

## 4. Machine description

### 4.1 Functions

#### 4.1.1 Intended purpose

The PEWO-pack 450 is an electrically/pneumatically controlled Straffbanderoliermaschine for grouping (bundling) of products. The groupings are stretchbanded with a film into collations.

The PEWO-therm III 450 E tightens the film using heat and creates a collation through this.

The only products that may be processed in the machine are those that have been specified in the order as complying with the intended use.

The machine is a technical tool that is only intended for professional use.

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

#### 4.1.2 Undesignated purpose

Flammable liquid materials and preparations may not be processed with the PEWO-pack 450!

Flammable materials are:

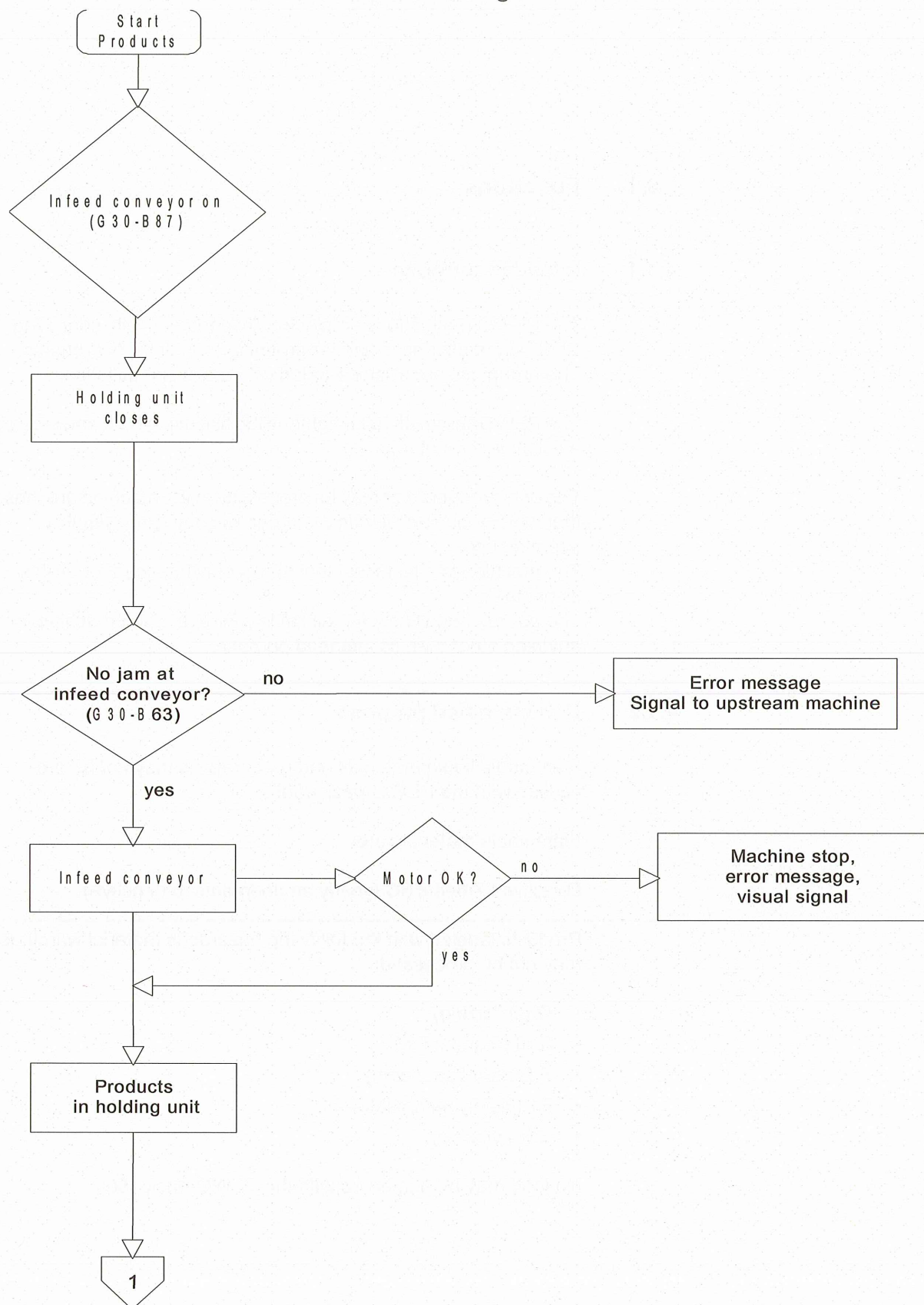
Directive 67/548/EEC (yearly amendments to directive).

