



Operating instructions

for

shell erection machine

Model series

CE 850/2

Machine details

Manufacturer

Heiber und Schröder
Maschinenbau GmbH
Feldheider Str. 52
40699 Erkrath

Machine

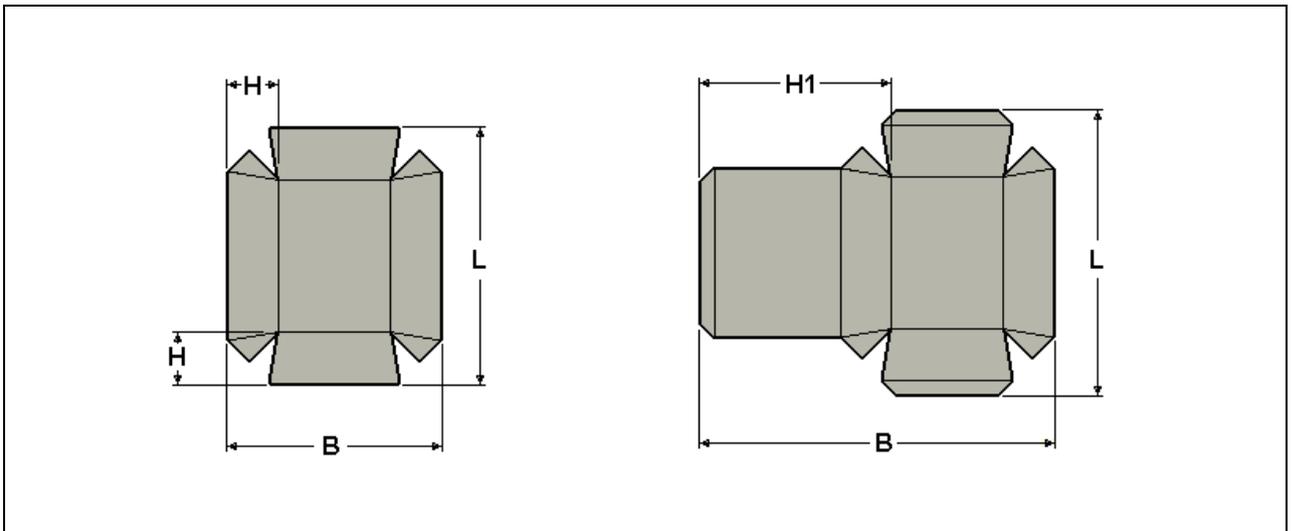
Model: CE 850/2
Serial no.: 5372
Year of construction: 2002

Range of application of the machine

The machine is appropriate for erecting cardboard blanks with a weight of 200 - 600 g/m².

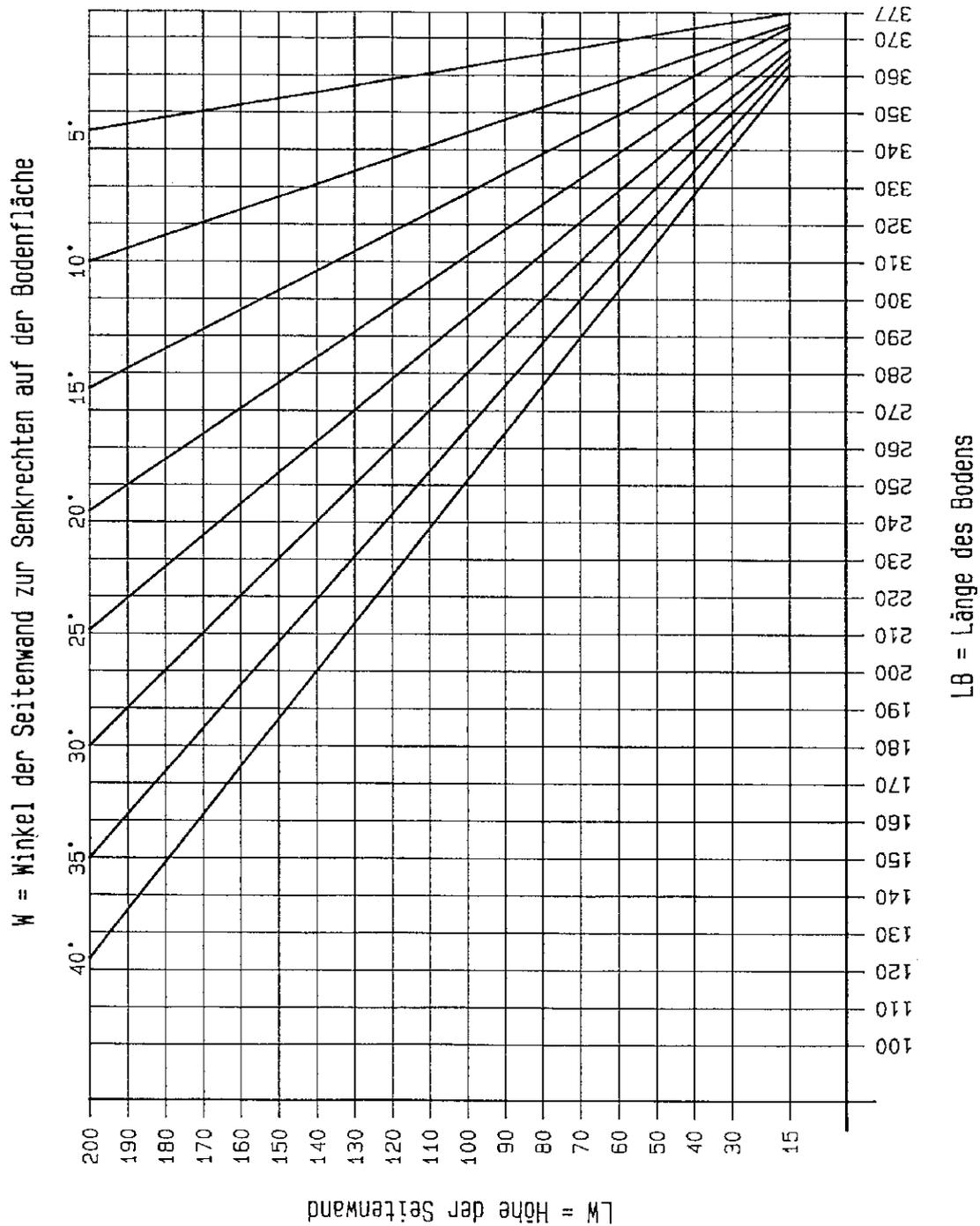
Corrugated board can be processed up to a material thickness of 1,5 mm. For further details with regard to the format sizes, please refer to the pages 1.3 and 1.4 of these operating instructions.

Format range for two-lane operation



Blank length	L	100 mm	-	450 mm
Blank width	B	100 mm	-	385 mm
Height of side flaps	H	15 mm	-	200 mm
Height of side flap + lid	H1	50 mm	-	200 mm
Conicality (Angle between glued side flap and perpendicular to the bottom of the tray)		5 Degrees	-	40 Degrees
Carton weight		200 g/m ²	-	600 g/m ²
Corrugated board thickness			up to	1.5 mm

Other dimensions on request!



W = angle of the side wall to the vertical line on the floor area
 LW = Height of the side wall
 LB = length of the floor

Results of noise measuring in accordance to EN 292-2 appendix A 1

The measurement was carried out in accordance to DIN 45635 part 1 and part 27, due to the fact that to date no harmonized norms exist for the carrying out of noise emission measurements.

Working place	A assessed equivalent continuous sound pressure level [dB (A)]
Feeding device	81,4
Control panel	79
Stacking tower	83,5

Information with regard to transportation and handling of the machine

Carefully unpack the machine.

Transportation on a level surface by means of a pallet fork lift, which is respectively driven below the front and back ground traverses.

