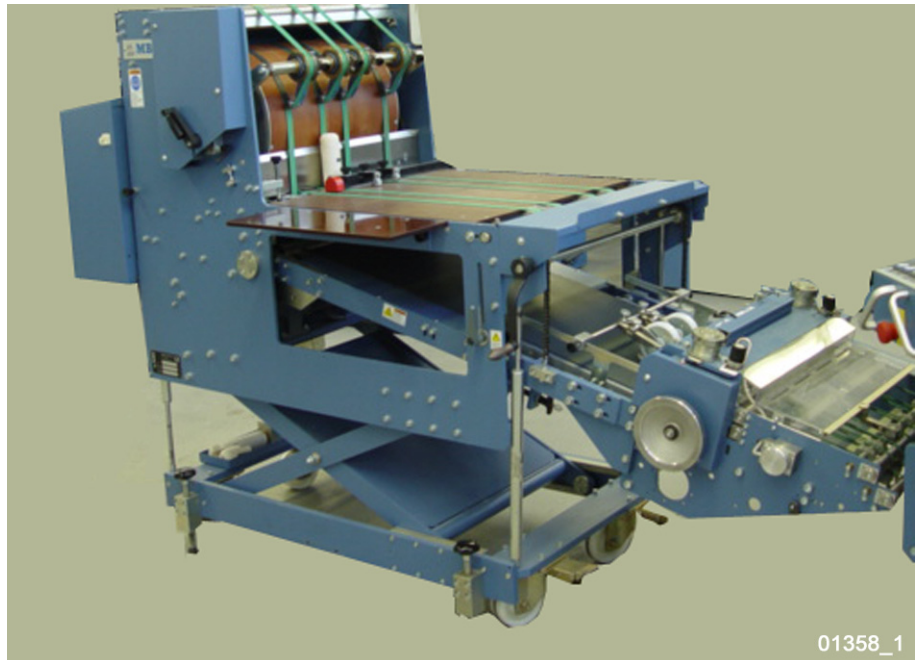




**MBO**  
Folding Technology

# Operating Manual

**SBAP 46/72/82 ME**  
**Vertical Stacker Delivery**  
**with pressing**  
**and marking device**



01358\_1

# Contents

Prologue .....	4
<b>1.0 Machine specification .....</b>	<b>4</b>
<b>1.1 Manufacturer .....</b>	<b>4</b>
<b>1.2 Type: .....</b>	<b>4</b>
<b>1.3 Technical data .....</b>	<b>5</b>
1.3.1 Sizes .....	5
1.3.2 Floor plan: .....	5
<b>1.4 Documentation .....</b>	<b>6</b>
<b>1.5 User information / Functioning description .....</b>	<b>7</b>
<b>2.0 BASIC SAFETY INSTRUCTIONS .....</b>	<b>8</b>
<b>2.1 Warnings and symbols .....</b>	<b>8</b>
<b>2.2 Safety in the working place Destined use of the Vertical Stacker Delivery .....</b>	<b>8</b>
<b>2.3 Safety devices .....</b>	<b>10</b>
2.3.1 Protective hoods – Layout .....	10
2.3.2 Protective hoods – Checklist .....	10
2.3.3 Check list: warning labels (oder warning signs) .....	11
<b>3.0 Transportation, installation, and initial operation .....</b>	<b>15</b>
<b>3.1 Transportation .....</b>	<b>15</b>
<b>3.2 Installation .....</b>	<b>15</b>
<b>3.3 Erection .....</b>	<b>16</b>
<b>3.4 Electrical connection .....</b>	<b>17</b>
<b>4.0 Service / Maintenance .....</b>	<b>18</b>
<b>4.1 Procurement of spare parts .....</b>	<b>18</b>

<b>4.2</b>	<b>Lubrication / Cleaning .....</b>	<b>19</b>
<b>4.3</b>	<b>Cleaning of transport tapes and pressing rollers .....</b>	<b>20</b>
<b>4.4</b>	<b>Tensioning of tapes, belts and chains .....</b>	<b>21</b>
4.4.1	Chains at main drive motor .....	21
4.4.2	Drive chains for the transport tape at the collector table .....	22
4.4.3	Drive of pressing rollers and infeed tapes .....	23
4.4.4	Transport tape at the collector table .....	24
4.4.5	Lower line-up tapes .....	24
4.4.6	Upper line-up tapes .....	25
4.4.7	Pile transport tapes .....	25
<b>5.0</b>	<b>Operation (of the delivery) .....</b>	<b>26</b>
<b>5.1</b>	<b>Control desk .....</b>	<b>26</b>
<b>5.2</b>	<b>Infeed table .....</b>	<b>27</b>
5.2.1	Infeed tapes .....	27
5.2.2	Multiple-up production .....	28
5.2.3	Marking device .....	29
<b>5.3</b>	<b>Pressing unit .....</b>	<b>30</b>
<b>5.4</b>	<b>Collector table .....</b>	<b>31</b>
<b>5.5</b>	<b>Line-up tapes and line-up table .....</b>	<b>32</b>
<b>6.0</b>	<b>Putting out of service .....</b>	<b>34</b>
<b>6.1</b>	<b>Details of storage .....</b>	<b>34</b>
<b>6.2</b>	<b>Environmental waste disposal .....</b>	<b>35</b>
6.2.1	Disposal of the waste machine .....	35
6.2.2	Disposal by instructing the supplier .....	35
6.2.3	Disposal by a disposal and demolition company .....	35
6.2.4	Disposal by your own company .....	35
6.2.5	Ground water preservation .....	36
<b>6.3</b>	<b>Final remarks .....</b>	<b>36</b>

## **Prologue**

The MBO Vertical Stacker Delivery SBAP 46/72/82 - ME you have purchased is a valuable piece of equipment. It is absolutely imperative that you comply with all Safety Regulations and Safety Instructions. This Operating Manual is designed to instruct you to correctly operate the machine, to comply with the Safety Regulations, and also to maintain the machine properly.

### **1.0 Machine specification**

#### **1.1 Manufacturer**

**MBO Binder & Co. Maschinenbau Oppenweiler**  
Grabenstrasse 4, D-71570 Oppenweiler, Germany  
P.O. Box 1169, D-71567 Oppenweiler, Germany  
Tel. +49 7191 460  
Fax +49 7191 4634

#### **1.2 Type:**

**Vertical Stacker Delivery SBAP 46/72/82 - ME**

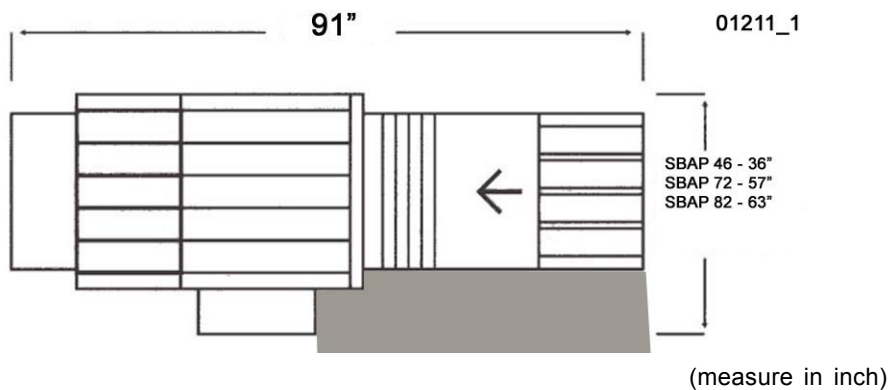
### 1.3 Technical data

#### 1.3.1 Sizes

	<b>SBAP 46-ME</b>	<b>SBAP 72-ME</b>	<b>SBAP 82-ME</b>
Working width:	17 3/4"	28 3/8"	32 1/2"
Maximum infeed height:	37 3/8"	37 3/8"	37 3/8"
Minimum infeed height:	15"	15"	15"
Sheet width / line-up height max.:	11 3/4"	11 3/4"	11 3/4"
Sheet width // line-up height min.:	3 1/8"	3 1/8"	3 1/8"
Length of pile:	28 3/4"	28 3/4"	28 3/4"
Pressing power max.:	2000 kp	2000 kp	2000 kp
Speed:	40-155m/min	40-155m/min	40-155m/min
Power requirements:	1.3 kw	1.3 kw	1.3 kw

#### 1.3.2 Floor plan:

The permitted working area during the operation is marked in grey.



**1.4 Documentation**

Customer: \_\_\_\_\_

Machine configuration: **Vertical Stacker Delivery SBAP 46/72/82 - ME** \_\_\_\_\_

Machine No.: \_\_\_\_\_

Serial No.: \_\_\_\_\_

BA Batch Counter IVO: \_\_\_\_\_

**Electrical data:**

Wiring diagram no.: \_\_\_\_\_

Operational voltage V3/Hz: \_\_\_\_\_

Control voltage V/A: \_\_\_\_\_

Control voltage V/A: \_\_\_\_\_

Total nominal current A: \_\_\_\_\_

Fuse at power supply A: \_\_\_\_\_

Wiring diagram no's.: \_\_\_\_\_

Test mark GS Nr.: \_\_\_\_\_

Test mark CE Nr.: \_\_\_\_\_

Certificate of Conformity: \_\_\_\_\_

Perceived noise level (dB/AI): \_\_\_\_\_

GS marking no.: \_\_\_\_\_

## 1.5 User information / Functioning description

The Vertical Stacker Delivery SBAP 46/72/82 - ME is a mobile, separate unit with self-drive to vertically set up signatures with the spine downwards. The sheets are simultaneously pressed and the batches may be counted through a batch counter and displaced to each other. For multiple-up productions the different ups may be separated at the entry of the vertical stacker delivery by slanting the round belts.

## 2.0 BASIC SAFETY INSTRUCTIONS

### 2.1 Warnings and symbols

The following designations or symbols are used for very special instructions in this Operating Manual:



>**NOTICE**< Special instructions in respect to the economical use of the machine.



>**ATTENTION**< Special instructions or requirements and prohibitions to avoid injuries and damage.



>**DANGER**< Instructions or requirements and prohibitions to prevent personal injuries or extensive damage.

Only skilled and instructed qualified personnel is allowed to operate the machine.  
The operator must be at least 18 years old

### 2.2 Safety in the working place Destined use of the Vertical Stacker Delivery

2.2.1 MBO units correspond to their prescribed Safety Technical Requirement at the time of their shipment. For this purpose, any moveable and rotating parts are covered with protective hoods and are mechanically or electrically interlocked to such an extent as to not unreasonably detract from the operation.

- Single person operation only (insufficient view at the drive side).

2.2.2 With technical safety precautions it is extremely important that all operating personnel receive sufficient technical safety instructions and are advised of all potential sources of danger. However, it must be remembered that even with proper use of the machine, accidents can occur which present a danger to life and limb of the operator or third parties. Respectively, it does not exclude the detraction of the machine and other material assets.

2.2.3 The delivery should only be operated when in good working order. Any malfunctions that may impair safety must be removed immediately by trained personnel of the manufacturer/supplier.

2.2.4 The delivery is exclusively designed to handle folded paper sheets. The processing of any other materials should not be attempted as the manufacturer or supplier will not be liable for any resulting damage.

2.2.5 Carefully read the complete Operating Manual, including the Safety and Service Requirements, before you operate the machine.

2.2.6 The Operating Manual should be kept with the machine at all times.

2.2.7 Complete the Operating Manual, if necessary with internal Safety Instructions, as well as with the legal regulations for the Prevention of Accidents.



- 2.2.8 Make sure that all frequently substituted operators are thoroughly informed about the aforementioned subjects and trained accordingly.
- 2.2.9 Never remove any protective or safety devices from the delivery, and do not make any changes that may impair the safety of the delivery.
- 2.2.10 Never use any tools which are not in perfect condition, and make sure that no tools are left on the delivery after completion of settings and maintenance work. Tools that fall into the delivery may cause serious injuries and damage.
- 2.2.11 Note that all Safety Instructions are kept in a legible and visible condition.
- 2.2.12 Any audible and visible change on the delivery in relation to its safety must be reported immediately to the supervisor or manager of your company.
- 2.2.13 All operating personnel should be aware that loose clothing, jewellery or long hair can cause serious injuries if caught in the delivery.
- 2.2.14 It is absolutely prohibited to clean the transport tapes or pressing rollers, eliminate malfunctions, or to undertake adjustments while the delivery is in operation.



>**DANGER**< Therefore, always activate the **EMERGENCY STOP** button.

- 2.2.15 Make sure that no other person starts the delivery while you are working on it, e.g. adjustment or other works!



>**DANGER**< Therefore, always activate the **EMERGENCY STOP** button, or turn **OFF** the main switch, or unplug the delivery.

- 2.2.16 Do not immediately turn the delivery ON if it has stopped for any inexplicable reason. Make sure that the delivery is in good working condition and that no other person is working on the delivery.
- 2.2.17 Turn off the main switch and secure it, if necessary, with a lock if you are required to undertake extensive mechanical or electrical maintenance and repair work.
- 2.2.18 Never open the main or subcontrol panel! Only authorised personnel should gain access to electronic control cabinets as there are no user serviceable parts.

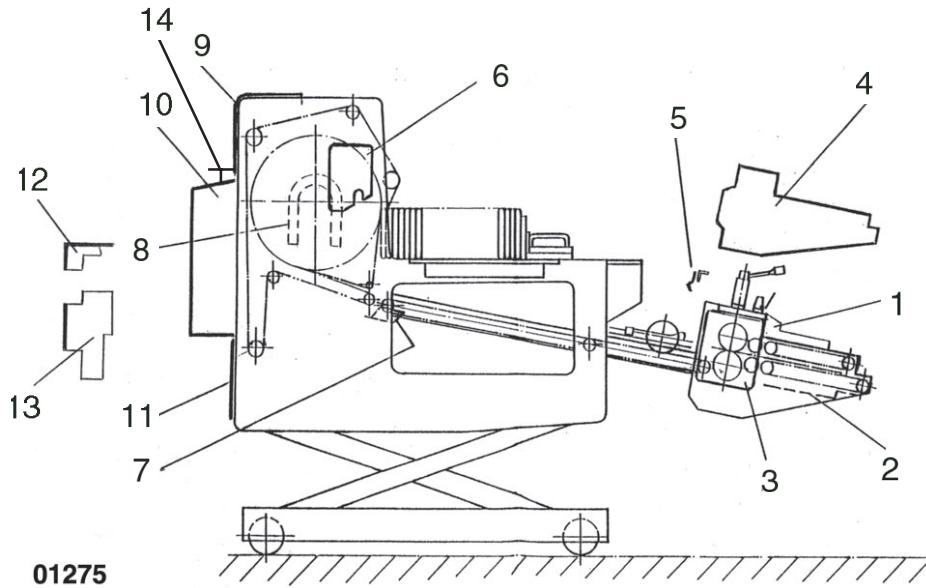


>**DANGER**< if control cabinet is open! All main terminals could be alive even though the mains switch has been turned off.

- 2.2.19 Any damaged cables or electrical connections must be reported to the appropriate supervisor of your company.
- 2.2.20 Machine connections must be installed in such a manner that no cables, tubes or hoses are left trailing.

## 2.3 Safety devices

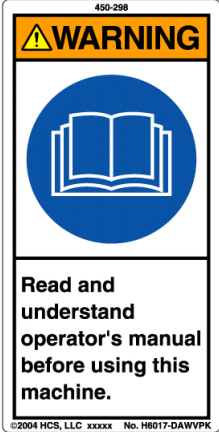









### 2.3.1 Protective hoods – Layout



### 2.3.2 Protective hoods – Checklist

Pos	Designation	Function control	Visible control	Result	Remark
1	Guard at infeed				
2	Cover infeed below				
3	Guard above gear wheel				
4	Protection hood at drive				
5	Guard for touching				
6	Guard over adjusting chain				
7	Guard over belt drive system				
8	Guard over drum drive				
9	Upper cover				
10	Electric box and middle cover				
11	Cover below				
12	Cover over drive chain				
13	Cover over drive chain				
14	EMERGENCY-STOP switch				in the operator field
	date	name			signature

2.3.3 Check list: warning labels (oder warning signs)

Pos.	Warnings	Introduction At first commissioning (oder at initial operation) (first customer)	Note
1	 <p>450-298</p> <p><b>WARNING</b></p> <p></p> <p>Read and understand operator's manual before using this machine.</p> <p>©2004 HCS, LLC xxxxxx No. H6017-DAWVPK</p>		
2			
3	 <p></p> <p>Operate only with locked knural.</p> <p>©2005 HCS, LLC No. 8788-02VP-Z8</p>		
4	 <p></p> <p><b>WARNING</b></p> <p>Moving parts can crush and cut. Do not operate with guard removed. Follow lockout procedure before servicing.</p> <p>©2005 HCS, LLC www.safetylabel.com xxxxxx Reorder No. H1090-02WHPL</p>		
5	 <p></p> <p><b>CAUTION</b></p> <p>Pinch point hazard. Keep hands clear.</p> <p></p> <p>©2005 Hazard Communication Systems, LLC www.safetylabel.com xxxxxx Reorder No. H1105R008-G3CHP1</p>		
		Date:	
		Name:	
		Signature:	

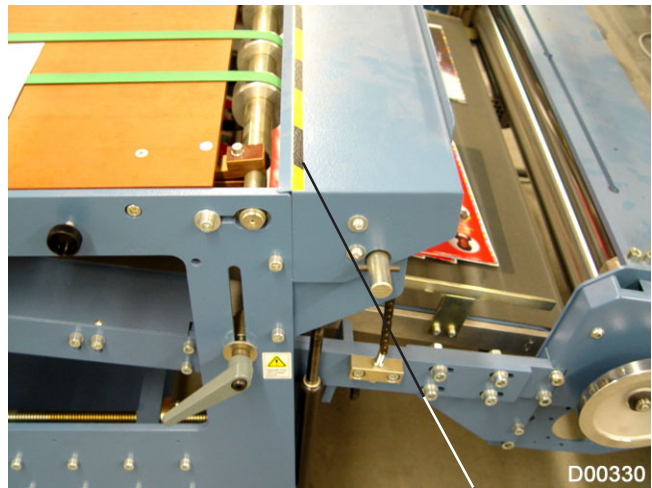
**Pos. 1**

Significance:  
Please read and understand  
the operating manual before you  
start to work on the machine.



