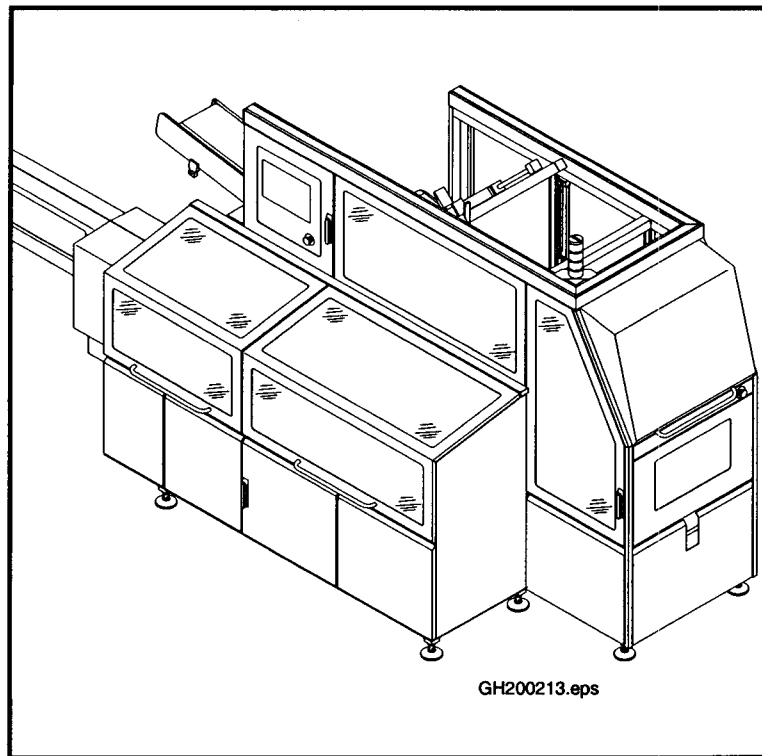


OM

Operation Manual

Tetra Cardboard Packer 70 MED infeed



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This document is valid for:

--

Series No/ Machine No

Sign.

OM

Operation Manual

Tetra Cardboard Packer 70 670272-060V

Equipment included:

MED infeed
670292-0402

Wrap around unit
670375-040V

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Doc No OM-84837-1

Issue 9510

Tetra Pak
Tetra Pak Distribution AB

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Introduction

This section contains basic information about the described Tetra Pak equipment and this document.



WARNING!

To ensure maximum safety for the operator, always read the section “**Safety precautions**” before doing any work on the machine or making any adjustments.

The purpose usage of this Tetra Pak equipment

To place Tetra Brik packages or other packages approved by Tetra Pak Distribution AB into units made of corrugated cardboard.

Service

In case of problems when operating the machine, contact the nearest Tetra Pak service station.

Manufacturer

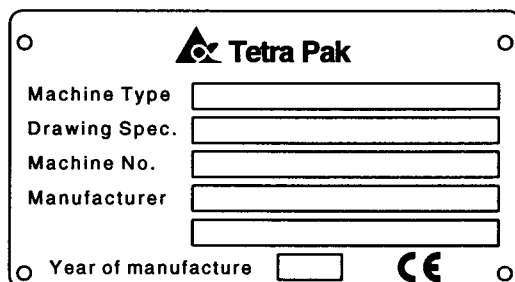
This Tetra Pak equipment is produced by:



Tetra Pak Distribution AB
Ruben Rausings gata
221 86 Lund
Sweden

Machine identification

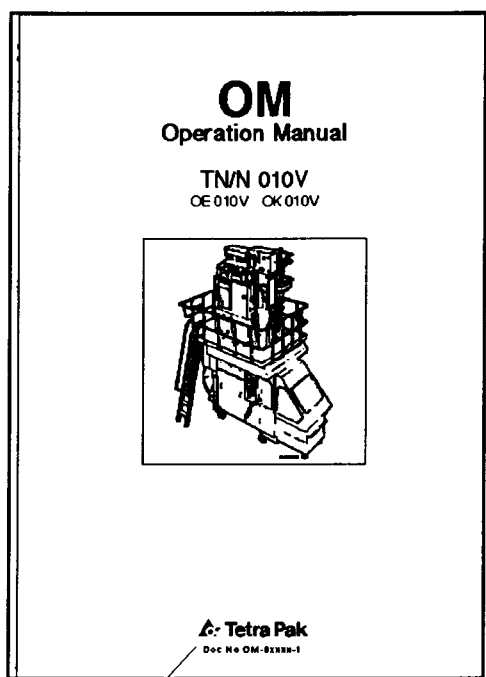
The machine plate at the left is the type of machine plate attached to the machine frame. The plate carries data needed when contacting Tetra Pak concerning this specific machine.

The plate is marked with a **CE sign**. It means that this machine complies with the **basic health and safety regulations** of the **European Economic Area (EEA)**.



	
Machine Type	<input type="text"/>
Drawing Spec.	<input type="text"/>
Machine No.	<input type="text"/>
Manufacturer	<input type="text"/>
Year of manufacture	<input type="text"/>
GH300005 	

Example of machine plate



Document number

Example of manual

Purpose of Operation Manual (OM)

The purpose of the Operation Manual is to provide the operator with information on how to handle and operate the machine before, during, and after the production. For instructions on maintenance in connection with production, see the Maintenance Manual (MM).

Design modifications

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

Document producer:

The document has been produced by:

Tetra Pak Distribution AB
Technical Publications
Ruben Rausing's gata
221 86 Lund
Sweden

Further copies

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

When ordering technical publications, always quote the **document number** printed on the front cover of the document concerned.

Number of pages

This document contains totally 52 pages.

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Safety precautions

Before any measures are taken, this section must be read.

Avoid personnel injuries and machine damages by following the instructions given.

Tetra Pak will not accept any responsibility in case of injuries and damages caused by incorrect use of the machine.



GH200053

Definitions

Skilled personnel

Service technicians: maintenance staff, specialists etc.

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

Operator: an individual that has required sufficient knowledge about operating the machine by reading the Operation Manual, OM.



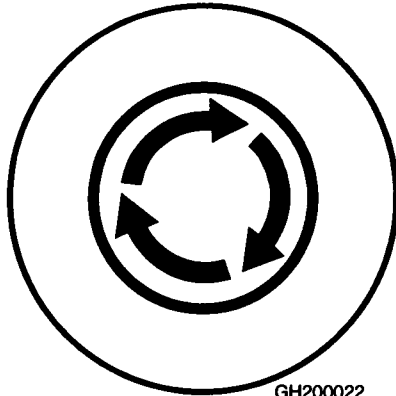
GH200053

General

Only skilled personnel is allowed to operate the machine.

The machine may only be used in the manner described in the Operation Manual, OM.

Always use hearing protectors when the machine is in operation.



GH200022

Emergency stop

When there is risk of injury or machine damage, the machine must be stopped immediately by pushing one of the four Emergency Stop buttons.

See section **General description** for location of Emergency stop buttons.



GH200211.eps

Signs

The sign to the left indicates that water must not be flushed towards the area with the sign.



Failure to observe may result in danger to your life.



GH200212.eps

The sign to the left indicates that there is a hot surface. The temperature may exceed 60° C.



Failure to observe may result in injuries caused by burning.



GH200235.eps

The sign to the left indicates that there is a risk of injuries in the area where the sign is placed.



Failure to observe may result in loss of fingers or other body parts.



GH200313.eps

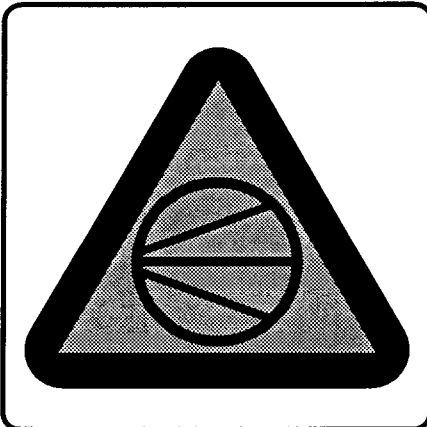
Signs (cont'd)

The sign to the left indicates that there is entrapped heat in the area where the sign is placed. The temperature may exceed 60° C.



WARNING!

Failure to observe may result in injuries caused by burning.



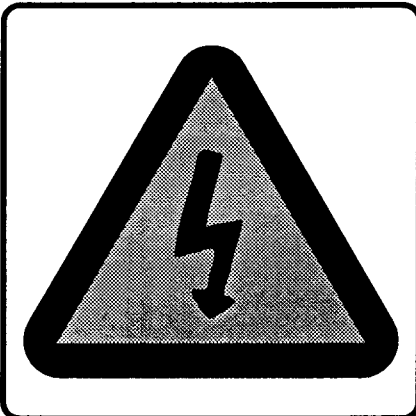
GH200471.eps

The sign to left indicates that there is entrapped compressed air in the area where the sign is placed.



WARNING!

Failure to observe may result in injuries caused by moving parts.



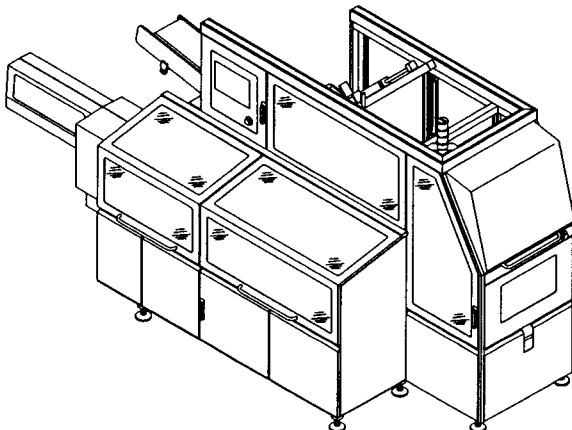
GH100276.eps

The sign to left indicates that there is a risk of electrical shock that may cause injury or death in the area where the sign is placed.



DANGER!

Failure to observe may result in danger to your life.