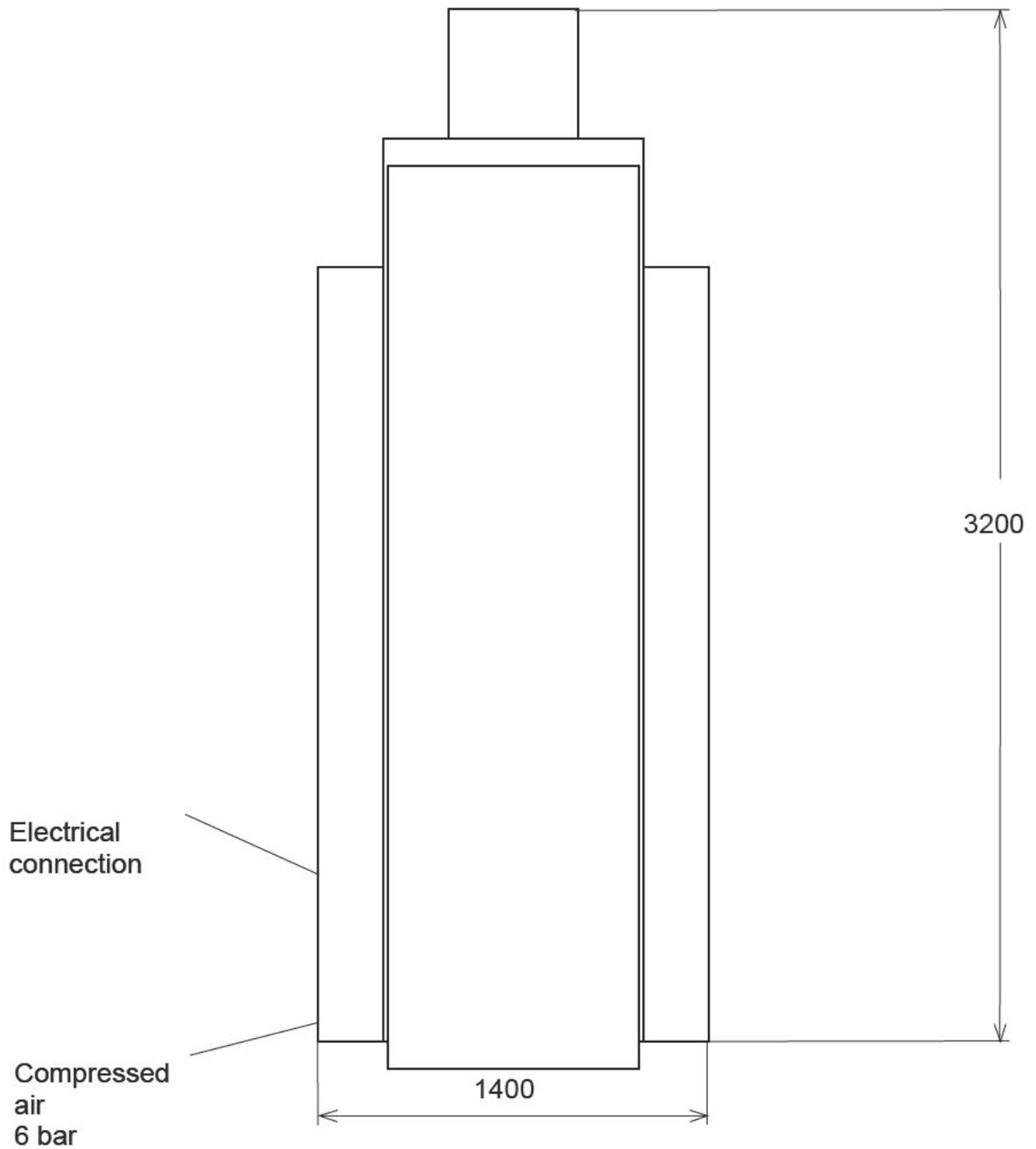
Only lift and lower by means of supporting frames, which support the ground traverses.

Warning: Never lift the machine from the side by means of a fork-lift truck or similar devices.

Initiation of the machine

Space requirement of the machine

For the space requirement, which is necessary for erecting and operating of the machine, please refer to the ground plan drawing (rf. to page 3.2).



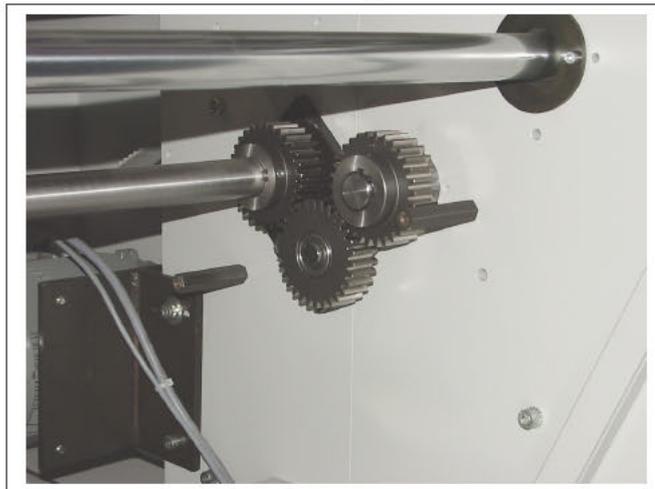
Adjustment of the machine

The machine has to be adjusted by means of a spirit level.

For adjustment, the counter nuts of the adjustable feet have to be loosened and the feet adjusted. Following the adjustment, the counter nuts have to be tightened again.

Attachment of the belt cycle feeding device

The belt cycle feeding device is pushed towards the shell erection machine. To this end, the toothed wheels of the drive on the right hand side have to catch.



The feeding device is held in the correct position by means of holding screws.



Important:

Only commission the machine following its adjustment at its final location.

Connection of the machine to the power supply

The electrical connection is carried out in accordance to the enclosed flow diagram. The connection has to be effected by accordingly trained experts whilst taking the valid standards and regulations into consideration.

Following the connection of the vacuum pump, its direction of rotation has to be checked, due to the fact that no vacuum develops in the case of a wrong rotational direction!

Safety measures to be carried out by the user

The hazards and existing remaining risks (see page 6.1) originating from the machine have to be indicated to the service personnel.

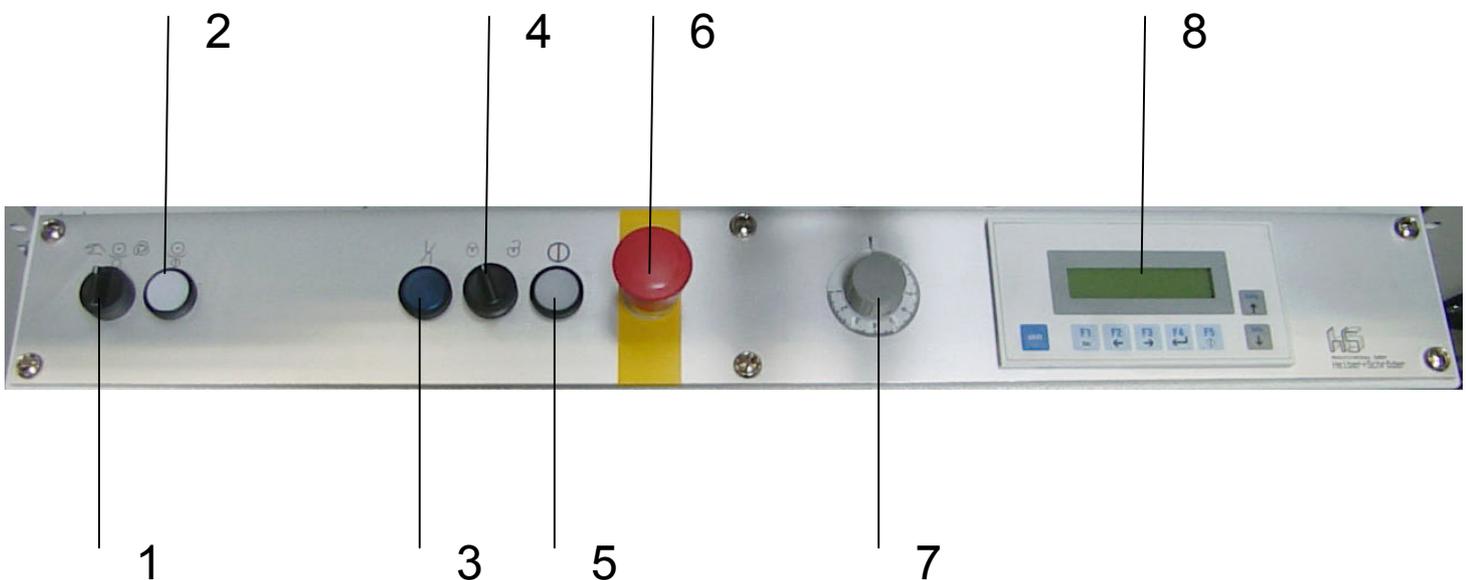
Measures to be carried out in emergency situations have to be indicated to the service personnel.

The electrical and pneumatic connection has to be carried out in such a way that there are no stumbling traps.

Data with regards to utilization of the machine

Description of the operating elements

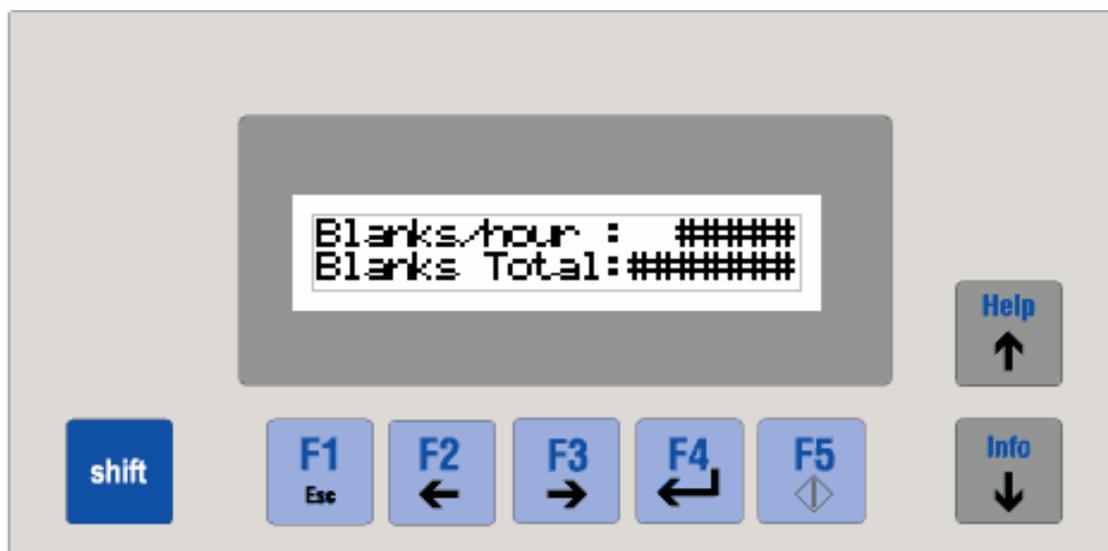
1. Glueing works HAND - OFF - AUTOMATISM
2. Glueing works motor ON/Off
3. Fault reset
4. operation mode: Setup / Normaloperation
5. Drive ON/Off
6. Emergency stop
7. Speed regulator
8. Multifunction Display



The display

The basic view

After starting up the machine the basic view is shown.



