



## USER'S MANUAL

### Vent Cutter

**VC-12 RS, VC-15 RS, VC-16 RS, VC-20 RS**

**Document number:**

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## 1 PREFACE

### 1.1 User's Manual identification

The data on the machine plate can be found in the index of the documentation set. It contains a reference to the document number of this User's Manual.

Check if the User's Manual belongs to the machine. The index can also contain references to corresponding documentation.

### 1.2 General information

The User's Manual provides information and instructions for proper and safe use of the machine and applies to the life of it.

All users of the machine must be acquainted with the presence and contents of the User's Manual, which for that reason has to be kept in an accessible place.

Carefully read through the User's Manual before starting to use the machine. Familiarize yourself with the information and follow the instructions.

If you have questions, require explanation of subjects related to the machine or the User's Manual, please contact the manufacturer. You can find the address on the front page.

Replace damaged and missing User's Manuals.

Always mention the data of the machine plate below in correspondence about the machine:

- Machine
- Model / Machine code
- Serial no.

See fig. 1.

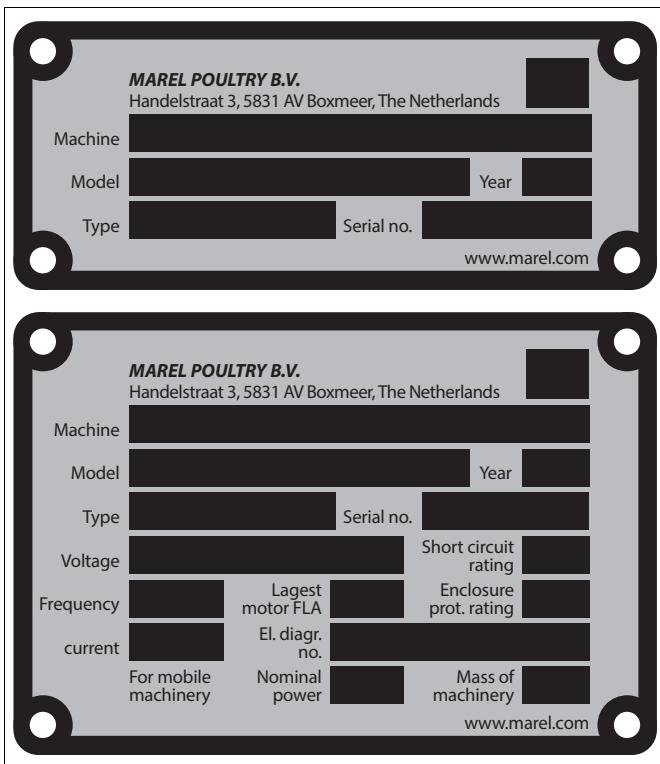


fig. 1 Machine plate example

### 1.3 Reading indicator

The User's Manual uses the term machine. By "machine" is meant: the specific module, installation, unit or system with the corresponding equipment.

This User's Manual contains several boxes. They draw your attention to dangerous situations for the user, control panel and/or product and give you tips. They have been subdivided and displayed as follows:



**MORTAL DANGER**  
The user's life is directly threatened.

**WARNING**

**The user can be (seriously) injured or seriously damage the machine.**

The picture in this box depends on the risk-bearing action that is discussed.

**TAKE CARE**

The user can damage the machine or products when the instructions are not carried out with care.

**NOTE**

Observation containing additional information for the user.

**TIP**

Provides suggestions and advice to the user to carry out certain instructions more skilfully and easier.

**Page and document numbers**

Each page has a unique identification and consists of:

- The page number with the total number of pages.  
Example:  
4 / 24
- The document number and the date of issue.  
Example:  
90952\_00\_01\_ENG / 17-08-2013

**Position numbers and letters in text**

Bold printed position numbers and letters in the text refer to the specific section in the figure.

Example:

Product guides **40** and **41** stop the legs when ....

**NOTE**

The pictures in this User's Manual can deviate from your machine. Keep this in mind when reading this User's Manual and carrying out operations on the machine.

Some components can have documentation of their own. Consult the index on this.

**1.4 Keeping machine data up to date**

We advise you to keep a logbook.

You can enter data regarding production, maintenance, cleaning, inspections, defects, repairs, overhauls, modifications and other operations on the machine. See appendix: LOGBOOK.

We also advise you to keep a registration form for entering the setting data.

See appendix: SETTINGS.

### 1.5 General terms of delivery

The general terms of delivery of the manufacturer apply to the machine. These can be found in the documentation set.

### 1.6 Responsibilities of the purchaser

By "purchaser" this User's Manual means every enterprise that uses the machine, regardless if it concerns purchase, rent, lease or another user's right.



#### MORTAL DANGER

If the machine is not installed in accordance with our layout drawings, or if local regulations or the individual circumstances make this necessary, than additional safety measures are necessary.

The purchaser has a duty to familiarize all users with the information and instructions given in this User's Manual.

The purchaser is obliged to take care of the safety of the users and the machine.

In particular:

- he makes sure that all required information is available to all users.
- he allocates authorities to the users per chapter of the User's Manual.
- only authorized, skilled and instructed users are allowed to carry out the instructions.
- he supervises the users to make sure they meet all regulations and instructions.
- he makes sure that the machine is only used within the limits mentioned in the User's Manual and "Technical Data".
- he makes sure that the original state of the machine must not be changed by modifications, repairs and/or other influences by or on behalf of the purchaser or a third party without prior written permission of the manufacturer.
- he makes sure that settings, maintenance and cleaning of the machine are properly carried out in time.

### 1.7 Modifications to the machine

The data contained in this User's Manual are based on the latest information.

The manufacturer reserves the right to change the design and/or configuration of its machines at any time, without any obligation on our part to change any previous supplies accordingly.

The original state of the machine must not be changed by modifications, repairs and/or other influences by or

on behalf of the purchaser or a third party without prior written permission of the manufacturer.

If the CE-2A-status is applicable to the machine (see EC-declaration), this can become defunct due to modifications to the machine.

### **1.8 Use of the machine**

- The machine can only be used for industrial ends.
- The machine can only be used within the limits mentioned in the User's Manual and "Technical Data".
- Prior written permission of the manufacturer is required for other use.
- It is not allowed to install parts that have not been supplied, installed and/or released beforehand by the manufacturer.

## 2 SAFETY

### 2.1 Safety at work

The manufacturer has made every possible effort to provide you with comprehensive, accurate information as regards any hazards relating to the operation of the machine. The purchaser himself shall be responsible for the implementation and proper observance of these rules of conduct.

You must not let minors of 14 years old or younger work on this machine, even if local legislation of the country where the machine is in operation permits it.

Observe the current state of labour, safety and environmental regulations when carrying out any operations.

#### MORTAL DANGER

##### Do not wear:

- loose-fitting and loose articles of clothing.
  - jewellery and suchlike.
- They can come into contact with moving parts.**

**Wear footwear that prevents slipping.**

### 2.2 Safety labels

The adjacent safety labels alert the user to possible dangers. You will find them on the machine and in the text of this User's Manual.

### 2.3 Noise pollution

The manufacturer designs and constructs machines where noise pollution has been reasonably reduced to a minimum.

However it is possible that users, due to local circumstances, will be exposed to noise pollution which may cause hearing impairment.

#### WARNING

**To prevent hearing impairment due to noise pollution, you should always observe the legal standards and regulations relating to noise pollution and take proper measures if required.**

The noise pollution of the machine is mentioned in the "Technical Data".

We draw your attention to the fact that wrong settings and overdue maintenance can cause an increase in

noise pollution.

## **2.4 Hygiene and environment**

Uphold the rules of hygiene and environment during (maintenance) operations on the machine.

Make certain that the production process does not absorb any damaging influences from outside, such as detergents and maintenance tools.

### **Recycling**

Offer materials for recycling sorted as much as possible.

### **Chemical waste**

Materials that come under the category of chemical waste should be separated when discharged. This includes, for example, batteries, oil filters, oils and greases.

### **Waste discharge**

Waste should only be offered to recognized waste-disposal companies that meet local legislation, standards and regulations.

### **Putting machine out of operation**

If the machine is not used over a longer period of time or is dismantled, the purchaser must remove all components that can cause danger, such as knives, guides sticking out, batteries.

### 3 TRANSPORT



**MORTAL DANGER**  
Activities described in this chapter must  
be carried out by competent,  
professional and trained personnel.

#### 3.1 Transport and storage

- During transport of the machine/control panel follow instructions on the packing.  
Consult the weight marking on the packing for transport weights.
- Check if the machines or spare parts are correct and available by means of the documents that have also been supplied.
- Check the machine for transport damage.
- In case of incorrect delivery or damage contact the manufacturer.
- Keep the machine dry, clean and safeguarded against humidity, dust and dirt.

## 4 MACHINE DESCRIPTION

### 4.1 Implementation

The automatic vent cutter is one of the machines of the eviscerating line.

The automatic vent cutter drills the vent and the bursa Fabricius out of the broilers and hangs them in a defined position across the back of the product.