GH200213.eps

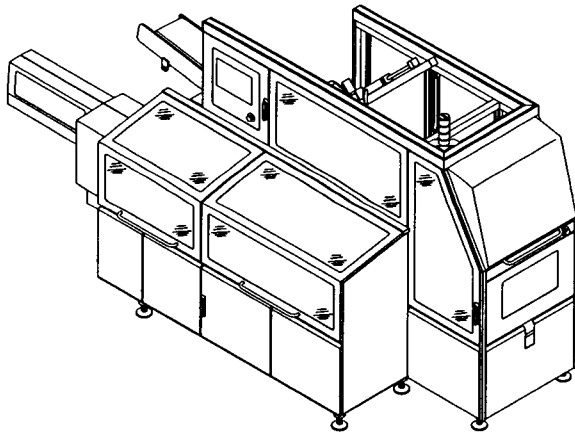
Doors



WARNING!

All doors leading to risk areas are fitted with safety switches. These switches are part of the security system and must under no circumstances be by passed, bridged, or in any other way put out of working order.

If any one of the doors on the machine are opened, it will immediately stop.



GH200213.eps

Covers



WARNING!

All covers screwed on to the machine must be securely attached, before starting the machine.



GH200053

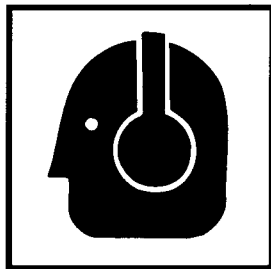
Electrical cabinet



DANGER!

The voltage is 400V inside the electrical cabinet. Can cause electrical shock or serious injury. In case of accident, immediately call for medical attention.

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



GAD00051



WARNING!

Risk of impaired hearing. Use hearing protection to minimize the risk of impaired hearing.

Always wear hearing protection while the machine is running.

Note!

Always keep the ear protectors clean.



GH200053

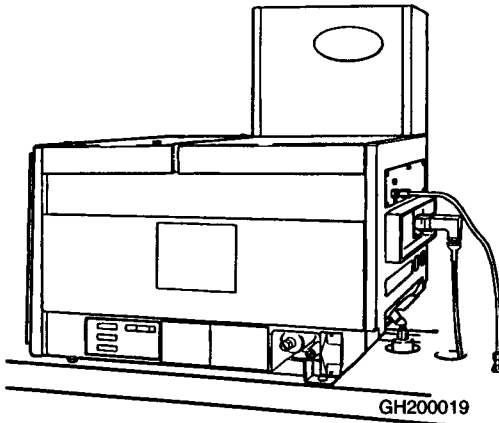
Infeed conveyor



WARNING!

If a safety cover is opened, the infeed conveyor will still be in motion. Risk of injuries.

The conveyor only stops when an Emergency stop button is pushed or when the machine is completely turned OFF.



Hot melt equipment



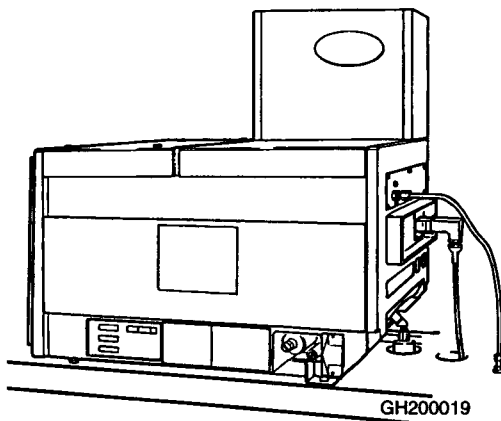
There is high voltage inside the hot melt unit. Risk of electrical shock that may cause injury or death.

Always wear safety glasses, protective gloves, and other protective clothing to avoid injuries caused by splashing hot melt material.

Never remove any part or component until air and electric power have been disconnected and the pressure of the hot melt in the system has been relieved.

Failure to relieve any remaining air or liquid (adhesive) pressure may cause serious injuries through burning.

All service work on the hot melt unit must be carried out by skilled personnel.



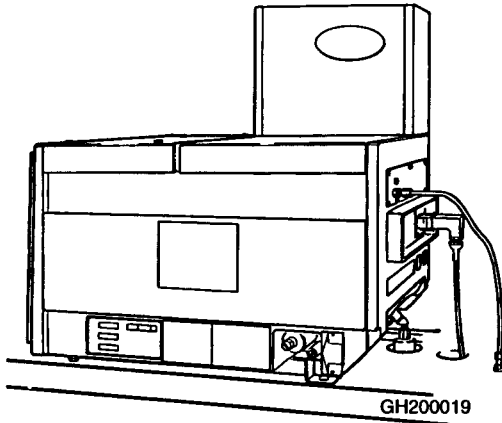
Hot melt unit



Risk of burning! During heating and production the unit gets hot. Do not touch the unit!



GH200212.eps



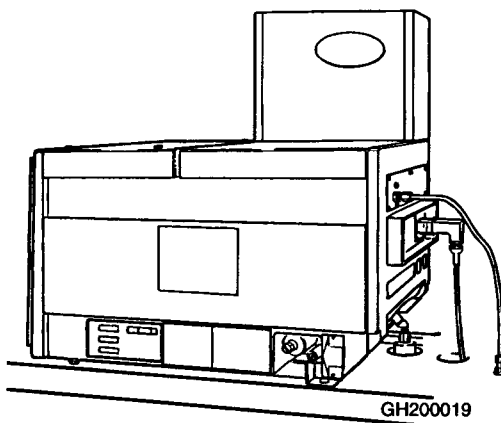
Hot melt unit



Never flush water towards the hot melt unit when cleaning the machine.



GH200211.eps



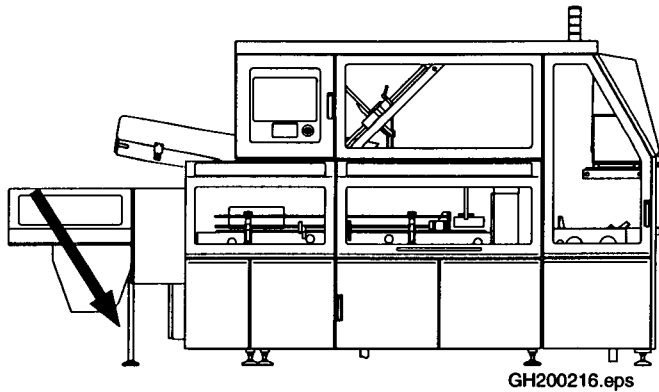
Hot melt



The hot melt tank contains heated hot melt which can cause serious injuries. Do not touch the hot melt!



GH200313.eps

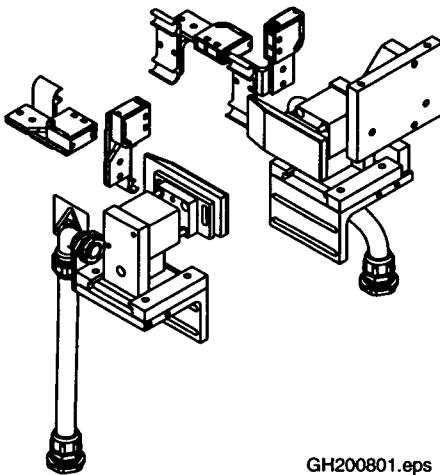


Support for infeed brake



WARNING!

The machine must not be started unless the support for the infeed brake is mounted. The support is part of the security system and must under no circumstances be dismantled.

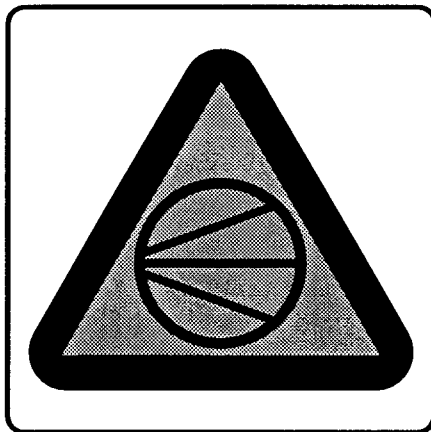


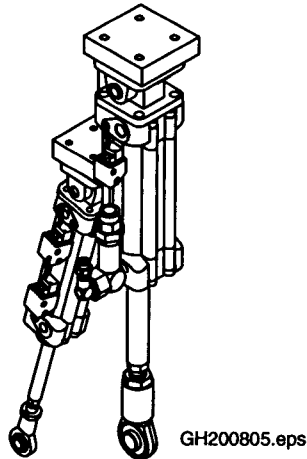
Infeed brake



WARNING!

The infeed brake contains entrapped compressed air which can cause serious injuries.





Wrap around unit

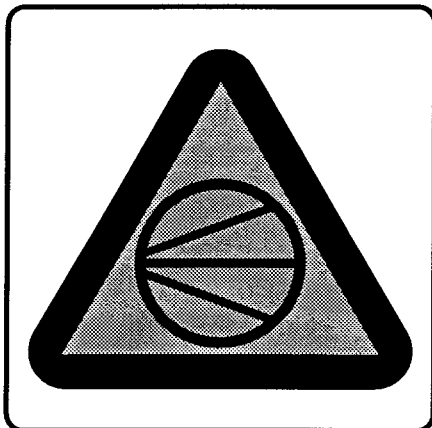


WARNING!

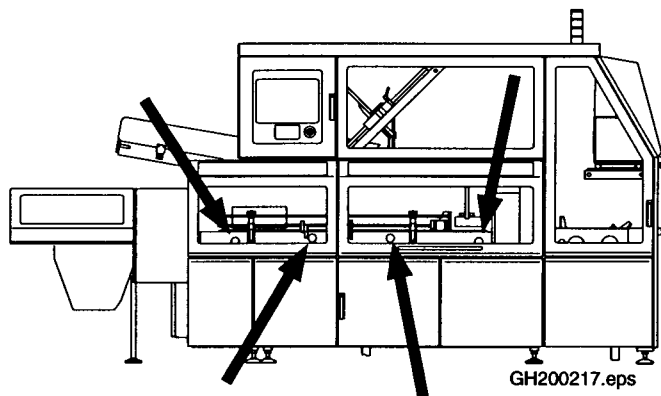
The wrap around squeezer cylinder contains entrapped compressed air which can cause serious injuries.

Note!

This warning only applies for machines equipped with a wrap around unit.



GH200471.eps



Holes in the conveyor frame

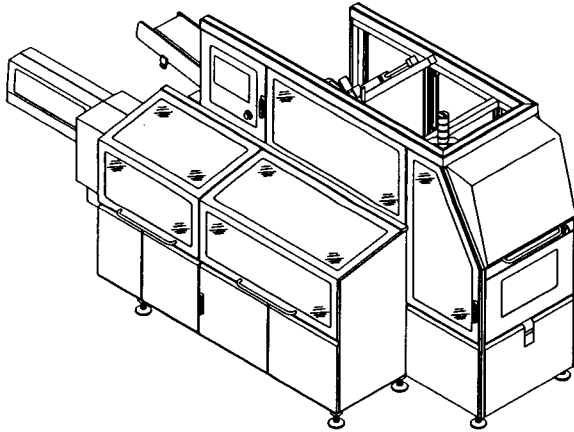


WARNING!