In the upper line the actual machine speed is shown. In the second line the number of produced cartons is shown.



By means of pressing shift and F4 together the production counter is resetted.



By means of pressing shift and F1 together the basic view is shown.



By means of pressing shift and F2 together the menu machine setup 1 is shown.



By means of pressing shift and F3 together the menu motorfault is shown.

Machine setup 1
Batch counter



In the upper line the batch size(number of cartons) for the counting and marking unit is shown.

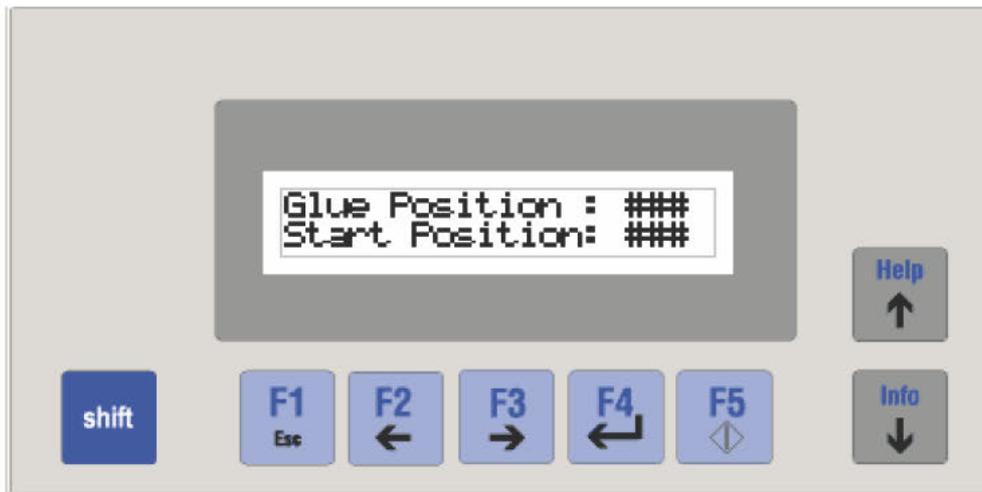
	After pressing F4 the cursor blinks at the value. For changing the value press the arrow up and down buttons.
	Arrow up = increase value
	Arrow down = decrease value
	For changing the digit press the arrow left and the arrow right button
	By means of pressing F5 the value is taken over from the control.

By means of pressing shift and F1 together the basic view is shown.

By means of pressing the arrow down button the menu machinesetup 2 is shown.

Machine setup 2

Gluing works control and puncher movement.



In the upper line the detecting position of the light barrier for the gluing works control is shown.

In the lower line the startposition of the puncher movement is shown.

Gluing works control



Jog a carton underneath the light barrier of the gluing works.
By means of pressing shift and F4 together the detecting position is taken over from the control.

By means of pressing shift and F3 together the cursor moves to the lower line.

Sycronizing the puncher movement to the movement of the machine



Jog a carton into the stop position in front of the puncher.
By means of pressing shift and F5 together the start position is taken over from the control.

By means of pressing shift and F2 together the cursor moves to the upper line.



By means of pressing shift and F1 together the basic view is shown



By means of pressing the arrow up button the menu machinesetup 1 is shown.



By means of pressing the arrow down button the menu machinesetup 3 is shown.

Machine setup 3
Number of lanes



In the upper line the number of lanes is shown.

- 

After pressing F4 the cursor blinks at the value.
For changing the value press the arrow up and down buttons.
- 

Arrow up = increase value
- 

Arrow down = decrease value
- 

By means of pressing F5 the value is taken over from the control.



 By means of pressing shift and F1 together the basic view is shown.


 By means of pressing the arrow up button the menu machinesetup 2 is shown.


 By means of pressing the arrow down button the menu machinesetup 4 is shown.

Machine setup 4

Puncher movement (typ of movement) and length of the stroke



In the upper line the typ of the puncher movement is shown.
In the lower line the strokelength is shown.

punchermovement



After pressing F4 the cursor blinks at the value.



To change the typ of movement press the arrow up and down buttons.
Three typs are possible:

1. Chips cube 12000 for simple blanks up to max. 12000/hour
2. Clam Shell 7200 slower folding for up to max. 7200/hour
3. Clam Shell 8400 slower folding for up to max. 8400/hour



By means of pressing F5 the value is taken over from the control.



By means of pressing shift and F3 together the cursor moves to the lower line.

strokelength



After pressing F4 twice the cursor blinks at the strokelength.



Arrow up = increase value
Arrow down = decrease value



For changing the digit press the arrow left and the arrow right button



By means of pressing F5 the value is taken over from the control.



By means of pressing shift and F1 together the basic view is shown.



By means of pressing the arrow up button the menu machinesetup 3 is shown.

Motorfault



In case of a fault at the main drive this view shows a fault number.
For more details see the motor manual.



By means of pressing the arrow down button the menu puncher drive faults is shown



In case of a fault at the puncher drive this view shows a fault number.
For more details see the motor manual.

Setting instructions

Presser board

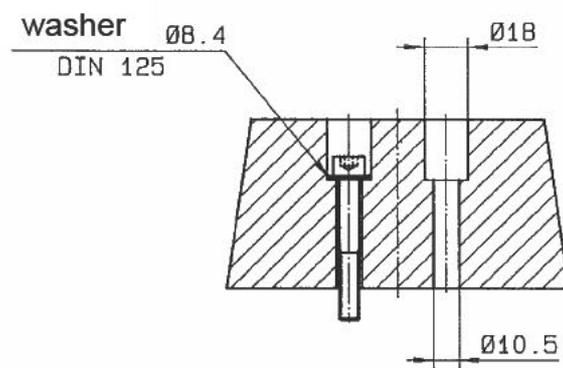
Setting up of the machine is started with the production of a presser board made of wood (Multiplex), which has the shape and size of the shell to be processed.

Fastening drill holes have to be drilled into the presser board. Please refer to page 4.9 for the sizes.

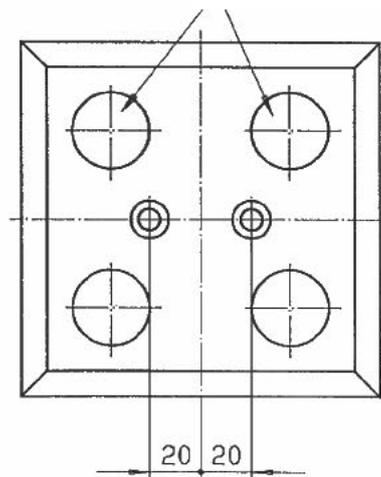
In order to avoid vacuum formation following the pressing of the shell, drill holes have to be provided in the presser board.

The presser board has to be screwed onto the rack's fastening plate and has to be adjusted at right-angles to the machine. For easier handling the stacking tower can be moved. The stacking tower can be moved by loosening the locking screws on top of the machine.

The limit stops and lateral guides have to be adjusted in the area of the presser board by means of a blank. To this end, the guide, which is to be adjusted or the side bracket of the blank opposite to the limit stop have to be folded around the presser board. The position of the blank can be exactly adjusted prior to folding.



Drill holes to avoid vacuum.