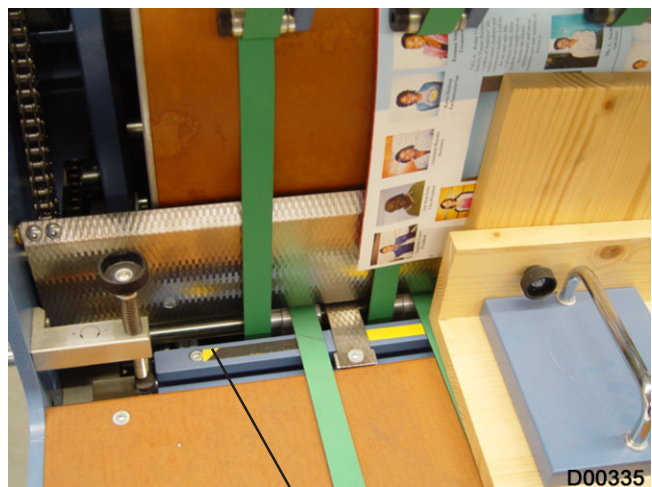
**Pos. 2**

Significance:  
Danger from infeed point.  
Keep away your hands from the  
rotating shaft!



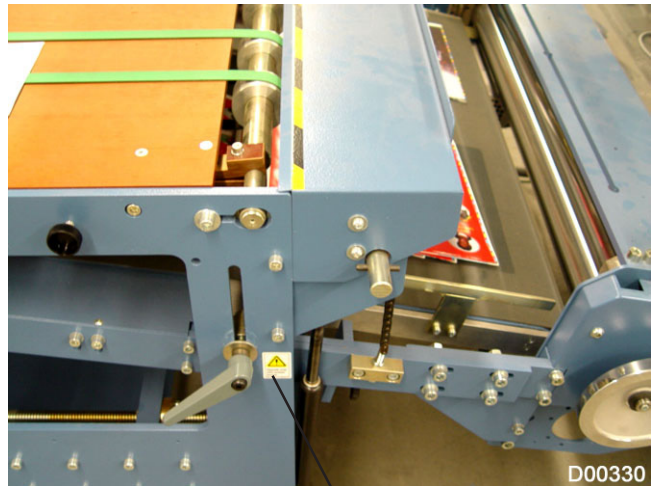
**Pos. 2**

Significance:  
Danger of squeezing!  
Keep away your hands when the  
transportation plate is moving.



**Pos. 3**

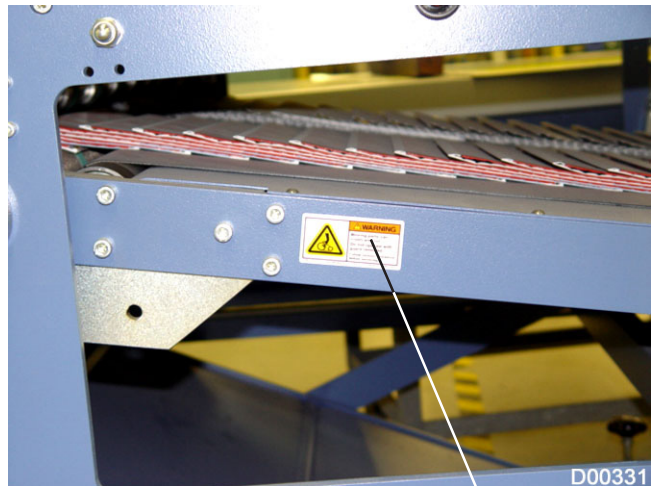
Significance:  
Work only with a tightened lever.  
Danger of jerky height adjustment in case of non-tightened lever.



3

**Pos. 4**

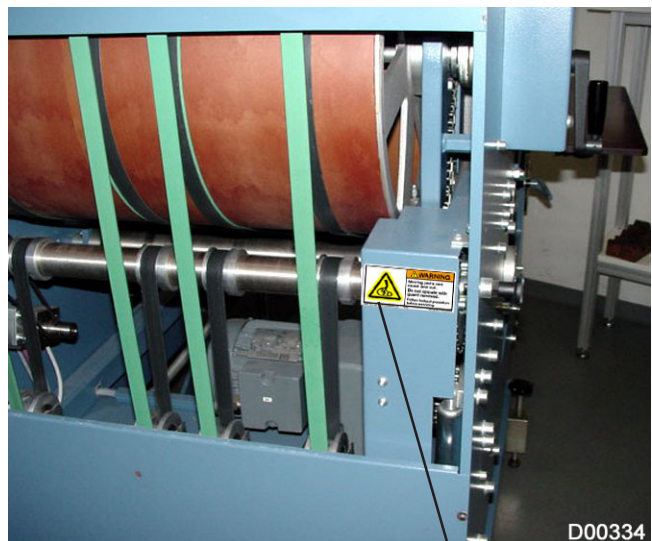
Significance:  
Danger of dragging through transport tape. Keep away your hands from infeed points!



4

**Pos. 4**

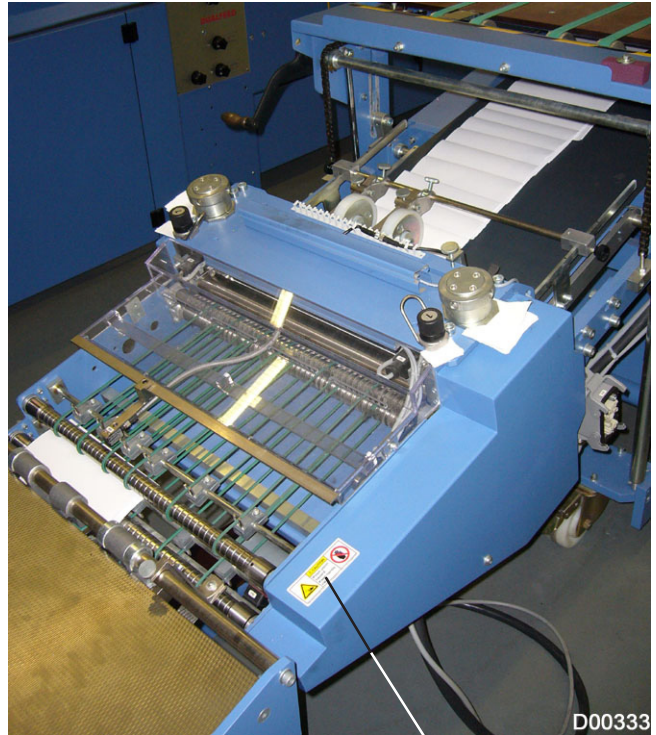
Significance:  
Danger of dragging through transport tape. Keep away your hands from infeed points!



4

**Pos. 5**

Significance:  
Non-observance may possibly  
cause bruises to the hands.  
Please keep your hands away  
from this danger spot.



5

### 3.0 Transportation, installation, and initial operation

This part of the Operating Manual is specifically directed at service personnel and internal authorised personnel responsible for transportation and installation.

#### 3.1 Transportation

The Vertical Stacker Delivery SBAP 46/72/82 – ME is shipped on a pallet or in a crate.

Carry the pallet as close as possible to its final destination by means of a forklift. Unscrew the delivery from the pallet.

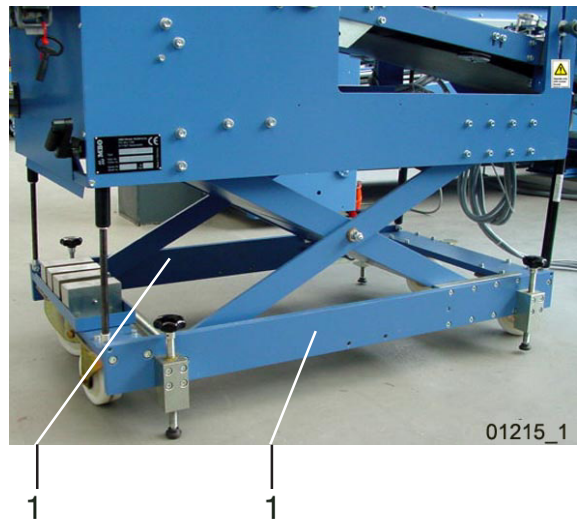
Remove the delivery from the pallet or crate by lifting with a forklift (see markings 1 on the frame).



**>ATTENTION<** There is a danger of risk of injuries as the delivery may overturn!



**>DANGER<** The delivery must be supported by two persons.



The ideal operating temperature is 10-35 °C.

#### 3.2 Installation

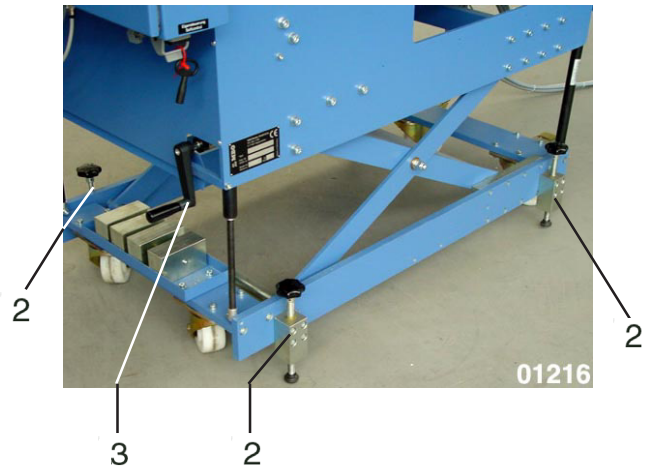
Clean the SBAP46/72/82 - ME with rust preventing agents.

### 3.3 Erection

Position the SBAP 46/72/82 - ME delivery next to the folding machine and secure it with supporting screws 2 against displacement.



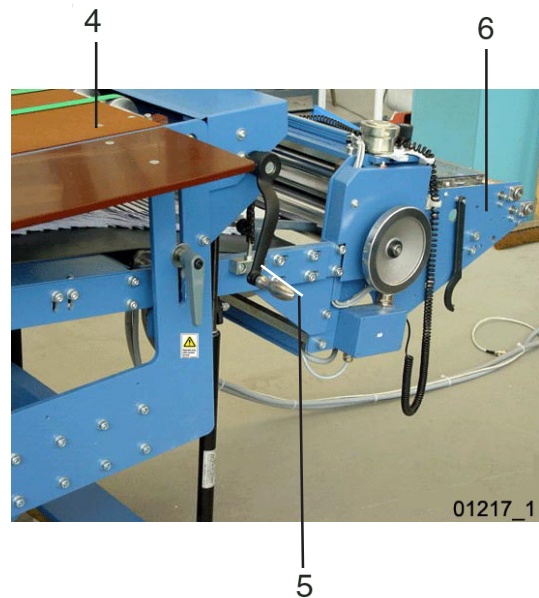
**>NOTICE<** The centre of the sheet should be equal to the centre of the delivery!



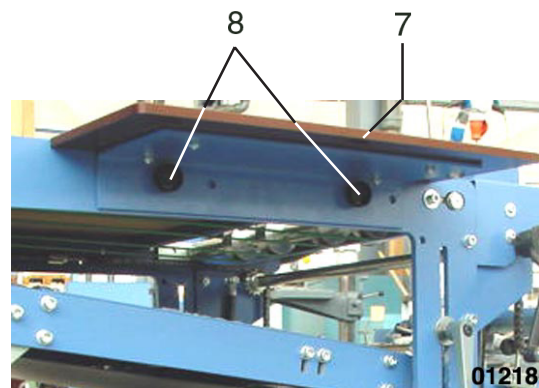
Position the line-up table 4 to the suitable pick-up height by means of the crank 3.

The necessary height of the infeed table 6 can be adjusted by means of the crank 5.

This infeed height should match the exit height of the folding machine.



Subsequently, fasten the knock-up table 7 to the line-up table by means of the knurled screws 8.

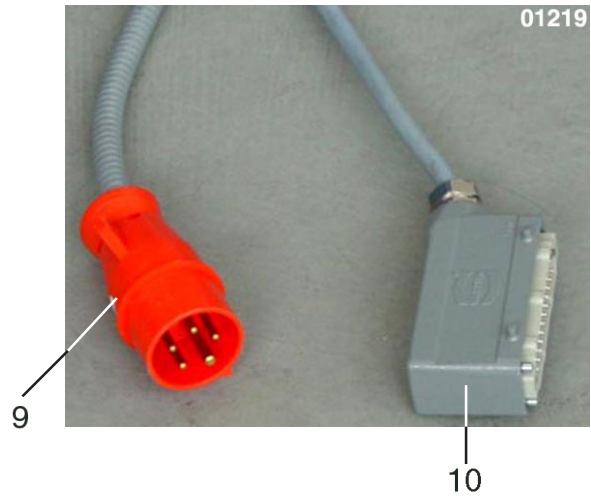




### 3.4 Electrical connection

Connect the SBAP 46/72/82 - ME to the folding machine by means of the power supply plug **9** and control plug **10**.

Due to its self-control the SBAP 46/72/82 - ME may also be connected to foreign folding machines.



For this purpose insert the power supply plug into the supply circuit, and the control plug into the socket „Self-Control“ **12** at the control panel **11**.



**>DANGER<** Please note that there is no joint OFF switch if the MBO Vertical Stacker Delivery is connected to a foreign machine. We must expressly advise you that there is no safety cut-off if the delivery is connected to a foreign machine. Both units must be turned ON and OFF separately! The manufacturer shall not be liable for any damage or injuries caused by the lack of safety cut-off devices!

## 4.0 Service / Maintenance

This part of the Operating Manual is specifically directed at service personnel and internal authorised personnel of the operating company responsible for service and maintenance.

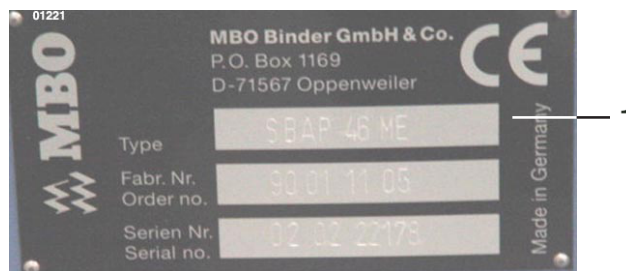


>**DANGER**< Unless the delivery is isolated no service or maintenance work should be carried out. Always activate the **EMERGENCY STOP** button or turn **OFF** the main switch and secure it with a lock.

## 4.1 Procurement of spare parts

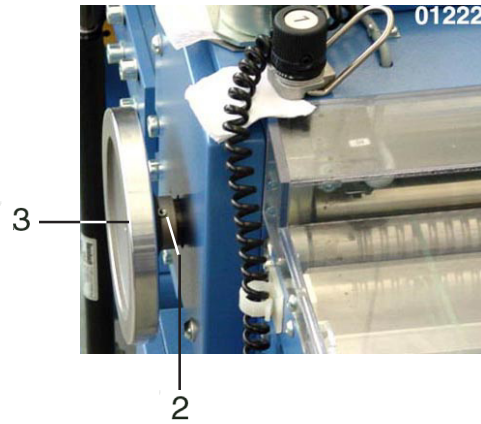


>**ATTENTION**< Only use spare parts that are supplied or recommended by the manufacturer. For inquiries and spare parts orders it is necessary to provide the machine and serial number, which may be obtained from the label **1**.



**4.2 Lubrication / Cleaning**

Clean and lubricate the lubricating nipple **2** behind the hand wheel **3** with a few drops of oil monthly.



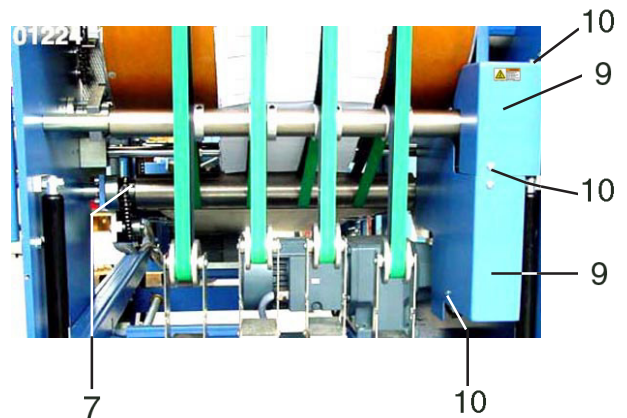
The threaded spindle **6** for the height adjustments should be cleared of dust and slightly greased monthly.



The drive chain **7** for the transport tape should be cleaned and provided with a slight touch of oil monthly.

All drive chains (see chapter 4.4.1) going from the main motor should be cleaned and provided with a slight touch of oil monthly.

For this purpose, remove the protective hood **9** that has been fastened with the screws **10**. Thereafter, replace the protective hood and re-fasten all the screws.



### 4.3 Cleaning of transport tapes and pressing rollers



>**NOTICE**< Generally, the delivery must be cleaned after each application! Particularly moveable or rotating parts that are frequently changed for exchange of sheet size must be cleared of dust. Heavy dust may detract the function.



>**DANGER**< Transport belts and pressing rollers should be cleaned while the delivery has been turned OFF. Activate the EMERGENCY OFF switch, or turn OFF the main switch, or pull out the power supply plug.



>**NOTICE**< Depending on the extent of dirt, transport tapes and pressing rollers must be cleaned occasionally. Heavy contamination of printing powder or deposit of ink on the transport tapes and pressing rollers may cause reduction in the quality of the folded products. The tapes should be cleaned with a cleansing agent suitable for synthetic materials. Please contact your machine/delivery supplier for further details. Unsuitable cleansing agents may swell the material or devastate the proportion of adhesive material.



>**DANGER**< Do not use any aggressive cleaners! Protective gloves should be worn while you are cleaning. Protect exposed parts of the body against splashes or contact. Dispose the soiled cleaning material in the correct manner, i.e. environmentally friendly. Consider the flammability of the cleansing agent. In regard to disposal and skin irritability, please also remember that a residual danger could eventually exist after a period of time. Check the technical data sheet of the cleansing agent manufacturer.