Do not reach into the chain through the holes. These holes are only used when washing the machine.



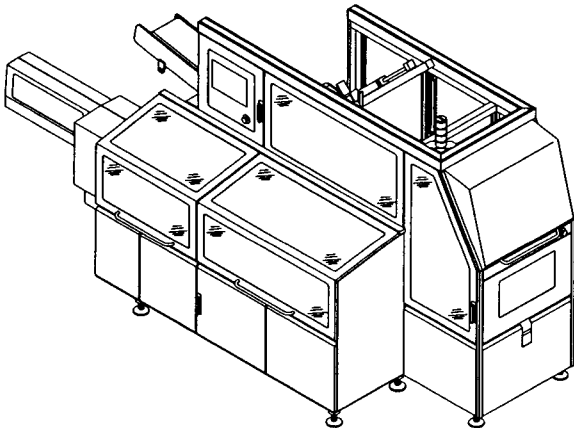
GH200235.eps



GH200213.eps

Production mode changes

All changes concerning packing pattern and infeed alternatives must be carried out by skilled personnel.

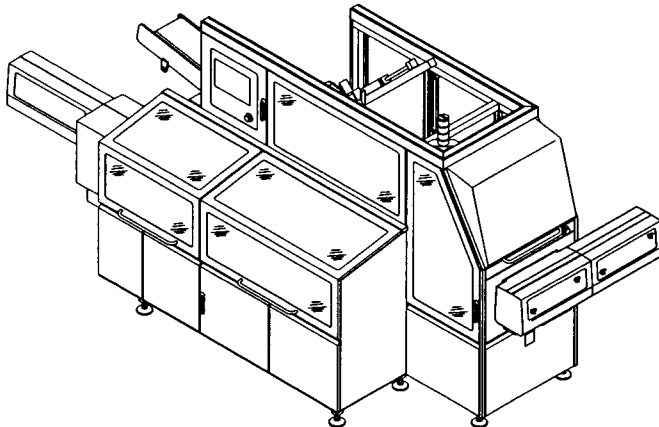


GH200213.eps



WARNING!

Do not reach into the machine neither from above or below, risk of injuries caused by crushing.



GH200214.eps

Discharge unit

The machine fulfils the safety demands only when a discharge unit with covers Tetra Pak no. C-1074350, C-1074388 is mounted or similar equipment which fulfils Machinery directive 89/392/EEC and subdirectives.

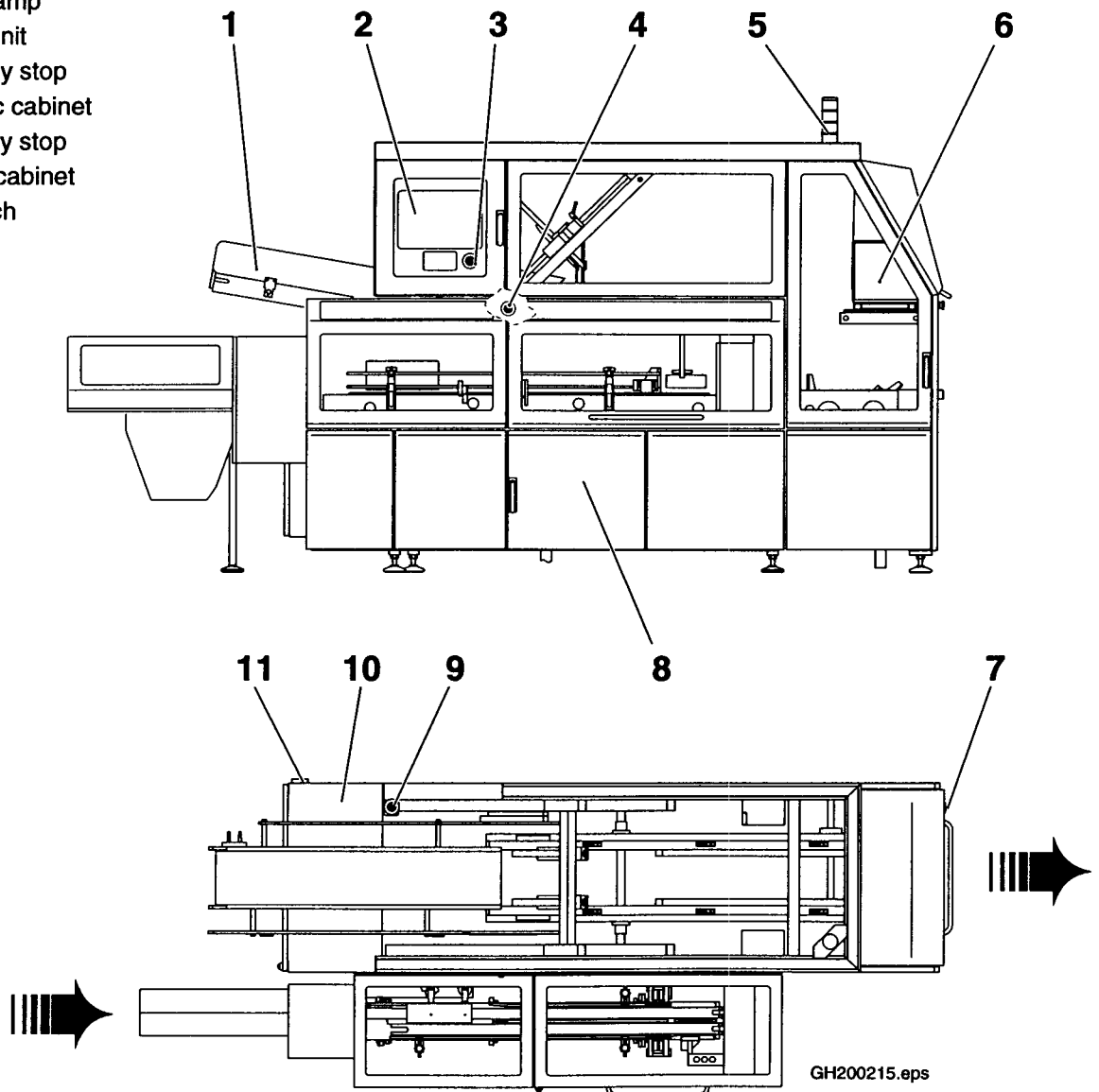
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General description

This section gives the operator information on where on the machine the parts that the operator needs to be in contact with are located and what the different regulators control.

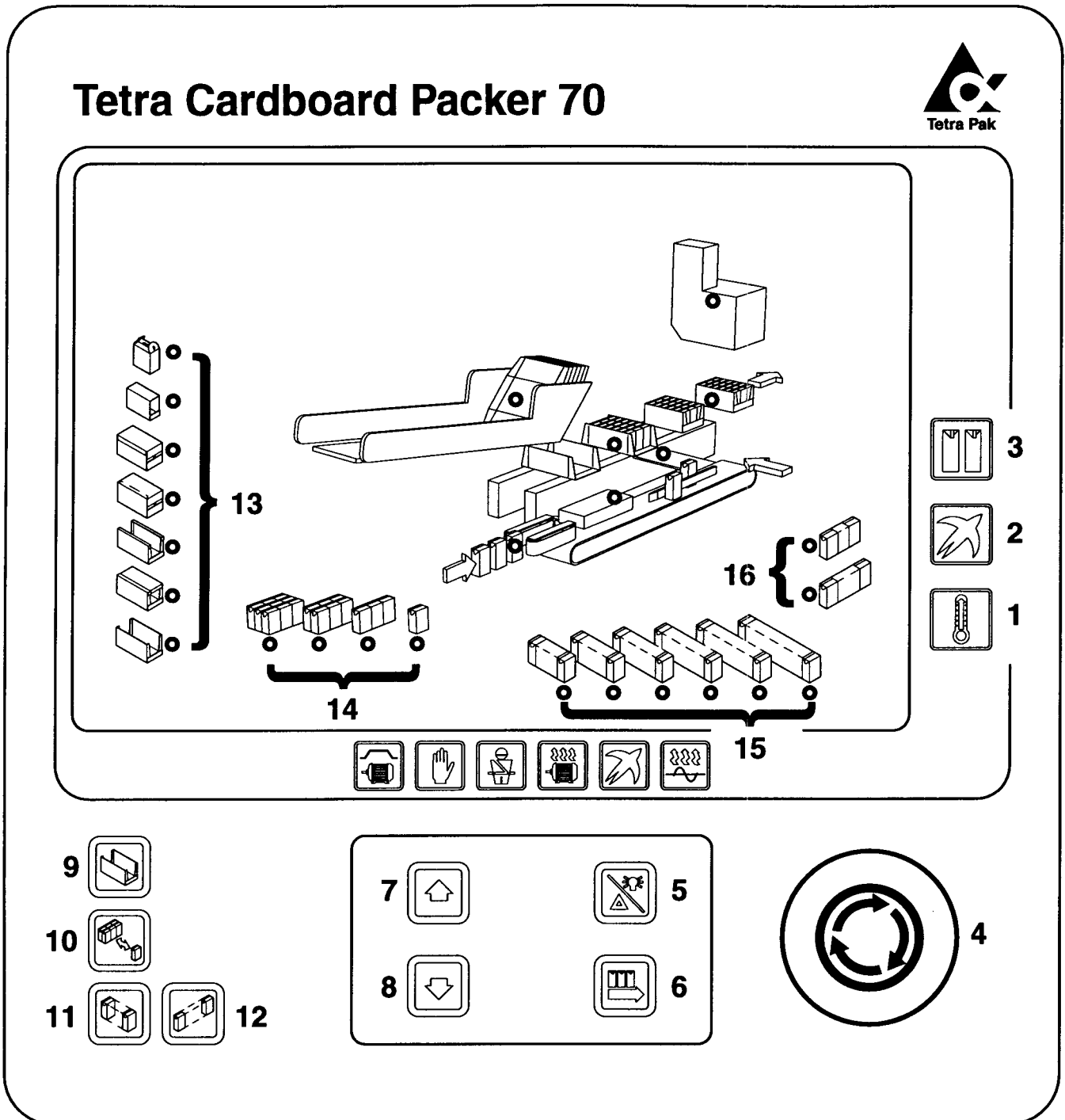
Machine overview

- 1 Blanks magazine
- 2 Control panel
- 3 Emergency stop
- 4 Emergency stop (inside the machine)
- 5 Warning lamp
- 6 Hot melt unit
- 7 Emergency stop
- 8 Pneumatic cabinet
- 9 Emergency stop
- 10 Electrical cabinet
- 11 Main switch