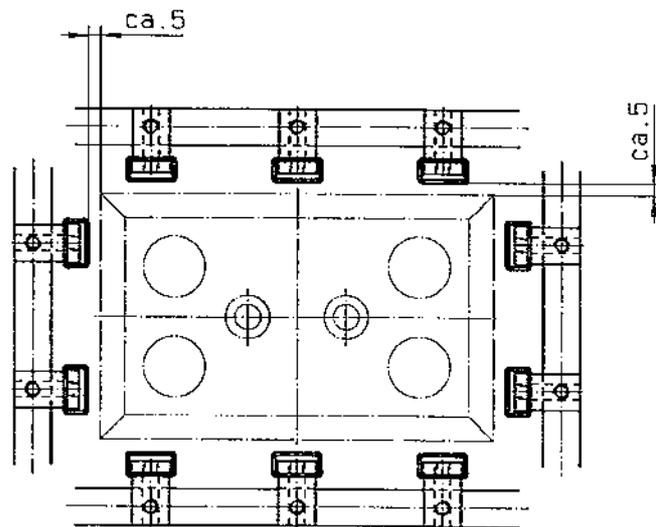


Stacking tower

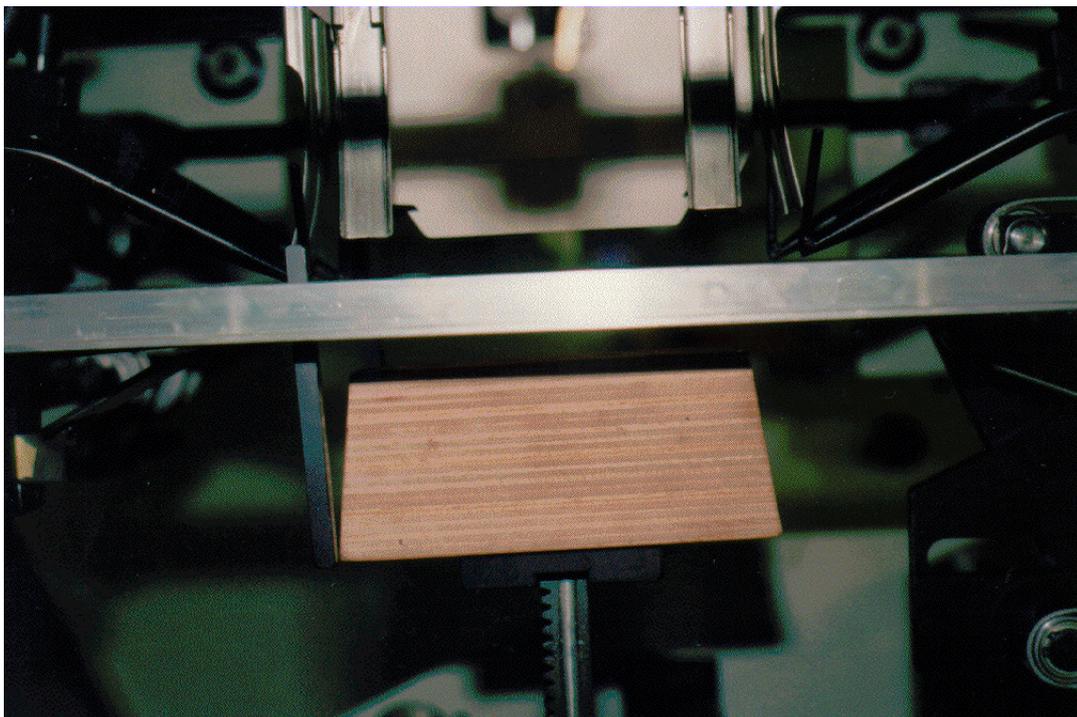
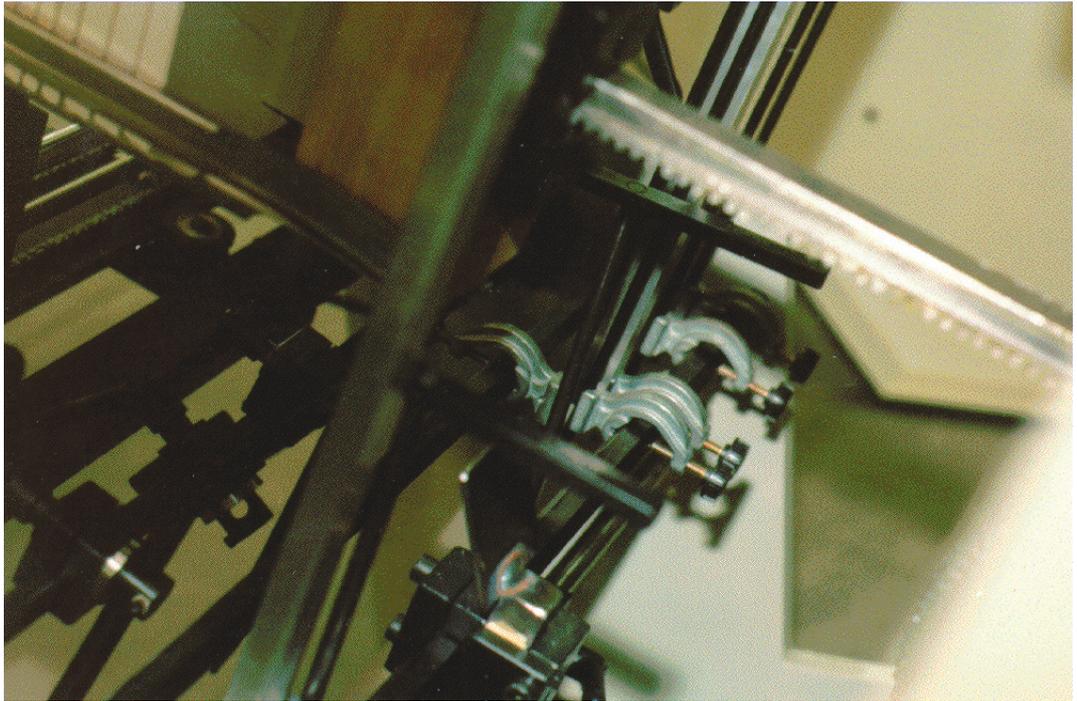
The guides in the stacking tower can now be preset. To this end, the machine is turned with the handwheel until the presser board has reached its highest position. The guides to the presser board are now set in such a way that they have a circulating distance of approx. 5 mm and that they open conically to the top. Two guides have to be placed at each corner. In the case of larger blanks, the long sides have to be supported by further guides (page 4.11).

The guides' fine-adjustment is carried out following completion of all adjustment work, when the complete process is being controlled.

The folders for the adhesive brackets are fastened onto a frame. They can be inserted from above or from the side. The folders have to be applied in such a way that they hold the adhesive brackets for as long as possible parallel to the folding direction. The cooperation of the folder and the stacking tower guides has to be adjusted in accordance to the shell type (internal and external gumming) (page 4.12)



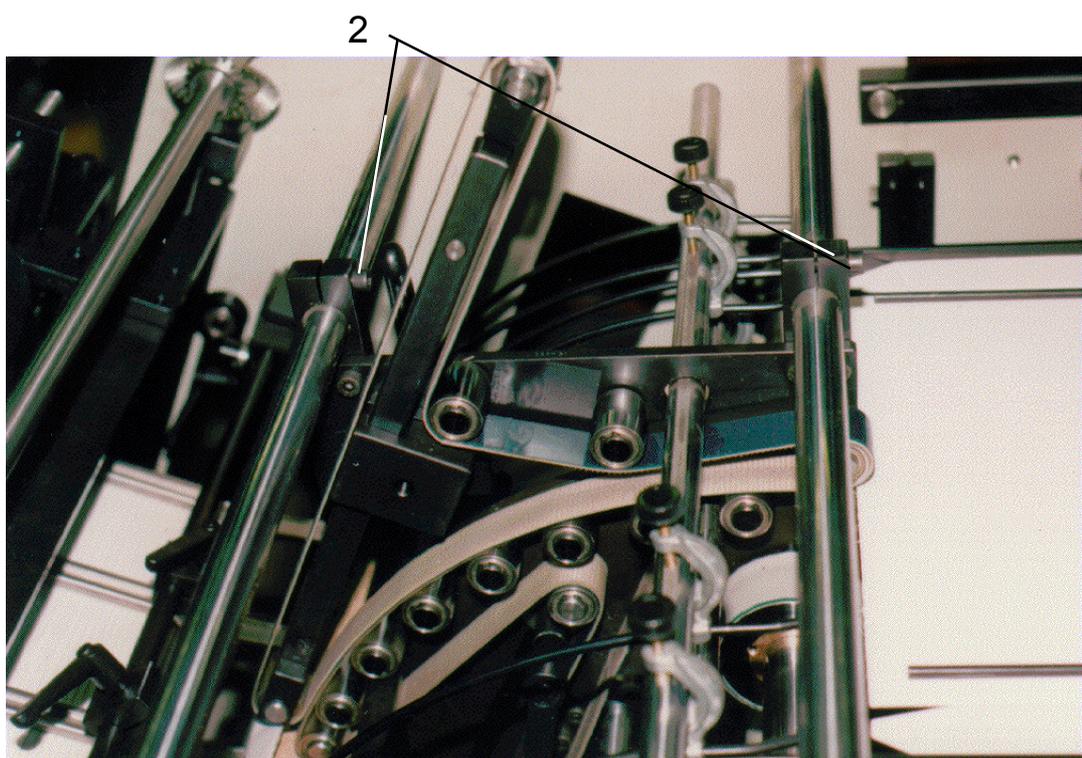
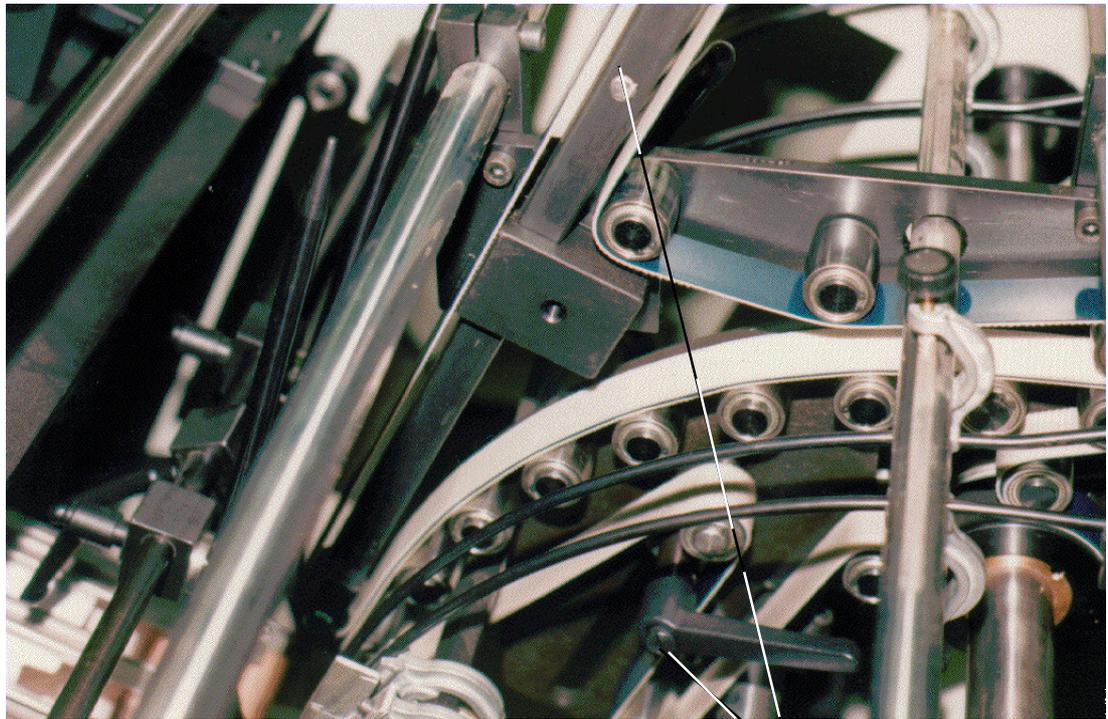
CE 850