>**NOTICE**< MBO, the manufacturer of this Vertical Stacker Delivery, recommends a cleaning material made by VARN for the fold rollers, bearing the designation „VARN-Wash VM 111“ or „VWM“. Our recommendation is on a label near the fold rollers. VARN is a worldwide supplier to the printing industry. Therefore, it cannot be excluded that in certain countries different designations are used. Please take the individual order number from VARN's technical data sheet.



>**DANGER**< Make sure to check all technical data of the manufacturers cleansing agents for any possible residual danger in respect of disposal, flammability, and skin irritability.

## 4.4 Tensioning of tapes, belts and chains



**>NOTICE<** Check the tension of drive tapes and chains once a month and, if necessary, re-tension.

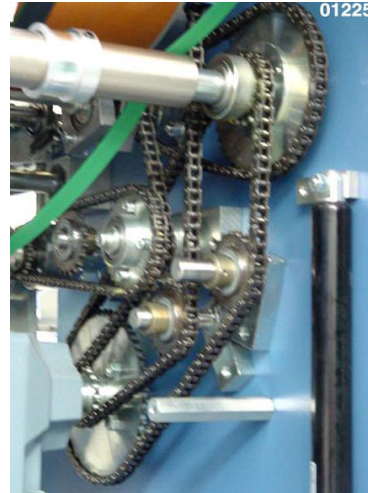
### 4.4.1 Chains at main drive motor

Remove the protective hood 9.  
After loosening the screw 14 and the nut 15 tension the chain 12 through the chain tensioner 13.

After loosening the screw 18 tension the chain 16 through the chain tensioner 17.

After loosening the screw 21 tension the chain 19 through the chain tensioner 20.

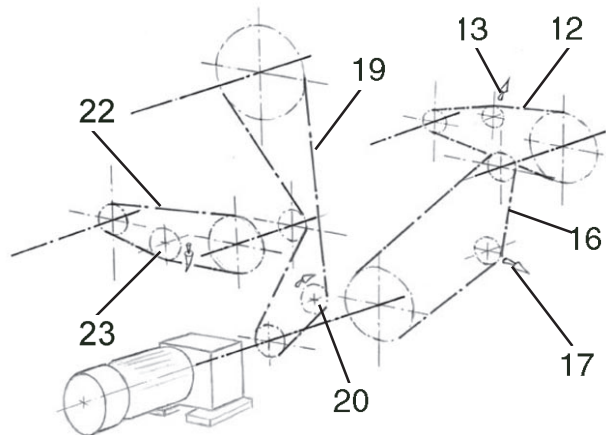
After loosening the screw 24 tension the chain 22 through the chain tensioner 23.



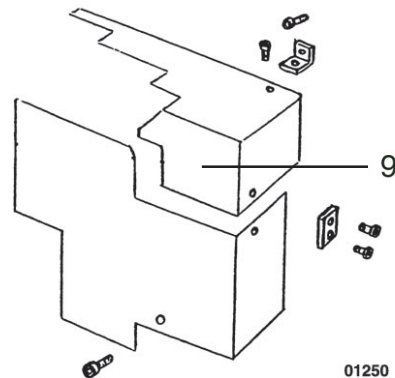
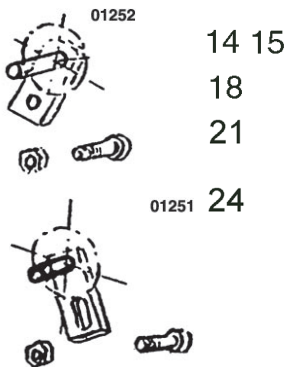
**>ATTENTION<** Make sure that the screws of chain tensioners are properly re-tensioned after tensioning.



**>DANGER<** Make sure that no other person is running the delivery while you are working on it! Activate the EMERGENCY STOP button, or turn OFF the main switch, or pull out the power supply plug!

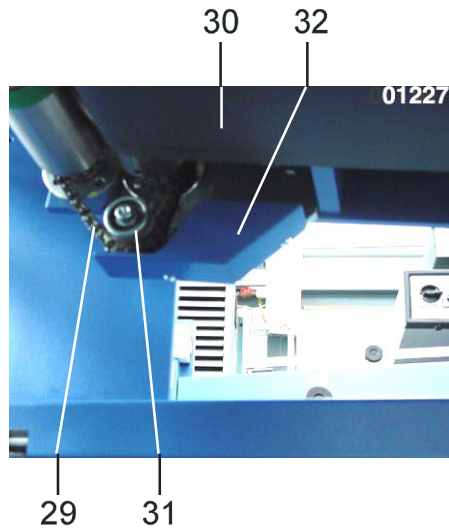


01226



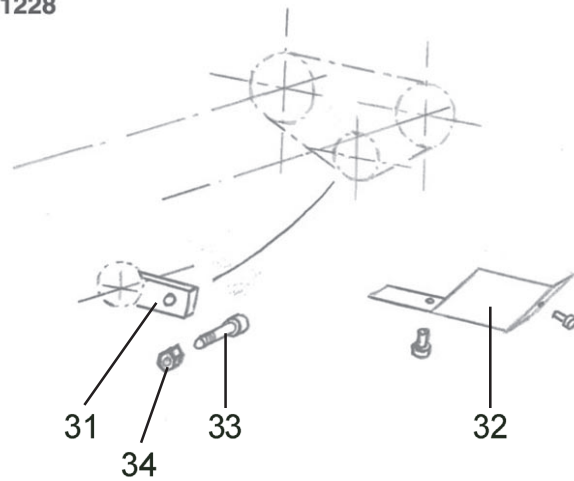
4.4.2 Drive chains for the transport tape at the collector table

The drive chain **29** for the transport tape at the collector table **30** must be tensioned through the chain tensioner **31**.



For this purpose, remove the protective hood **32** and loosen the screw **33** with the externally located nut **34**.

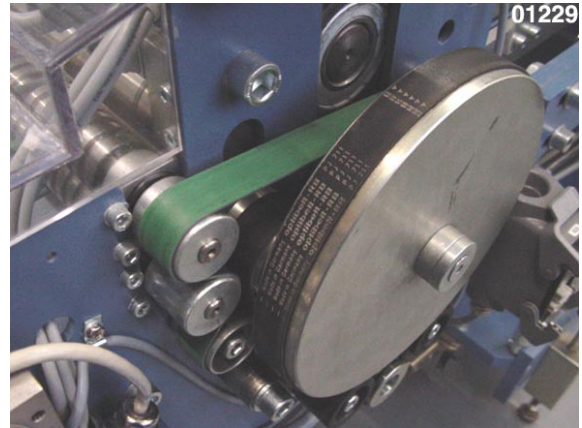
01228



Subsequently, re-fasten the screw with the nut and replace the protective hood.

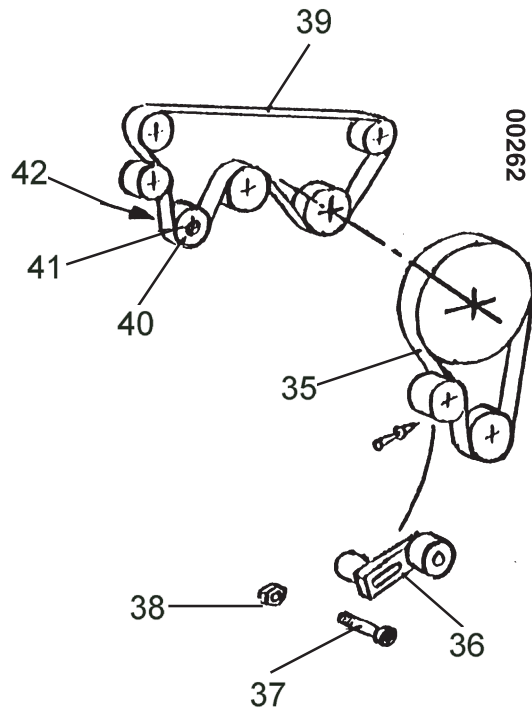
4.4.3 Drive of pressing rollers and infeed tapes

Remove the protective hood over this drive and loosen the Poly-V belt 35 through the belt tensioner 36 by loosening the screw 37 with the internally located nut 38.



The drive tape 39 should be tensioned downward through the tensioning roller 40.

For this purpose, loosen the screw 41 with the internally located nut 42.



After completion, re-fasten the screws and nuts and replace the protective hood.

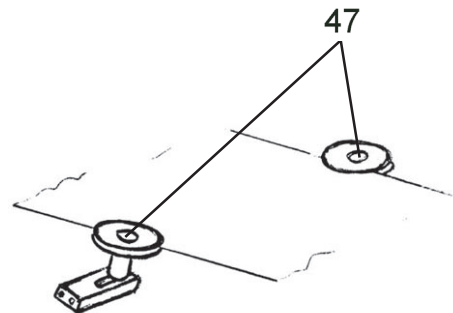
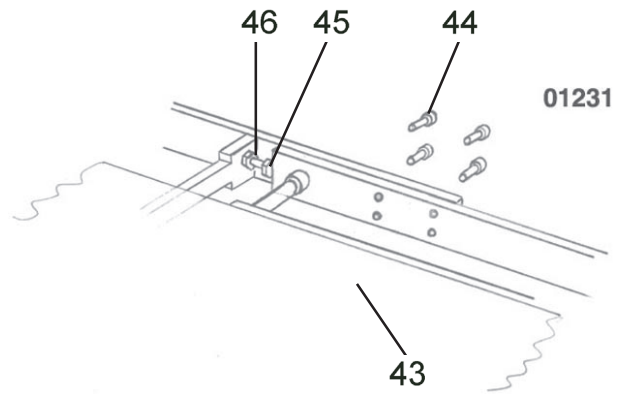
**4.4.4 Transport tape at the collector table**

The transport tape **43** at the collector table may be tensioned on both sides.

For this purpose, loosen four screws **44** each on both sides and, upon loosening the internally located nut **46**, unscrew the tensioning screw **45** counter-clockwise.

Make sure that the tape is equally tensioned on both sides and does not run off to the side.

Although the centre run is fixed laterally through the disks **47**, the tape should not push too firm against the disks. After you have completed the adjustments re-fasten all screws and nuts.



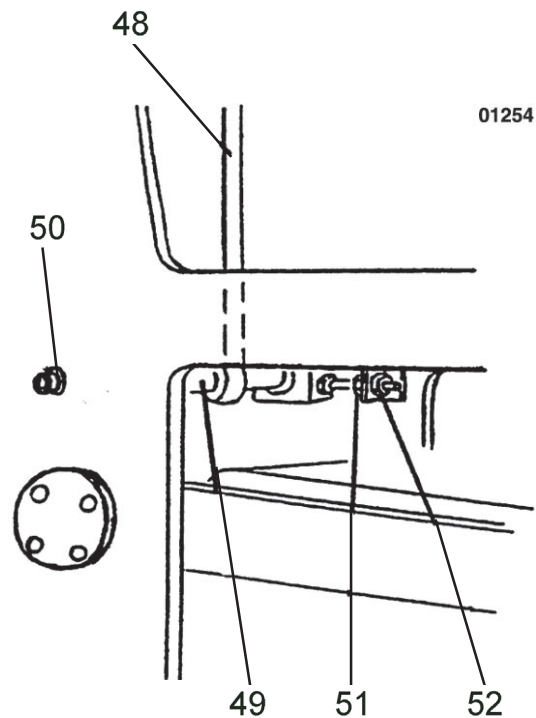
**4.4.5 Lower line-up tapes**

The lower line-up tapes **48** are completely tensioned through the tape shaft **49**.

For this purpose, loosen the screws **50** and the counter nuts **51**.

Consequently, the tape shaft is tensioned by a constant clockwise turn of both nuts **52**.

After you have completed the tensioning re-fasten all screws and nuts.





**4.4.6 Upper line-up tapes**

The upper line-up tapes **53** are tensioned by weights **54**.

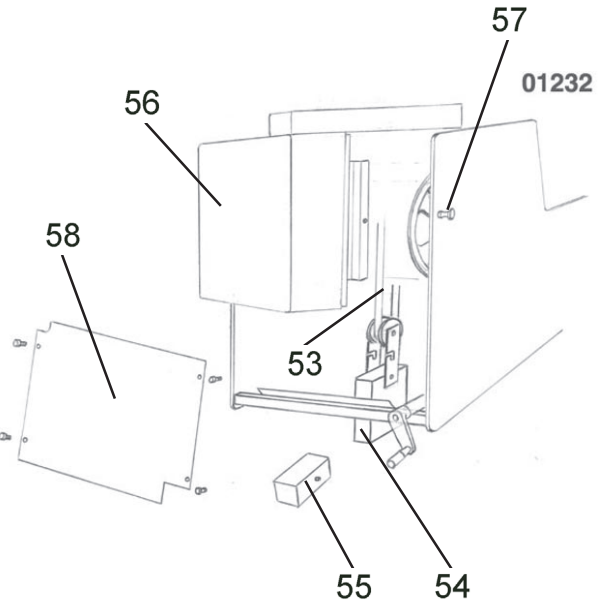
For heavy, smooth paper sheets you may hang up additional weights **55** which are delivered with the machine.

For this purpose, swing the control cabinet **56** to the side, after you have pulled the stop bolt **57** and removed the guard plate **58**.



**>NOTICE<** Do not use additional weights when you process thin or unstable paper sheets.

After you have hung up the additional weights, re-fasten the guard plate and re-swing the control cabinet into its previous position.

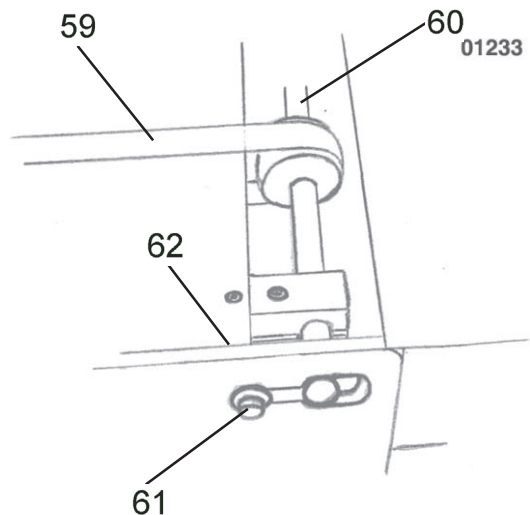


**4.4.7 Pile transport tapes**

The pile transport tapes **59** are tensioned through the tape shaft **60**.

For this purpose, loosen the screws **61** and the counter nut **62** on both sides.

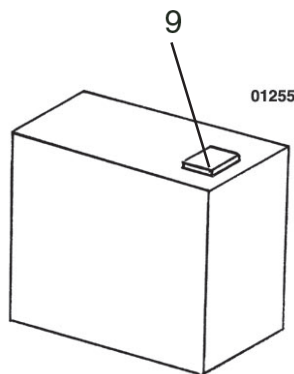
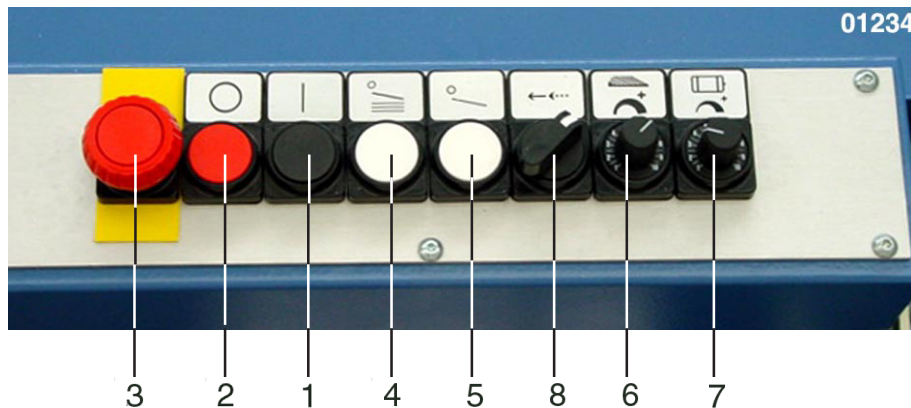
Upon completion, re-fasten the screw and counter nut.



5.0 Operation (of the delivery)

5.1 Control desk

- 1 Key to „START“ the delivery.
- 2 Key to „STOP“ the delivery.
- 3 Red mushroom button on yellow background for „EMERGENCY STOP“.
- 4 Key for continuous sheet infeed.
- 5 Key for single sheet infeed.
- 6 Potentiometer for infinite speed regulation of the infeed tapes **and** pressing rollers.
- 7 Potentiometer for infinite speed regulation of the infeed tapes **after** the pressing rollers.
  
- 8 Selector switch to control the tapes after the pressing rollers:
  - a) Endurance run, e.g. to empty the delivery upon completion of a production run.
  - b) Photocell control during production; the tapes will stop if the sheet infeed has been interrupted.
  
- 9 Batch counter „IVO“: only if the delivery is equipped with this option. See the attached Operating Manual for functioning description. If no „IVO“ batch counter is provided, the „marking device“ is controlled through the batch counter of the folding machine. Functioning description: see the operating manual for the „folding machine“.



## 5.2 Infeed table

### 5.2.1 Infeed tapes

The products delivered from the folding machine are taken by the round belts **1**.

Positioning of tape rollers **2** and **3**:

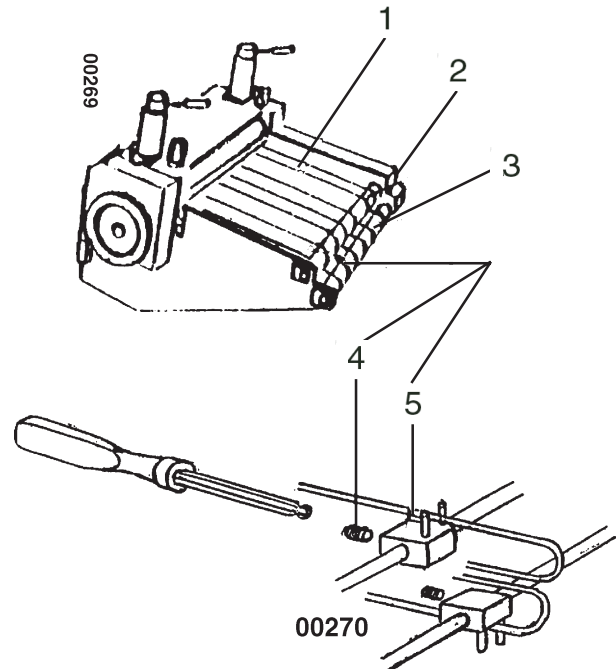
Loosen the screw **4** and displace the guide **5**.