GH200215.eps

Status indicators and push buttons



GH200823.eps

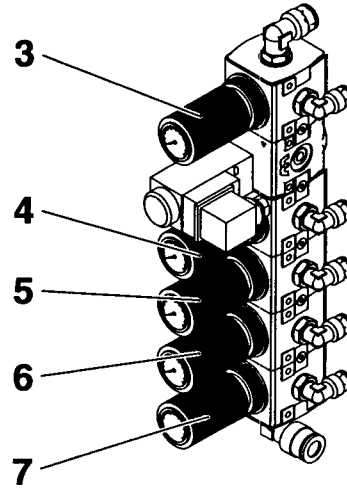
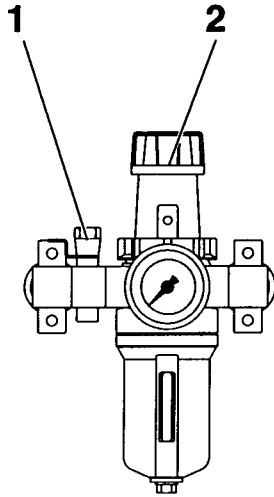
Status indicators

- 1 Step 1: Preheating
- 2 Step 2: Air pressure on
- 3 Step 3: Production
- 13 Indication, cardboard unit type
- 14 Indication, single/multi pack infeed
- 15 Indication, packing pattern length
- 16 Indication, packing pattern width

Push buttons

- 4 Emergency stop
- 5 Alarm reset
- 6 Manual emptying
- 7 Programme up
- 8 Programme down
- 9 Selector, cardboard unit type
- 10 Selector, single/multi pack infeed
- 11 Selector, packing pattern length
- 12 Selector, packing pattern width

Pressure regulators

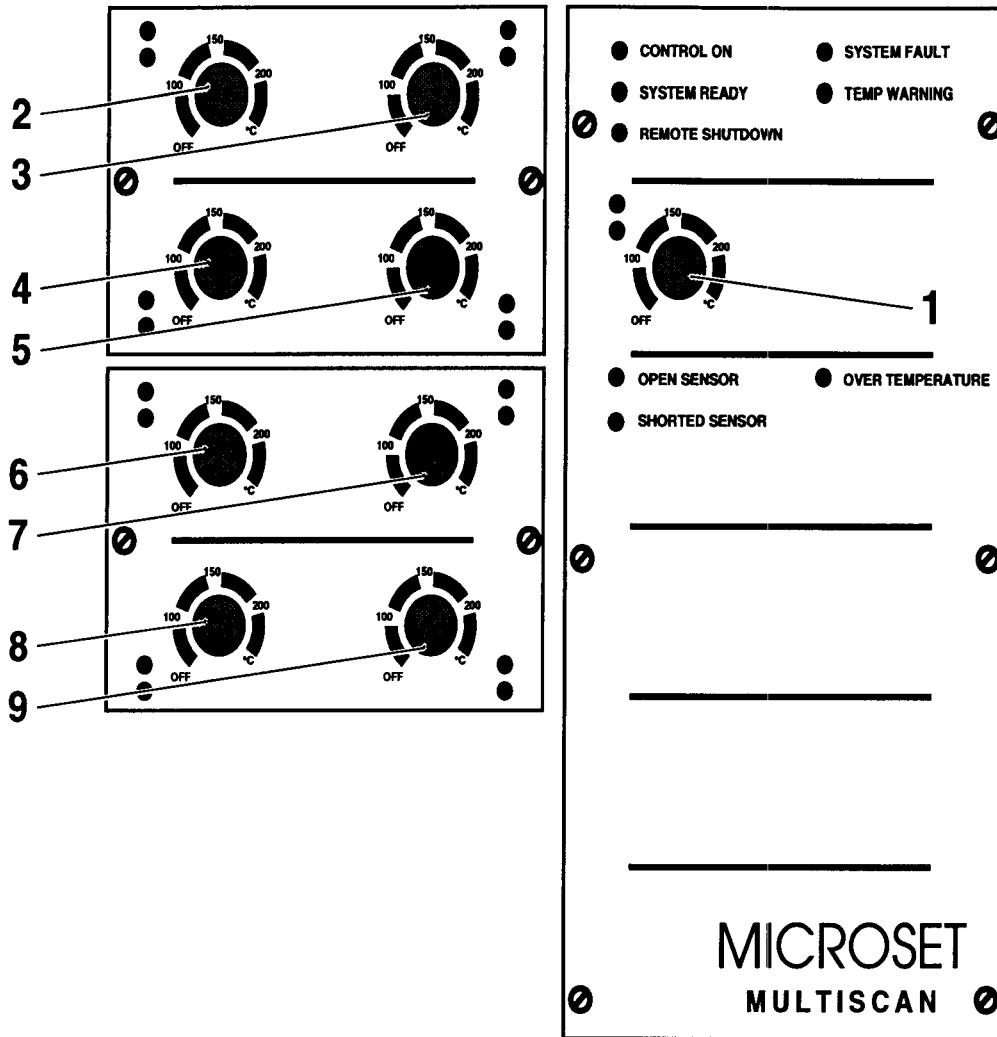


GH200209.eps

- 1 Main air valve
- 2 Pressure regulator, working pressure
- 3 Pressure regulator, vacuum, suction cups
- 4 Pressure regulator, hot melt gun, left
- 5 Pressure regulator, hot melt gun, right
- 6 Pressure regulator, hot melt unit
- 7 Pressure regulator, folding station

See section **Technical data** for settings.

Temperature regulators, hot melt unit



GH200814.eps

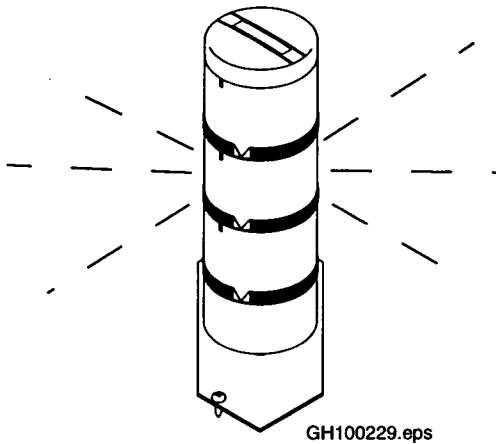
- 1 Temperature regulator, hot melt tank
- 2 Temperature regulator, hot melt gun, left
- 3 Temperature regulator, hot melt hose, left
- 4 Temperature regulator, hot melt gun, right
- 5 Temperature regulator, hot melt hose, right
- 6 Temperature regulator, hot melt gun, wrap around, right

- 7 Temperature regulator, hot melt hose, wrap around, right
- 8 Temperature regulator, hot melt gun, wrap around, left
- 9 Temperature regulator, hot melt hose, wrap around, left

See section **Technical data** for settings.

Alarms / Troubleshooting

This section describes all the alarms that can appear and the actions that the operator should take to correct them.

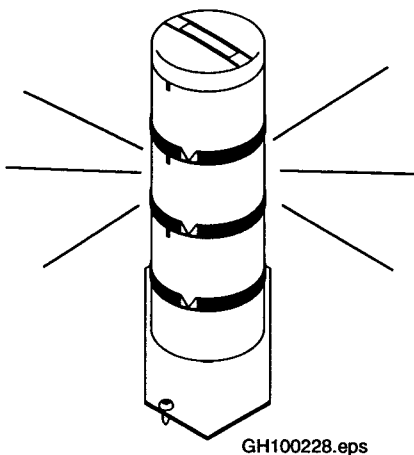


Warning lamp

When one of the three colours of the warning lamp flashes, an alarm has been triggered.

Depending on what kind of alarm that has been triggered, the result is as follows:

- If the red colour, at the top, is flashing, this indicates a dangerous status such as a fault in the supervision circuit of the doors. This requires an immediate action from the operator.
- If the yellow colour, in the middle, is flashing, this indicates an abnormal status such as low air pressure during production. This requires an immediate action from the operator.
- If the blue colour, at the bottom, is flashing, this indicates an alarm that requires some action from the operator, such as loading new blanks into the magazine.