Transportation

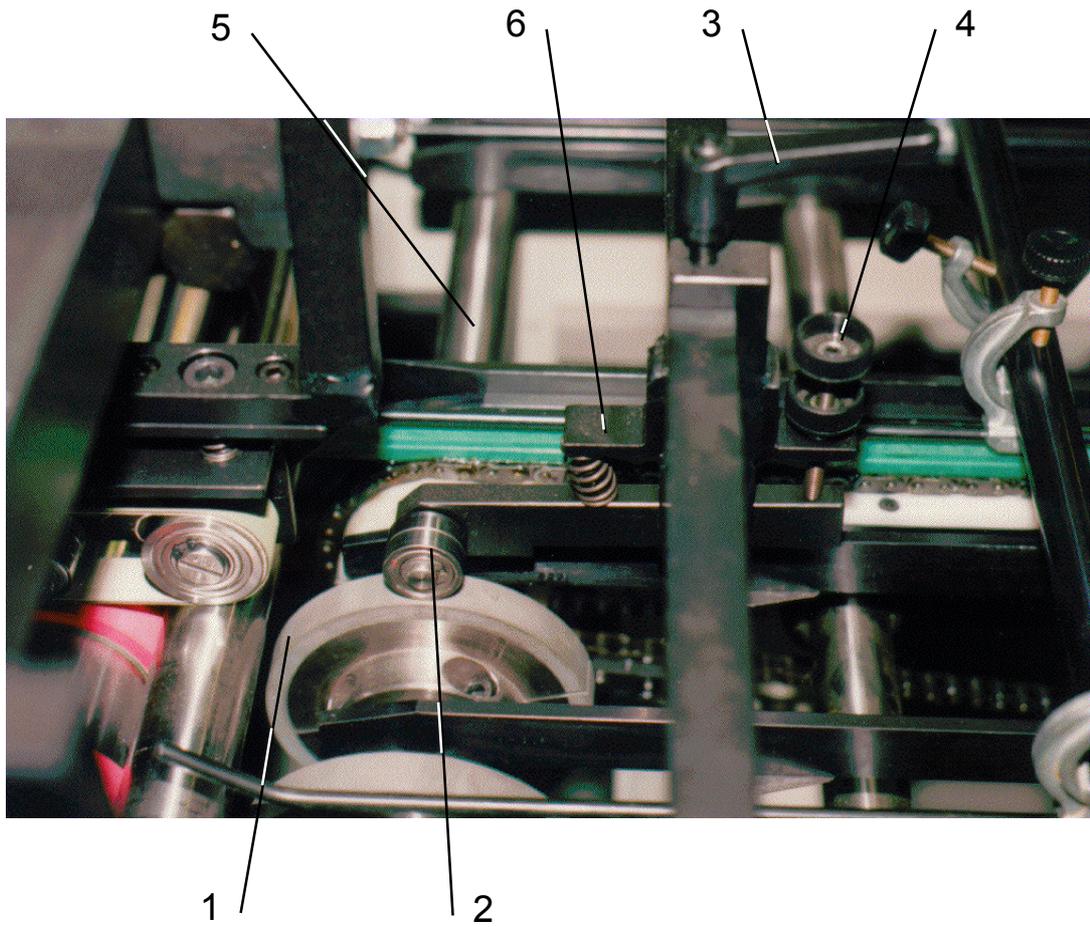
Normally the belt transportation is assembled centrally in the machine. The transportation period can be adjusted by means of loosening the locking screws (page 4.14, pos. 1). The blank should be transported up to the limit stop. The upper belt has to be set so far back that the folding of the blank is not obstructed.

In the case of double chamber shells (hamburger packaging), transportation has to be delayed by loosening of the screw (pos. 2) so that the belt does not move over the glued adhesive brackets.

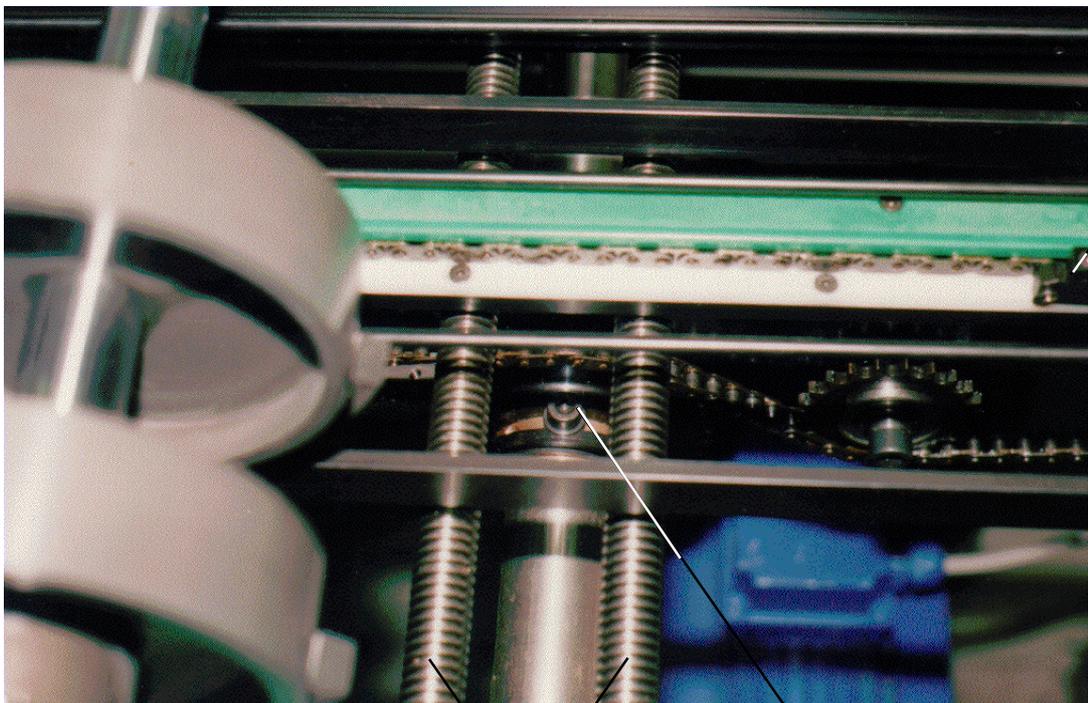


Conveyor rollers and conveyor chains

Conveyor rollers (page 4.16 pos. 1) together with the counter rollers (pos. 2) take over the blank from the feeding device and transport it to the chain station. It must be observed that the conveyor rollers are adjusted in such a way that both conveyor rollers complete the blank transportation at the same time. This avoids one-sided pushing. The conveyor rollers are slit rubber disks and can be laterally moved on at the drive shaft (pos.5). In doing so, they can be adjusted to the respective format. Lateral adjustment of the counter rollers is carried out by loosening the clamping lever (pos. 3) and by shifting the counter roller holding device (pos. 6). (The holding device has to be retightened following the shifting process.) The height of the counter rollers depending on the cardboard size, is adjusted by means of the milled nuts (pos. 4).



The conveyor chains are provided respectively with 4 carrier shoes (page 4.18 pos 1). A possible mismatch of the cardboard blanks can be compensated for by means of conveyor chains. To this end, the chain wheel (pos. 2) has to be loosened and the chains have to be adjusted to each other in moving direction. The lateral adjustment of the conveyor chains on the blank form is carried out by means of threaded spindles (pos. 3).