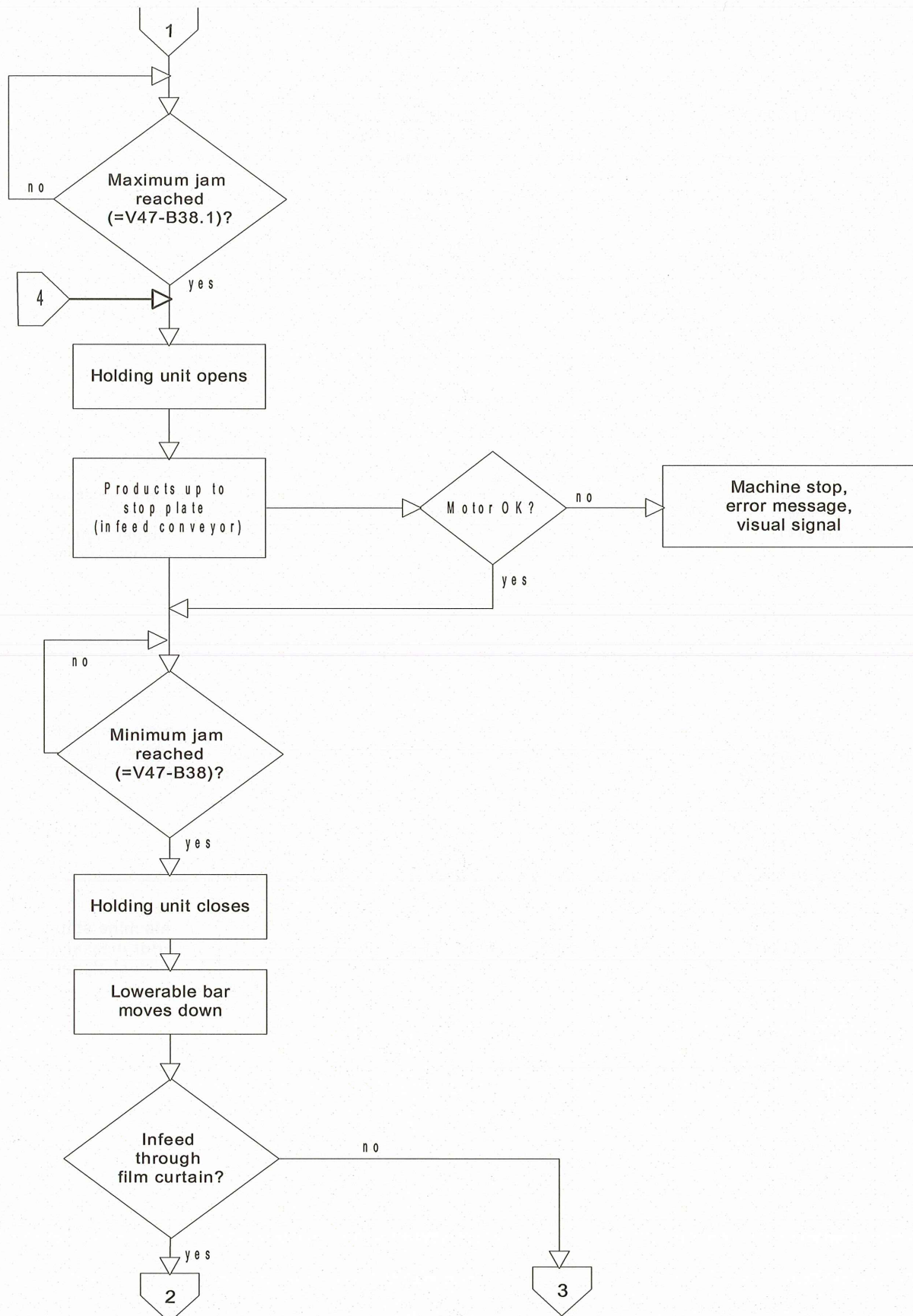
Products labeled with the following hazardous material warnings may not be processed:

- **O** (Oxidizing)
- **R10** (Flammable)
- **F** (Easily flammable)
- **F+** (Highly flammable)
- **E** (Explosive)

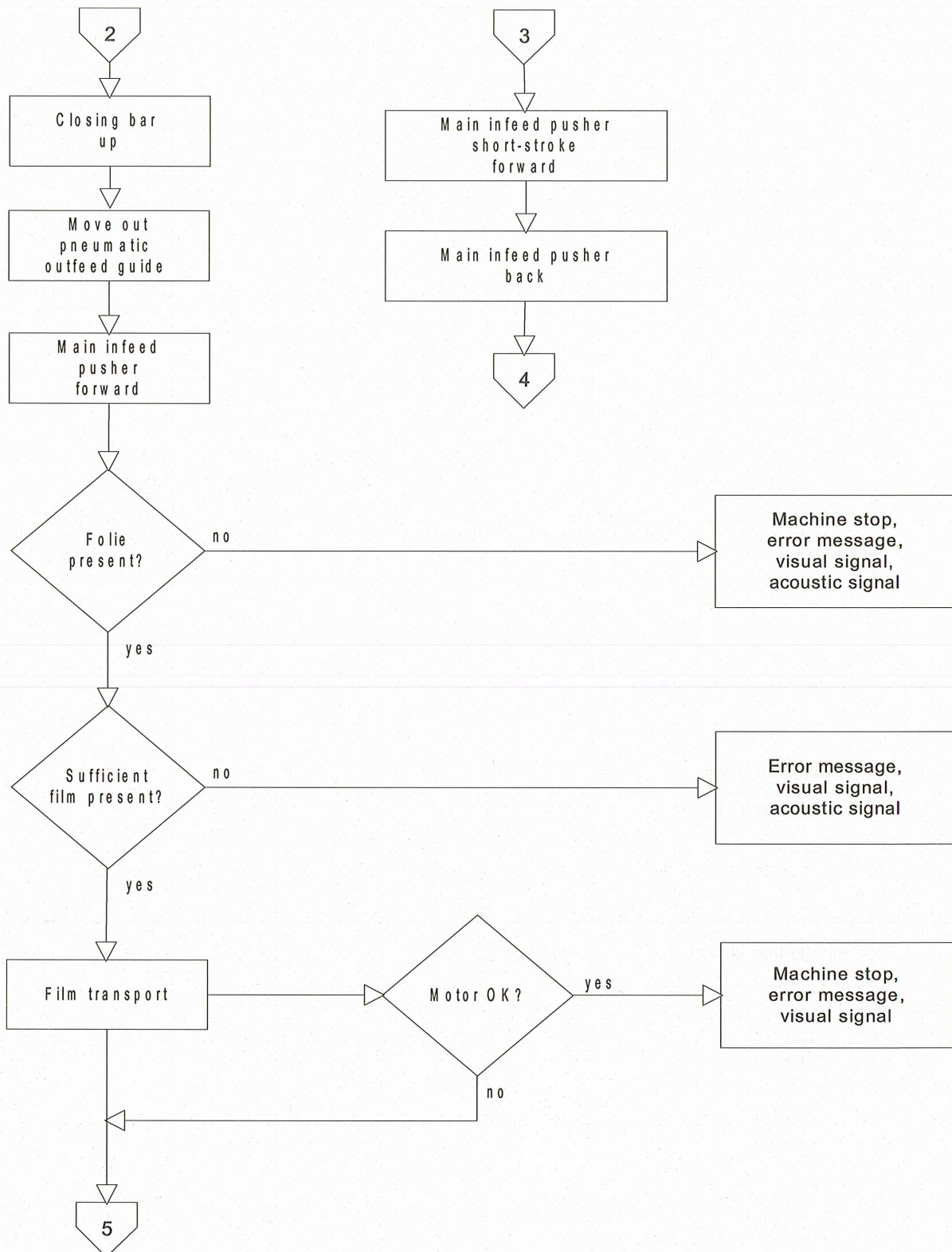
No food may be heated up with the PEWO-pack 450!