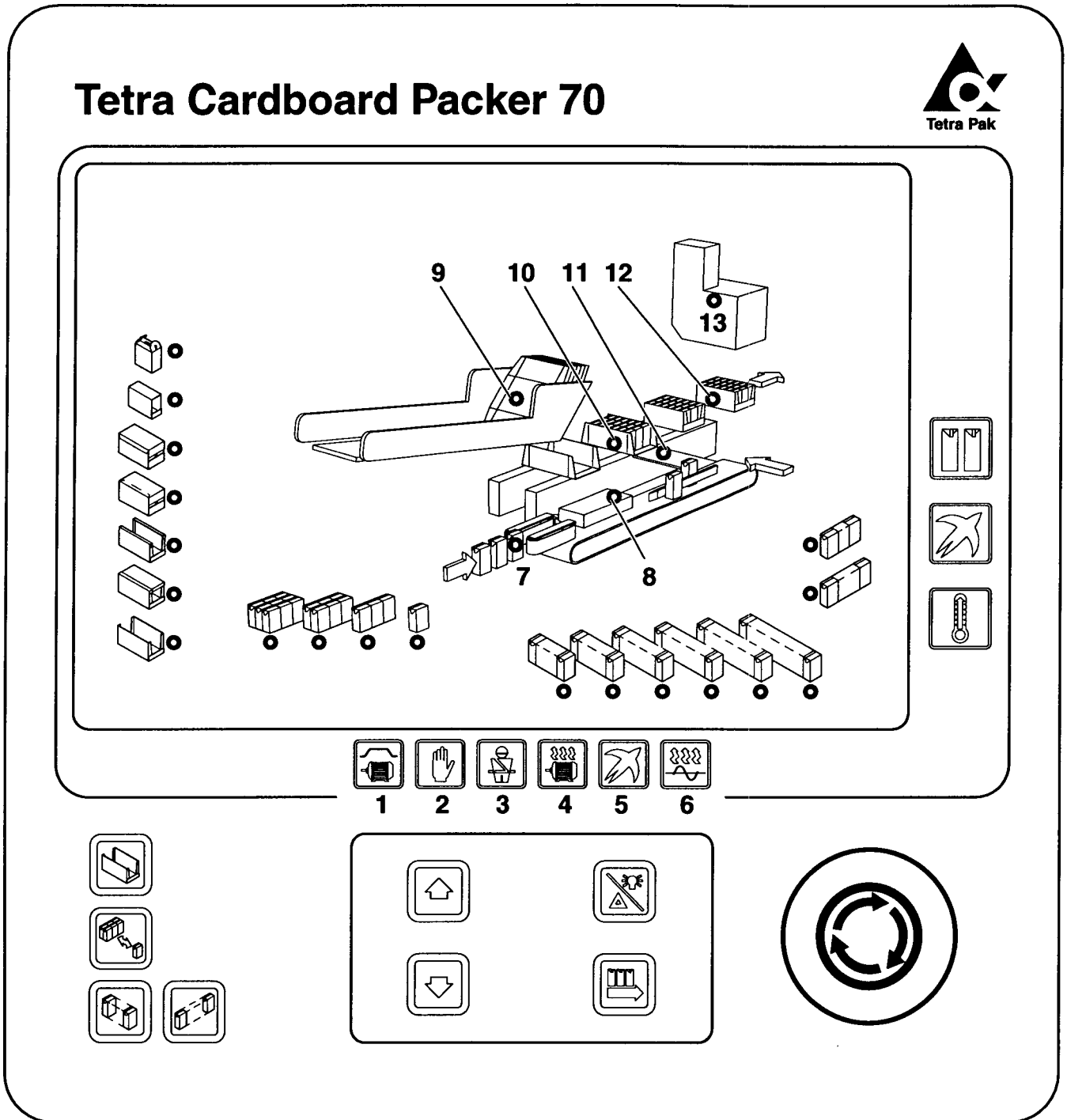


Note!

When several alarms are triggered at the same time, only the alarm with the highest alarm status is giving a signal to the warning lamp.

When an alarm has been acknowledged but the alarm still remains, the warning lamp is steadily alight.

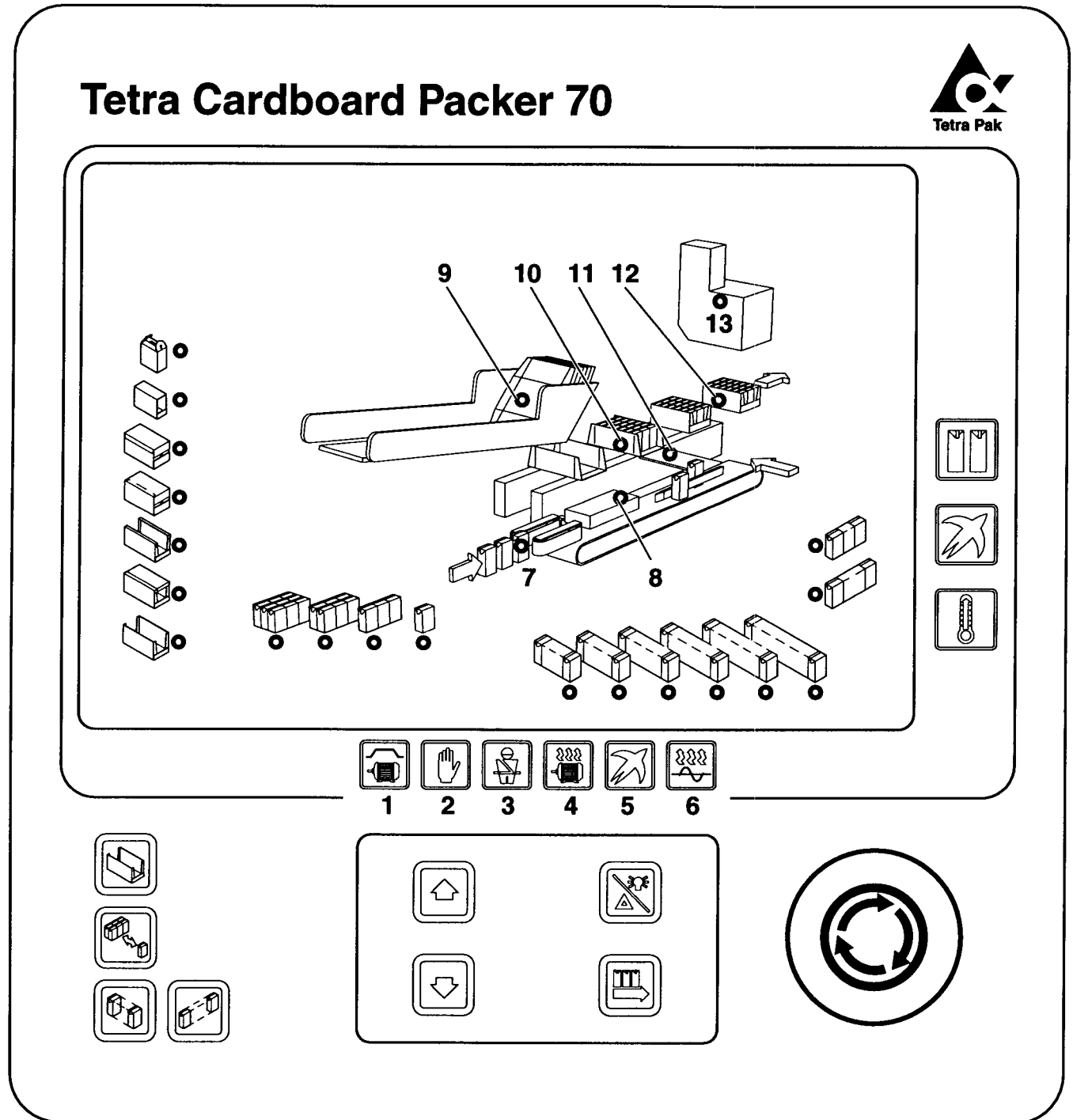
Control panel



GH200822.eps

	Alarm	Cause	Machine action	Instruction to operator
1	Servo unit.	Pusher has reached end position.	The machine steps down to Step 1. The yellow colour of the warning lamp flashes.	Call a technician.
1	Servo unit.	Internal malfunction in servo unit.	The machine steps down to Step 1. The yellow colour of the warning lamp flashes.	Call a technician.
1	Servo unit	Fault in the supervision circuit of the servo unit.	The machine steps down to Step 1. The red colour of the warning lamp flashes.	Call a technician.
2	Emergency stop.	Emergency stop button pushed.	The machine stops and steps down to Step 1. The yellow colour of the warning lamp flashes.	Take corrective action. Empty the machine from packages acc to section Emptying .
3	Door.	Door opened.	The machine stops and steps down to Step 1. The yellow colour of the warning lamp flashes.	Close the door.
3	Door.	Fault in the supervision circuit of the doors.	The machine steps down to Step 1. The red colour of the warning lamp flashes.	Call a technician.
4	Motor protection.	Motor protection triggered.	The machine stops and steps down to Step 1. The yellow colour of the warning lamp flashes.	Call a technician.
5	Air pressure.	Air pressure before pressurizing.	The machine can not be stepped up until the air pressure is gone. The red colour of the warning lamp flashes.	Call a technician.
5	Air pressure.	No pressure builds up after pressurizing (time guard).	The machine will be in Step 1. Pressurizing will be stopped. The yellow colour of the warning lamp flashes.	Check that the compressed air supply is turned on. If it is, call a technician.
5	Air pressure.	Air pressure too low during Production.	The machine steps down to Step 1. The yellow colour of the warning lamp flashes.	Check the incoming air pressure.
5	Air pressure.	Air pressure remaining after depressurizing.	The machine can not be stepped either up or down until the air pressure is zeroed. The red colour of the warning lamp flashes.	Call a technician.