This User's Manual describes the following models:

tab. 1

Machine code	Model	Variant
C0966	VC-16 RS	LD
		ND
		HD
C0967	VC-12 RS (8")	
C0968	VC-20 RS	LD
		ND
		HD
C0969	VC-15 RS (8")	



#### NOTE

The machine model is shown on the machine plate.

- "VC" stands for vent cutter.
- The number means the number of units that carry out the operations.
- "RS" means that the machine is in the new standard frame.
- "8" stands for the shackle pitch.
- "LD" means that the machine is suitable for lighter products.
- "ND" means that the machine is suitable for normal range products.
- "HD" means that the machine is suitable for heavier products.

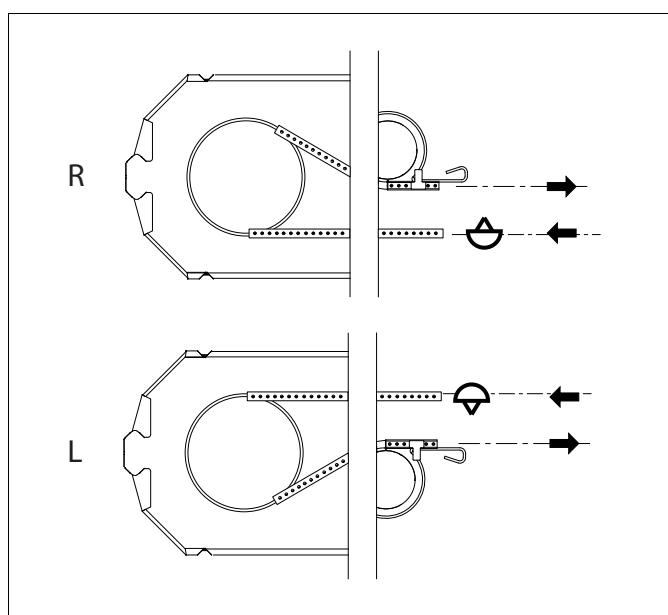
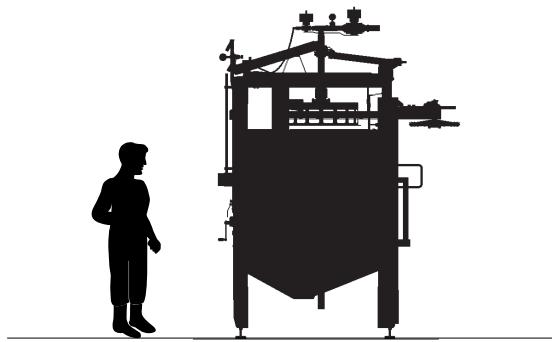


fig. 2 Executions

The machine is available in a:

- right-hand model **R**.
- left-hand model **L**.

See fig. 2.



#### 4.2 Names used

The automatic vent cutter consists of the following main components:

1. Safety
2. Outside product guide
3. Outside shackle guide
4. Inside shackle guide
5. Guard
6. Height adjuster
7. Discharge
8. Spreader bracket
9. Movable hip lifters
10. Vent blade
11. Clamp
12. Pin
13. Gear wheel with shaft
14. Pin compressed air connection

See fig. 3.