## 4.1.3 Functional diagram

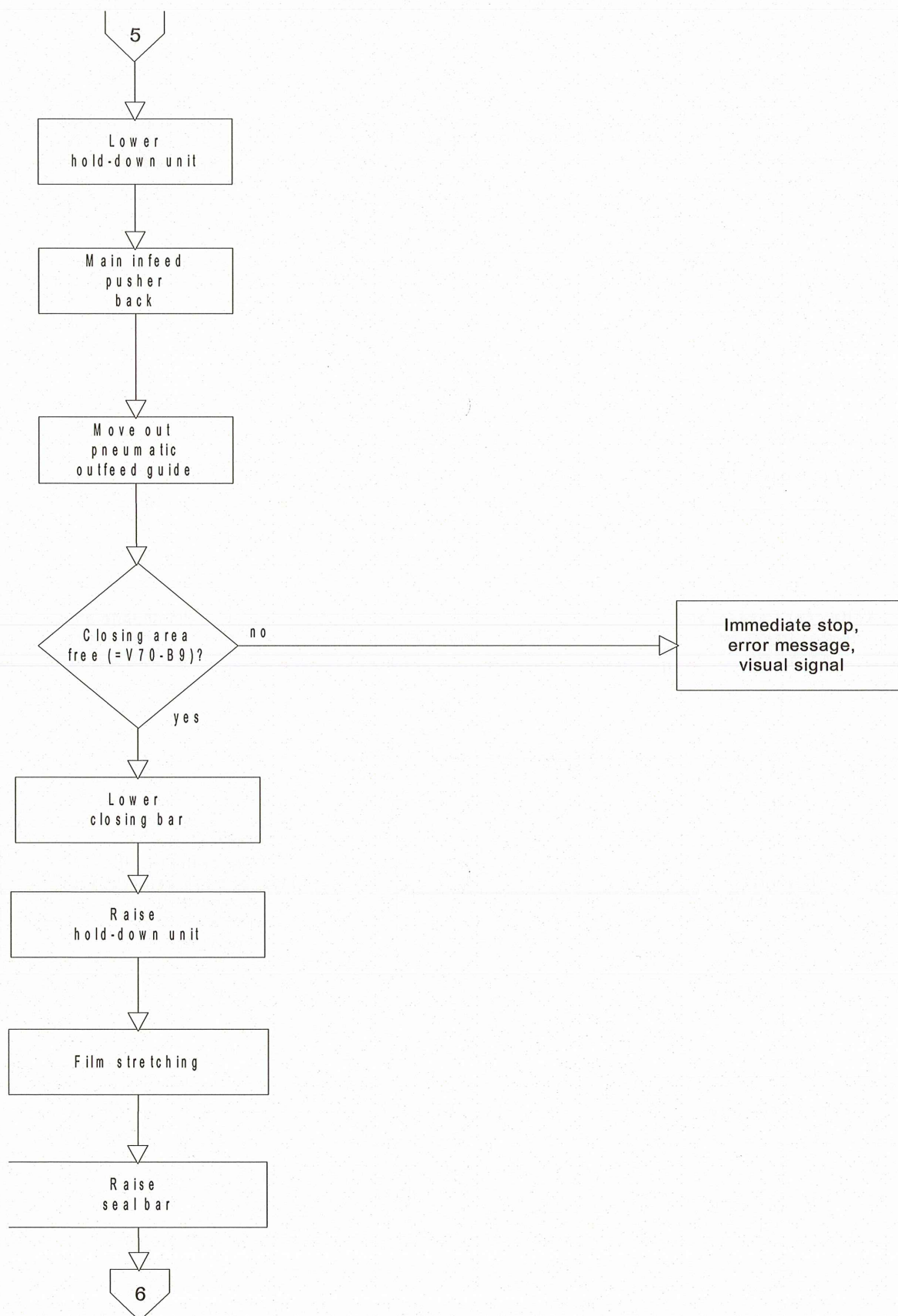


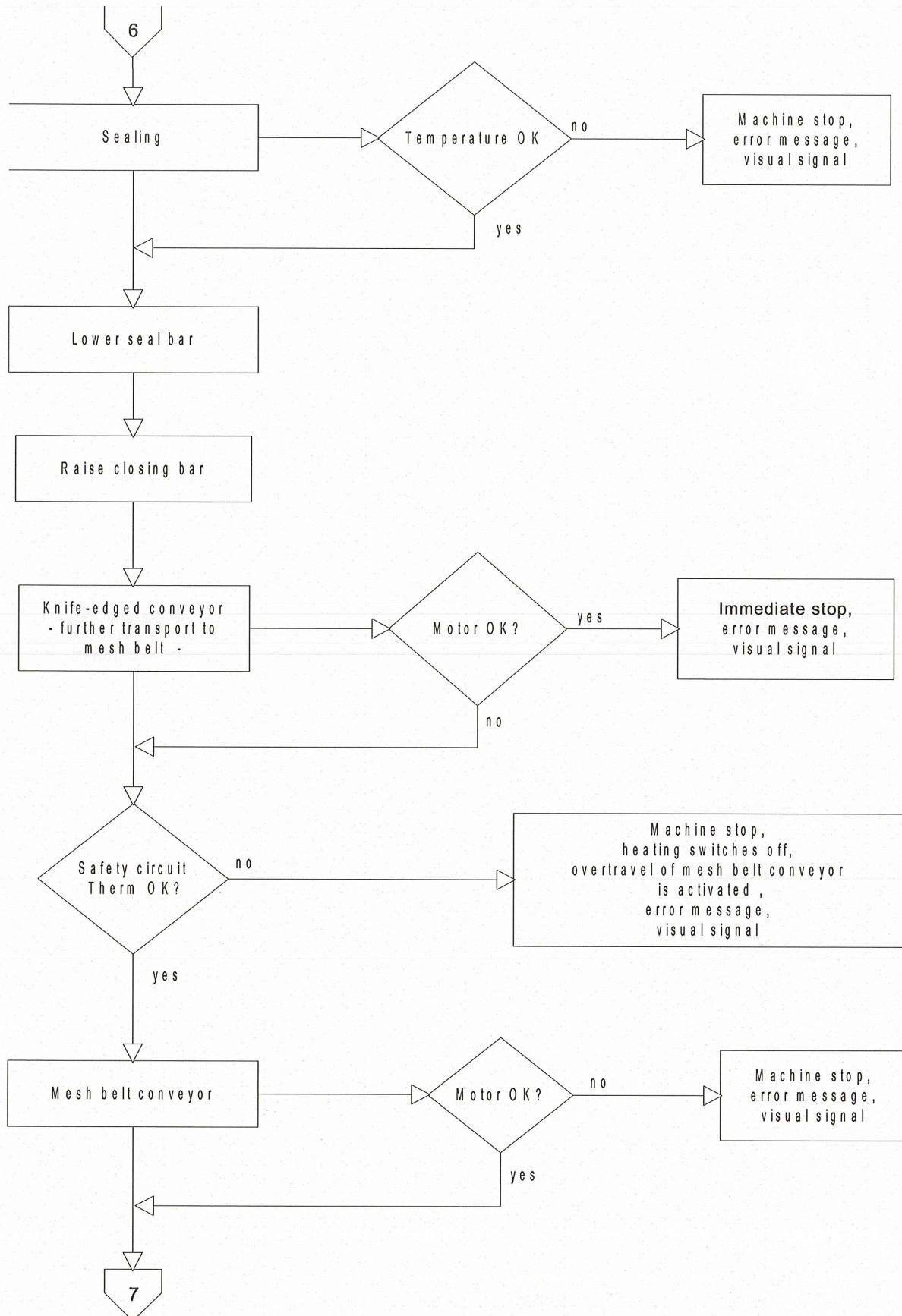


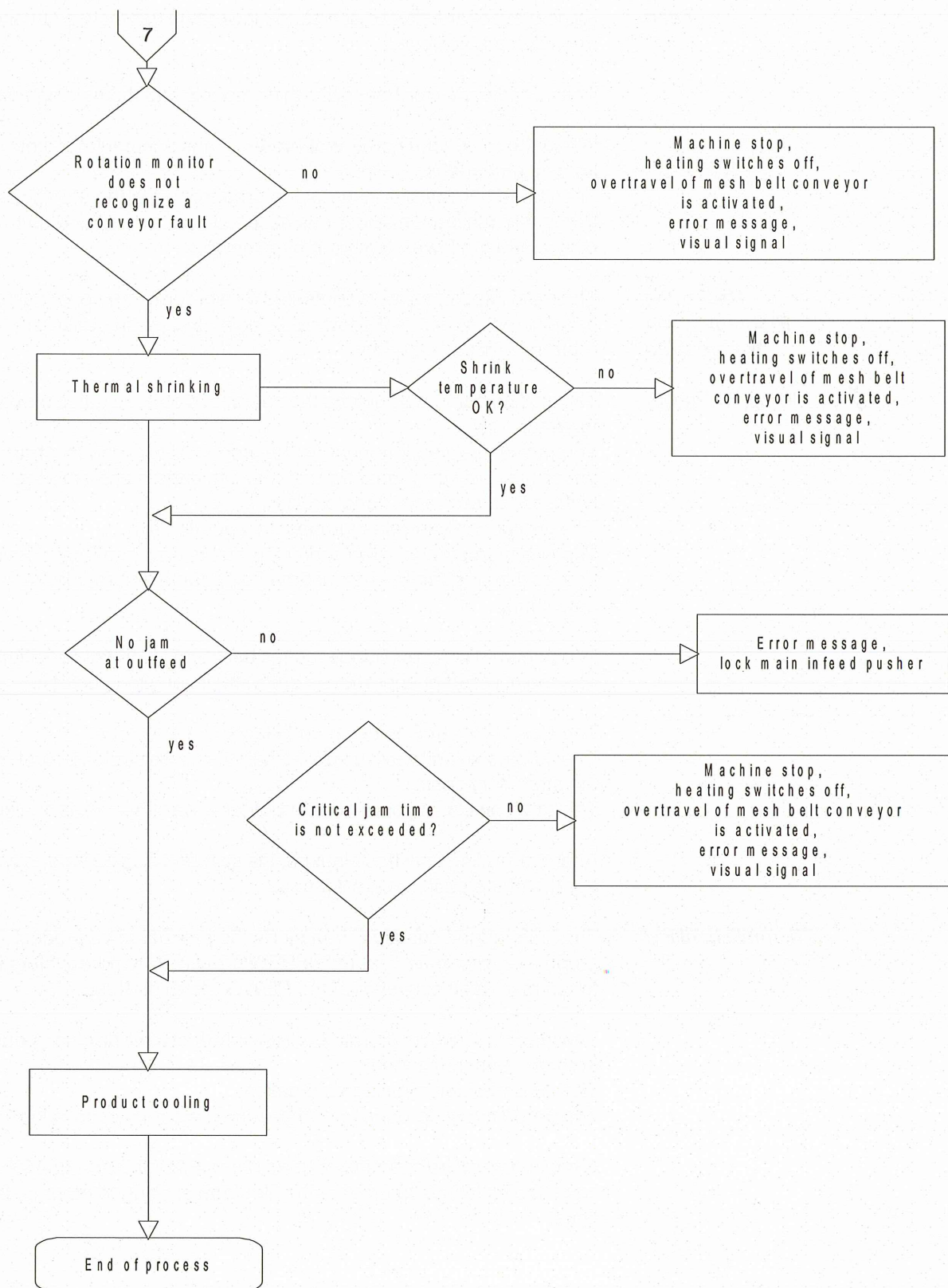














## Functional description

**Feed** All conveyors are started at first, the lowerable bar moves out and the holding unit closes.

The infeed conveyor transports the products into the holding unit.

When the maximum number of products has accumulated, the holding unit opens.

The infeed conveyor transports the products up to the stop plate. When the minimum number has accumulated, the holding unit closes and the lowerable bar moves down.

**Packaging  
Program option  
Pregrouping** The main infeed pusher is controlled by a program and pushes the product row in front of the lowered closing bar (short stroke), then returns to its end position.