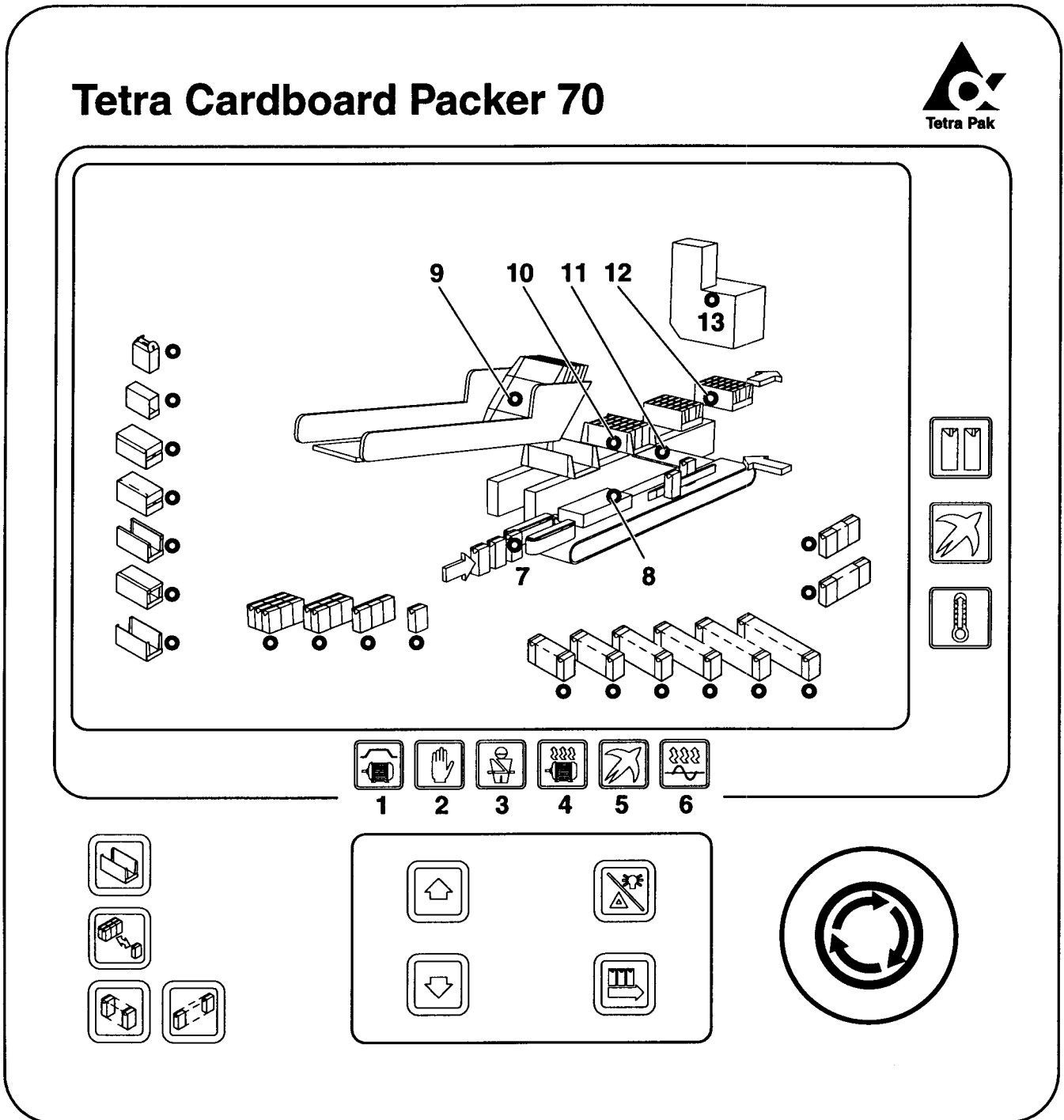
Control panel



GH200822.eps

	Alarm	Cause	Machine action	Instruction to operator
6	Frequency inverter.	Carrier chain stopped.	The machine steps down to Step 1. The yellow colour of the warning lamp flashes.	Take corrective action.
6	Frequency inverter.	Internal malfunction in frequency inverter.	The machine steps down to Step 1. The yellow colour of the warning lamp flashes.	Call a technician.
6	Frequency inverter	Fault in the supervision circuit of the frequency inverter	The machine steps down to Step 1. The red colour of the warning lamp flashes.	Call a technician.
7	Fallen package.	Fallen package at infeed.	Infeed stops. The machine remains in Production. The yellow colour of the warning lamp flashes.	Remove any fallen packages.
8	Crush after divider.	Package stuck at divider.	Infeed stops. The machine remains in Production. The yellow colour of the warning lamp flashes.	Remove the stuck package(s). Check that there is no fallen package after the divider.
9	Low level blanks.	Low level in blanks magazine.	The machine remains in Production. The blue colour of the warning lamp flashes.	Load blanks into the magazine.
9	Low level blanks.	Blank magazine empty.	The machine remains in Production. Infeed stops. The yellow colour of the warning lamp flashes.	Load blanks into the magazine.
10	No blank in pack position.	Puller arm has failed to pull a blank into pack position.	The machine remains in Production. The yellow colour of the warning lamp flashes.	Remove any blanks that are incorrectly placed in the machine. If the alarm appears repeatedly, call a technician.
11	Crush in grouping section.	Pusher has not been able to complete a stroke.	The machine steps down to Step 1. The yellow colour of the warning lamp flashes.	Empty the machine from packages acc to section Emptying .
12	Queue outfeed.	Queue on the conveyor from the machine.	The machine will stop temporary, will automatically restart when the queue is removed. The yellow colour of the warning lamp flashes.	Take corrective action to remove the queue on the conveyor.

Control panel



GH200822.eps



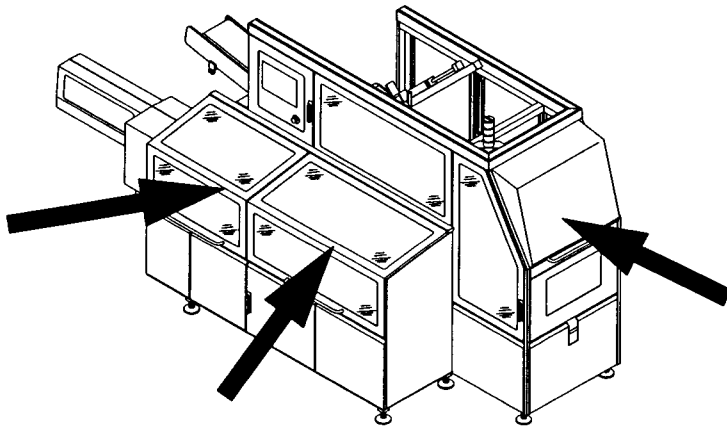
Alarms /Troubleshooting

	Alarm	Cause	Machine action	Instruction to operator
13	Hot melt unit.	Low temperature during production.	The machine remains in Production. The yellow colour of the warning lamp flashes.	Call a technician.

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Preparations

This section describes all the actions that should be carried out before actually starting the machine.

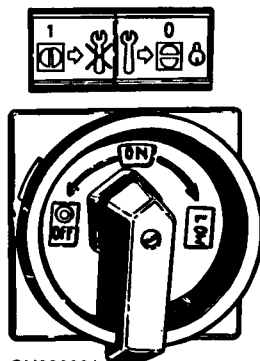


GH200213.apa

1

Check the condition of the gas springs in the covers. If the covers do not stay up the springs are defective.

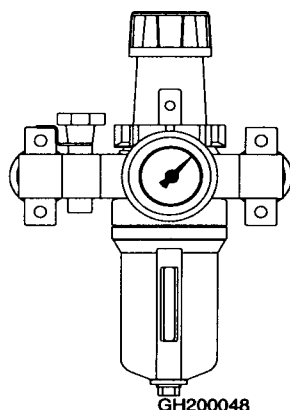
If the gas springs are defective call a technician.



GH200001

2

Check that the **Mains Power** switch is position **ON**. It should always be in this position.

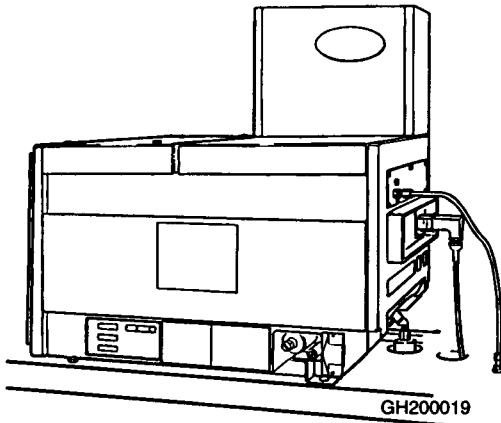


GH200048

3

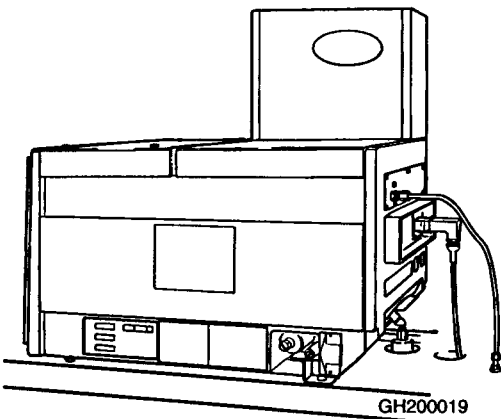
Open the compressed air supply valve.

Check that the working pressure is 0.55 MPa.



4

Check that the cover over the hot melt pump is securely attached.



5

Check that the hot melt unit is turned on.

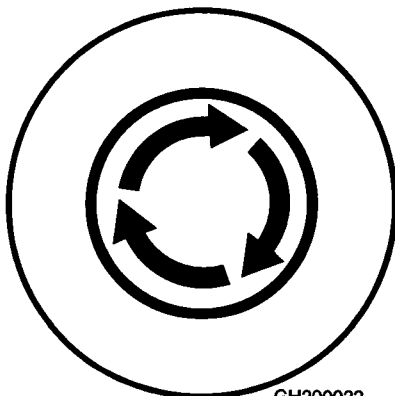


WARNING!

Risk of burning! During heating and production the unit gets hot. Do not touch the unit!



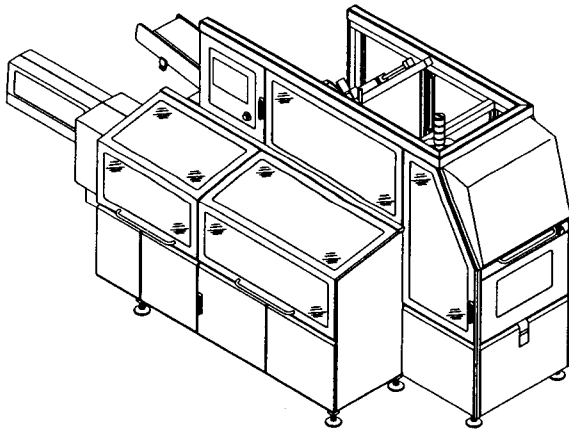
GH200212.eps



GH200022

6

Check that no emergency stop button is pushed.



GH200213.eps

7

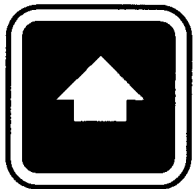
Check that all doors and covers are closed.



GH200004

8

Press **Lamp Test** and hold it in for two seconds. Check that all indicator lamps on the control panel and the warning lamp lights up.



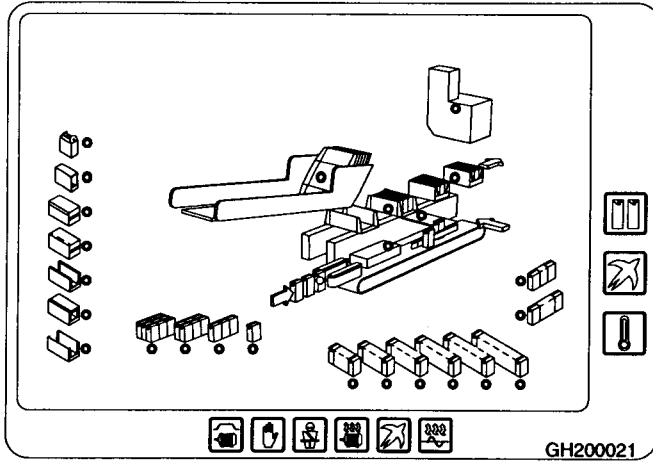
GH200008

9

Press **Programme Up** once.

The **Preheating** symbol lights up, and heating of the hot-melt starts. It will take about half an hour to reach correct working temperature. During **Preheating** the warning lamp will be out. When the correct working temperature has been reached, the blue colour of the warning lamp will start flashing and the machine can now be stepped up.