3

2

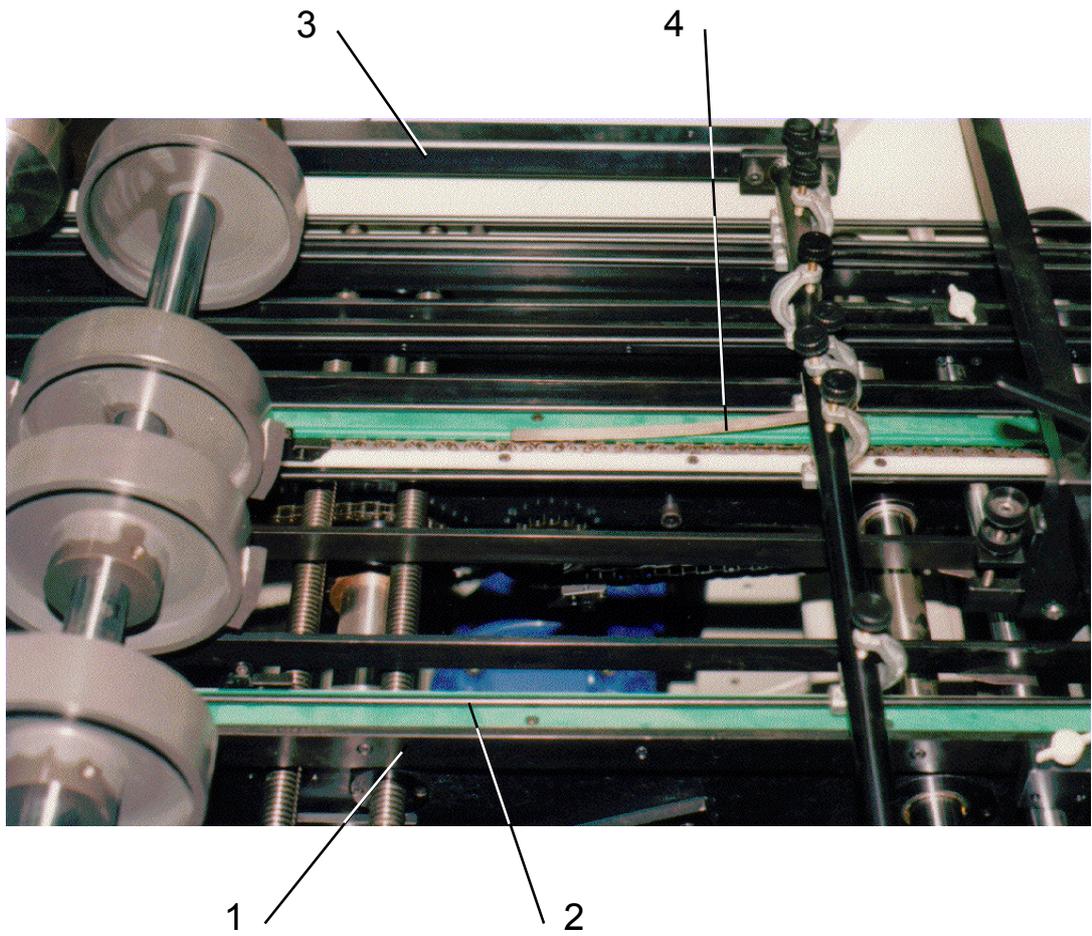
1

Guides in the alignment chain area

An example for the arrangement of the top, side and bottom guides is presented on page 4.20. The lateral guides (pos. 1) should have approx. 1 - 2 mm distancing to the blanks. The upper guides (pos. 2) have to be preferably arranged directly next to the carriers. Further upper guides as well as bottom guides shall be utilized as required.

In the case of a cardboard jam, all upper guides can be lifted together by means of lifting the guide frame (pos. 3).

The spring brakes (pos. 4) are used to slow down the cardboard blanks and guarantee accurate alignment of the cardboard blanks to the drive pins.



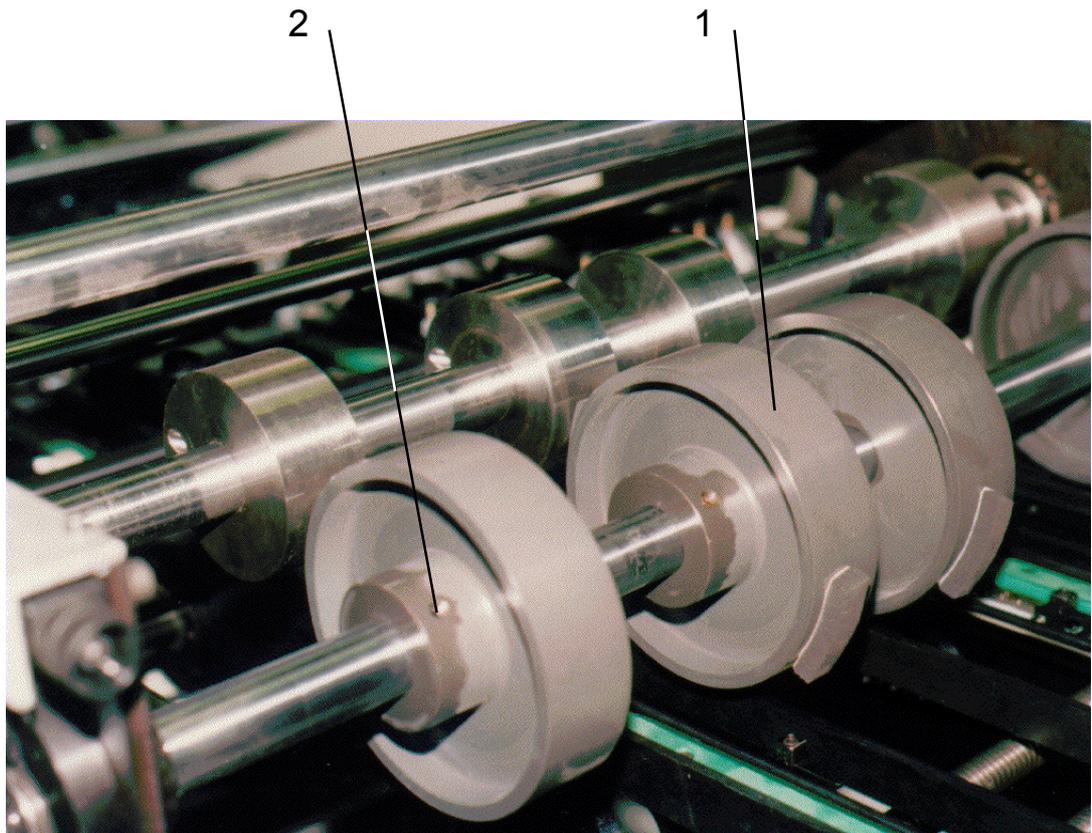
Block disks

The block disks (page 4.22 pos. 1) are brought into the alignment of the adhesive brackets to be glued by loosening the locking screws (pos. 2) and by shifting. Retighten the locking screws after shifting.

10 mm thick sponge rubber is used as a block. The sponge rubber is cut out to the required size and pressed onto double-sided adhesive tape. The adhesive tape is cut out and the protective foil is removed. The block is now positioned with the adhesive tape pointing upwards on the blank surface to be glued. The machine slowly makes a full revolution until the block is adhered to the block disk. The block is again pressed on by hand and into the correct position to the blank.

Notice:

If the gap between the block disks and the glueing rollers is smaller than 10 mm, the gears of the glueing work drive may be damaged.