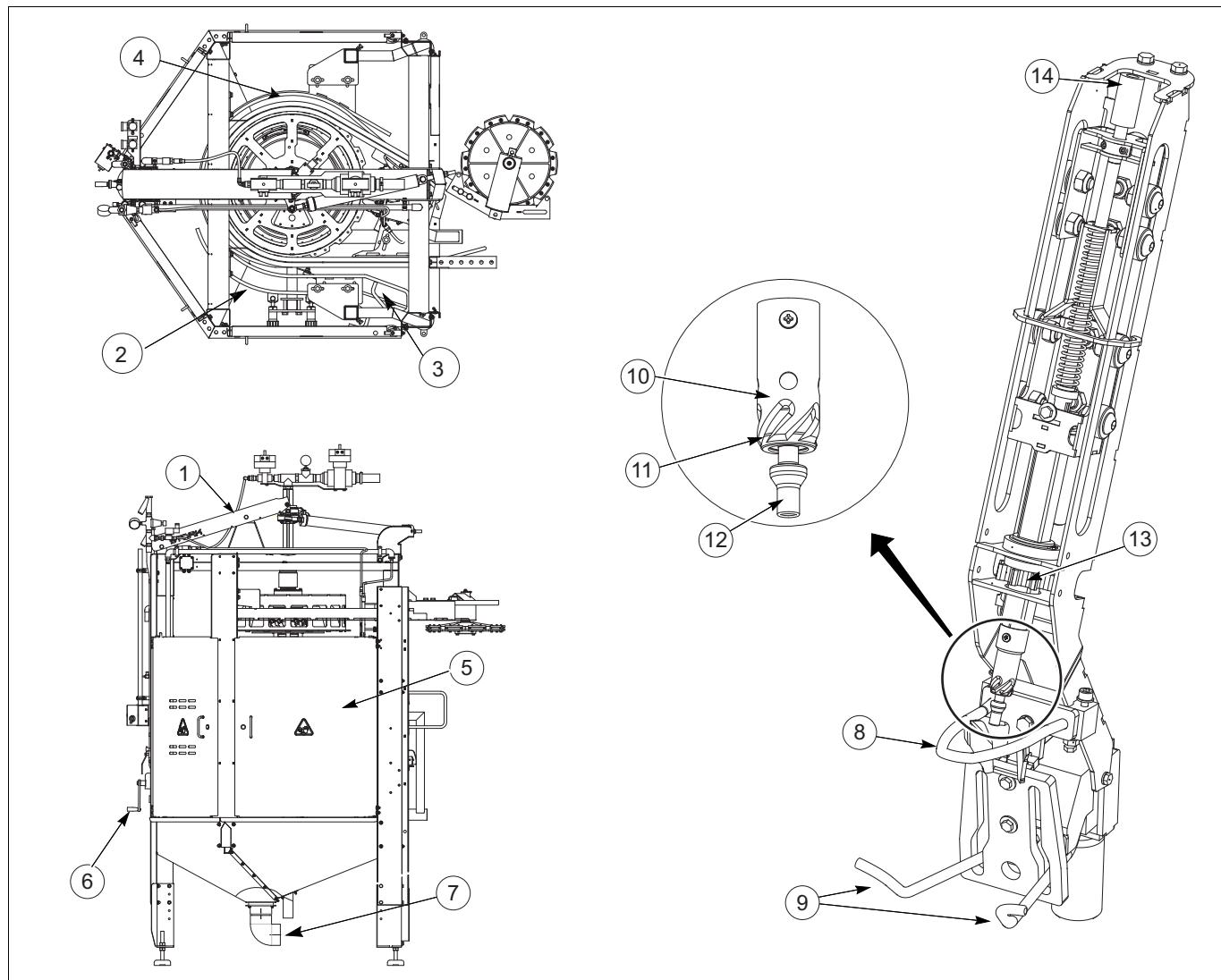


fig. 3 Names used

### 4.3 Process description

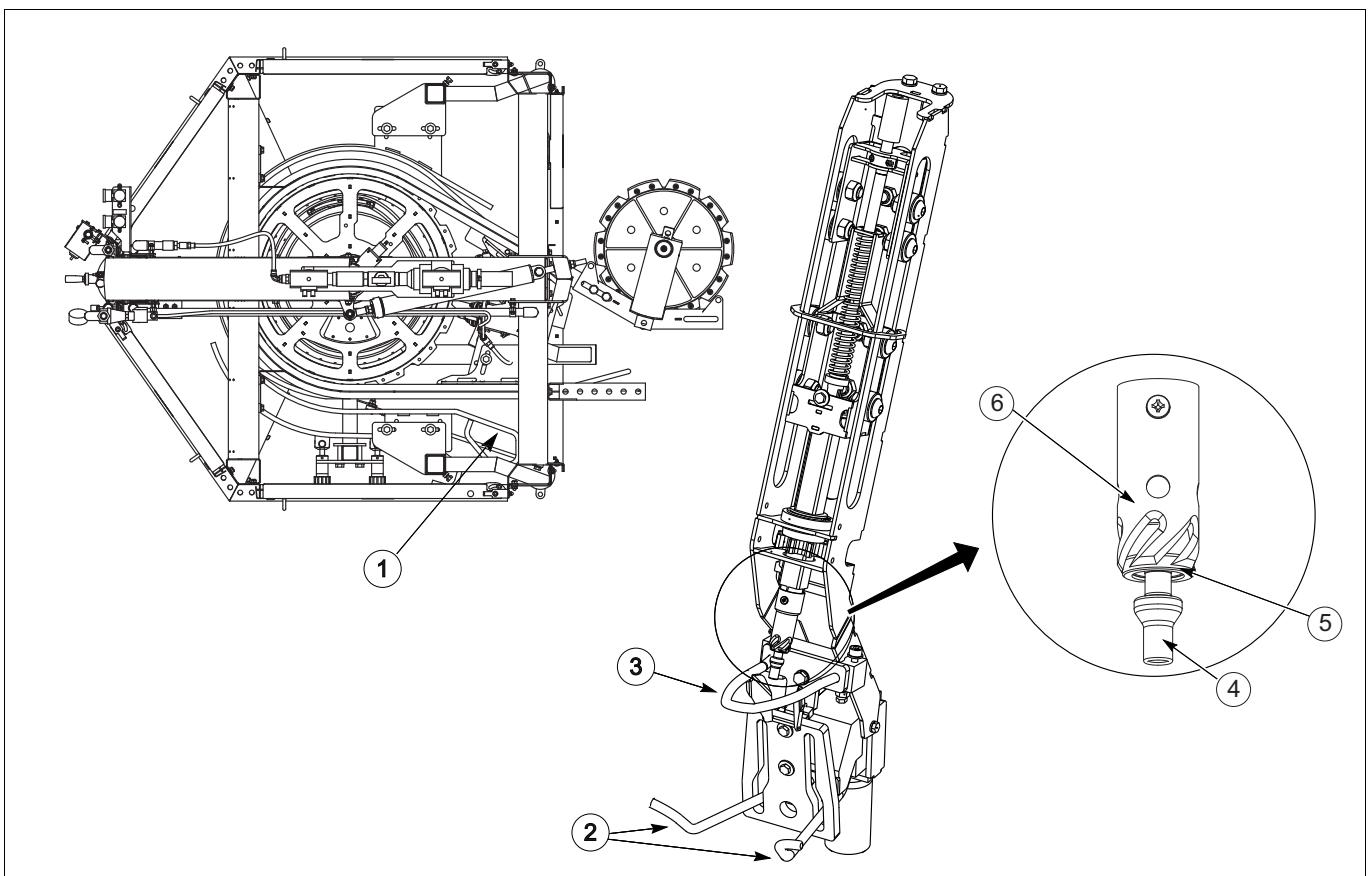


fig. 4 Process description

#### 4.3.1 Vent cutter

The vent cutter drills out the vent and the bursa Fabricius. The machine has multiple units that carry out the operations. A curve (cam) operates the units.

The product is placed into the machine with its back turned towards the shaft of the machine. See fig. 4.

Guide 1 positions the shackle with the product. Hip lifters 2 move upward and put the product in a fixed position against spreader bracket 3.

Descending (hollow) pin 4 positions the vent. Through the hollow pin, the vacuum system cleans the end of the rectum.

Descending clamp 5 and rising pin 4 clip on to the vent.

During the upward movement of clamp 5 and pin 4, the rotating, circular vent blade 6 drills out the vent.

Then clamp 5 and blade 6 lower into the product to cut off the bursa Fabricius and the ureter.

Clamp **5** and blade **6** are pulled out of the product and at the same time hip lifters **2** move down and the product lowers.

Lastly, pin **4** and clamp **5** move apart and the vent is released by means of compressed air through the hollow pin.

The vent is now suspended from the back of the product and further processing of the product takes place in the opening machine.

#### 4.4 Safety provisions

The vent cutter has the following safety provisions:

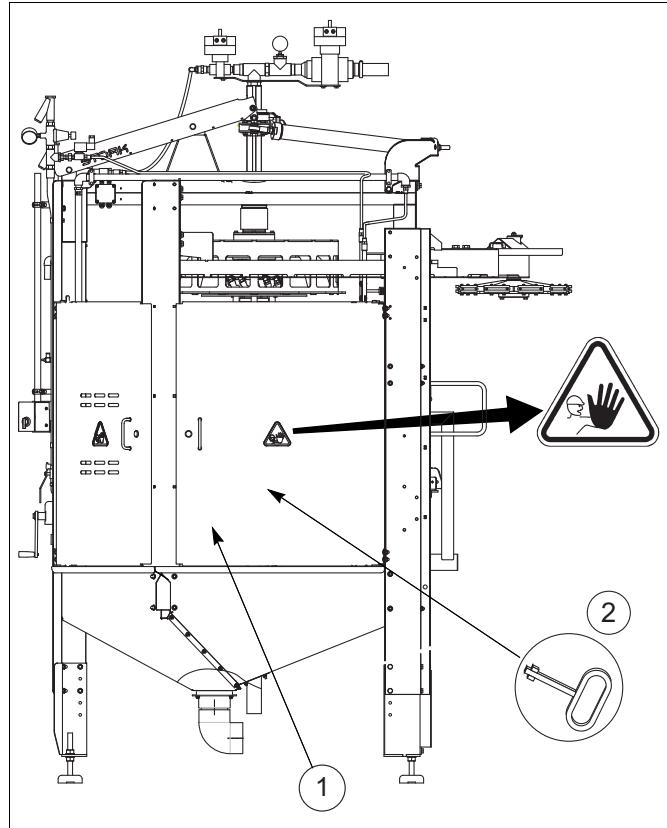


fig. 5 Safety provisions

**MORTAL DANGER**  
Never remove, bridge or block safety provisions.

- Guards **1**.
- Key **2** for opening the hinged guards.
- Emergency stop button and/or emergency stop cord within reach. See paragraph 7.1 Emergency stop.

See fig. 5.

**MORTAL DANGER**  
If necessary, take extra safety measures when:
 

- changes are made to the manufacturer's recommendations and instructions during installation of the machine.
- local regulations, legislation or circumstances require this.

On the machine you can see safety labels as indicated in fig. 5.

See paragraph 2.2 Safety labels for an explanation of the safety labels.

**WARNING**  
Regularly check the safety labels for:
 

- Presence
- Damage
- Recognisability

 If necessary, immediately apply new safety labels.  
See the User's Manual "Safety labels" (90840).

#### 4.5 Specifications

See the "Basic design specifications" in the order confirmation for the machine and the product specifications.

- The relevant machine specifications are the production speed and the process times.
- The relevant product specifications are the weights and the weight distributions.

Use the machine only within these specifications.

See the "Technical Data" and the User's Manual "Explanation of Symbols Technical Data" (90819) for:

- The connections
- The consumptions
- The dimensions
- The requirements for steam, water and compressed air, whatever is applicable

The products must meet the following specifications:

- The product temperature must be between 4 °C and 10 °C.
- The ambient temperature must be between 4 °C and 20 °C.

The products should be properly shackled:

- The back pointing towards the main shaft of the vent cutter.
- Both legs in one shackle.
- One leg in each shackle slot; with the tarsal joints suspended from the bottom of the shackle slots.
- All shackles should be filled for a smooth infeed into the machine.

See fig. 6.

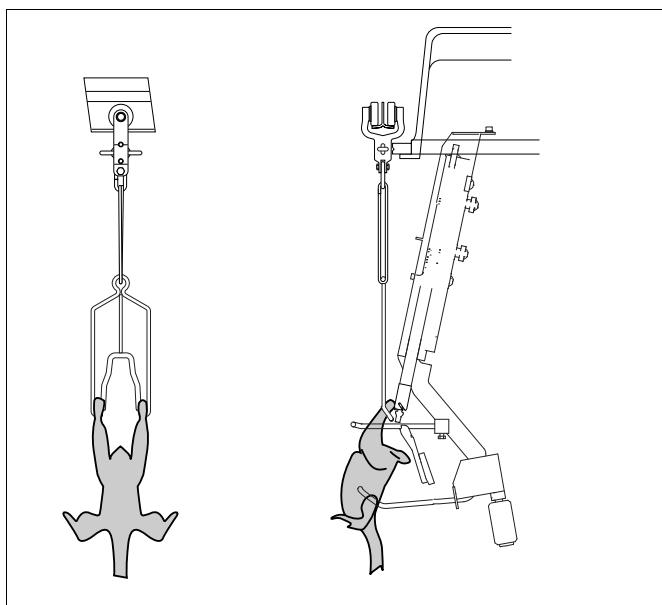
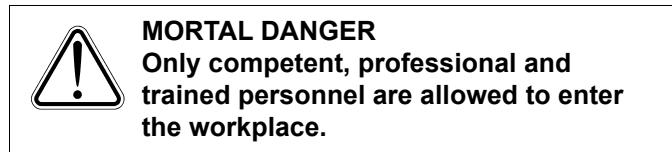


fig. 6 Product infeed

#### 4.6 Workplace



Workplace **1** for operating the machine is shown in color in fig. 7. All the space around the machine is the working area for all other activities.

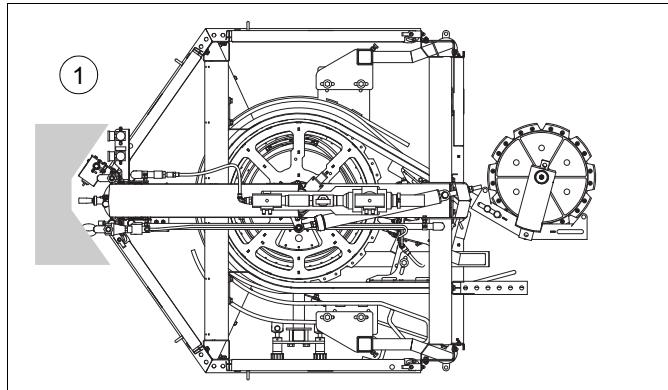


fig. 7 Top view of the workplace

#### 4.7 Danger zones



**MORTAL DANGER**  
Only competent, professional and  
trained personnel are allowed to enter  
the danger zone.

Danger zone 1 is indicated in fig. 8 by a broken line. The dangers inside the colored space 2 are screened off or covered as far as possible.