The distance between the upper and lower round belts may be adjusted for product thickness by displacing the upper tape rollers **8** and **2** and by loosening the screws **7** at the collector flange **7**. Usually, this is only necessary if you process very heavy products.

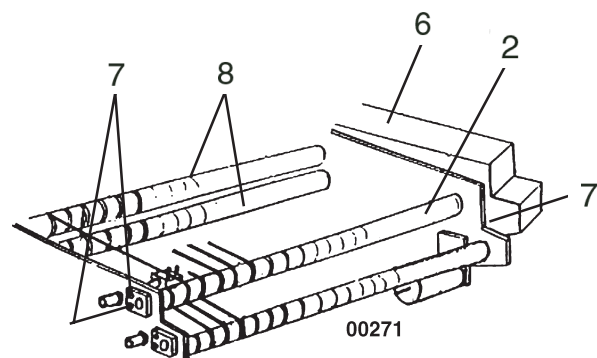
Remove the protective hood **6**, loosen the screws and nuts **7** and adjust the tape rollers **2** or **8**.

**Make sure that they are adjusted equally at both sides!**

Re-fasten the screws and nuts **7** and replace the protective hood **6**.



**>DANGER<** Before you perform these actions it is absolutely imperative that you activate the „EMERGENCY STOP“ or turn OFF the main switch of the delivery. Otherwise **risk of injury!**



**5.2.2 Multiple-up production**

If signatures are cut into two- or three-up production in the folding machine:

Place the individual groups of round belts **1, 2** and **3** diagonally to each other or spread them!

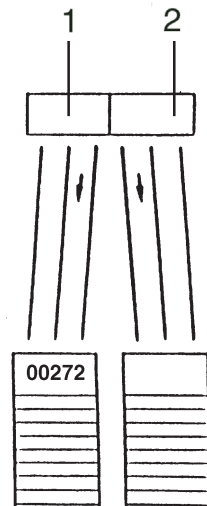
Modify the position of the round belts **1, 2** and **3** only at the lateral side of the exit of the infeed table – see item 5.2.1.

At least two round belts are necessary for each production.

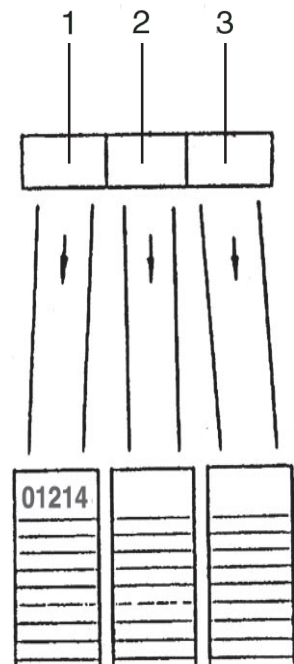


>**DANGER**< Before you perform these actions it is absolutely imperative that you activate the „EMERGENCY STOP“ or turn OFF the main switch of the delivery. Otherwise **risk of injury!**

**Two-up production**



**Three-up production**



5 2.3 **Marking device**



**>NOTICE<** This device enables you to exactly count and displace 1 batches to each other in the desired number of pieces to ensure the continuous take-off of equally sized batches.

The desired number of pieces of products of each batch must be entered into the **IVO** – batch counter **9**; see the separately attached „IVO“ Operating Manual.

If **9** does not exist, the marking device will be controlled over the batch counter of the folding machine. (see operating manual „folding machine“)

Install a photocell **3** above the sheets. Functioning check: The diode will light up if a sheet is passing the photocell.

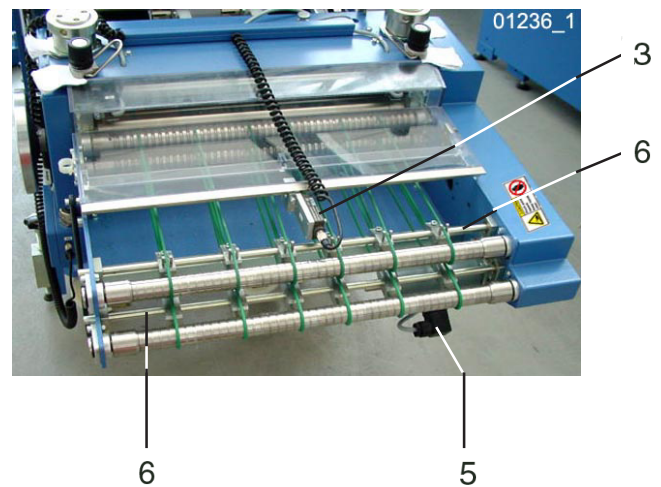
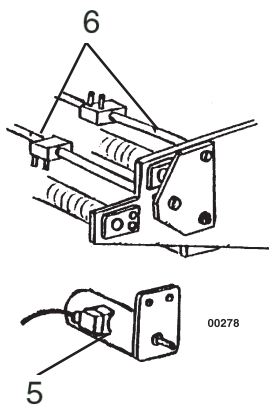
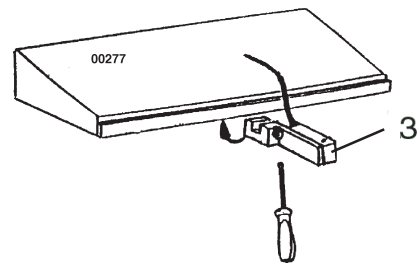
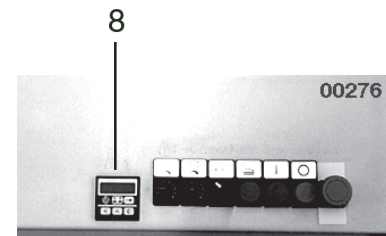
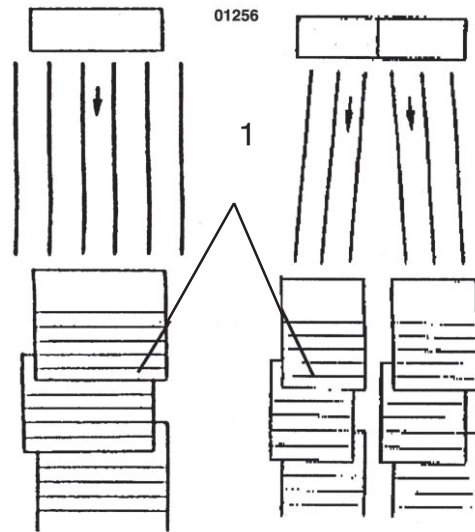
As soon as the pre-selected number of pieces of one batch is reached you should displace the round belts to the left or right side through the electromagnet **5** and marking bars **6**.

**CAUTION**

Do not reach into rotating shafts!



**>NOTICE<** You should place the photocell in such a way that it is not influenced by the marking bars **6**.

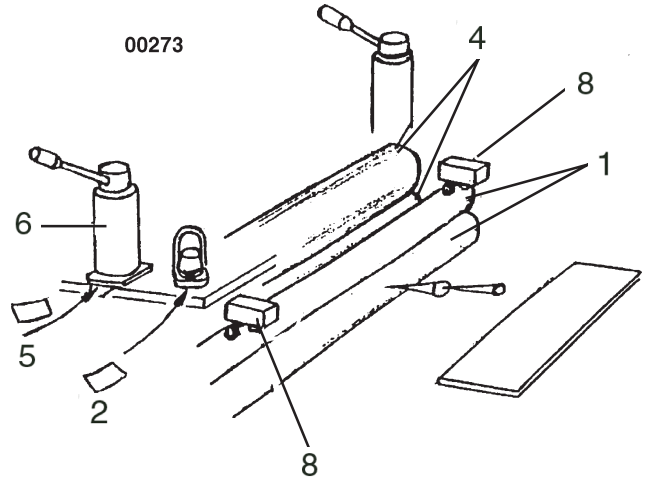


### 5.3 Pressing unit

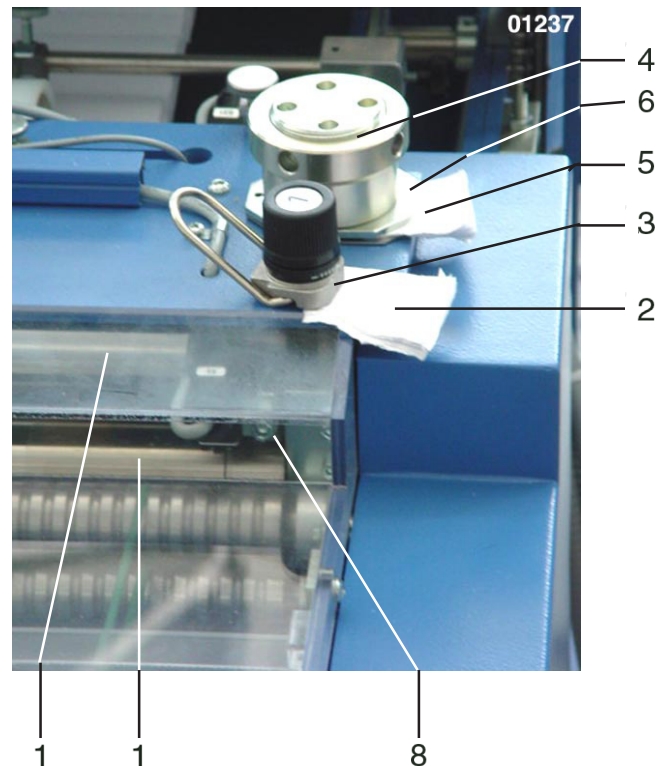
How to adjust the pre-pressing rollers **1**:  
Insert a paper strip **2** into the calliper **3**  
(normally the full product thickness).

How to adjust the main  
pressing rollers **4**:  
Insert a paper strip **5** into the calliper **6** -  
(1/2 to 3/4 of the product thickness). For  
opening turn the hooked key **7** left, and  
for closing turn to the right (clockwise).

The micro switches **8** will turn the  
complete delivery off if a product that is  
too thick passes these micro switches.



**>DANGER<** Please be advised that  
such switch-off will occur only if the  
delivery is connected to an MBO  
folding machine!



## 5.4 Collector table

After the signature has passed the pressing rollers the folded product will fall onto the transport tape **1** of the collector table **2**.

The height of fall between the pressing rollers and the collector table may be adjusted at the adjustment grip **3** for various products:

If you turn the adjustment grip clockwise = you decrease the height of fall; if you turn the adjustment grip counter-clockwise = you increase the height of fall.



**>NOTICE<** Unstable or thin products require less height of fall; stable and bulky products require more height of fall.

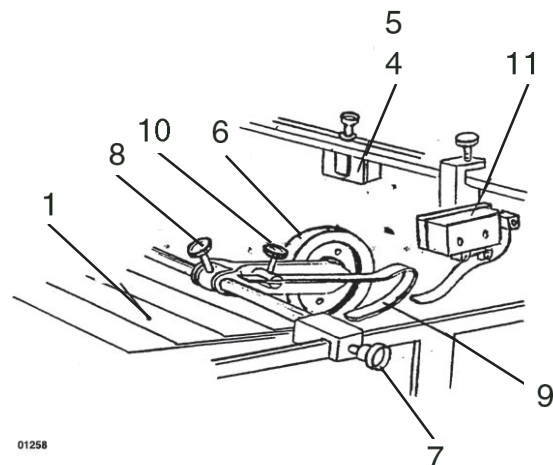
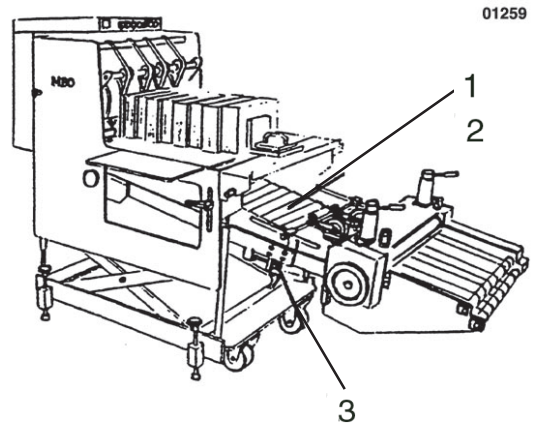
After the pressing rollers the sheet passes the photocell **4**. Functioning check: The diode will light up if a sheet is passing the photocell.

Thereby, it will set the transport tape **1** into motion. The collector rollers **6** should grasp the sheet before the tape stops again after it has left the photocell's range of detection.

For positioning of the collector rollers it is necessary to loosen both knurled screws **7**.

You may laterally displace the collector rollers if you loosen the knurled screws **8**. The smoother bars **9** may be placed forward if you loosen the knurled screw **10**.

Wrinkled sheets after the pressing unit will cut off the delivery through the default switch **11**. The delivery will also be cut off if it is connected to an MBO folding machine. However, if the delivery is connected to a foreign machine only the SBAP 46 - ME will cut off. The second photocell and the second default switch will be used for two-up production. The speed of the transport tape and therefore the adjustment of short or extensive formation of shingles may be adjusted through the potentiometer at the control cabinet.



## 5.5 Line-up tapes and line-up table

The shingled sheets are transferred by the collector table **1 A** between the lower **1** and upper **2** line-up tapes and transported by them around the drum **3** onto the collector table **4**.

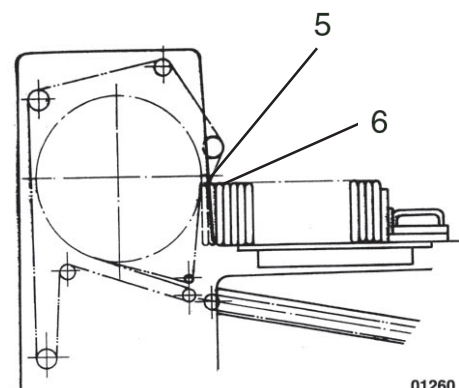
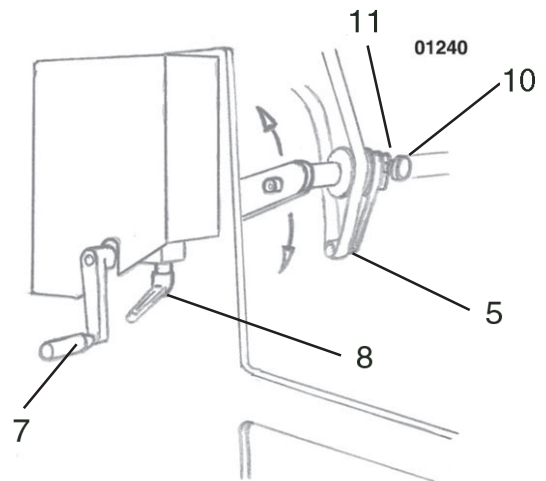
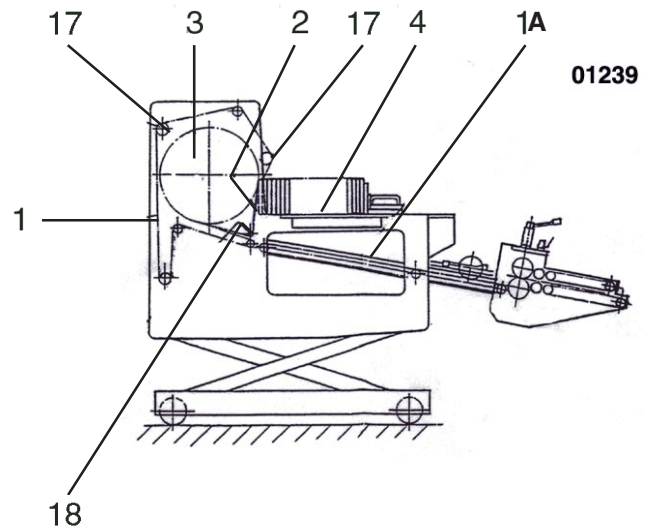
The speed of these line-up tapes may be changed parallel to the transport tape **1 A** as they are driven by the same motor. The height adjustment of the line-up rollers **5** – levelled to the upper edge of the folded sheets **6** – may be performed through the crank **7** after the clamping lever **8** has been loosened.

With short signatures, whose upper edge **6** is deeper than the centre of the drum **3**, the pressure of the upper tape onto the lower tape may be altered by means of the line-up rollers:

Clockwise screwing of the red-marked knurled nut **10** reduces pressure. Counter-clockwise screwing of the red-marked knurled nut **10** increases pressure.

Subsequently, you should secure the position of the knurled screw by countering the knurled nut **11**. The speed of the pile transport tapes **12** must be adapted to the production speed and product thickness.

Low production speed and thin products require less forward feed, but heavy products and high production speed require more forward feed.



continuation



**continuation**

This forward feed can be adjusted through the knurled screw **13**:

Clockwise screwing of the knurled screw **13** reduces forward feed.  
Counter-clockwise screwing of the knurled screw **13** increases forward feed.

A retaining angle **14** is used to avoid the tilt of the pile on the line-up table.

After loosening the knurled screw **16** the attachment plate **15** may be turned or removed for various heights of signatures.

Two retaining angles are used if you process two-up productions.

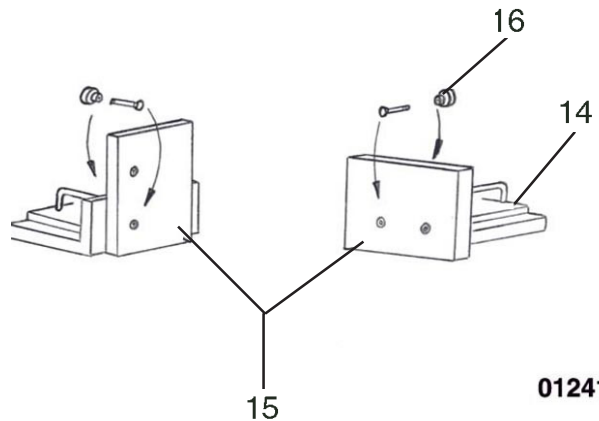
The transport tapes **1**, **2** and **12** should only be displaced laterally in exceptional cases.