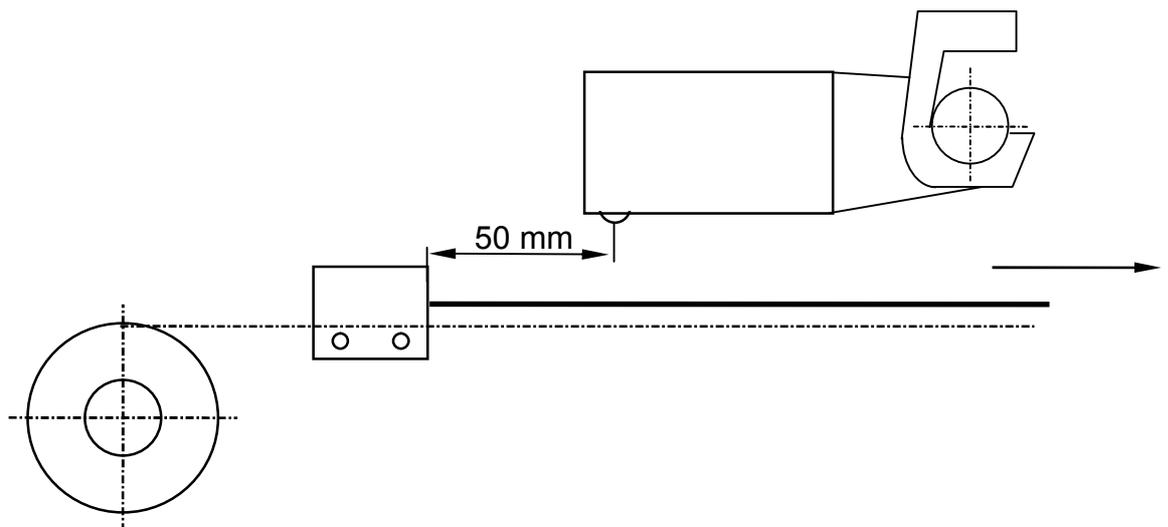
Glueing works

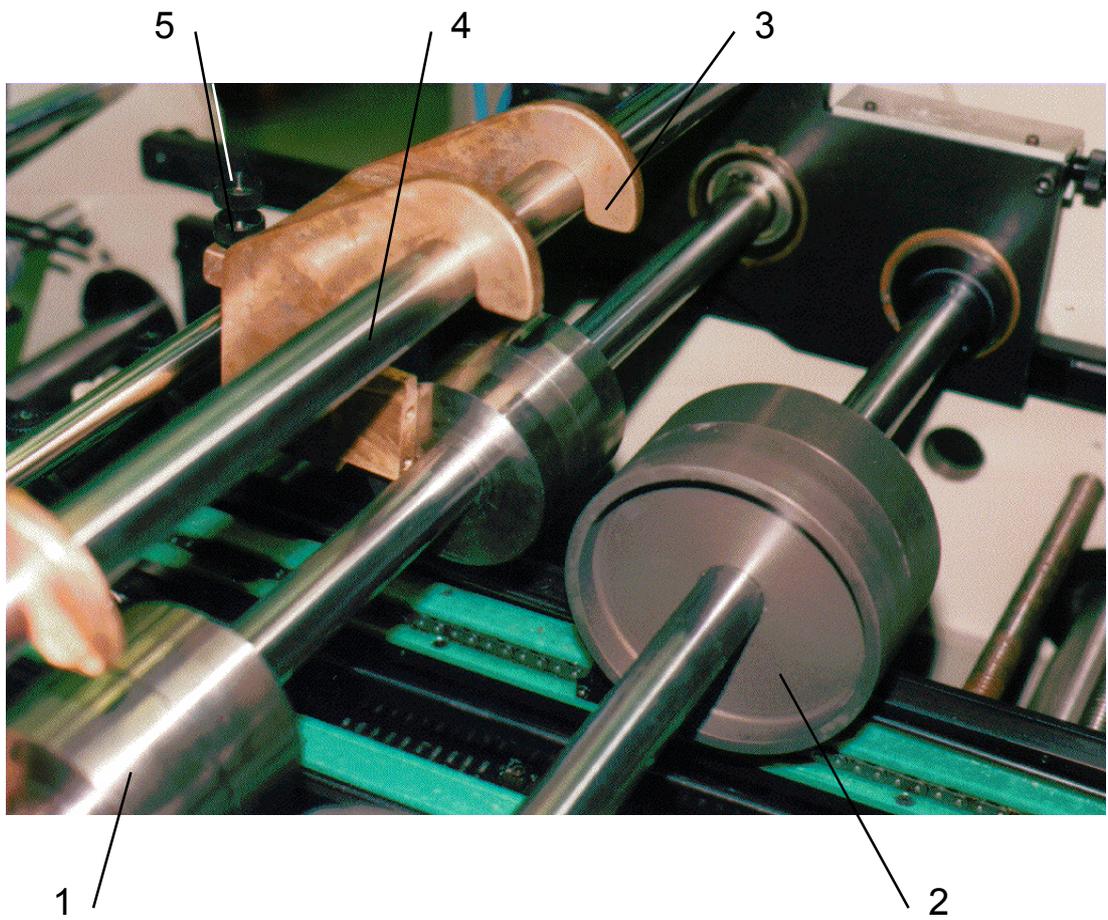
The glueing roller (page 4.24 pos. 1) is now brought into alignment with the block disk (pos. 2). This takes place by loosening the locking screw and by shifting the glueing roller into the desired position. After shifting, the locking screw is retightened. The glueing works (pos. 3) is inserted from above and is transversely hung up (pos. 4). The glueing bottle is inserted and the glueing quantity is adjusted by adjustment of height with the knurled screw (pos. 5).

In case of a blank failure the block automatically lifts from the blank and the glued work piece. The sequence of the blanks is monitored by a photoelectric cell. The answering time of this photoelectric cell is adjusted at the operating panel (page 4.4). For the adjustment a blank is being moved under the photoelectric cell by hand. (Back edge of the blank approx. 50 mm behind the photoelectric cell.)

In the case of a machine stoppage, the block automatically lifts off from the blank and the glueing works and continued running of the glueing roller is switched on.

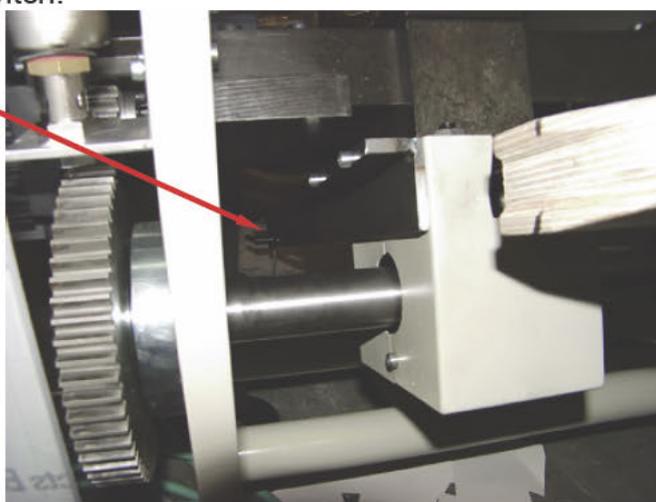
In the case of a larger surface to be glued, two glueing rollers can be pushed together and a double-width glueing works can be utilized.





Drive

The zero-position (when working with normal movement) or the carton line (when working with speed reduced forward-movement) of the presser board is set by means of positioning the switch.



Additional instruments

Belt feeding device

Adjustment of the blank length

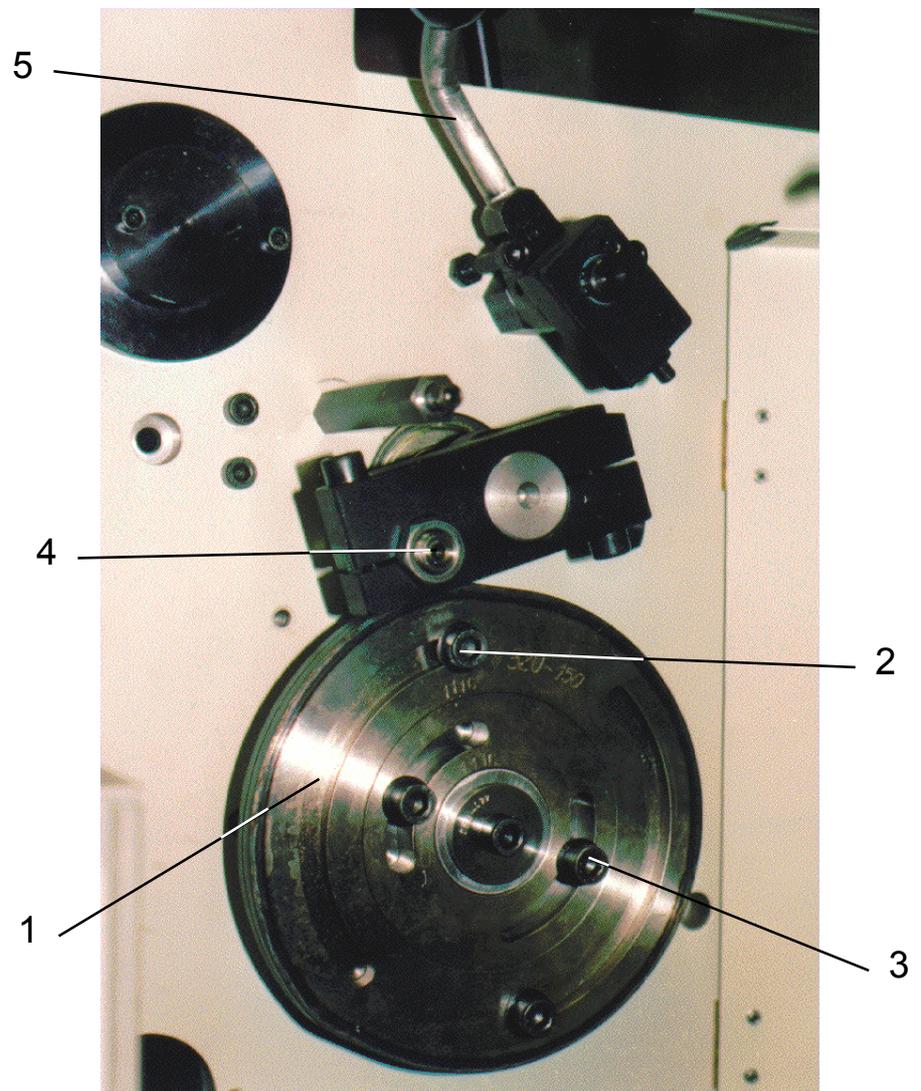
The cam plates (page 5.2 pos. 1) located on the tending side determine by lifting and lowering of the cardboard pile that only one blank is fed respectively to the shell erection machine. This enables cycle transportation.

The according cam plate pairs have to be utilized depending on the desired blank length. The first draw period is determined by mutual turning of the plates. Both of the locking screws (pos. 2) are loosened to this end.

A list of cam plates for the different working areas is illustrated on page 5.3.

The correct first draw period is subsequently adjusted when the pile is again lifted just prior to the end of the blank passing through the separating tongue.

The cam plate pair can be radially turned on the axle by loosening the locking screws (page 5.2 pos. 3) in order to adjust the feeding device cycle to the cycle of the shell erection machine's conveyor chains.



Cams CE 6 feeding device

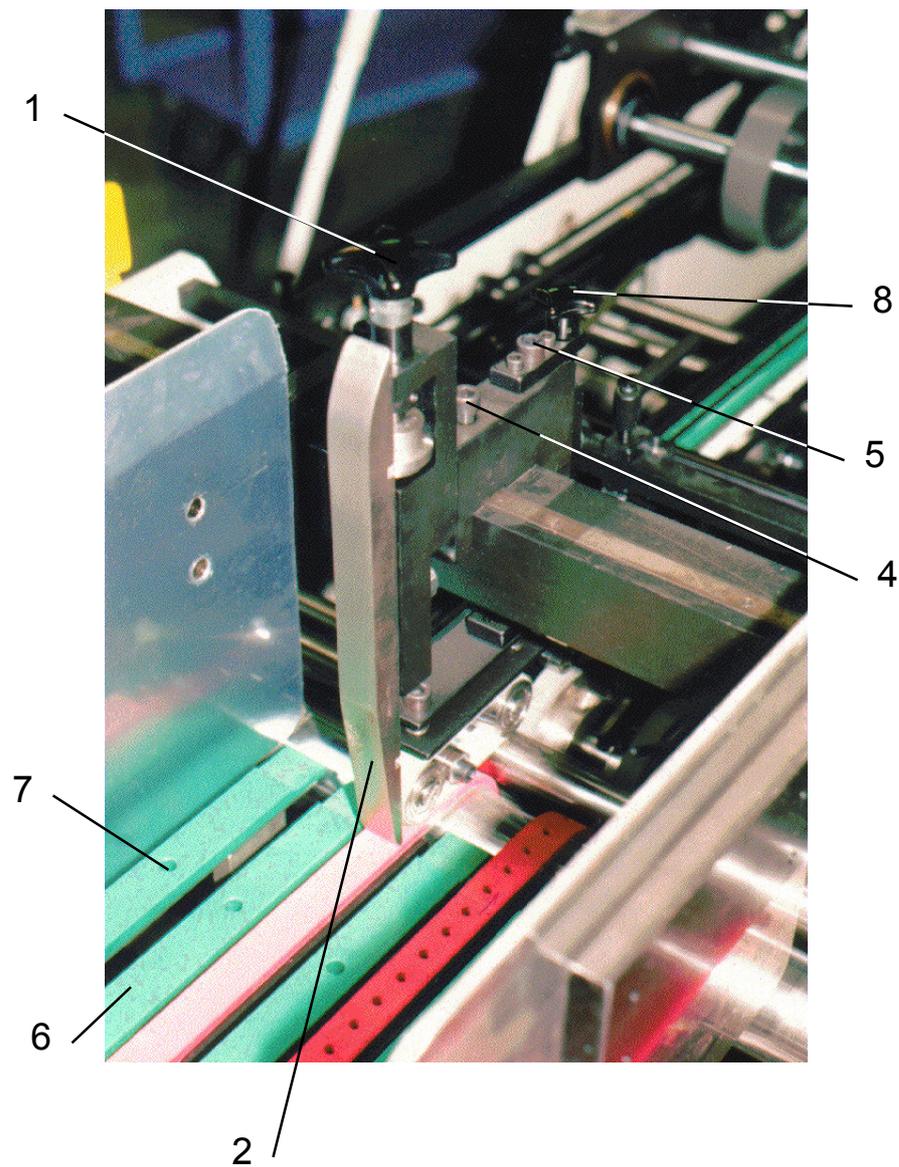
Part no.	Lmin	Lmax	
1116/17	150	320	120°
1118/19	320	405	60°
1120/21	405	450	30°
1145/46	0	220	180°

