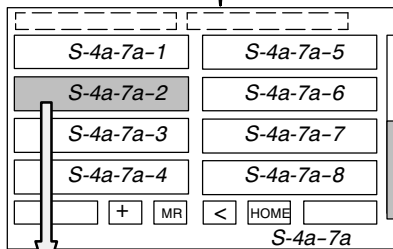
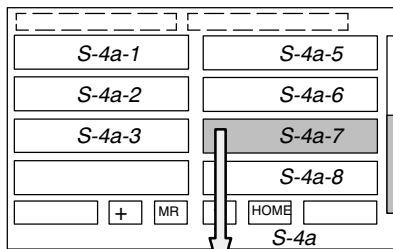
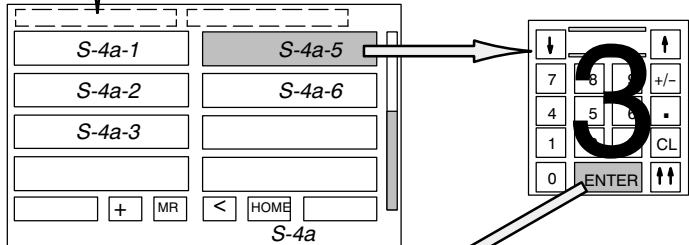
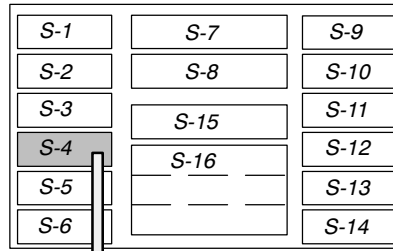
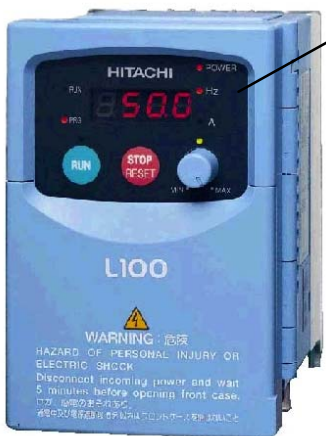
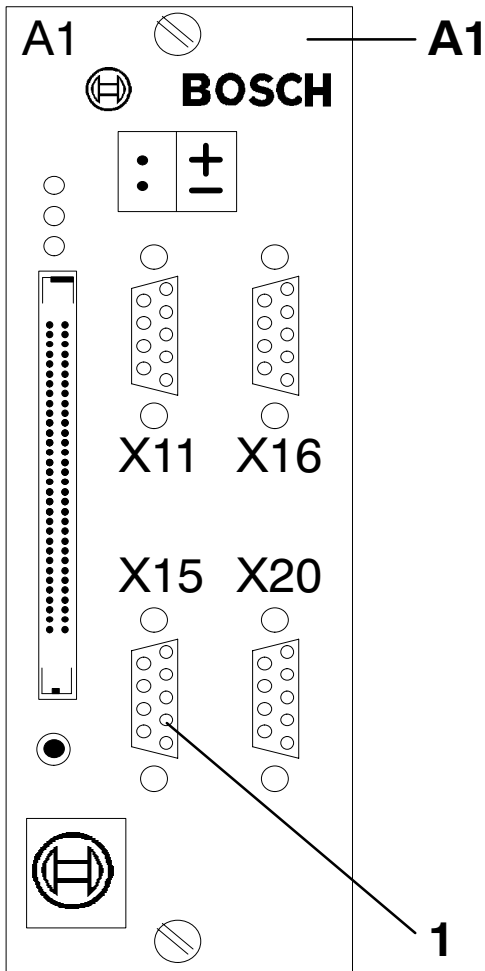
Activities on the electrical parts/components may only be carried out by an electrician in accordance with the electrotechnical regulations.

OPERATION	METHOD	NOTES
Replace drive	<p>Switch off main switch.</p> <p>Replace drive. Pay attention to the correct position of the connections.</p> <p>Only Bosch Ecodrive: Search for the relevant drive in the electrical diagrams.</p> <p>Set the drive address with the setting buttons (2) on the drive as indicated in the diagram.</p>	<p>Depending on the model delivered, see manual.</p>
Connect cable for initialisation	<p>Take the cable out of the folder on the electrical cabinet door.</p> <p>Connect plug X15 to X15 of A1.</p> <p>Connect plug J5 or X2 to J5 or X2 of servo drive.</p>	<p>A1 is at the top left in the electrical cabinet.</p>
Initialise drive	<p>Switch on main switch.</p> <p>Select the relevant drive in (level 3) S-4a-7a-2-4a or S-4a-7a-2-4b.</p> <p>Check if there is transmission in field "4" and reception in field "8". Pay attention to status report in field "5".</p> <p>With problems, check cable connections and re-initialise.</p>	<p>Bosch Ecodrive: the drive address in the text of the key must correspond with the setting buttons (2) on the drive.</p>
Miscellaneous actions	<p>Switch off the main switch.</p> <p>Disconnect plug X15 from X15 of A1.</p> <p>Disconnect plug J5 or X2 from servo drive.</p> <p>Switch on the main switch.</p> <p>Perform calibration, see Section 7.</p>	









## 8.3 Replace and/or initialise frequency controller

### 8.3.1 Hitachi frequency controller



#### Danger to life!

Touching live wires or components can be dangerous to life. Before carrying out any activities on the electrical provisions, disconnect the entire system from the mains. This may be done by switching off the main switch and/or by pulling the plug from the socket.



#### Instruction!

Activities on the electrical parts/components may only be carried out by an electrician in accordance with the electrotechnical regulations.

ACTION	METHOD	REMARKS
Replace controller	Switch off main switch. Replace controller (2).	See electrical diagrams.
Connect cable for initialisation	Take the cable out of the folder on the electrical cabinet door. Connect plug X15 to X15 of A1. Connect RJ45 plug to the RJ45 connection on the bottom side of the controller.	A1 is at the top left in the electrical cabinet.
Initialise the controller	Switch on the main switch. Select the controller concerned at (level 3) S-4a-7a-2-5. Start the initialisation Pay attention to status report in field "5". With problems, check cable connections and re-initialise.	
Miscellaneous actions	Switch off the main switch. Disconnect plug X15 from X15 of A1. Disconnect the RJ45 plug from the controller. Switch on the main switch.	







## 10 Information for ordering spare parts

When ordering spare parts please specify the following data:

- Exact machine designation and machine number (see type plate)
- Spare-part designation
- Spare-part ordering number
- Quantity required

**Notice!**

Spare part lists and drawings are compiled in a separate spare-part catalogue.