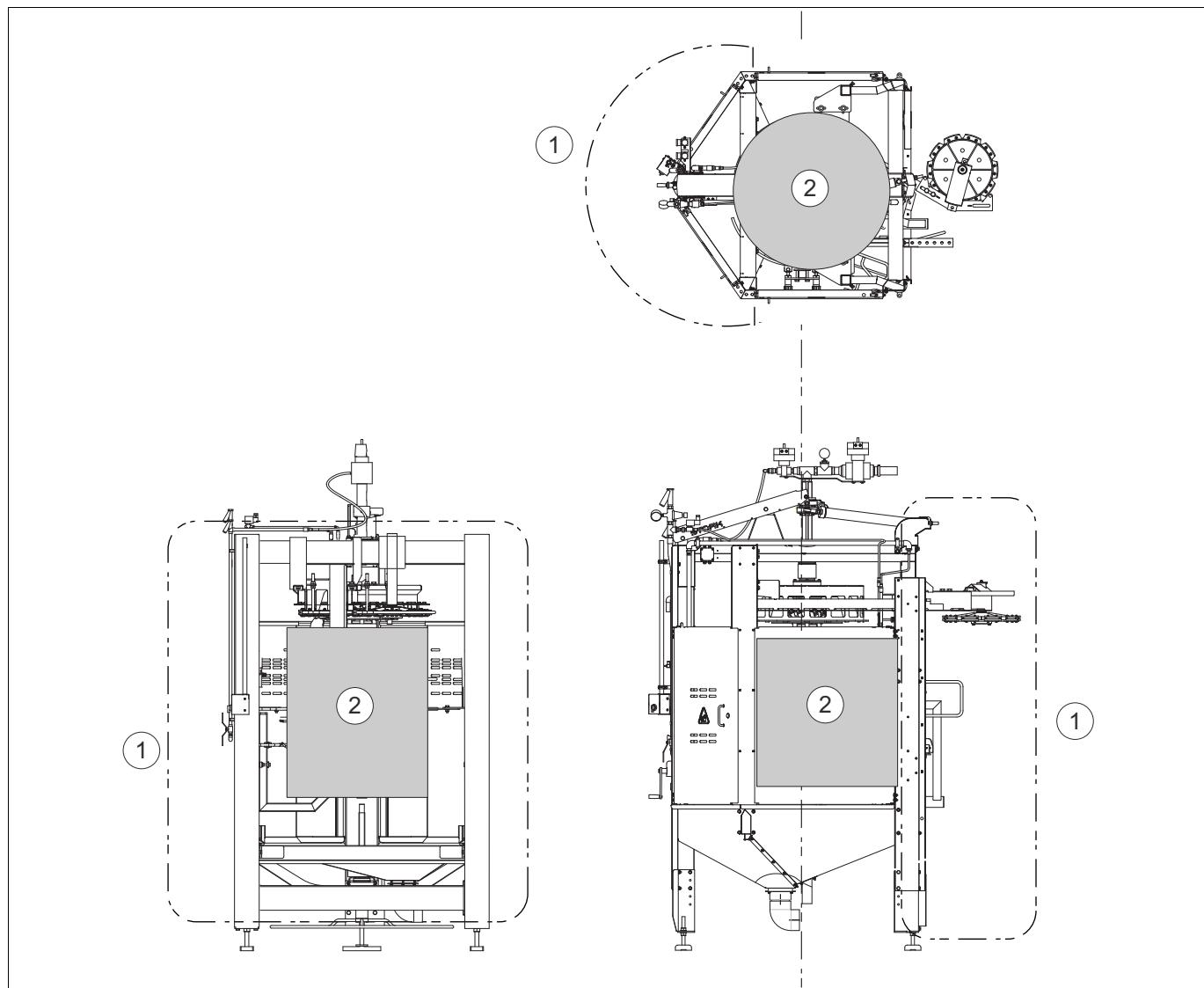


fig. 8 Danger zones

## 5 INSTALLATION

The machine will be installed by the manufacturer or by others commissioned by the manufacturer.

If the purchaser carries out the installation himself, the following instructions apply.



### MORTAL DANGER

Activities described in this chapter must be carried out by competent, professional and trained personnel.

### 5.1 Set-up

Set up the machine as shown on the manufacturer's layout drawings. See also the "Technical Data".



### MORTAL DANGER

If necessary, take extra safety measures when:

- changes are made to the manufacturer's recommendations and instructions during installation of the machine.
- local regulations, legislation or circumstances require this.

Note the following:

- Make sure that the floor is solid and level, and that there is sufficient space to move around the machine to carry out work on the machine.
- Take into account the set-up requirements of the other machines.
- Make sure there is sufficient lighting to work safely on the machine.

Set the machine up as follows:



#### TAKE CARE

Never use hoist eyelet **8** for lifting the machine. See fig. 10.

Only use the hoist eyelet for overhauling activities such as replacing the main shaft.

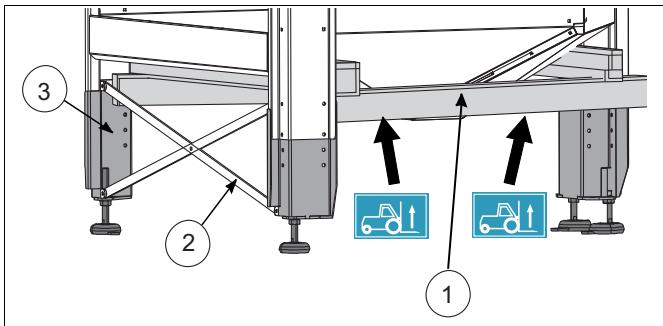


fig. 9 Transport frame

1. Lift the machine by forklift truck or pallet wagon, and move the packaged machine to the desired location. Use a transport frame **1** for this (See fig. 9 with forklift icons for correct placement).
2. Remove the packaging around the machine.



#### MORTAL DANGER

**Make sure that unauthorized persons are not in the direct vicinity when lifting or moving the machine. Be aware of the machine's center of gravity. See the "Technical Data".**

3. Raise the machine up until the overhead conveyor belt is in line with the adjoining track sections.
4. Attach the reinforcement cross **2**.
5. Attach the adjustment legs **3** and adjusting feet **4** onto the machine, setting them as close to the final correct heights as possible.
6. Carefully lower the forklift or pallet wagon, and remove from machine.
7. Remove the transport frame **1**.
8. Set the final height with the adjusting feet **4** so that the overhead conveyor is in line with the adjoining belt sections.
9. Use the adjusting feet **4** to level the frame.
10. Attach the foot plates **5** to the floor when setting is complete.
11. Connect the machine to the overhead conveyor. See the User's Manual "Overhead conveyor" (90714 or 90727).

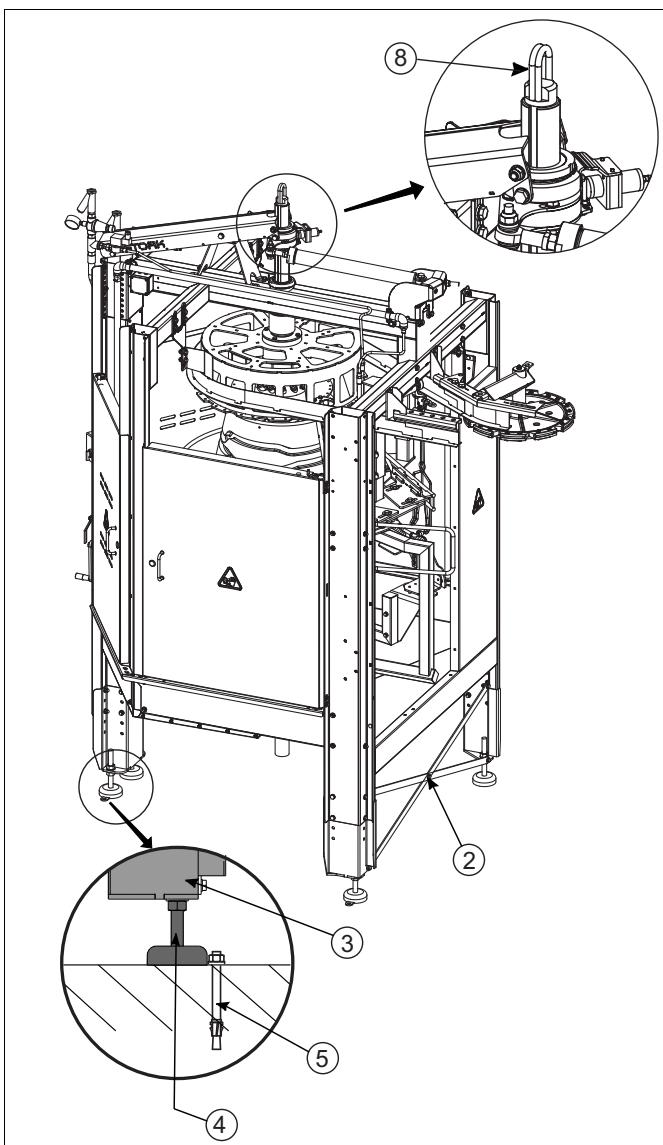


fig. 10 Set-up

## 5.2 Connections

There are several connections that must be made to make the unit operational, or that should be checked for proper set-up after any maintenance work.