**Wrapping in film** The closing bar moves up and the pneumatic outfeed guide moves forward.  
The main infeed pusher pushes the product row / product group under the hold-down unit, through the film curtain and onto the knife-edged conveyor (long stroke).  
The product row / product group is wrapped in film.  
The wrapped product row / product group is clamped from above and held in position by the pneumatically controlled rear hold-down unit.

The pneumatic outfeed guide moves back into its original position.  
The main infeed pusher moves back into its original position.

The closing bar moves down and closes the envelope.  
The hold-down unit travels upward and the film is stretched taut by the stretching shaft.  
The seal and closing bars move together – the film seam is sealed.

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

**Thermal shrinking** The knife-edged conveyor transports the product row / product group wrapped in film out of the PEWO-pack 450 and transfers it to the mesh belt conveyor of the PEWO-therm III 450 E.

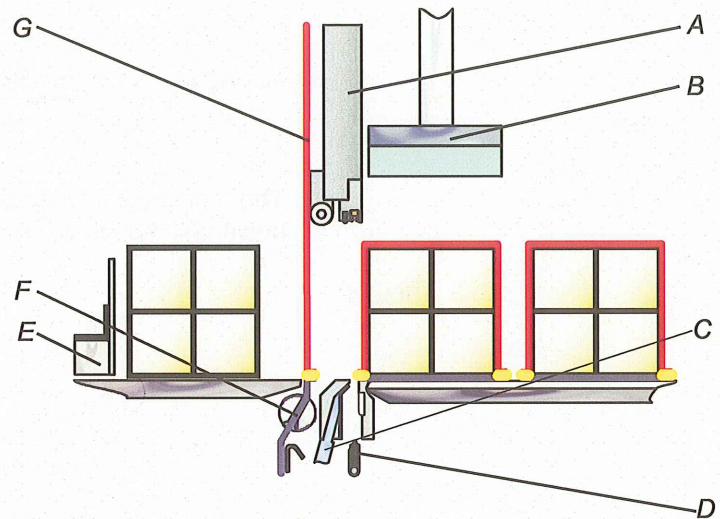
The mesh belt conveyor transports the product row / product group through the shrink tunnel.  
The film is tightened using heat action.  
The product row / product group becomes a compact collation.

A cooler fan at the machine outfeed of the PEWO-therm III 450 E cools the collations to prevent the film from sticking to other collations.

#### 4.1.4 Sealing system

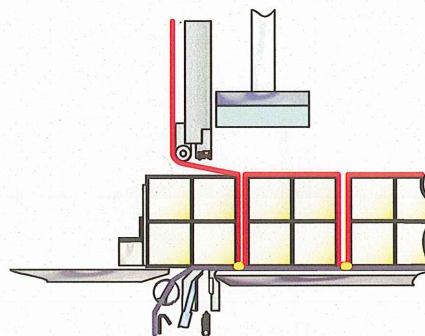
In 7 steps, the product is wrapped in film and the sealed seam is fused.

##### Step 1



- A Closing bar
- B Hold-down unit
- C Cooling
- D Seal bar
- E Main infeed pusher
- F Stretching shaft
- G Film curtain

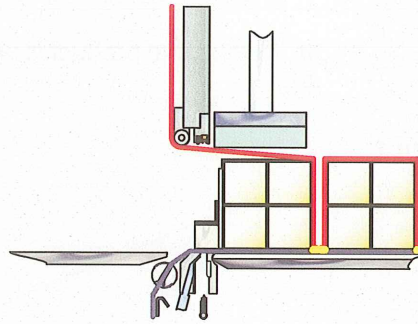
##### Step 2



The main infeed pusher forwards the product through the film curtain.