If preheating takes abnormally long, check the hot melt unit. If any fault is detected, call a technician.



10a

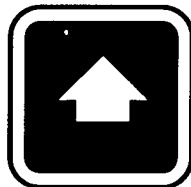
If an alarm has been triggered the machine will not be in step Preheating.



GH200004

10b

Take corrective action and press Alarm Reset.

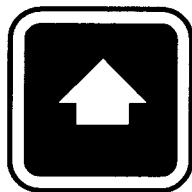


GH200008

10c

When the alarm is gone press Programme up.

Start

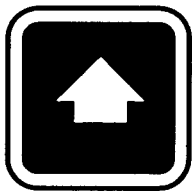


GH200008

1

When the hot melt unit has reached correct working temperature, the Air pressure on symbol and Programme up start flashing.

Press Programme up.



GH200008

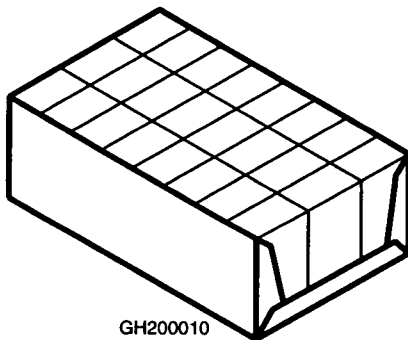
2

Press Programme up once again when the Production symbol and Programme up start flashing.

Production will now start.

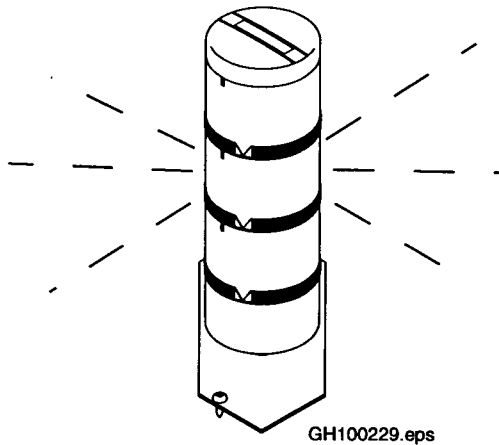
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Production



1

Check that the packages are correctly positioned on the blank and that the blank is properly glued.



2a

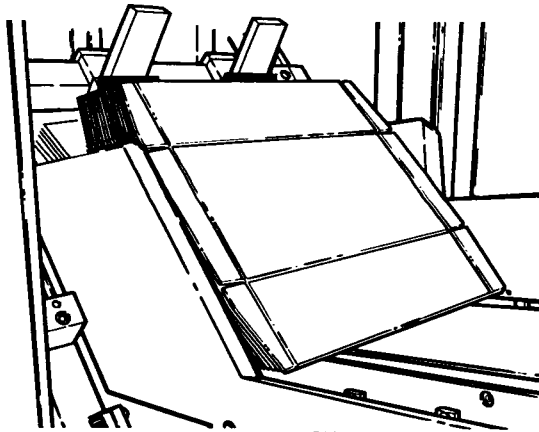
When an alarm occurs, the warning lamp will start flashing. At the same time the corresponding indicator lamp on the control panel start flashing, refer to section **Alarms/trouble shooting** for further information about the different alarms.



2b

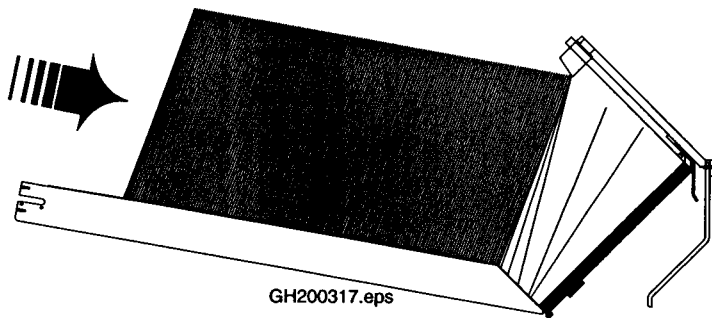
Take corrective action to remove the cause of the alarm.

Acknowledge the alarm by pressing **Alarm reset**. The light in the warning lamp and on the control panel will go out.



3a

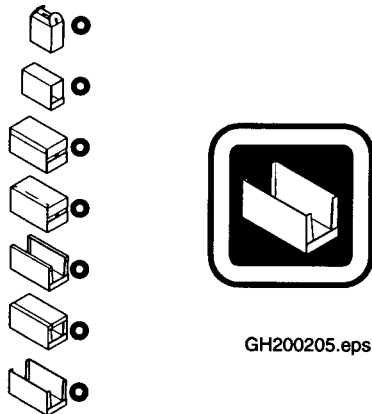
When the level of blanks in the blanks magazine has decreased to a preset level, an alarm will occur.



3b

Load blanks in the magazine.

Make sure that the blanks are placed according to the picture.

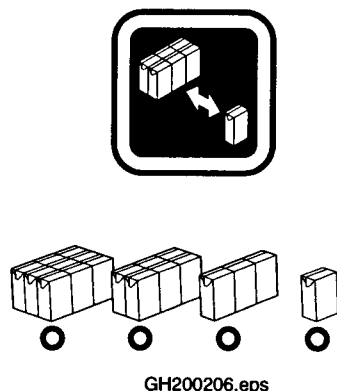


4

Use the selector for cardboard unit type to change the type of cardboard unit.

CAUTION!

Only skilled mechanical personnel is allowed to do the necessary adjustments of the machine.

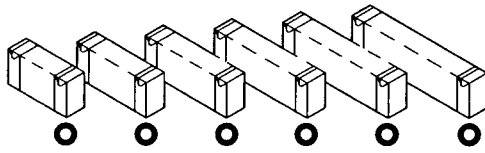
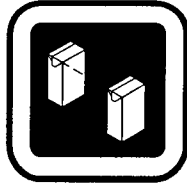


5

Use the single/multi pack selector to change the type of infeed unit.

CAUTION!

Only skilled mechanical personnel is allowed to do the necessary adjustments of the machine.



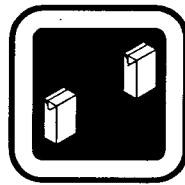
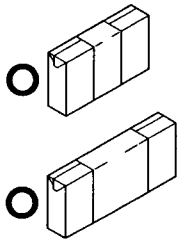
GH200207.eps

6

Use the packing pattern length selector to change the packing pattern length.

CAUTION!

Only skilled mechanical personnel is allowed to do the necessary adjustments of the machine.



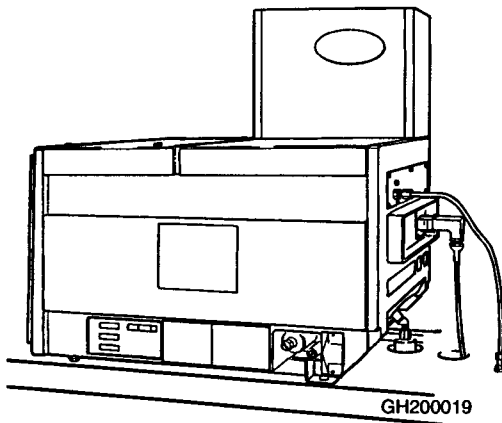
GH200208.eps

7

Use the packing pattern width selector to change the packing pattern width.

CAUTION!

Only skilled mechanical personnel is allowed to do the necessary adjustments of the machine.



GH200019

8

When necessary fill new hot melt into the hot melt tank.



WARNING!

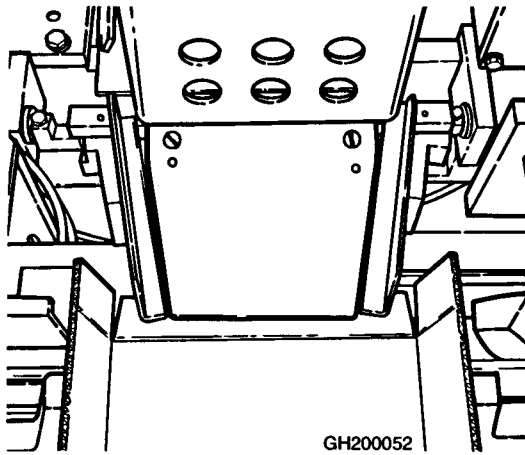
The hot melt tank contains heated hot melt which can cause serious injuries.



GH200313.eps

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Emptying



1

Emptying after emergency stop and crush in grouping section

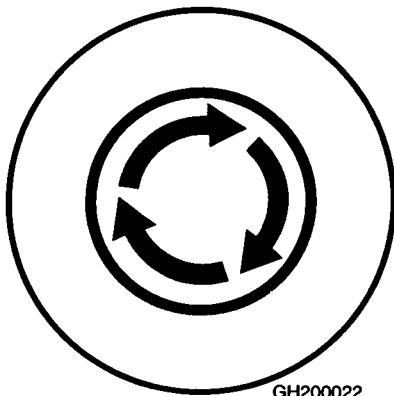
Remove any packages from the grouping section, remove the blank and any packages in pack position.

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Stop

There are four ways to stop the machine:

- **Emergency stop**
- **Short stop**
- **Opening of a door**
- **Stop at finished production**



Emergency stop

1 a

Push any Emergency stop button. The machine will immediately stop.

Note!

The emergency stop method is only allowed to be used when there is danger to person or machine.



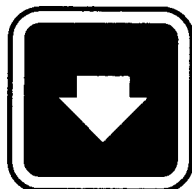
1 b

Eliminate the cause of the emergency stop. Empty the machine acc to section **Emptying**.

Reset the Emergency stop button.

Acknowledge any alarm by pressing Alarm reset.

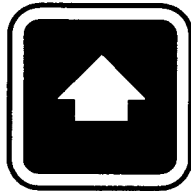
Restart the machine.



Short stop

2 a

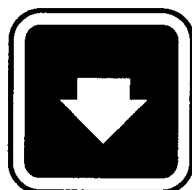
Press Programme down once.



GH200008

2b

The machine can be restarted by pressing Programme up.



GH200007

Opening of a door

3a

To open a door, press Programme down once and then open the door.

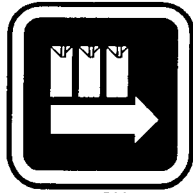


GH200004

3b

Close the door and acknowledge any alarm by pressing Alarm reset.