At first, you should attempt to vary the infeed position of the sheets into the delivery by changing the position of the delivery or by slanting the infeed tapes. If you displace the transport tapes you should ensure that all tape rollers for each single transport tape are equally displaced. We recommend using a tape rule and measure from the delivery's side panel. Locking screws are fixed in all tape rollers.

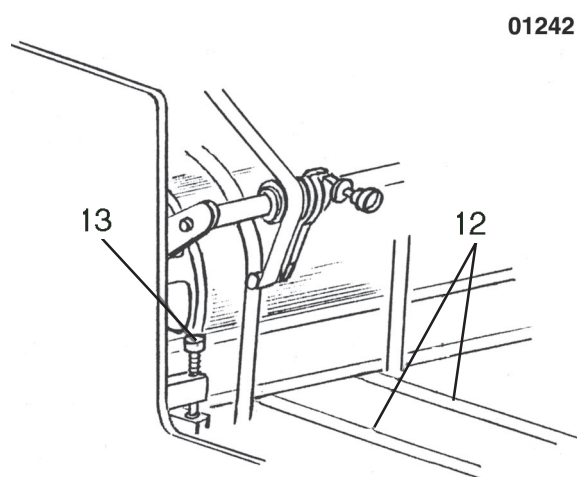
The lower transport tapes **1** are displaced through the tape rollers **17**  
The upper transport tapes **2** are displaced through the tape rollers **13**,  
and the pile transport tapes are displaced through the tape rollers **19**.



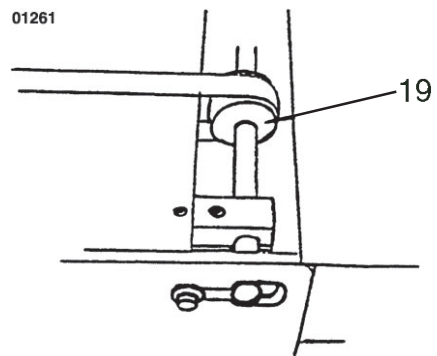
**>ATTENTION<** Make sure that these tapes do not rub laterally as they may be destroyed.



01241



01242



01261

## **6.0 Putting out of service**

### **6.1 Details of storage**

- Check the premises in respect of temperature and humidity. The ideal storing temperature rests between +15°C and +28°C. The higher the humidity the greater the danger of corrosion.
- It is essential that you take the weight details of the machine into consideration in respect of the maximum load capacities.
- It is essential that you take the size details of the machine into consideration in respect of the maximum load capacities.
- Prepare the gears/transmission for storage. You should also take into consideration that the pre-requisites vary from case to case. Therefore, please contact the supplier of the gears/transmission and motor and follow the respective manual.
- Clean dirt and dust carefully from the machine; do not use water - danger of corrosion.
- Ensure that only an electrician disconnects the machine from the power supply.
- Use a fork lift to transport the machine.
- Cover the machine with foil.

## 6.2 Environmental waste disposal

Dispose of single machine parts and all occurring waste materials from the K 800.2 Combi folding machine environmentally according to:

<p><b>For European Community member countries:</b></p>	<ul style="list-style-type: none"> <li>▪ 75/442 EEC</li> <li>▪ 91/156 EEC</li> <li>▪ 91/692 EEC</li> </ul> <p>in connection with the country and district specific Waste Disposal Acts.</p>
<p><b>For non-EC member countries:</b></p>	<p>Compatible with the country and district specific Waste Disposal Acts.</p>

Ask about the possibility of municipal disposal or waste disposal by private waste disposal companies.

On this occasion you should differ between:

- Destruction (destruction of records)
- Recycling (plastic packaging materials)
- Disposal (disposal of harmful substances)

### 6.2.1 Disposal of the waste machine

You may dispose of the waste machine:

- Through the supplier
- Through a disposal and demolition company, or
- Through your own company

### 6.2.2 Disposal by instructing the supplier

Instruct your supplier to dispose of the machine. The waste machine will be either part-exchanged or professionally disassembled and environmentally disposed of.

As a result you are spared any further trouble.

### 6.2.3 Disposal by a disposal and demolition company

You may also instruct one of the nearby disposal and demolition companies who are also familiar with this special field.

### 6.2.4 Disposal by your own company

You also have the alternative of demolishing the waste machine by your own expert personnel on your own premises.

However, you should bear in mind that in some places you may require a separate official permit for transportation and disposal. Make sure to obtain written confirmation of your professional disposal.

**6.2.5 Ground water preservation**

Please comply with the applicable provisions and acts to avoid ground water pollution:

<b>For European Community member countries:</b>	<ul style="list-style-type: none"> <li>▪ 80/68 EEC</li> <li>▪ 90/656 EEC</li> <li>▪ 91/692 EEC</li> <li>▪ 96/350 EC</li> <li>▪ 96/59 EC</li> </ul> in connection with the country and district specific Waste Disposal Acts.
<b>For non-EC member countries:</b>	Compatible with the country and district specific Waste Disposal Acts for the ground water protection.

**6.3 Final remarks**

**You have now reached the end of this Operating Manual. We hope that you understood everything, if so, then our efforts to prepare this Manual have been worthwhile. Of course, we accept comments and wish to thank you for any suggestions to improve it. Even we are not perfect! We wish you much pleasure and success with this machine. Should you, however, still have problems with it, please do not hesitate to contact our technicians or supervisors who will be able to assist you.**

## MBO-Group worldwide

---

### MBO Deutschland



MBO Binder GmbH & Co. KG  
Postfach 1169  
D-71567 Oppenweiler

Tel.: +49 (0) 71 91 / 46 – 0  
Fax: +49 (0) 71 91 / 46 – 34

<http://www.mbo-folder.com>  
[info@mbo-folder.com](mailto:info@mbo-folder.com)

---

### MBO Portugal



MBO Binder GmbH & Co.  
Maquinas Graficas, Lda  
Rua Joaquim Alves da Silva 240, 420 e 570  
P-4455-473 Perafita / Portugal

Tel.: +351 (22) 99 82 - 200  
Fax: +351 (22) 99 82 - 201

[info@mbo-folder.com](mailto:info@mbo-folder.com)

---

### MBO Amerika



MBO Binder GmbH & Co. of America  
400 Highland Drive  
Westampton, NJ 08060 / USA

Tel.: +1 (6) 09267 - 2900  
Fax: +1 (6) 09 267 - 14 77

<http://www.mboamerica.com>

---

### MBO Frankreich



MBO France SAS  
Z. A. Burospace n° 3  
Route de Gisy B.P. 33  
F-91571 Bievres Cedex

Tel.: +33 (1) 69 35 50 - 90  
Fax: +33 (1) 69 35 50 - 99

[info@mbofrance.fr](mailto:info@mbofrance.fr)

---

### MBO Herzog & Heymann



Herzog & Heymann GmbH + Co. KG  
Postfach 110355  
D-33663 Bielefeld

Tel.: +49 (0) 71 91 / 46 – 0  
Fax: +49 (0) 71 91 / 46 – 34

<http://www.herzog-heyman.com>  
[info@herzog-heyman.com](mailto:info@herzog-heyman.com)

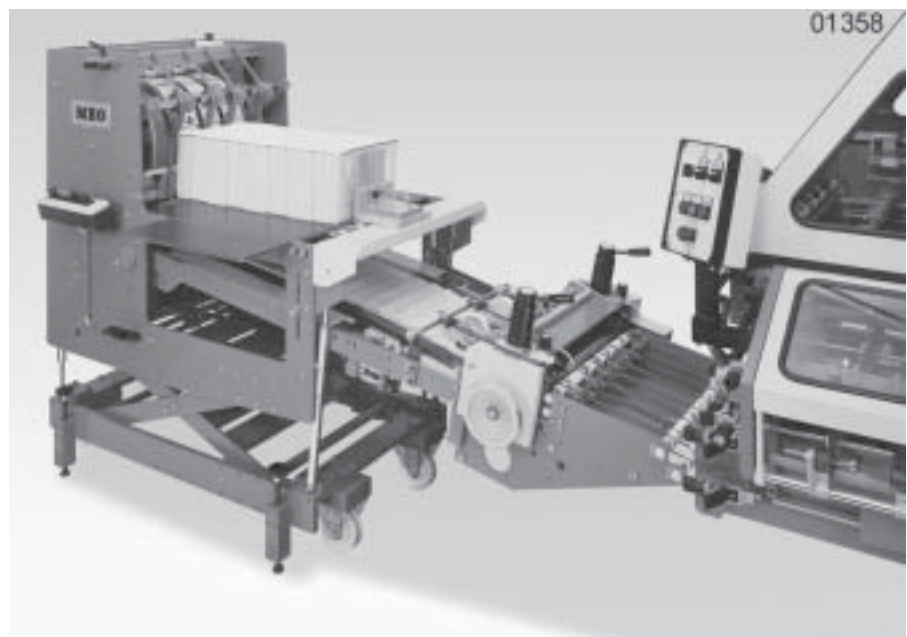
---



**MBO**  
Folding Technology

# Operating Manual

SBAP 46/72/82 ME  
Vertical Stacker Delivery  
with pressing  
and marking device



# Contents

Prologue .....	4
<b>1.0 Machine specification .....</b>	<b>4</b>
<b>1.1 Manufacturer .....</b>	<b>4</b>
<b>1.2 Type: .....</b>	<b>4</b>
<b>1.3 Technical data .....</b>	<b>5</b>
1.3.1 Sizes .....	5
1.3.2 Floor plan (measures in cm).....	5
<b>1.4 Documentation .....</b>	<b>6</b>
<b>1.5 User information / Functioning description .....</b>	<b>7</b>
<b>2.0 BASIC SAFETY INSTRUCTIONS .....</b>	<b>8</b>
<b>2.1 Warnings and symbols .....</b>	<b>8</b>
<b>2.2 Safety in the working place Destined use of the Vertical Stacker Delivery .....</b>	<b>8</b>
<b>2.3 Safety devices .....</b>	<b>10</b>
2.3.1 Protective hoods – Layout .....	10
2.3.2 Protective hoods – Checklist .....	10

<b>3.0</b>	<b>Transportation, installation, and initial operation .....</b>	<b>11</b>
<b>3.1</b>	<b>Transportation .....</b>	<b>11</b>
<b>3.2</b>	<b>Installation .....</b>	<b>11</b>
<b>3.3</b>	<b>Erection .....</b>	<b>12</b>
<b>3.4</b>	<b>Electrical connection .....</b>	<b>13</b>
<b>4.0</b>	<b>Service / Maintenance.....</b>	<b>14</b>
<b>4.1</b>	<b>Procurement of spare parts .....</b>	<b>14</b>
<b>4.2</b>	<b>Lubrication / Cleaning .....</b>	<b>15</b>
<b>4.3</b>	<b>Cleaning of transport tapes and pressing rollers .....</b>	<b>16</b>
<b>4.4</b>	<b>Tensioning of tapes, belts and chains.....</b>	<b>17</b>
<b>4.4.1</b>	<b>Chains at main drive motor .....</b>	<b>17</b>
<b>4.4.2</b>	<b>Drive chains for the transport tape at the collector table.....</b>	<b>18</b>
<b>4.4.3</b>	<b>Drive of pressing rollers and infeed tapes .....</b>	<b>19</b>
<b>4.4.4</b>	<b>Transport tape at the collector table .....</b>	<b>20</b>
<b>4.4.5</b>	<b>Lower line-up tapes .....</b>	<b>20</b>
<b>4.4.6</b>	<b>Upper line-up tapes .....</b>	<b>21</b>
<b>4.4.7</b>	<b>Pile transport tapes .....</b>	<b>21</b>
<b>5.0</b>	<b>Operation (of the delivery) .....</b>	<b>22</b>
<b>5.1</b>	<b>Control desk .....</b>	<b>22</b>
<b>5.2</b>	<b>Infeed table .....</b>	<b>23</b>
<b>5.2.1</b>	<b>Infeed tapes .....</b>	<b>23</b>
<b>5.2.2</b>	<b>Multiple-up production.....</b>	<b>24</b>
<b>5.2.3</b>	<b>Marking device .....</b>	<b>25</b>
<b>5.3</b>	<b>Pressing unit .....</b>	<b>26</b>
<b>5.4</b>	<b>Collector table .....</b>	<b>27</b>
<b>5.5</b>	<b>Line-up tapes and line-up table .....</b>	<b>28</b>
<b>6.0</b>	<b>Final remarks .....</b>	<b>30</b>



## **Prologue**

The MBO Vertical Stacker Delivery SBAP 46/72/82 - ME you have purchased is a valuable piece of equipment. It is absolutely imperative that you comply with all Safety Regulations and Safety Instructions. This Operating Manual is designed to instruct you to correctly operate the machine, to comply with the Safety Regulations, and also to maintain the machine properly.

### **1.0 Machine specification**

#### **1.1 Manufacturer**

**MBO Binder & Co. Maschinenbau Oppenweiler**  
Grabenstrasse 4, D-71570 Oppenweiler, Germany  
P.O. Box 1169, D-71567 Oppenweiler, Germany  
Tel. +49 7191 460  
Fax +49 7191 4634

#### **1.2 Type:**

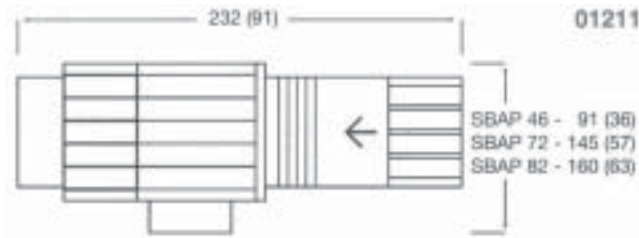
**Vertical Stacker Delivery SBAP 46/72/82 - ME**

**1.3 Technical data**

**1.3.1 Sizes**

	<b>SBAP 46-ME</b>	<b>SBAP 72-ME</b>	<b>SBAP 82-ME</b>
Working width:	46 cm	72 cm	82 cm
Maximum infeed height:	95 cm	95 cm	95 cm
Minimum infeed height:	38 cm	38 cm	38 cm
Sheet width / line-up height max.:	30 cm	30 cm	30 cm
Sheet width // line-up height min.:	8 cm	8 cm	8 cm
Length of pile:	73 cm	73 cm	73 cm
Pressing power max.:	2000 kp	2000 kp	2000 kp
Speed:	40-155m/min	40-155m/min	40-155m/min
Power requirements:	1.3 kw	1.3 kw	1.3 kw

**1.3.2 Floor plan (measures in cm)**



**1.4 Documentation**

Customer: \_\_\_\_\_

Machine configuration: **Vertical Stacker Delivery SBAP 46/72/82 - ME** \_\_\_\_\_

Machine No.: \_\_\_\_\_

Serial No.: \_\_\_\_\_

BA Batch Counter IVO: \_\_\_\_\_

**Electrical data:**

Wiring diagram no.: \_\_\_\_\_

Operational voltage V3/Hz: \_\_\_\_\_

Control voltage V/A: \_\_\_\_\_

Control voltage V/A: \_\_\_\_\_

Total nominal current A: \_\_\_\_\_

Fuse at power supply A: \_\_\_\_\_

Wiring diagram no's.: \_\_\_\_\_

Test mark GS Nr.: \_\_\_\_\_

Test mark CE Nr.: \_\_\_\_\_

Certificate of Conformity: \_\_\_\_\_

Perceived noise level (dB/AI): \_\_\_\_\_

GS marking no.: \_\_\_\_\_

## 1.5 User information / Functioning description

The Vertical Stacker Delivery SBAP 46/72/82 - ME is a mobile, separate unit with self-drive to vertically set up signatures with the spine downwards. The sheets are simultaneously pressed and the batches may be counted through a batch counter and displaced to each other. For multiple-up productions the different ups may be separated at the entry of the vertical stacker delivery by slanting the round belts.

## 2.0 BASIC SAFETY INSTRUCTIONS

### 2.1 Warnings and symbols

The following designations or symbols are used for very special instructions in this Operating Manual:



>**NOTICE**< Special instructions in respect to the economical use of the machine.



>**ATTENTION**< Special instructions or requirements and prohibitions to avoid injuries and damage.



>**DANGER**< Instructions or requirements and prohibitions to prevent personal injuries or extensive damage.

### 2.2 Safety in the working place Destined use of the Vertical Stacker Delivery

2.2.1 MBO units correspond to their prescribed Safety Technical Requirement at the time of their shipment. For this purpose, any moveable and rotating parts are covered with protective hoods and are mechanically or electrically interlocked to such an extent as to not unreasonably detract from the operation.

- Single person operation only (insufficient view at the drive side).

2.2.2 With technical safety precautions it is extremely important that all operating personnel receive sufficient technical safety instructions and are advised of all potential sources of danger. However, it must be remembered that even with proper use of the machine, accidents can occur which present a danger to life and limb of the operator or third parties. Respectively, it does not exclude the detraction of the machine and other material assets.




2.2.3 The delivery should only be operated when in good working order. Any malfunctions that may impair safety must be removed immediately by trained personnel of the manufacturer/supplier.

2.2.4 The delivery is exclusively designed to handle folded paper sheets. The processing of any other materials should not be attempted as the manufacturer or supplier will not be liable for any resulting damage.

2.2.5 Carefully read the complete Operating Manual, including the Safety and Service Requirements, before you operate the machine.

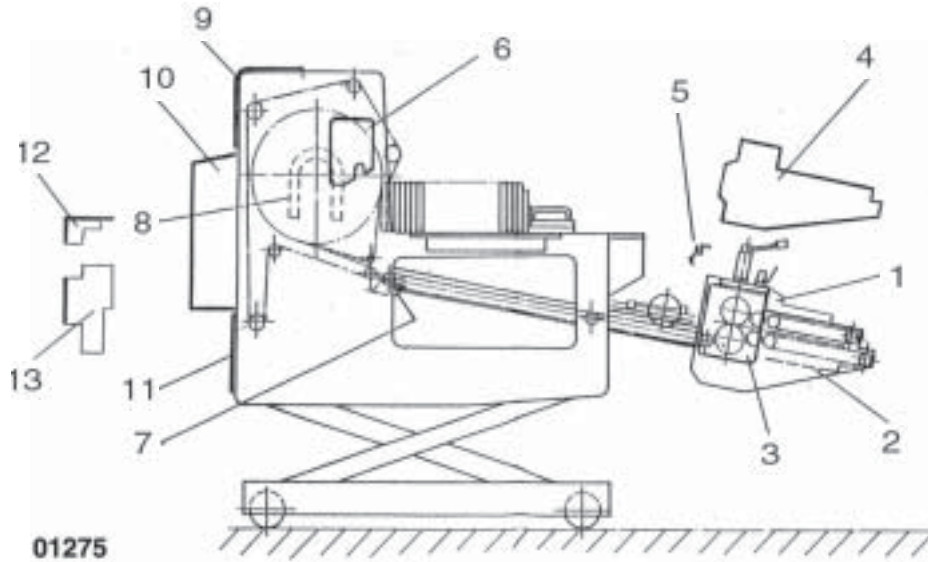
2.2.6 The Operating Manual should be kept with the machine at all times.