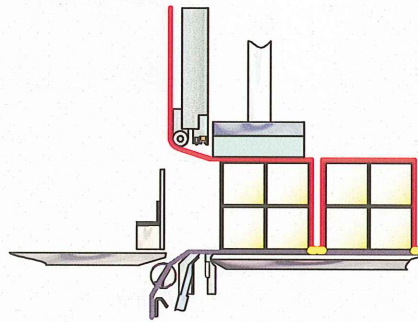


*Step 3*



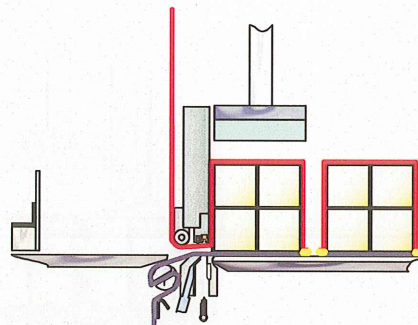
The product is pushed beneath the hold-down unit and the hold-down unit moves down.

*Step 4*



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

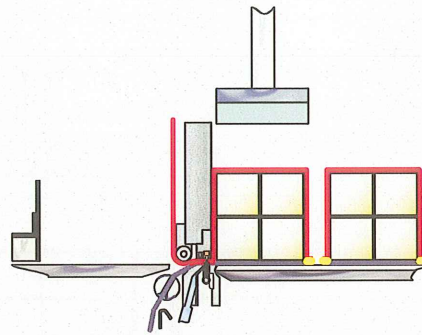
*Step 5*



The closing bar lowers, and stops just before reaching the final position. After expiration of the gap time, it moves into the final position. During the gap time, the lower film is stretched by the stretching shaft.

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



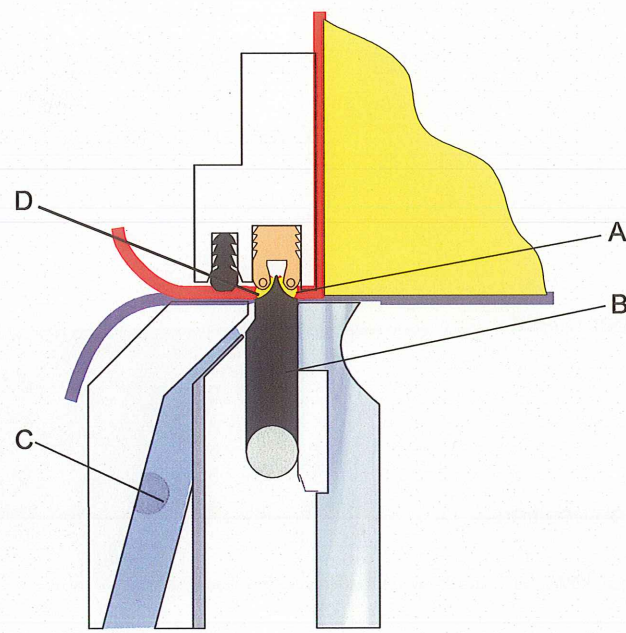
**Step 6**

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

**Clamping time** Sum of sealing time and cooling time

**Sealing time** Time period that the seal bar is located in its upper final position.

**Cooling time** Time period that the cooling is switched on.

**Detailed view**

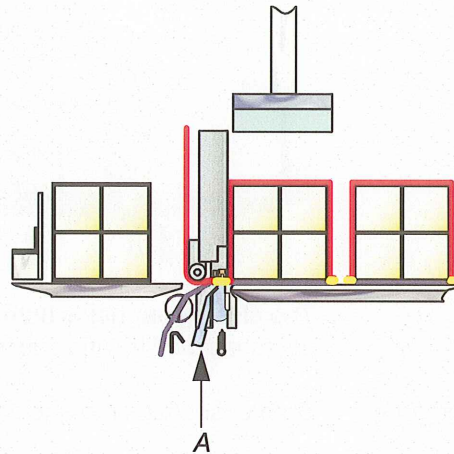
- A Collation seam
- B Seal bar
- C Air current
- D Curtain seam

The seal bar comes to a point at the top and is Teflon-coated. The seal bar is heated. As the seal bar passes through the two films, the hot point severs the films and, at the same time, fuses them. This creates a sealed seam on both sides:

- The curtain seam fuses the top and bottom films together to form the curtain for the next package.
- The collation seam seals the band around the current colla-

tion.