#### MORTAL DANGER

**Check that all the safety devices work.**

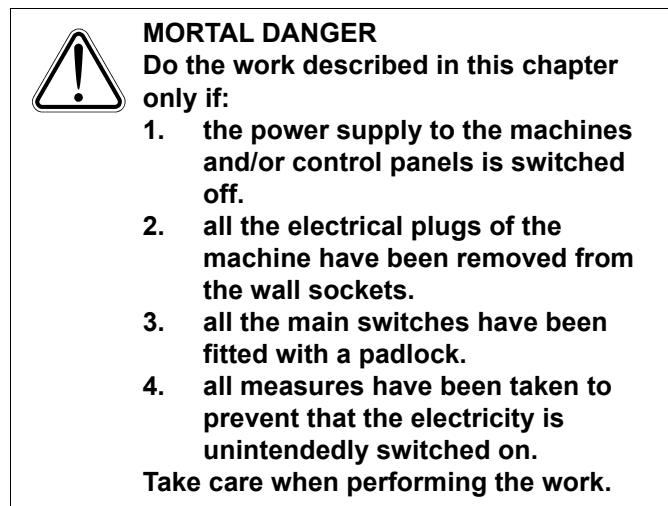
The machine has a Safety.

- Connect the proximity switch of the Safety and adjust it. See paragraph 5.2.1.2 Check the operation of the safety's proximity switch and paragraph 5.2.1.1 Connecting the safety's proximity switch.

Other connections that must be checked or completed include; the magnetic valve, the water supply, the compressed air, and the vacuum.

For connection and consumption details consult the "Technical Data".

### 5.2.1 Connecting the electricity



Before connecting, check if the power supply and frequency match the data on the type plate of the main drive. Follow local regulations when connecting the machine.

For data about the connections, see the electric circuit diagrams supplied by the manufacturer.

For connection and consumption details consult the "Technical Data".

#### 5.2.1.1 Connecting the safety's proximity switch

The proximity switch **1** of the safety is wired to the terminal box **2**.

- Connect the terminal box **2** to the Control Panel of the overhead conveyor.
- After connection, check the operation of the proximity switch. See next paragraph  
5.2.1.2 Check the operation of the safety's proximity switch.

See fig. 11.

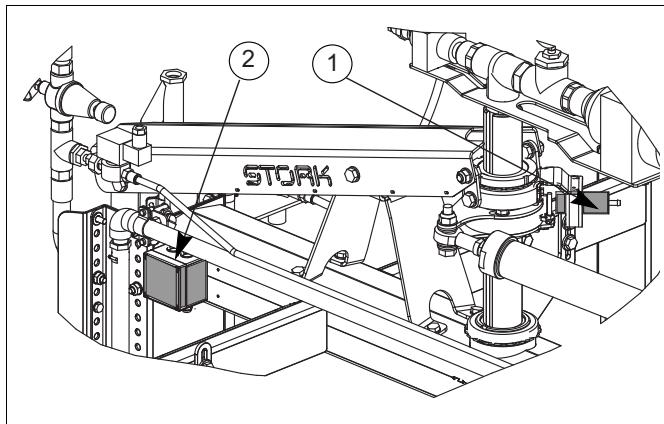


fig. 11 Safety electrical connection

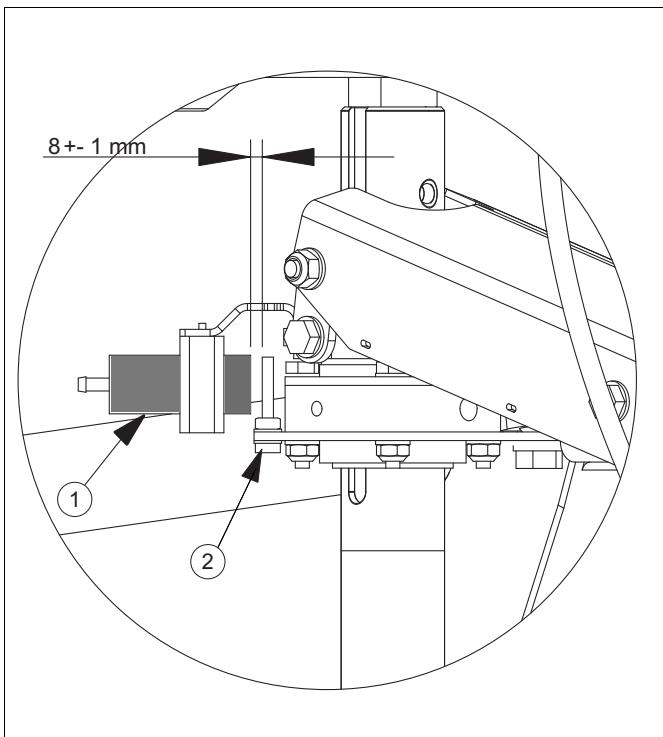


fig. 12 Proximity switch

### 5.2.1.2 Check the operation of the safety's proximity switch

If the machine is subjected to an overload (due to a technical defect, for example) bolt 2 of proximity switch 1 will be pulled away. The proximity switch will be deactivated, so that the drive motor(s) of the overhead conveyor will be stopped.



#### TAKE CARE

The overload limiter must work properly. The machine can be badly damaged if the overload limiter does not work properly.



#### NOTE

During normal operation the proximity switch is activated.

- After connection of the terminal box to the Control Panel of the overhead conveyor, check that the drive motor(s) of the overhead conveyor is (are) switched off when the proximity switch 1 is activated.
- To guarantee the proper functioning of the proximity switch there must be a  $8 \pm 1$  mm distance between the bolt and the proximity switch. See fig. 12.



#### NOTE

The top and bottom curve (cam) of the machine must be in the  $0^\circ$  position for the overload limiter to function correctly. See paragraph 6.1 Curve location.

### 5.2.1.3 Connecting the magnetic valve

The magnetic valve opens the water supply for the lubrication of the guide shafts of the units.

- Magnetic valve 15 is to be connected in such a way that the water supply is opened when the overhead conveyor is switched on.

See fig. 13.

For connection and consumption details consult the "Technical Data".

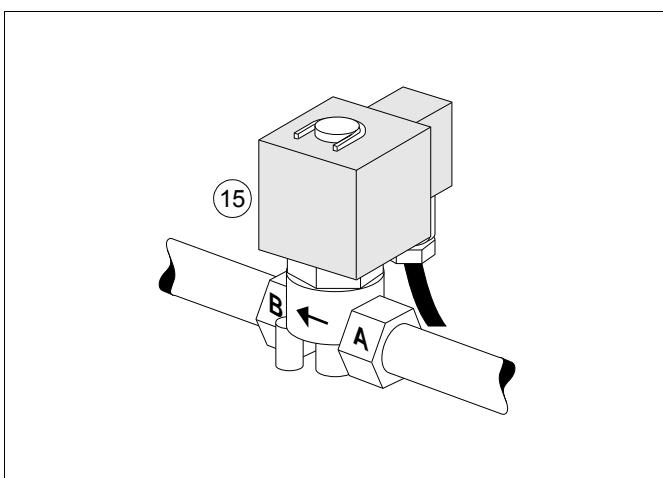


fig. 13 Magnetic valve

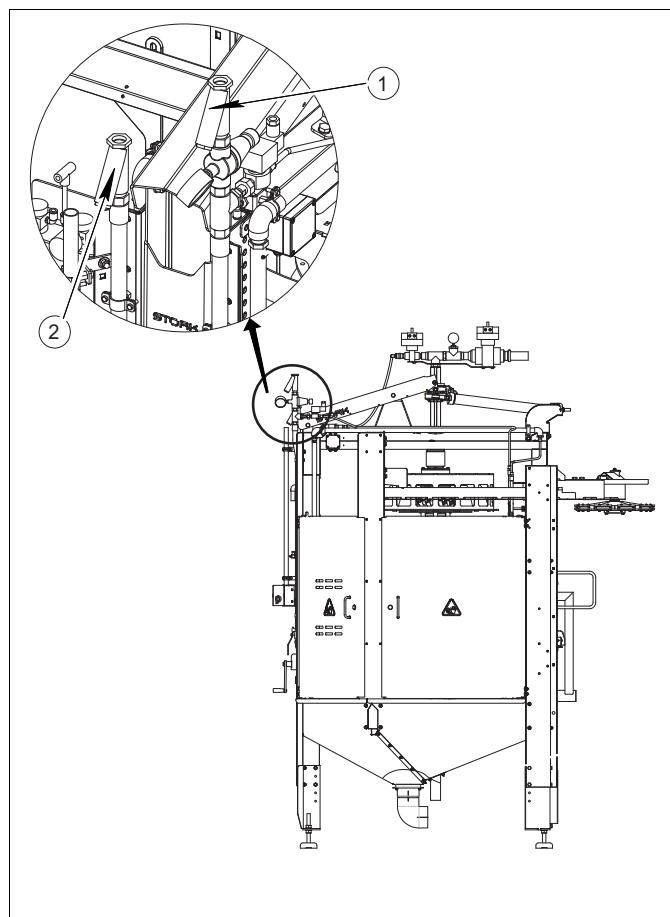


fig. 14 Connecting the water supply

### 5.2.2 Connecting the water supply

The water cleans the machine components that come into contact with the products and lubricates the units.