2.2.7 Complete the Operating Manual, if necessary with internal Safety Instructions, as well as with the legal regulations for the Prevention of Accidents.

- 2.2.8 Make sure that all frequently substituted operators are thoroughly informed about the aforementioned subjects and trained accordingly.
- 2.2.9 Never remove any protective or safety devices from the delivery, and do not make any changes that may impair the safety of the delivery.
- 2.2.10 Never use any tools which are not in perfect condition, and make sure that no tools are left on the delivery after completion of settings and maintenance work. Tools that fall into the delivery may cause serious injuries and damage.
- 2.2.11 Note that all Safety Instructions are kept in a legible and visible condition.
- 2.2.12 Any audible and visible change on the delivery in relation to its safety must be reported immediately to the supervisor or manager of your company.
- 2.2.13 All operating personnel should be aware that loose clothing, jewellery or long hair can cause serious injuries if caught in the delivery.
- 2.2.14 It is absolutely prohibited to clean the transport tapes or pressing rollers, eliminate malfunctions, or to undertake adjustments while the delivery is in operation.
-  **>DANGER<** Therefore, always activate the **EMERGENCY STOP** button.
- 2.2.15 Make sure that no other person starts the delivery while you are working on it, e.g. adjustment or other works!
-  **>DANGER<** Therefore, always activate the **EMERGENCY STOP** button, or turn **OFF** the main switch, or unplug the delivery.
- 2.2.16 Do not immediately turn the delivery ON if it has stopped for any inexplicable reason. Make sure that the delivery is in good working condition and that no other person is working on the delivery.
- 2.2.17 Turn off the main switch and secure it, if necessary, with a lock if you are required to undertake extensive mechanical or electrical maintenance and repair work.
- 2.2.18 Never open the main or subcontrol panel! Only authorised personnel should gain access to electronic control cabinets as there are no user serviceable parts.
-  **>DANGER<** if control cabinet is open! All main terminals could be alive even though the mains switch has been turned off.
- 2.2.19 Any damaged cables or electrical connections must be reported to the appropriate supervisor of your company.
- 2.2.20 Machine connections must be installed in such a manner that no cables, tubes or hoses are left trailing.

## 2.3 Safety devices

### 2.3.1 Protective hoods – Layout



### 2.3.2 Protective hoods – Checklist

Pos	Designation	Function control	Visible control	Result	Comment
1	Guard at infeed				
2	Cover infeed below				
3	Guard above gear wheel				
4	Protection hood at drive				
5	Guard for touching				
6	Guard over adjusting chain				
7	Guard over belt drive system				
8	Guard over drum drive				
9	Upper cover				
10	Electric box and middle cover				
11	Cover below				
12	Cover over drive chain				
13	Cover over drive chain				
	date	name		signature	

### 3.0 Transportation, installation, and initial operation

This part of the Operating Manual is specifically directed at service personnel and internal authorised personnel responsible for transportation and installation.

#### 3.1 Transportation

The Vertical Stacker Delivery SBAP 46/72/82 – ME is shipped on a pallet or in a crate.

Carry the pallet as close as possible to its final destination by means of a forklift. Unscrew the delivery from the pallet.

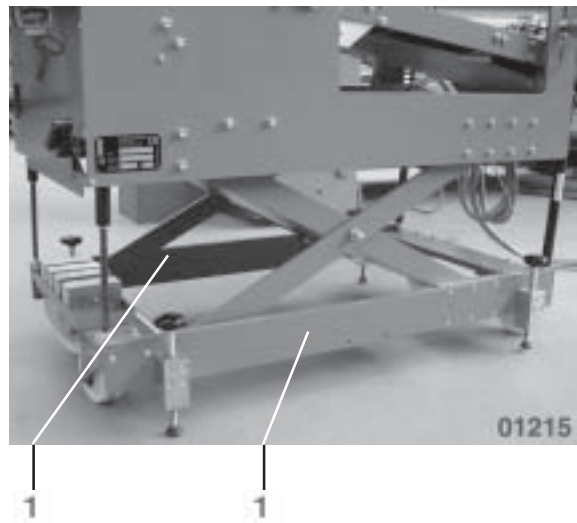
Remove the delivery from the pallet or crate by lifting with a forklift (see markings 1 on the frame).



**>ATTENTION<** There is a danger of risk of injuries as the delivery may overturn!



**>DANGER<** The delivery must be supported by two persons.



#### 3.2 Installation

Clean the SBAP46/72/82 - ME with rust preventing agents.



### 3.3 Erection

Position the SBAP 46/72/82 - ME delivery next to the folding machine and secure it with supporting screws **2** against displacement.



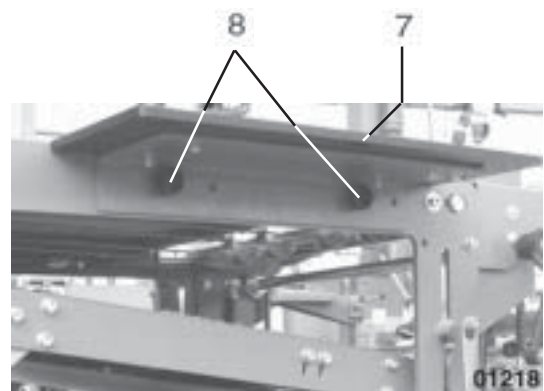
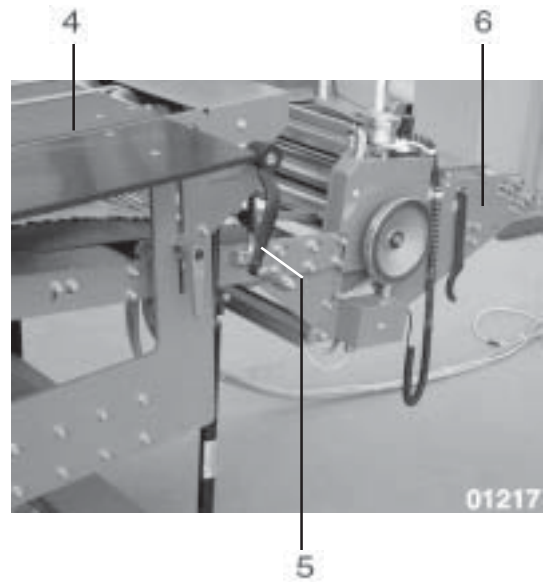
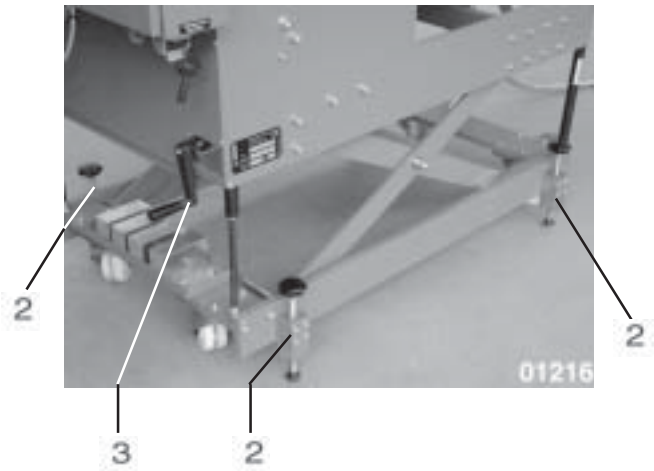
**>NOTICE<** The centre of the sheet should be equal to the centre of the delivery!

Position the line-up table **4** to the suitable pick-up height by means of the crank **3**.

The necessary height of the infeed table **6** can be adjusted by means of the crank **5**.

This infeed height should match the exit height of the folding machine.

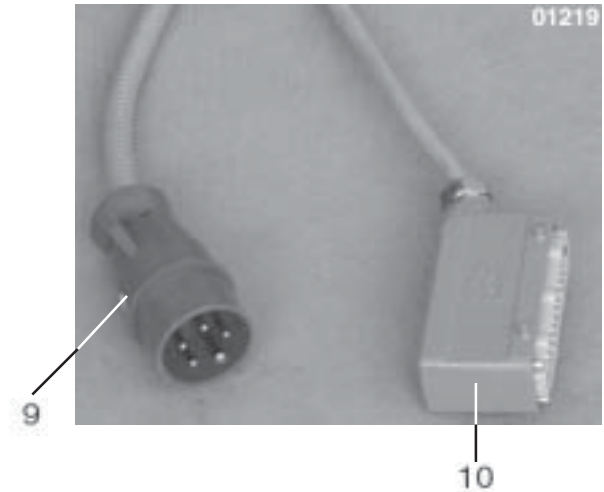
Subsequently, fasten the knock-up table **7** to the line-up table by means of the knurled screws **8**.



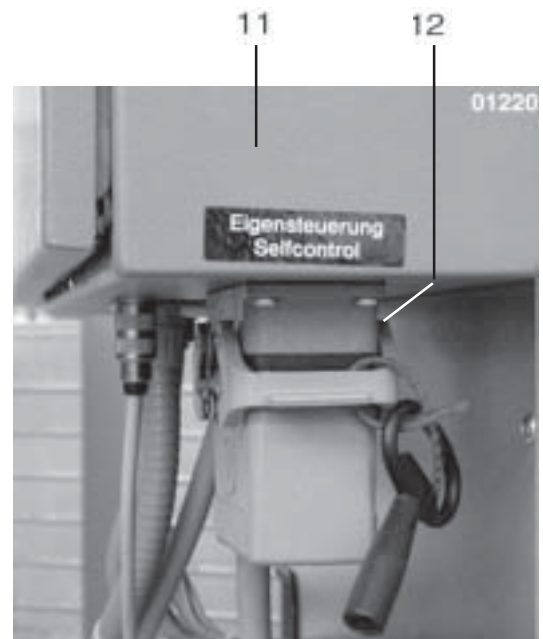
### 3.4 Electrical connection

Connect the SBAP 46/72/82 - ME to the folding machine by means of the power supply plug **9** and control plug **10**.

Due to its self-control the SBAP 46/72/82 - ME may also be connected to foreign folding machines.



For this purpose insert the power supply plug into the supply circuit, and the control plug into the socket „Self-Control“ **12** at the control panel **11**.



**>DANGER<** Please note that there is no joint OFF switch if the MBO Vertical Stacker Delivery is connected to a foreign machine. We must expressly advise you that there is no safety cut-off if the delivery is connected to a foreign machine. Both units must be turned ON and OFF separately! The manufacturer shall not be liable for any damage or injuries caused by the lack of safety cut-off devices!

## 4.0 Service / Maintenance

This part of the Operating Manual is specifically directed at service personnel and internal authorised personnel of the operating company responsible for service and maintenance.



**>DANGER<** Unless the delivery is isolated no service or maintenance work should be carried out. Always activate the EMERGENCY STOP button or turn OFF the main switch and secure it with a lock.

## 4.1 Procurement of spare parts

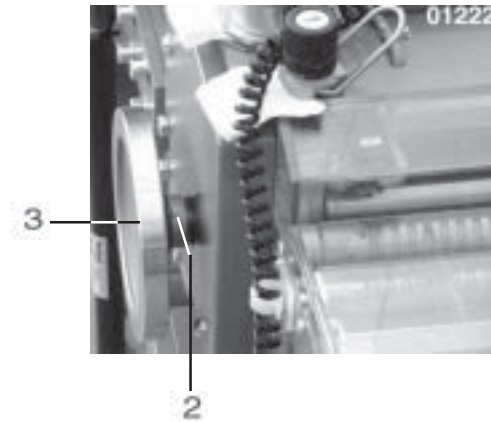


**>ATTENTION<** Only use spare parts that are supplied or recommended by the manufacturer. For inquiries and spare parts orders it is necessary to provide the machine and serial number, which may be obtained from the label 1.

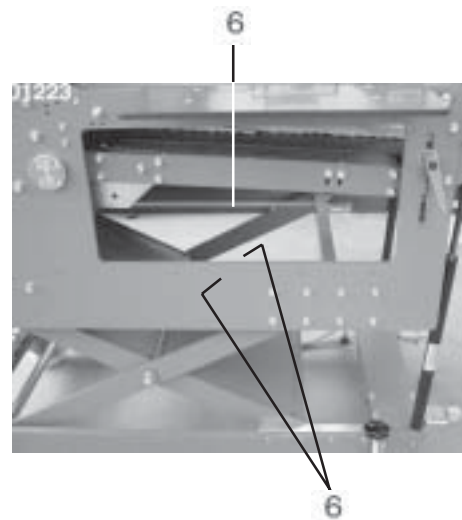


**4.2 Lubrication / Cleaning**

Clean and lubricate the lubricating nipple **2** behind the hand wheel **3** with a few drops of oil monthly.



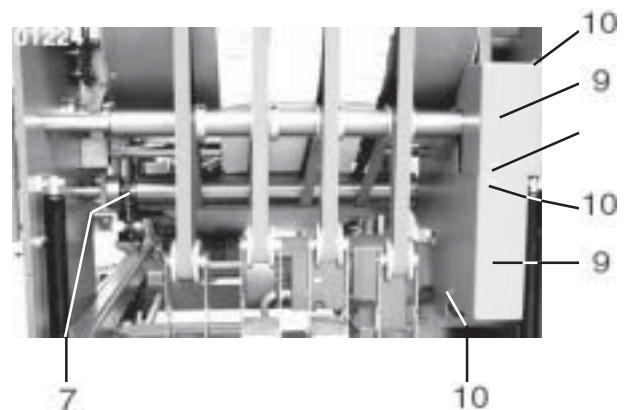
The threaded spindle **6** for the height adjustments should be cleared of dust and slightly greased monthly.



The drive chain **7** for the transport tape should be cleaned and provided with a slight touch of oil monthly.

All drive chains (see chapter 4.4.1) going from the main motor should be cleaned and provided with a slight touch of oil monthly.

For this purpose, remove the protective hood **9** that has been fastened with the screws **10**. Thereafter, replace the protective hood and re-fasten all the screws.



### 4.3 Cleaning of transport tapes and pressing rollers



**>NOTICE<** Generally, the delivery must be cleaned after each application! Particularly moveable or rotating parts that are frequently changed for exchange of sheet size must be cleared of dust. Heavy dust may detract the function.



**>DANGER<** Transport belts and pressing rollers should be cleaned while the delivery has been turned OFF. Activate the EMERGENCY OFF switch, or turn OFF the main switch, or pull out the power supply plug.



**>NOTICE<** Depending on the extent of dirt, transport tapes and pressing rollers must be cleaned occasionally. Heavy contamination of printing powder or deposit of ink on the transport tapes and pressing rollers may cause reduction in the quality of the folded products. The tapes should be cleaned with a cleansing agent suitable for synthetic materials. Please contact your machine/delivery supplier for further details. Unsuitable cleansing agents may swell the material or devastate the proportion of adhesive material.



**>DANGER<** Do not use any aggressive cleaners! Protective gloves should be worn while you are cleaning. Protect exposed parts of the body against splashes or contact. Dispose the soiled cleaning material in the correct manner, i.e. environmentally friendly. Consider the flammability of the cleansing agent. In regard to disposal and skin irritability, please also remember that a residual danger could eventually exist after a period of time. Check the technical data sheet of the cleansing agent manufacturer.



**>NOTICE<** MBO, the manufacturer of this Vertical Stacker Delivery, recommends a cleaning material made by VARN for the fold rollers, bearing the designation „VARN-Wash VM 111“ or „VWM“. Our recommendation is on a label near the fold rollers. VARN is a worldwide supplier to the printing industry. Therefore, it cannot be excluded that in certain countries different designations are used. Please take the individual order number from VARN's technical data sheet.



**>DANGER<** Make sure to check all technical data of the manufacturers cleansing agents for any possible residual danger in respect of disposal, flammability, and skin irritability.

## 4.4 Tensioning of tapes, belts and chains



**>NOTICE<** Check the tension of drive tapes and chains once a month and, if necessary, re-tension.

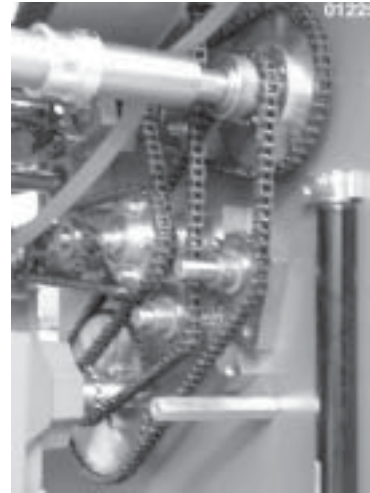
### 4.4.1 Chains at main drive motor

Remove the protective hood **9**.  
After loosening the screw **14** and the nut **15** tension the chain **12** through the chain tensioner **13**.

After loosening the screw **18** tension the chain **16** through the chain tensioner **17**.

After loosening the screw **21** tension the chain **19** through the chain tensioner **20**.