### Step 7

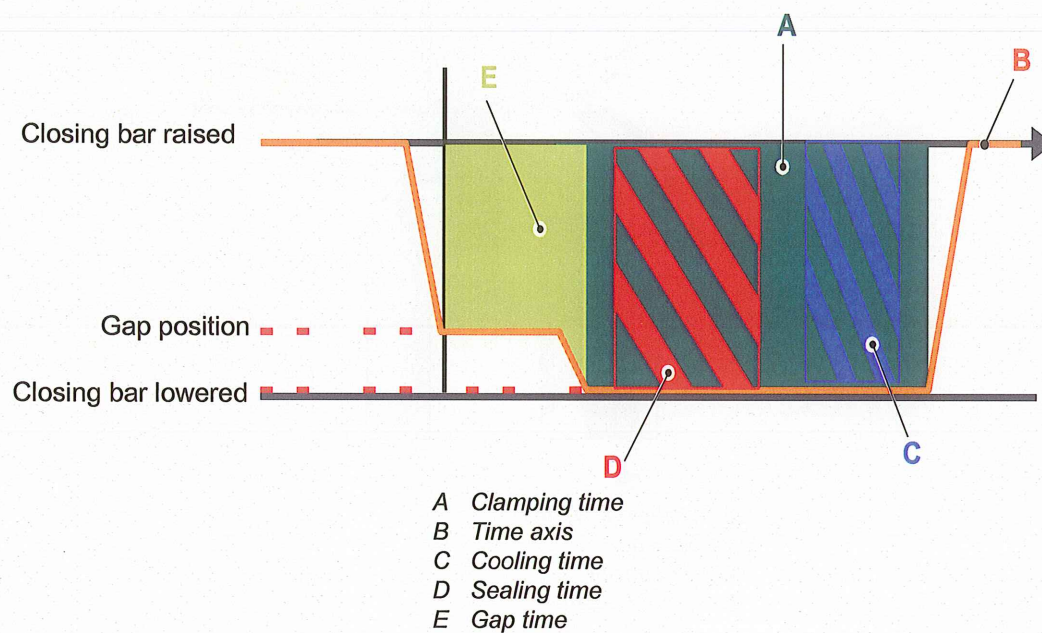


A Air current

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

### 4.1.5 Time diagram of seam generation

Overview of the stages involved in seam generation against time:





### Indicator lamps

The machine is equipped with signaling lights of several colors. They indicate the following states:



Permanent red light	Fault
Flashing orange light + horn	Shortage of packaging material
Permanent orange light + horn	End of packaging material, tear in film
Permanent green light	Machine ready for operation

## 4.2 Film processing

### 4.2.1 Film



#### *For your information*

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

The following types of film can be used:

Film type	PE
Film width	min. 50 mm - max. 450 mm
Film thickness	min. 0.025 mm - max. 0.1 mm
Roll diameter	max. 300 mm



### 4.3 Products

#### 4.3.1 Description

The products consist of plastic bottles, glass bottles and Faltschachteln that are grouped by the PEWO-pack 450 into collations.

*Passage width* Maximum passage width of machine: 450 mm.

#### 4.3.2 Product formats

No.	Product	Individual dimension (in mm)	Configuration	Collation dimension (in mm)
1	Plastic bottle	Ø 38 x 83	2 rows of 3	EB114 xEL 76 x EH83
2	Glas bottle	Ø 38 x 83	2 rows of 3	EB114 xEL 76 x EH83
3	Plastic bottle	Ø 33 x 83	2 rows of 3	EB99 xEL66 x EH83
4	Carton	70 x 67 x 70	1 rows of 3	EB210 xEL67 x EH70
5	Carton	70 x 67 x 70	2 rows of 3	EB210 xEL134 x EH70
6	Plastic bottle	Ø 63 x 107	2 rows of 3	EB189 xEL126 x EH107

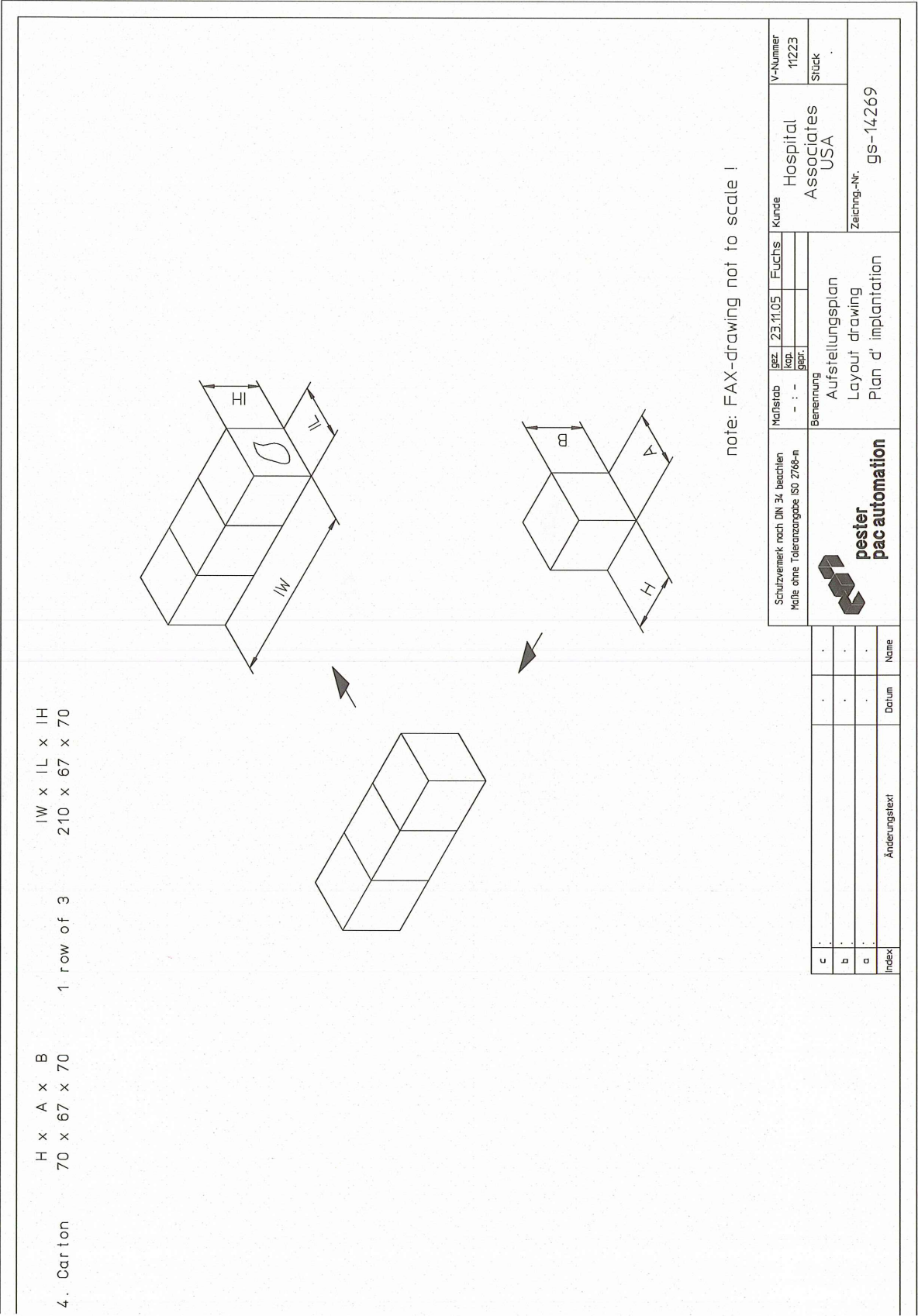
Other collation dimensions are available on request.