- Connect point **1** to the high-pressure water supply system.
  - Connect point **2** to the hot water supply system.
- For connection and consumption details consult the "Technical Data".

See fig. 14.



#### WARNING

The water must meet the following requirements:

- Be of drinking water quality.
- The chloride content in the water must meet local legislation and demands.
- The iron content in the water must be lower than 0.1 mg/l.
- The water hardness level must be between 1.068 and 2.136 mMol/l (6 and 12 °dH).
- The PH value must be between 6.5 and 9.5.
- Do not add disinfectants or detergents to the water.

A lower quality water can have a negative effect on the products and the machine.

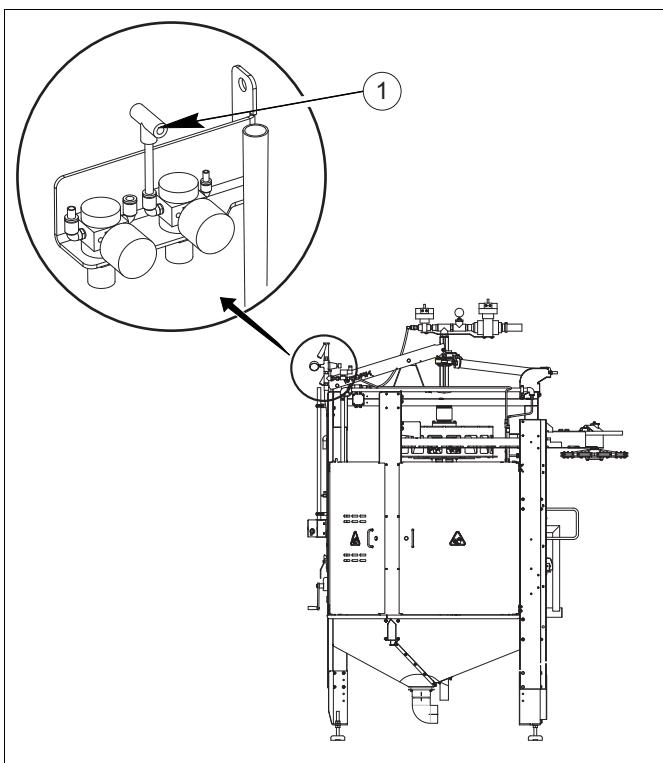


fig. 15 Connecting the compressed air

### 5.2.3 Connecting the compressed air

The machine contains pneumatic components which are moved by compressed air.

- Connect point 1 to the compressed air supply system. Also see paragraph 9.8 Pneumatic diagram.

For connection and consumption details consult the "Technical Data". See fig. 15.



#### TAKE CARE

The compressed air should meet the following requirements:

- The size of the contaminated particles should not exceed 5 µm.
- The dew point should not exceed a maximum of 3 °C.
- It should not contain any chemically contaminated particles.
- The compressed air should be oilproof. Oil, water and contaminations in the compressed air cause defects and early wear.

The requirements above correspond with ISO8573-1, class:

- 3 for particles.
- 4 for water.
- 1 for oil.

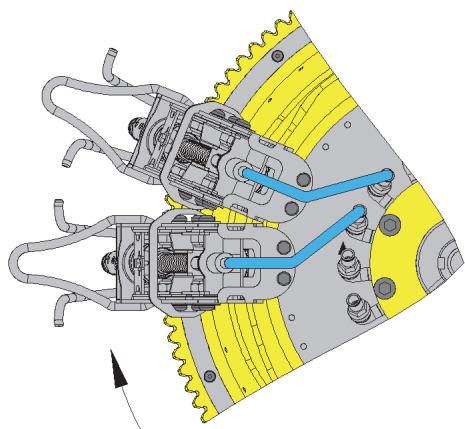


fig. 16 Distributor head hose connection

#### 5.2.4 Connecting the distributor head hose

Each unit has a compressed air hose attached at the time of manufacture. The air is important for correct functioning of the unit. Confirm they are all properly attached.

- Check the hose connections: they must be attached so the air comes on after the cloaca pin **4** starts down. See fig. 16 and fig. 17.

##### 5.2.4.1 Check the operation of the cloaca pin

Check the cloaca pin operation as follows:

1. Position the first unit at 235° to the upper cam by rotating the units.
2. Slowly advance the unit and verify that cloaca pin **4** starts to move down before the air comes on.
3. Continue checking all units.  
See fig. 17.

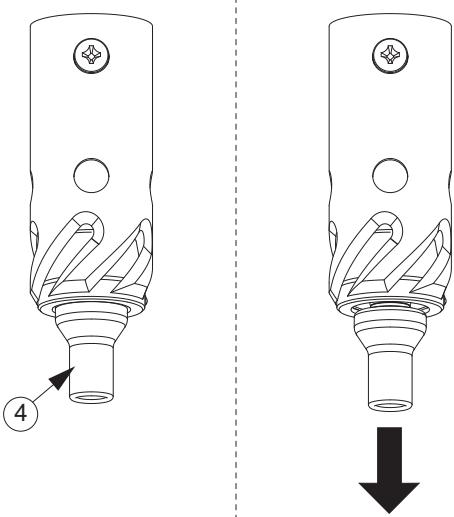


fig. 17 Cloaca pin position

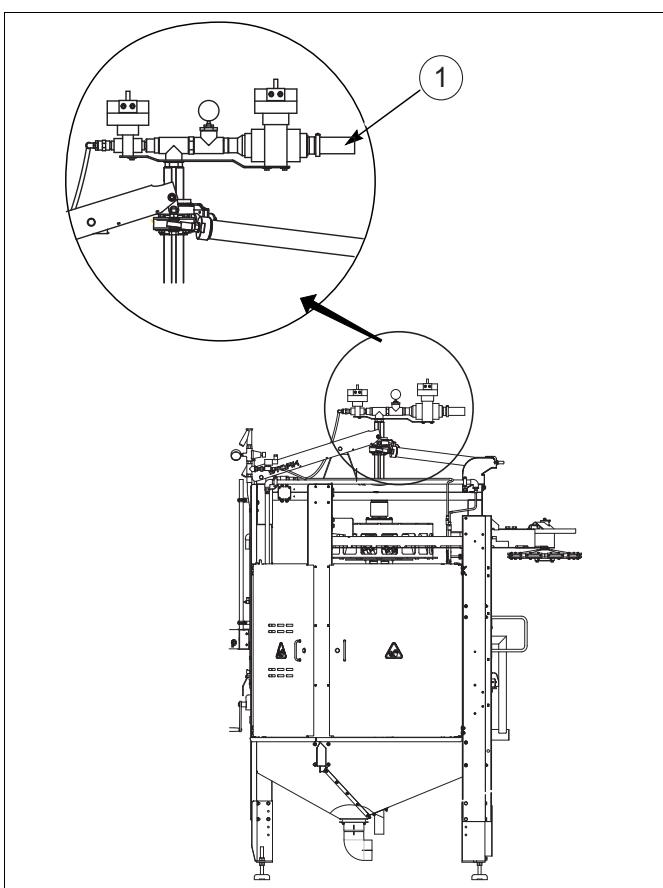


fig. 18 Connecting the vacuum

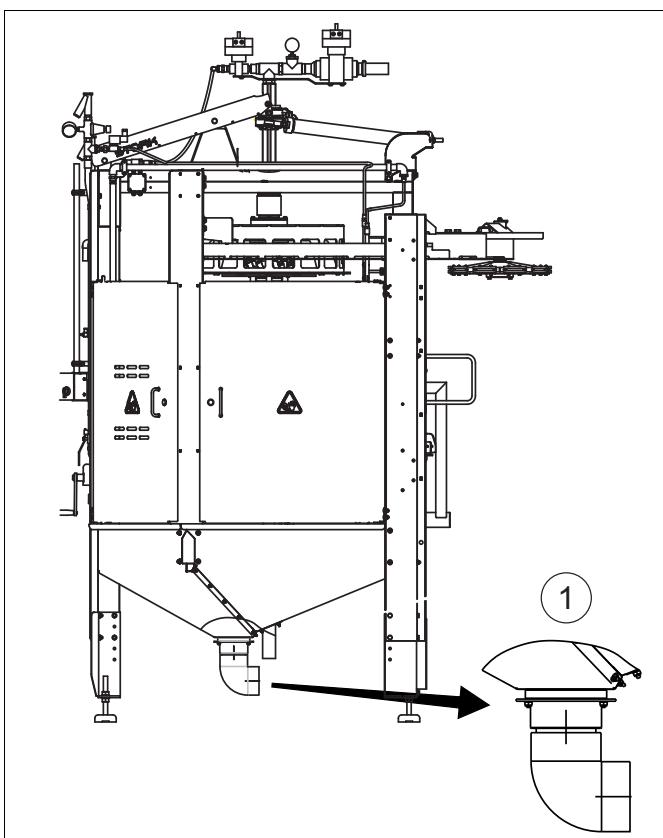


fig. 19 Discharge

### 5.2.5 Connecting the vacuum

The vent cutter uses vacuum to clean the end of the rectum.