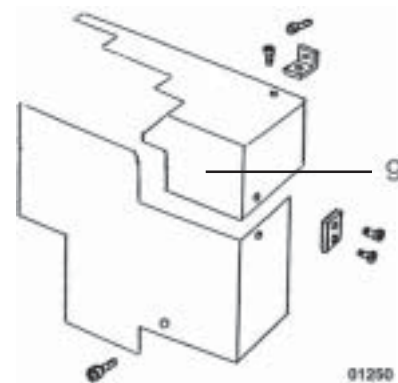
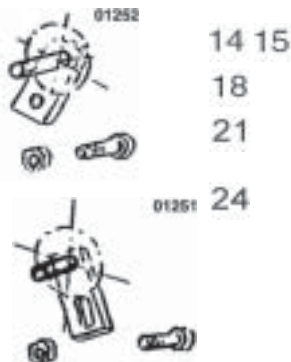
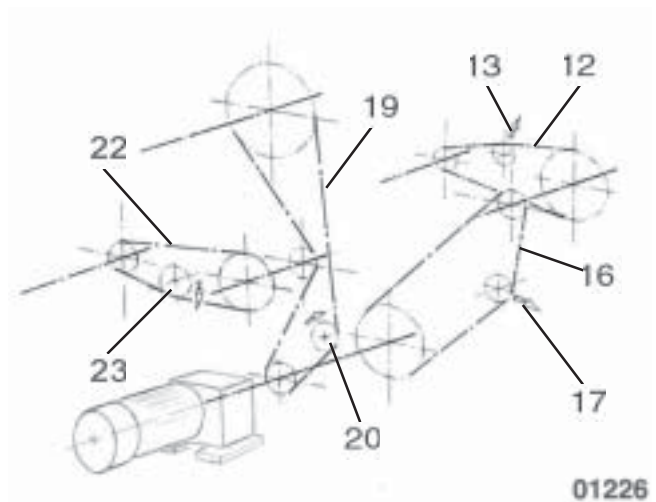
After loosening the screw **24** tension the chain **22** through the chain tensioner **23**.



**>ATTENTION<** Make sure that the screws of chain tensioners are properly re-tensioned after tensioning.

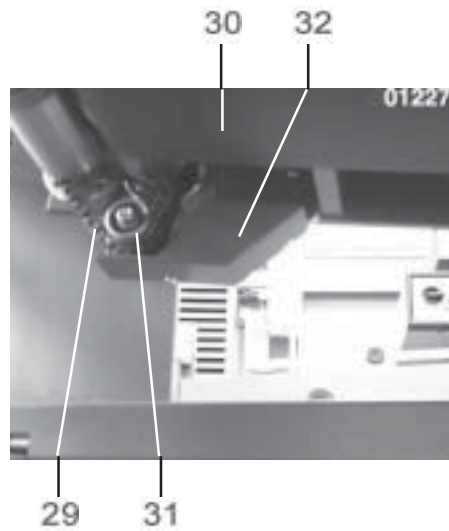


**>DANGER<** Make sure that no other person is running the delivery while you are working on it! Activate the EMERGENCY STOP button, or turn OFF the main switch, or pull out the power supply plug!



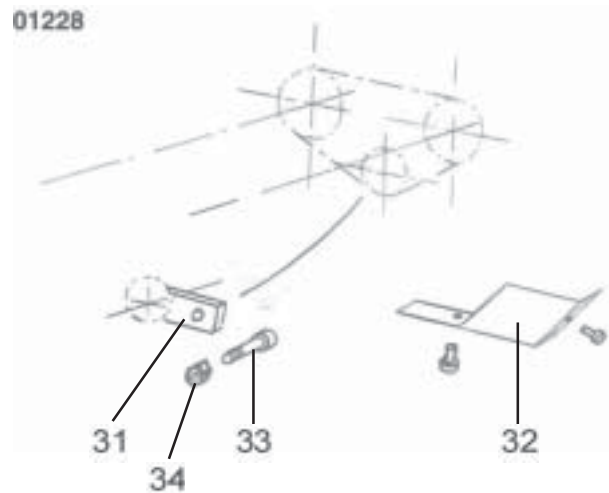
4.4.2 Drive chains for the transport tape at the collector table

The drive chain **29** for the transport tape at the collector table **30** must be tensioned through the chain tensioner **31**.



For this purpose, remove the protective hood **32** and loosen the screw **33** with the externally located nut **34**.

Subsequently, re-fasten the screw with the nut and replace the protective hood.



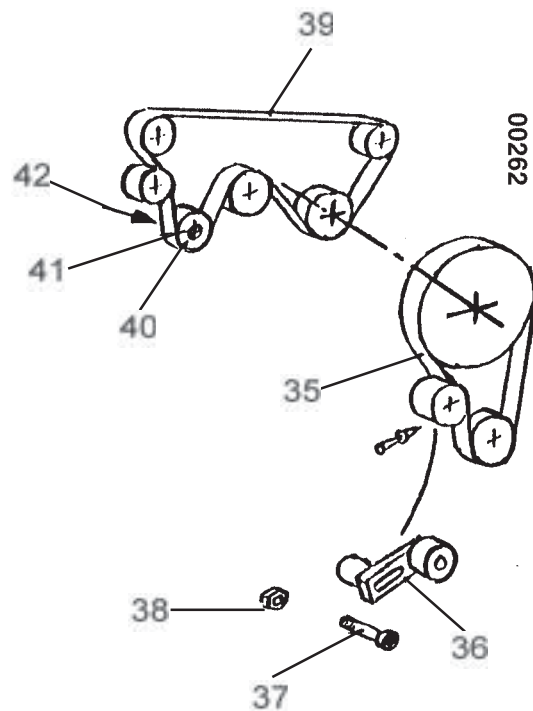
4.4.3 Drive of pressing rollers and infeed tapes

Remove the protective hood over this drive and loosen the Poly-V belt 35 through the belt tensioner 36 by loosening the screw 37 with the internally located nut 38.



The drive tape 39 should be tensioned downward through the tensioning roller 40.

For this purpose, loosen the screw 41 with the internally located nut 42.



After completion, re-fasten the screws and nuts and replace the protective hood.



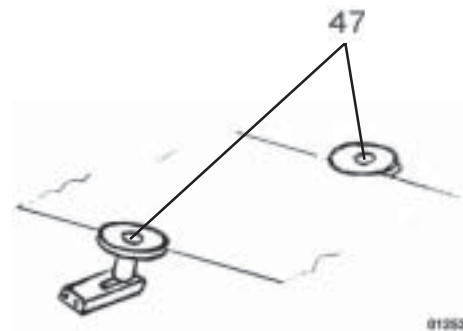
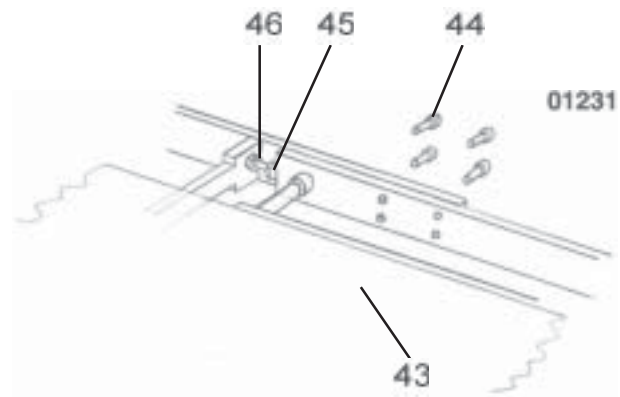
#### 4.4.4 Transport tape at the collector table

The transport tape **43** at the collector table may be tensioned on both sides.

For this purpose, loosen four screws **44** each on both sides and, upon loosening the internally located nut **46**, unscrew the tensioning screw **45** counter-clockwise.

Make sure that the tape is equally tensioned on both sides and does not run off to the side.

Although the centre run is fixed laterally through the disks **47**, the tape should not push too firm against the disks. After you have completed the adjustments re-fasten all screws and nuts.



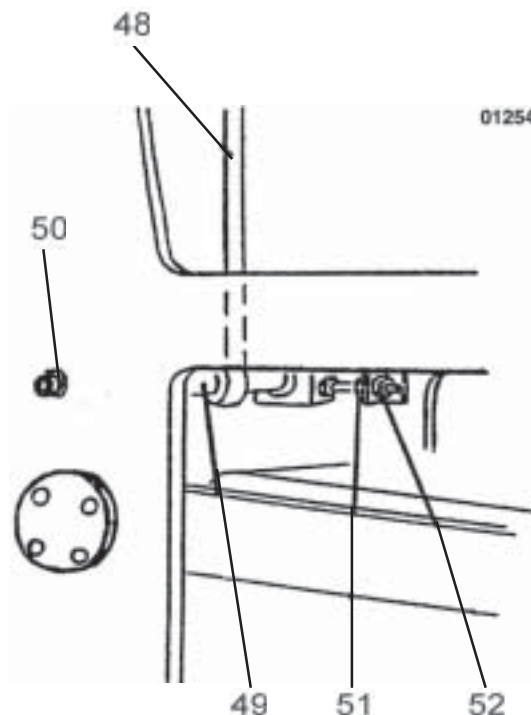
#### 4.4.5 Lower line-up tapes

The lower line-up tapes **48** are completely tensioned through the tape shaft **49**.

For this purpose, loosen the screws **50** and the counter nuts **51**.

Consequently, the tape shaft is tensioned by a constant clockwise turn of both nuts **52**.

After you have completed the tensioning re-fasten all screws and nuts.



4.4.6 Upper line-up tapes

The upper line-up tapes **53** are tensioned by weights **54**.

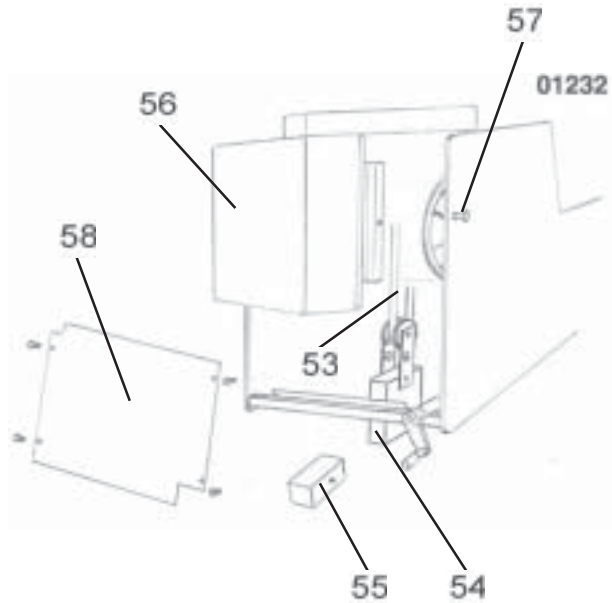
For heavy, smooth paper sheets you may hang up additional weights **55** which are delivered with the machine.

For this purpose, swing the control cabinet **56** to the side, after you have pulled the stop bolt **57** and removed the guard plate **58**.



>**NOTICE**< Do not use additional weights when you process thin or unstable paper sheets.

After you have hung up the additional weights, re-fasten the guard plate and re-swing the control cabinet into its previous position.

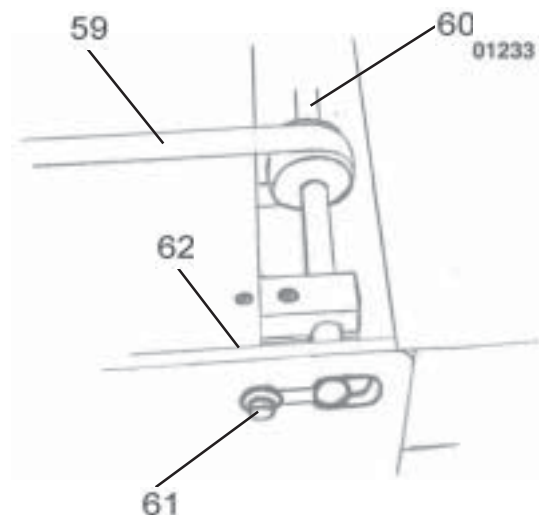


4.4.7 Pile transport tapes

The pile transport tapes **59** are tensioned through the tape shaft **60**.

For this purpose, loosen the screws **61** and the counter nut **62** on both sides.

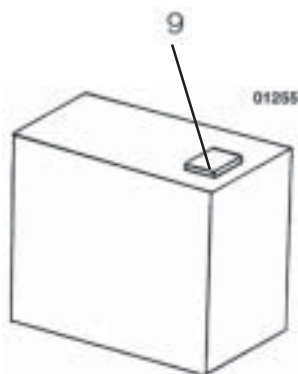
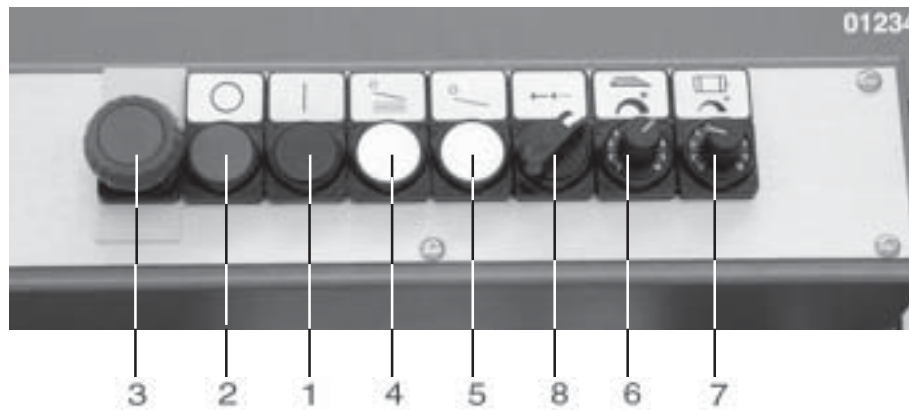
Upon completion, re-fasten the screw and counter nut.



## 5.0 Operation (of the delivery)

### 5.1 Control desk

- 1 Key to „START“ the delivery.
- 2 Key to „STOP“ the delivery.
- 3 Red mushroom button on yellow background for „EMERGENCY STOP“.
- 4 Key for continuous sheet infeed.
- 5 Key for single sheet infeed.
- 6 Potentiometer for infinite speed regulation of the infeed tapes **and** pressing rollers.
- 7 Potentiometer for infinite speed regulation of the infeed tapes **after** the pressing rollers.
  
- 8 Selector switch to control the tapes after the pressing rollers:
  - a) Endurance run, e.g. to empty the delivery upon completion of a production run.
  - b) Photocell control during production; the tapes will stop if the sheet infeed has been interrupted.
  
- 9 Batch counter „IVO“: only if the delivery is equipped with this option. See the attached Operating Manual for functioning description. If no „IVO“ batch counter is provided, the „marking device“ is controlled through the batch counter of the folding machine. Functioning description: see the operating manual for the „folding machine“.



## 5.2 Infeed table

### 5.2.1 Infeed tapes

The products delivered from the folding machine are taken by the round belts **1**.

Positioning of tape rollers **2** and **3**:

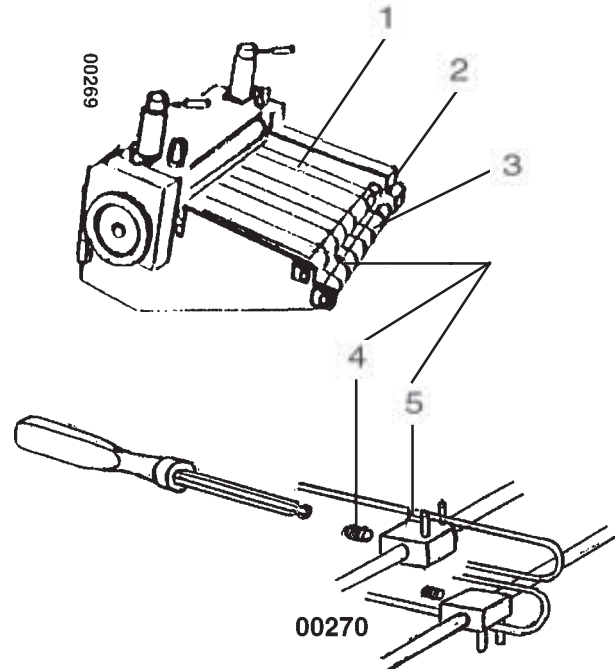
Loosen the screw **4** and displace the guide **5**.

The distance between the upper and lower round belts may be adjusted for product thickness by displacing the upper tape rollers **8** and **2** and by loosening the screws **7** at the collector flange **7**. Usually, this is only necessary if you process very heavy products.

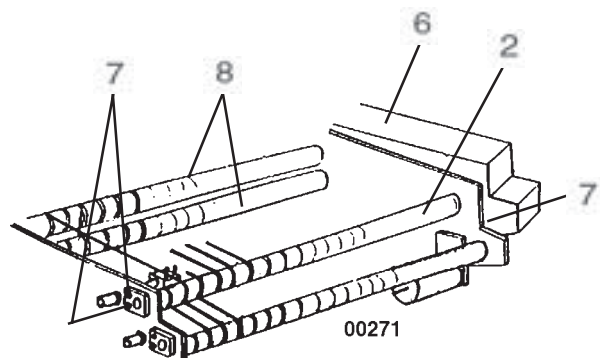
Remove the protective hood **6**, loosen the screws and nuts **7** and adjust the tape rollers **2** or **8**.

**Make sure that they are adjusted equally at both sides!**

Re-fasten the screws and nuts **7** and replace the protective hood **6**.



**>DANGER<** Before you perform these actions it is absolutely imperative that you activate the „EMERGENCY STOP“ or turn OFF the main switch of the delivery. Otherwise **risk of injury!**



**5.2.2 Multiple-up production**

If signatures are cut into two- or three-up production in the folding machine:

Place the individual groups of round belts **1, 2** and **3** diagonally to each other or spread them!

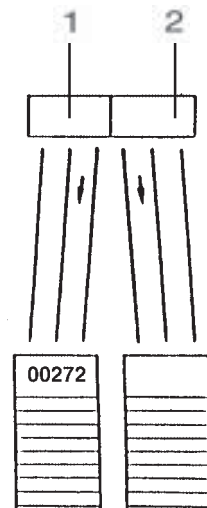
Modify the position of the round belts **1, 2** and **3** only at the lateral side of the exit of the infeed table – see item 5.2.1.

At least two round belts are necessary for each production.