## Collation drawings

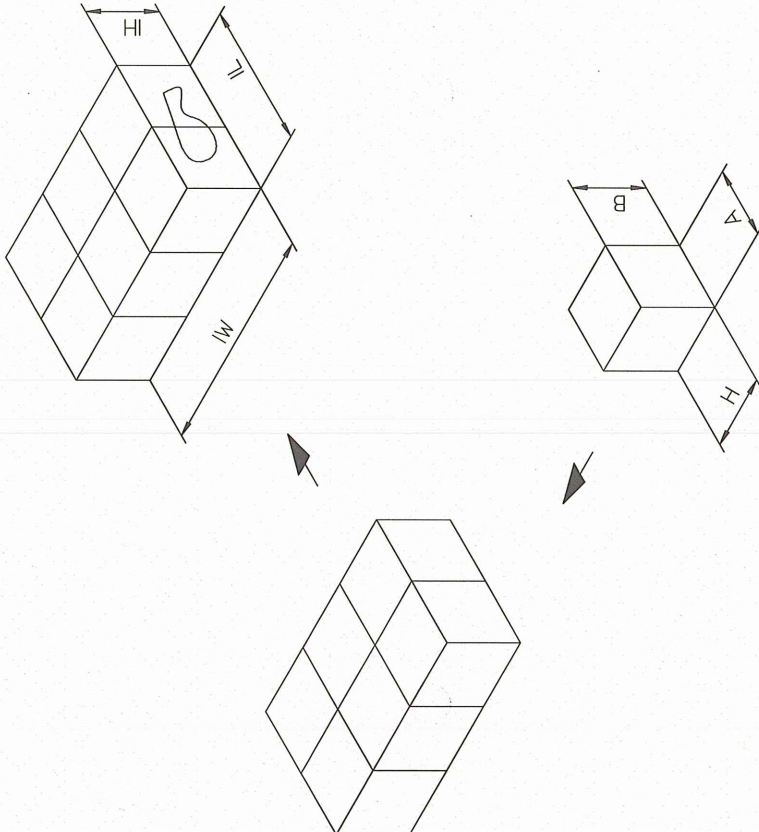

<p>1. Plastic bottle 38 Ø x 83 2 row of 3          2. Glas bottle 38 Ø x 83 2 row of 3          3. Plastic bottle 33 Ø x 83 2 row of 3</p>	<p>IW x IL x IH          114 x 76 x 83          114 x 76 x 83          99 x 66 x 83</p>				<p>note: FAX-drawing not to scale !</p>	<p>c . . .</p>	<p>b . . .</p>	<p>a . . .</p>	<p>Index</p>	<p>Änderungstext</p>	<p>Datum</p>	<p>Name</p>
<p>pester pac automation</p>												
<p>Schulzvermerk nach DIN 34 beachten          Maße ohne Toleranzangabe ISO 2768-m</p>												
<p>Maßstab</p>	<p>gezt. kop. gezt.</p>	<p>23.11.05</p>	<p>Fuchs</p>	<p>Kunde</p>		<p>Hospital Associates USA</p>	<p>V-Nummer 11223</p>	<p>stück</p>	<p>Zeichn.-Nr. gs-14268</p>			

Benennung  
 Aufstellungsplan  
 Layout drawing  
 Plan d' implantation







5. Carton	$H \times A \times B$ $70 \times 67 \times 70$	2 rows of 3	$IW \times IL \times IH$ $210 \times 134 \times 70$		note: FAX-drawing not to scale !														
 <b>pester pac automation</b>					<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Schutzvermerk nach DIN 34 beachten Maße ohne Toleranzangabe ISO 2768-m</td> <td style="width: 10%;">Maßstab - : -</td> <td style="width: 10%;">Gez. kop. gepr.</td> <td style="width: 10%;">23.11.05</td> <td style="width: 10%;">Fuchs</td> <td style="width: 15%;">Kunde Hospital Associates USA</td> <td style="width: 10%;">V-Nummer 11223 stück</td> </tr> <tr> <td colspan="6" style="text-align: center;">Benennung Aufstellungsplan Layout drawing Plan d'implantation</td> <td style="text-align: center;">Zeichn.-Nr. gs-14270</td> </tr> </table>	Schutzvermerk nach DIN 34 beachten Maße ohne Toleranzangabe ISO 2768-m	Maßstab - : -	Gez. kop. gepr.	23.11.05	Fuchs	Kunde Hospital Associates USA	V-Nummer 11223 stück	Benennung Aufstellungsplan Layout drawing Plan d'implantation						Zeichn.-Nr. gs-14270
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