- Connect point 1 to the vacuum system.  
For connection and consumption details consult the "Technical Data".  
See fig. 18.

### 5.2.6 Connecting the Discharge

A collecting bin collects the water for cleaning and lubricating the sections. The collecting bin has a central drain with flange connection 1. You can mount a pipe to this drain for the discharge of the waste water.  
For connection and consumption details consult the "Technical Data".  
See fig. 19.

## 5.3 Cleaning the machine after set-up

Clean the machine thoroughly before putting it into operation for the first time.

See paragraph 8 CLEANING.

## 6 SETTINGS



**MORTAL DANGER**  
Activities described in this chapter must be carried out by competent, professional and trained personnel.



**MORTAL DANGER**  
Activities described in this chapter must only be carried out if the power supply to the machine and/or control panel is switched off.

1. Switch off main switch(es) of the control panel(s)  
or  
remove all machine plugs from the wall sockets.
2. Lock the main switch(es) with a padlock.
3. Take all measures to prevent unintentional recovery of the power supply.
4. Proceed carefully during carrying out the work.



**NOTE**

The setting and adjustment data you read in the User's Manual are the basic settings. They may need changing to make the machine work better. Write down the old settings and the corrected settings in the appendix Settings.

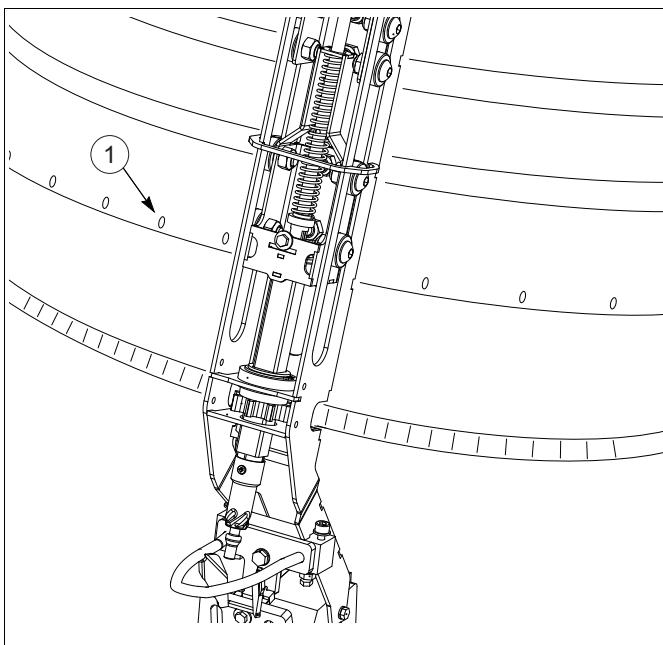


fig. 20 Curve location with marks

## 6.1 Curve location

Some settings are indicated as positions in relation to the main shaft.

The key way of the main shaft of the vent cutter has a  $180^\circ$  position in a machine running clockwise. This is  $0^\circ$  in a machine running counterclockwise.

Marks 1 have been applied every  $10^\circ$  to the contour of the vent cutter drum.

See fig. 20.

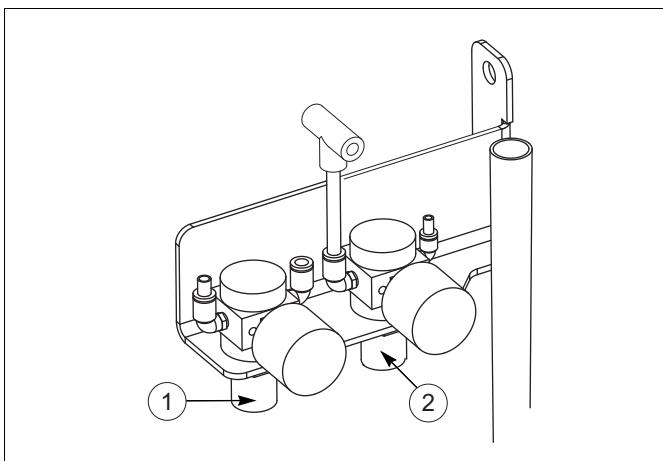


fig. 21 Setting the compressed air pressure

## 6.2 Setting the compressed air pressure

The correct compressed air pressure is important in connection with proper functioning of the machine and limiting wear to the pneumatic components.

Set the compressed air pressure as follows:

1. Pull out knob 1 to set the compressed air pressure for the pneumatic components.
2. Turn knob 1 until the correct operating pressure has been set ( $6-8$  bar =  $600 - 800$  kPa).
3. Press knob 1 back in.
4. Pull out knob 2 to set the compressed air pressure for cleaning the pin.
5. Turn knob 2 until the correct operating pressure has been set ( $1-1.5$  bar =  $100 - 150$  kPa).
6. Press knob 2 back in.

See fig. 21.

### 6.3 Moving the curve zero point

Moving the zero point of the curve affects the length of the rectum across the back of the product. The rectum has the correct length if the vent hangs over the back of the product below the hip.

See fig. 22



#### NOTE

This setting can cause a wrong infeed of the product tail.

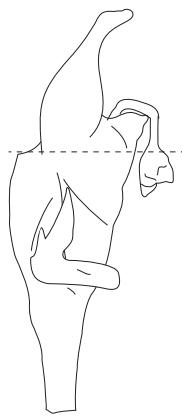


fig. 22 Position on the rectum

Move the zero point as follows:

1. Loosen nuts **2** of Safety **1**.
2. Move the Safety in the required direction:
  - in the direction of rotation of the machine to make the intestine longer.
  - opposite the direction of rotation of the machine to make the intestine shorter.
3. Tighten bolts **2**.



#### TAKE CARE

Proper functioning of the safety is crucial to prevent serious machine damage.

4. Check the correct functioning of the Safety. See paragraph 5.2.1.1 Connecting the safety's proximity switch.

See fig. 23.

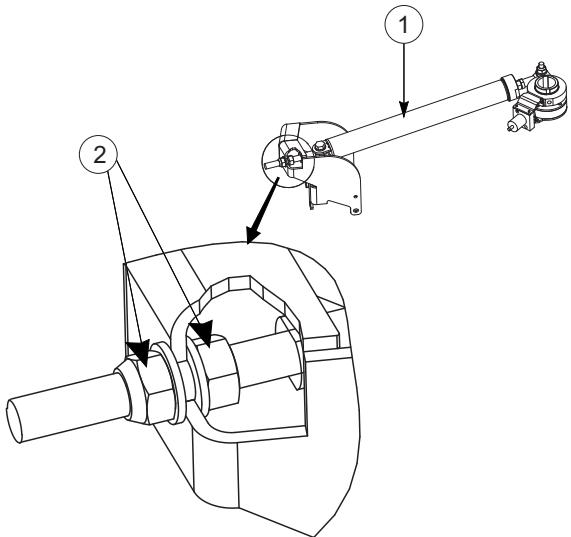


fig. 23 Moving the curve zero point

### 6.4 Setting the main shaft height

Proper positioning of the product requires proper setting of the main shaft height.



#### NOTE

Too high a position can cause the product legs to be lifted from the shackles.  
Too low a position can cause a wrong infeed of the product tail.



#### WARNING

Danger of injuries caused by knife.

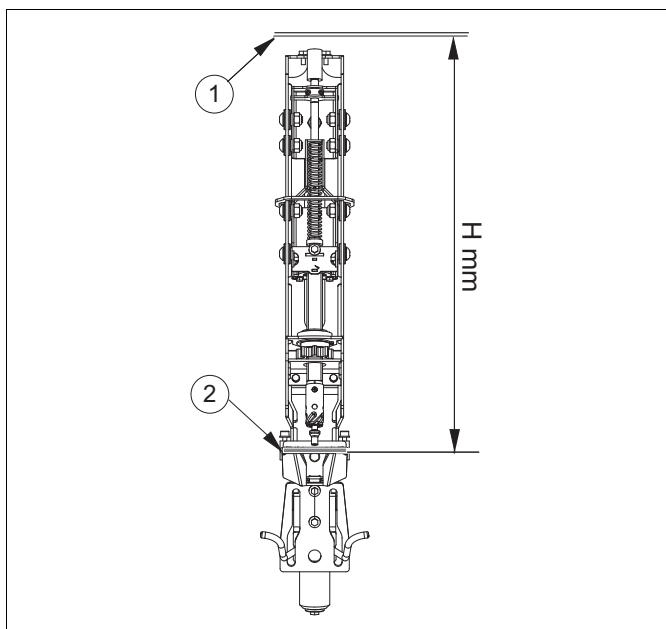


fig. 24 Setting the main shaft height

#### 6.4.1 When using 2 piece shackles

Set the height of the main shaft as follows:

1. Turn the handle of the height adjuster until there is **H** mm distance between the bottom of track profile **1** and the top of spreader brackets **2**.
2. Check during production if the products are positioned properly.