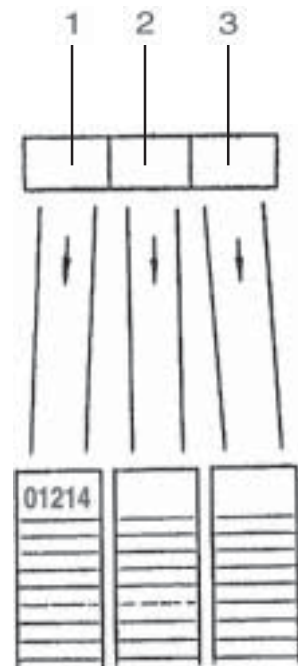


>**DANGER**< Before you perform these actions it is absolutely imperative that you activate the „EMERGENCY STOP“ or turn OFF the main switch of the delivery. Otherwise **risk of injury!**

**Two-up production**



**Three-up production**



5 2.3 Marking device



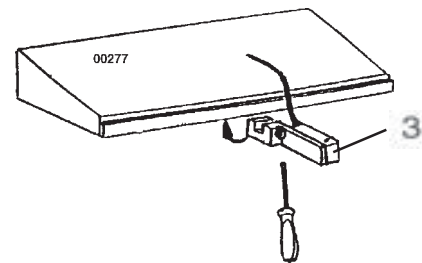
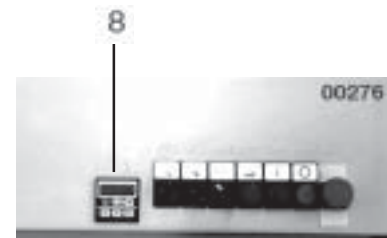
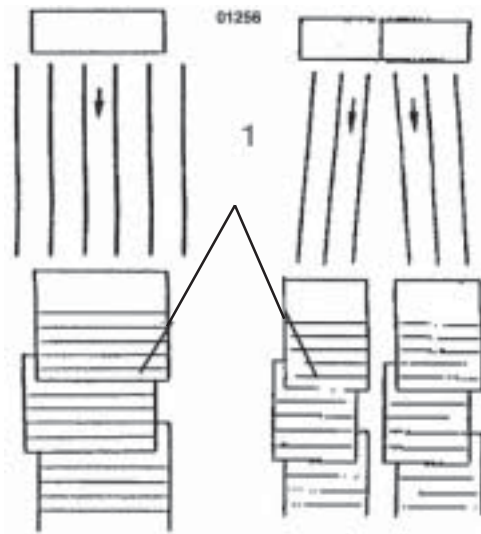
**>NOTICE<** This device enables you to exactly count and displace 1 batches to each other in the desired number of pieces to ensure the continuous take-off of equally sized batches.

The desired number of pieces of products of each batch must be entered into the IVO – batch counter 9; see the separately attached „IVO“ Operating Manual.

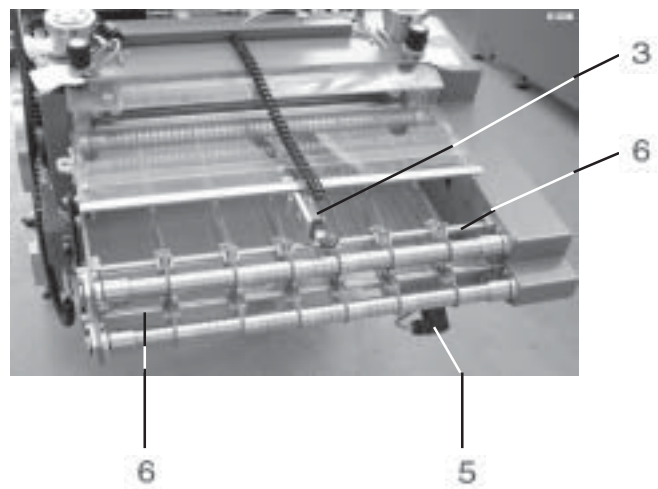
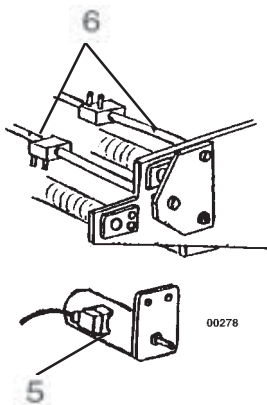
If 9 does not exist, the marking device will be controlled over the batch counter of the folding machine. (see operating manual „folding machine“)

Install a photocell 3 above the sheets. Functioning check: The diode will light up if a sheet is passing the photocell.

As soon as the pre-selected number of pieces of one batch is reached you should displace the round belts to the left or right side through the electromagnet 5 and marking bars 6.



**>NOTICE<** You should place the photocell in such a way that it is not influenced by the marking bars 6.

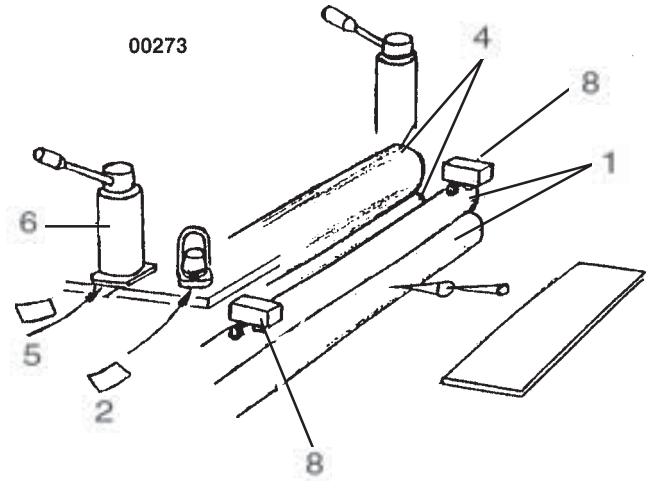


### 5.3 Pressing unit

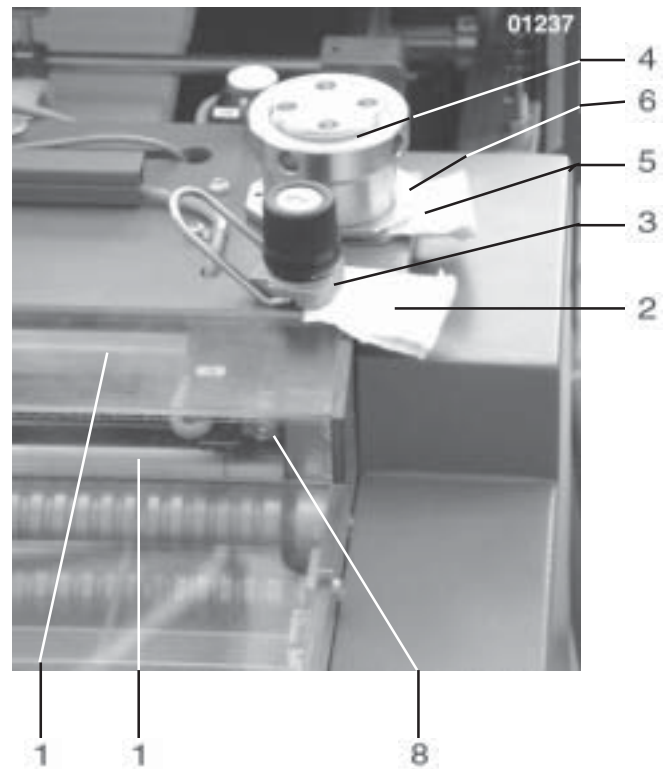
How to adjust the pre-pressing rollers **1**:  
Insert a paper strip **2** into the calliper **3**  
(normally the full product thickness).

How to adjust the main  
pressing rollers **4**:  
Insert a paper strip **5** into the calliper **6** -  
(1/2 to 3/4 of the product thickness). For  
opening turn the hooked key **7** left, and  
for closing turn to the right (clockwise).

The micro switches **8** will turn the  
complete delivery off if a product that is  
too thick passes these micro switches.



**>DANGER<** Please be advised that  
such switch-off will occur only if the  
delivery is connected to an MBO  
folding machine!



## 5.4 Collector table

After the signature has passed the pressing rollers the folded product will fall onto the transport tape **1** of the collector table **2**.

The height of fall between the pressing rollers and the collector table may be adjusted at the adjustment grip **3** for various products:

If you turn the adjustment grip clockwise = you decrease the height of fall; if you turn the adjustment grip counter-clockwise = you increase the height of fall.



**>NOTICE<** Unstable or thin products require less height of fall; stable and bulky products require more height of fall.

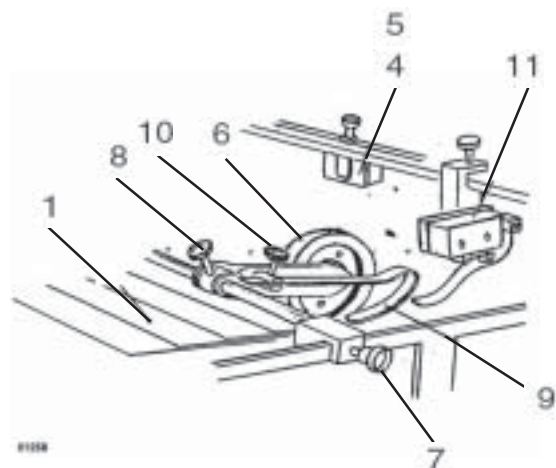
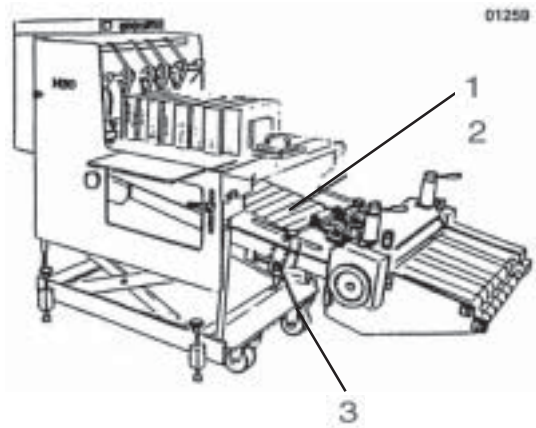
After the pressing rollers the sheet passes the photocell **4**. Functioning check: The diode will light up if a sheet is passing the photocell.

Thereby, it will set the transport tape **1** into motion. The collector rollers **6** should grasp the sheet before the tape stops again after it has left the photocell's range of detection.

For positioning of the collector rollers it is necessary to loosen both knurled screws **7**.

You may laterally displace the collector rollers if you loosen the knurled screws **8**. The smoother bars **9** may be placed forward if you loosen the knurled screw **10**.

Wrinkled sheets after the pressing unit will cut off the delivery through the default switch **11**. The delivery will also be cut off if it is connected to an MBO folding machine. However, if the delivery is connected to a foreign machine only the SBAP 46 - ME will cut off. The second photocell and the second default switch will be used for two-up production. The speed of the transport tape and therefore the adjustment of short or extensive formation of shingles may be adjusted through the potentiometer at the control cabinet.





## 5.5 Line-up tapes and line-up table

The shingled sheets are transferred by the collector table **1 A** between the lower **1** and upper **2** line-up tapes and transported by them around the drum **3** onto the collector table **4**.

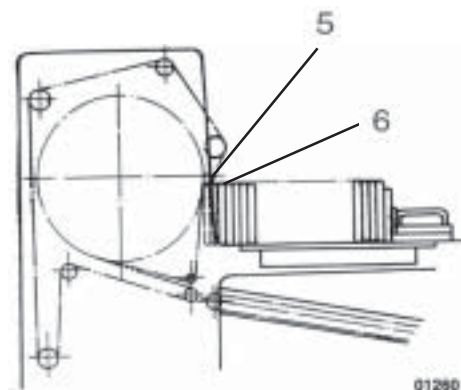
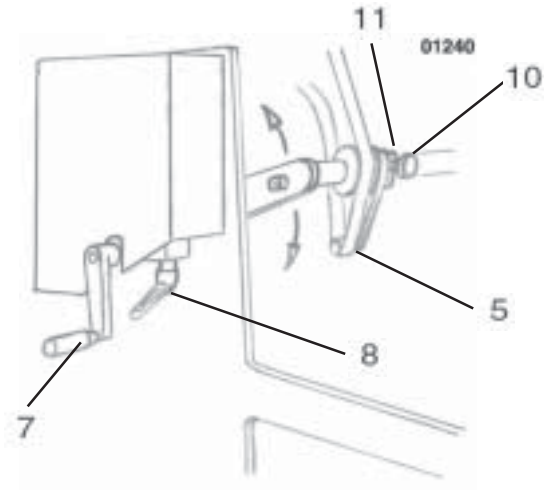
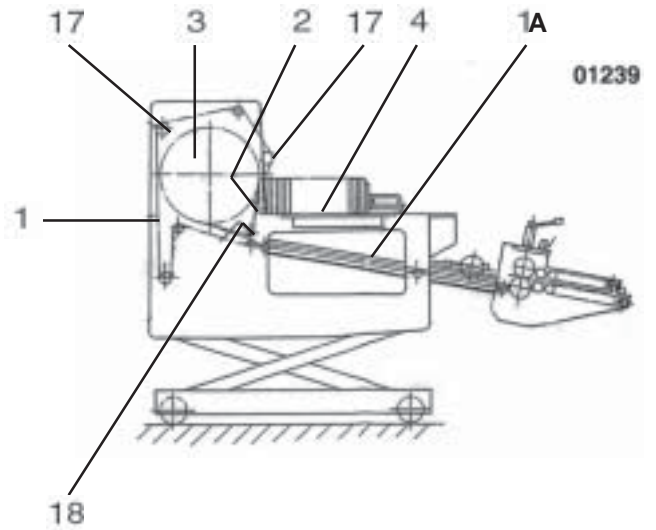
The speed of these line-up tapes may be changed parallel to the transport tape **1 A** as they are driven by the same motor. The height adjustment of the line-up rollers **5** – levelled to the upper edge of the folded sheets **6** – may be performed through the crank **7** after the clamping lever **8** has been loosened.

With short signatures, whose upper edge **6** is deeper than the centre of the drum **3**, the pressure of the upper tape onto the lower tape may be altered by means of the line-up rollers:

Clockwise screwing of the red-marked knurled nut **10** reduces pressure. Counter-clockwise screwing of the red-marked knurled nut **10** increases pressure.

Subsequently, you should secure the position of the knurled screw by countering the knurled nut **11**. The speed of the pile transport tapes **12** must be adapted to the production speed and product thickness.

Low production speed and thin products require less forward feed, but heavy products and high production speed require more forward feed.



continuation

**continuation**

This forward feed can be adjusted through the knurled screw **13**:

Clockwise screwing of the knurled screw **13** reduces forward feed. Counter-clockwise screwing of the knurled screw **13** increases forward feed.

A retaining angle **14** is used to avoid the tilt of the pile on the line-up table.

After loosening the knurled screw **16** the attachment plate **15** may be turned or removed for various heights of signatures.

Two retaining angles are used if you process two-up productions.

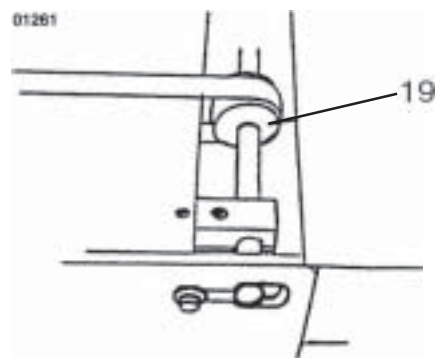
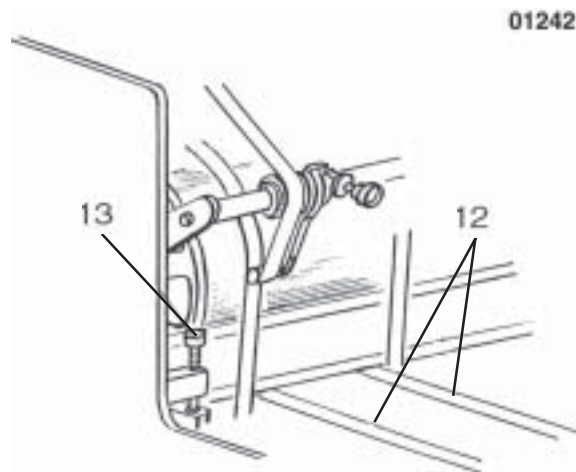
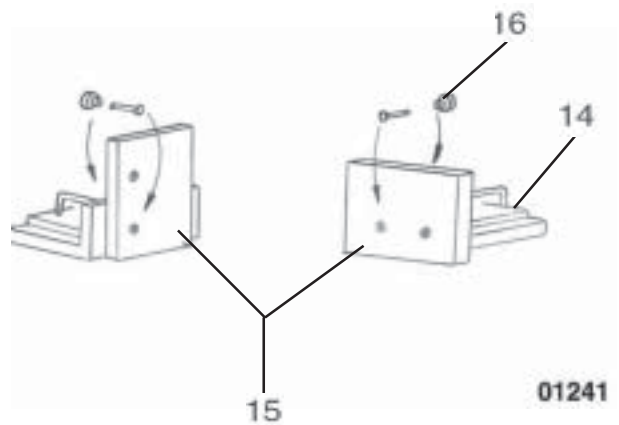
The transport tapes **1**, **2** and **12** should only be displaced laterally in exceptional cases.

At first, you should attempt to vary the infeed position of the sheets into the delivery by changing the position of the delivery or by slanting the infeed tapes. If you displace the transport tapes you should ensure that all tape rollers for each single transport tape are equally displaced. We recommend using a tape rule and measure from the delivery's side panel. Locking screws are fixed in all tape rollers.

The lower transport tapes **1** are displaced through the tape rollers **17**. The upper transport tapes **2** are displaced through the tape rollers **13**, and the pile transport tapes are displaced through the tape rollers **19**.



**>ATTENTION<** Make sure that these tapes do not rub laterally as they may be destroyed.



## **6.0 Final remarks**

You have now reached the end of this Operating Manual. We hope that you have understood everything. If so, then our efforts in preparing this manual have been worthwhile. Of course, we accept comments and wish to thank you for any suggestions you may have to improve it. Even we are not perfect! We wish you every success with this delivery. However, should you have any problems with its operation, please do not hesitate to contact our technicians or supervisors who will be able to assist you.



Änderungen vorbehalten  
Alterations reserved  
sous reserve de modifications

Binder & CO.  
Postfach 1169  
D - 71567 Oppenweiler

Telefon 07191 / 46-0  
Telefax 07191 / 4634  
<http://www.mbo-folder.com>

Stand 01/2004 Haug/No