Restart the machine.



GH200014

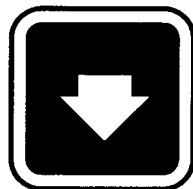
Stop at finished production 4a

Empty the machine from packages by pressing **Manual Emptying**. Keep it pressed until the light in the button goes on.

Note!

The machine must be in step **Production** when pressing **Manual Emptying**.

The machine will automatically step down to step **Preheating** after finished emptying.



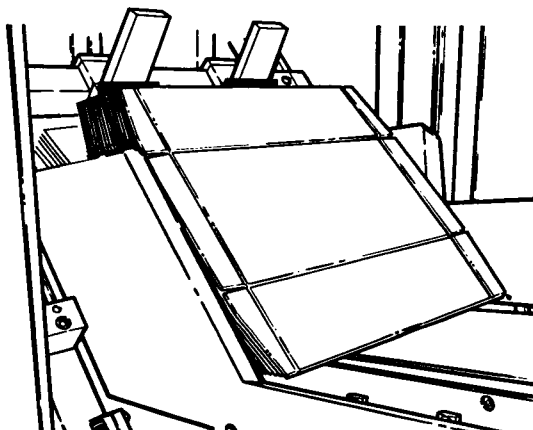
GH200007

4b

Remove any remaining packages in front of the grouping pusher.

Keep **Programme down** depressed for 2 seconds and then press **Programme down** once more to shut the machine down.

Programme down will be steadily alight and all other lights will be out.



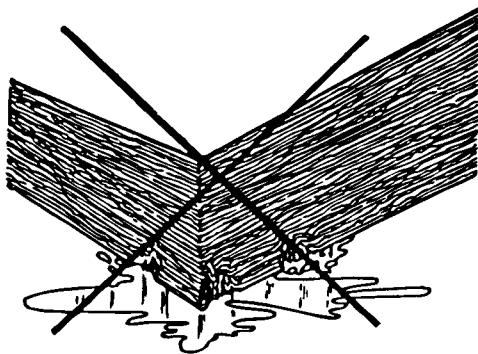
4c

Remove remaining blanks from the magazine.

Clean the machine acc. to section **Cleaning**.

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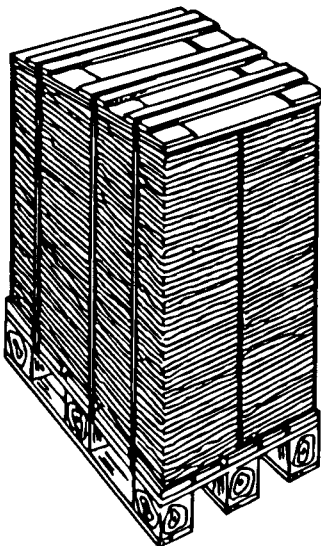
Storing of material



Handling and transport of cardboard

The cardboard blanks should be protected from knocks and bumps, water and other liquids, dust and dirt.

Blanks should be stacked flat on pallets. The height must not exceed two meters. On top of the stacked blanks, a wooden board should be placed before strapping. The whole stack should preferably be covered with shrink film.



Storing of cardboard

Store the material in a dry place with good ventilation.

Relative humidity approximately 65%. Variations in humidity might change the dimensions of the blanks.

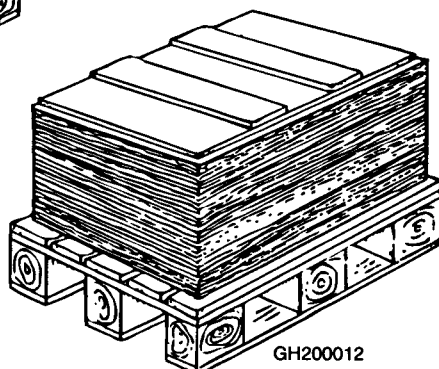
The blanks must not be stored in a temperature exceeding 30° C.

The material should be stored separately from the packaging material used in the packaging machines.

After daily production, keep the remaining blanks on the pallets with a wooden board on top.

The blanks must be protected from water when the machine is being cleaned.

In order to condition a pallet load of blanks to the surrounding atmosphere, remove the strapping and plastic cover.



GH200012

Order of consumption

FIRST IN - FIRST OUT

Hot melt

The hot melt can be stored for a maximum of **one year**. The temperature of the storing facility should be **10 - 30 °C**.

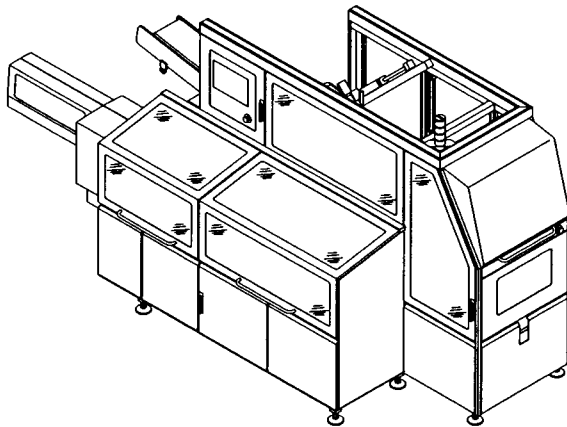
Try to avoid dust and damp in the storage facility.

The first box in should be the first box out.

Cleaning

1

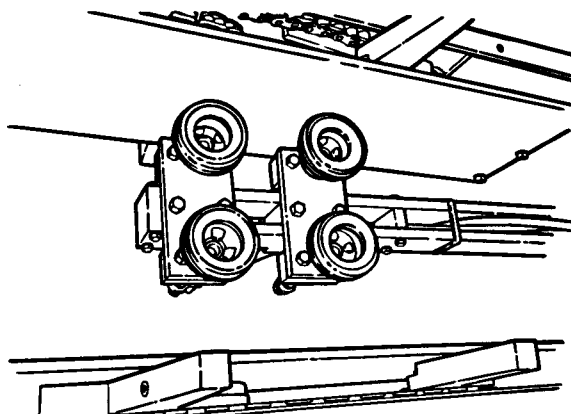
Before cleaning the machine perform “Stop after finished production” acc to section **Stop**.



GH200213.eps

2

Wash the machine with **warm water only**, do not use detergent.



GH200009

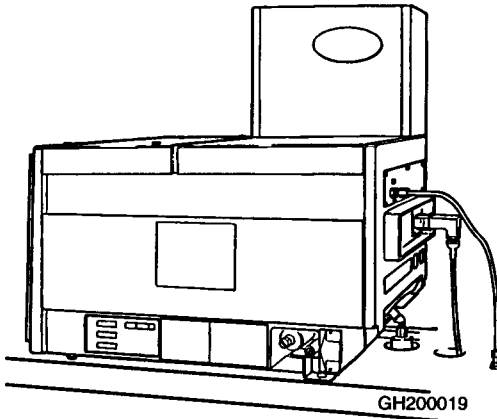
3

Do not flush water into the suction cups.

Cleaning



GH200211.eps



GH200019

4



DANGER!

Danger of electrical shock. Never flush water towards the hot melt unit when cleaning the machine. Failure to observe may result in danger to your life.

Technical data

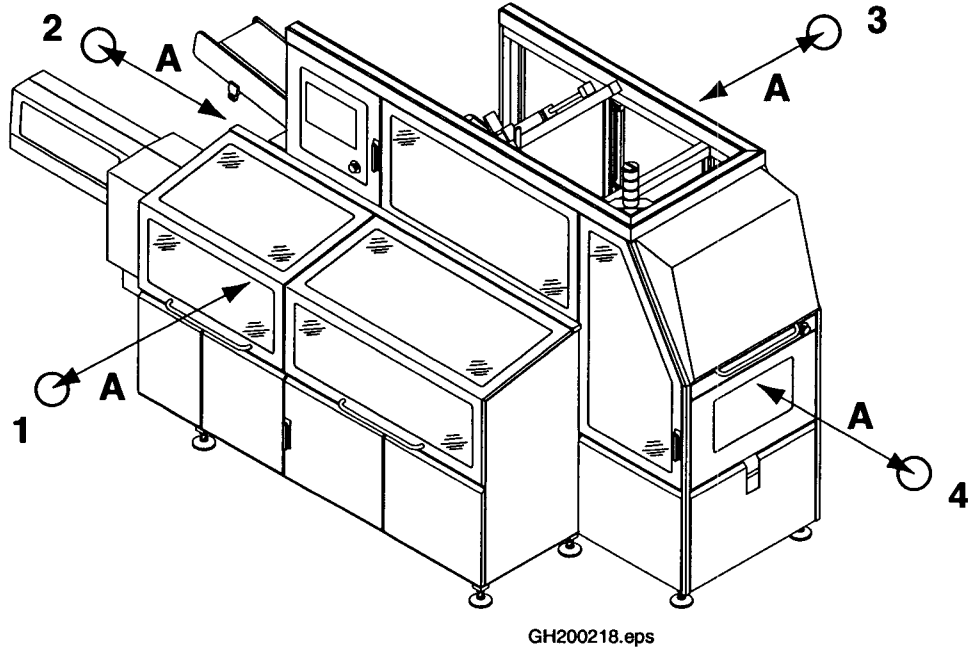
This section gives all the settings the operator should make. See section **General description** for the location of the regulators.

Also listed are the recommended types of hot melt and the temperature settings that corresponds with them.

Function	Unit	Value
Working pressure	MPa	0.55
Folding station	MPa	0.1 Must not be set to any other value than 0.1, risk of machine damages!
Hot melt unit	MPa	0.3
Hot melt gun, left	MPa	0.3
Hot melt gun, right	MPa	0.3
Suction cups, vacuum	MPa	0.5

Recommended types of hot melt	Ambient temperature	Tank temperature	Hose temperature	Gun temperature
Jowatherm 25900 TP No. 90153-36	5-30°C	150°C	150°C	165°C
National Instant Pak 2300	5-30°C	150°C	150°C	165°C
National Instant-LOK 9657	25-50°C	175°C	175°C	175°C

Noise level specifications



**A=1 meter.
Microphone placed 1.6 meters up.**

Machine type

Document: DE 94-854
 Date: 941024
 Machine no.: 38001/2
 Drawing spec.: 670270
 Mechanical ECN: 19307
 Electrical ECN: 21796

Noise level

Position	dBA, Production	dBA, Production no packages
1	65	62
2	69	
3	67	
4	65	

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