Adjustment of the stack lifting device

The stack lifting device (page 5.5 pos. 6) located on a square shaft is lifted in cycles by means of the cam plates.

The stack lifting devices can be laterally shifted or removed by loosening the locking screw (accessible through the boring (pos. 7)). Preferably, a stack lifting device should always be arranged to the left and right hand side close to a separating tongue (pos. 2). The lift of the stack lifting device is 3 mm and normally moves +/- 1,5 mm from the top edge of the belt. The position of the amplitude range to the belt can be adjusted by means of the eccentric bolt (page 5.2 pos. 4).

The lifting movement can be arrested in the upper position by means of the lever (page 5.2 pos. 5), which causes the feeding device to be switched off.



Adjusting of the separating tongues

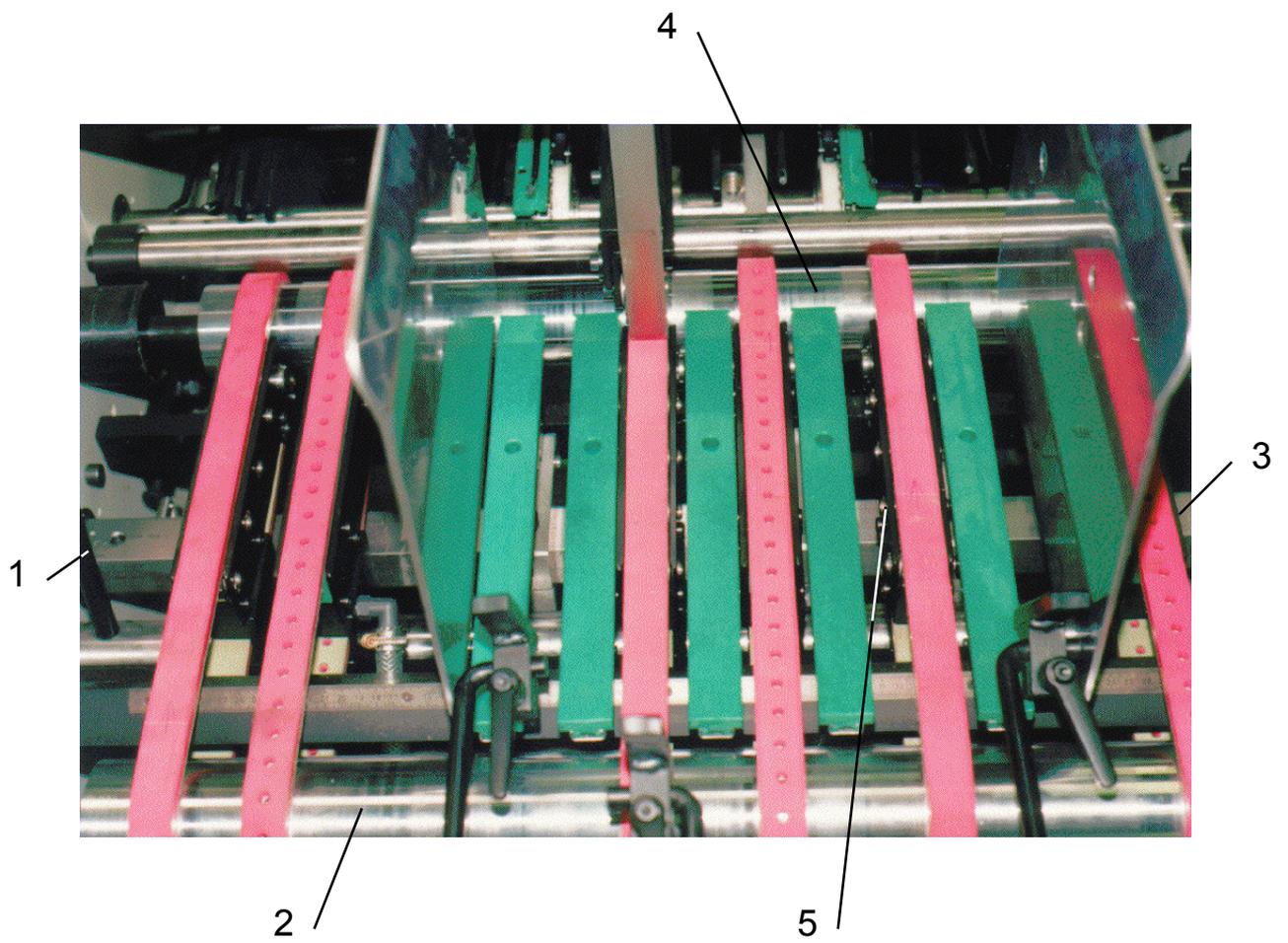
The gap between the separating tongue and the belt is adjusted accurately by means of the star handle. The gap height has to correspond with the cardboard thickness. In order to compensate for a mismatch of the blanks, the separating tongue has to be shifted into the direction of movement by loosening the locking screw (pos. 4). Lateral adjustment of the separating tongue is carried out by loosening the locking screw (pos. 5). The height of the roller carriage (pos. 9) is adjusted by means of the star handle (pos. 8).

Adjustment of the drawing-in belt

In order to laterally adjust the drawing-in belt, the lever (page 5.8 pos. 1) has to be initially moved. The transportation belt is subsequently positioned by shifting the belt guide (pos. 6), at the same time as the machine is running by means of the touch control switch. The lever (pos. 1) is subsequently returned to its original position. Preferably, there should always be a belt under a separating tongue.

Changing of belts

The guide roller (pos. 2) is slackened with the threaded spindles for changing of the drawing-in belt. The bearing pin of the square traverse (pos. 4) and the back guide roller (pos. 5) are subsequently removed. The belts can be changed after removal of the front guide roller.



Statements with regards to existing remaining risks

When cleaning the glueing works, there is the risk of being drawn in between the glueing roller and the block disk. Extreme care is necessary.

When the shells at the bottom end of the stack tower are removed, there is the risk of being crushed between the presser board and the stacking tower's guides. The shells can be removed without any danger from the bottom end of the stacking tower.

Servicing

Maintenance instructions

Carry out maintenance work only on a stopped machine. If work has to be carried out whilst the protective hoods are removed, extreme care is required.

- Chains and toothed wheels: In the case of one-shift operation, the toothed wheels and chains have to be greased once per month with a normal commercial flowing grease. In the case of a multi-shift operation accordingly more often.
The chains have to be only retightened after the first 4 weeks and subsequently every 6 months.
- Bearings: The utilized ball bearings are permanently greased and therefore maintenance-free.
- Motors: Operating and maintenance instructions are enclosed.
- Automatic lubrication system:
The viscosity of the oil should be about 68 mm²/s.
- toothed wheels: The toothed wheels at the feeder drive, the toothed parts of the forming block drive (as an alternative to the automatic oiler), have to be greased with a special grease for toothed wheels. We recommend:
Voler Compoud Spray 2000E
Lieferant: Fritz Manke GmbH
Fichtenstr. 72
D – 40233 Düsseldorf

Cleaning instructions

Degrease the machine with an appropriate cleaning agent.

Cleaning of the glueing works

Cleaning of the glueing works is carried out in four steps:

1. Lift off the cleaning works and collect the remaining glue in an appropriate shell
2. Remove and clean the glueing works
3. Clean the glueing rollers with a piece of cardboard
4. Replace the glueing works

Information in the case of an emergency

In the case of an emergency situation, immediately operate one of the emergency shutdown switches.

Rescueing of personnel, who are trapped in the machine:

In order to rescue personnel, who are trapped in the machine, the machine can be turned backwards by hand following an emergency shutdown. To this end, operate the handwheel on the tending side.

Ordering of spare parts:

All machine parts are provided with an imprinted identity number.

The following data must be indicated when ordering spare parts:

- Machine type
- Machine number
- Year of construction
- Identity number of the required part