See fig. 24 and tab. 2.

tab. 2 Main shaft height in mm

Model	Distance H
VC-16 RS LD	690
VC-16 RS ND	690
VC-16 RS HD	690
VC-12 RS (8")	700
VC-15 RS (8")	700
VC-20 RS LD	690
VC-20 RS ND	690
VC-20 RS HD	690

#### 6.4.2 When using rigid shackles

Set the height so that the tip of the shackle **S** is 10 mm above the top of the spreader bracket **B**.

See fig. 25.

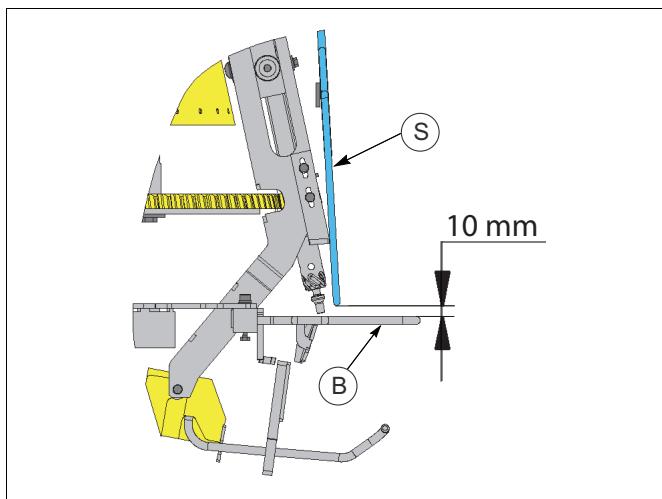


fig. 25 Setting the main shaft height, rigid shackles

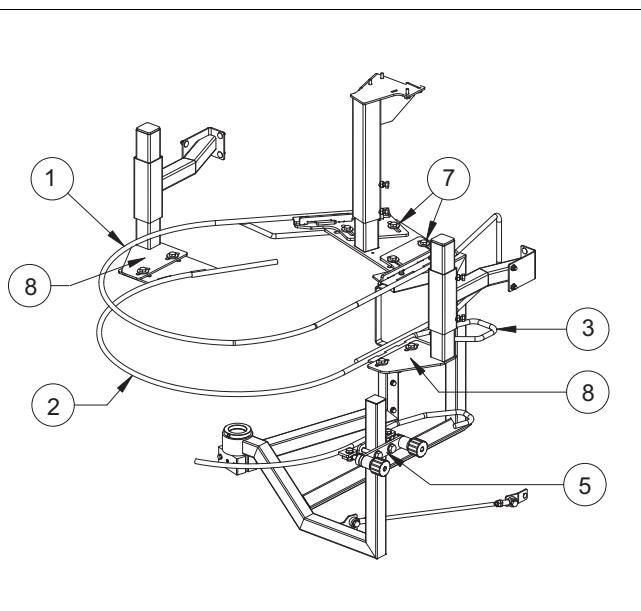


fig. 26 Vent cutter guides, 2 piece shackles

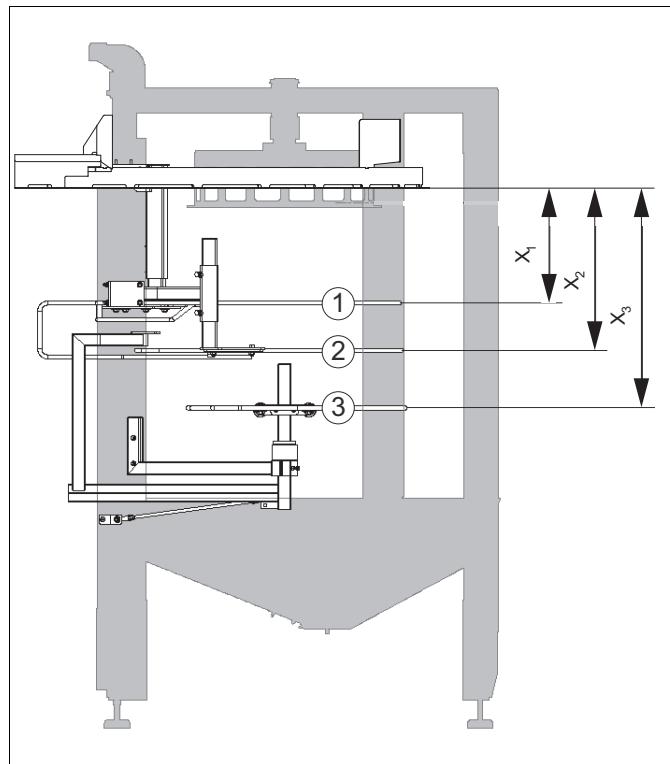


fig. 27 Setting the guides vertically

## 6.5 Setting the guides when 2-piece shackles are used

**NOTE**

The machine height has to be set before performing this procedure.

Different guides direct the shackles with products through the machine; the inside guide **1**, the outside guide **2** and the outside product guide **3**. See fig. 26.

**NOTE**

For the VC-15RS see paragraph 6.5.3 Setting the optional upper guide.

### 6.5.1 Vertical settings

Set inside guide **1**, outside guide **2** and outside product guide **3** as follows:

1. Check the machine height and make adjustments if required. See paragraph 6.4 Setting the main shaft height.
2. Loosen the bolts of height adjusters **5**, **7** and **8**.
3. Set the guides so the distance between the bottom of the track profile and the center of the guide corresponds with the data in tab. 3.
4. Tighten the bolts of height adjusters **5**, **7** and **8**. See fig. 27 and tab. 3.

tab. 3 Standard setting between the bottom of the track profile and the center of the guides in mm ( $\pm 5$  mm)

Model	X <sub>1</sub> : inside guide	X <sub>2</sub> : outside guide	X <sub>3</sub> : outside product guide
VC-16 RS LD	393	578	803
VC-16 RS ND	393	578	803
VC-16 RS HD	393	578	803
VC-12 RS (8")	393	578	803
VC-15 RS (8")	425	535	840
VC-20 RS LD			
VC-20 RS ND	393	578	803
VC-20 RS HD			

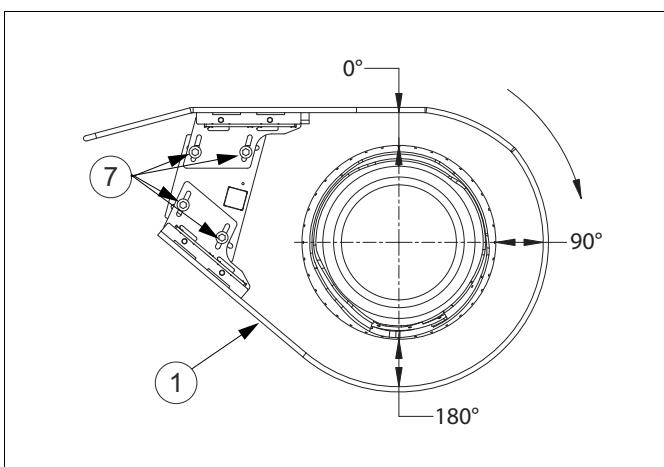


fig. 28 Setting the inside guide horizontally

### 6.5.2 Horizontal settings

The horizontal settings determine the distance between the center of the guides and the cam.

#### 6.5.2.1 Inside guide

Set inside guide 1 as follows:

1. Loosen bolts 7.
2. Set the guide so that the measured distances between the center of the guide and the cam correspond with the data in tab. 4.
3. Tighten bolts 7.

See fig. 28 and tab. 4.

tab. 4 Distances between the center of the inside guide and the cam in mm ( $\pm 5$  mm)

Model	0°	90°	180°
VC-16 RS LD	110	150	145
VC-16 RS ND	110	150	145
VC-16 RS HD	115	160	160
VC-12 RS (8")	145	155	145
VC-15 RS (8")	125	195	165
VC-20 RS LD			
VC-20 RS ND	150	170	150
VC-20 RS HD			

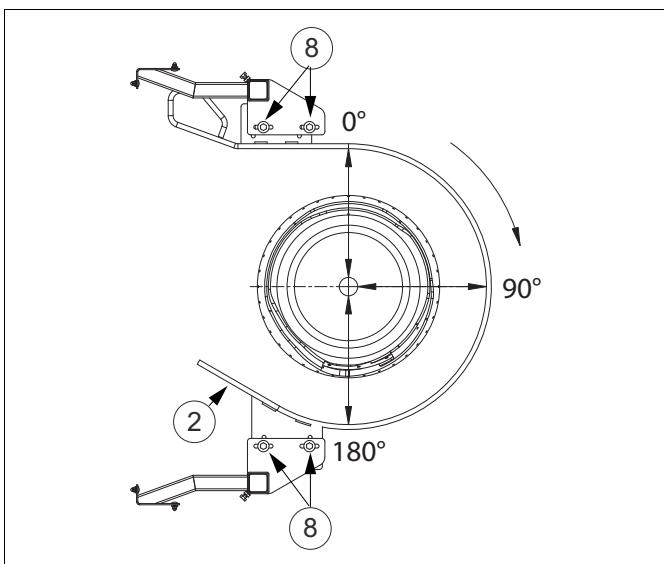


fig. 29 Setting the infeed guide horizontally

#### 6.5.2.2 Outside guide

Set outside guide 2 as follows:

1. Loosen bolts 8.
2. Set the guide so that the measured distances between the center of the guide and the main shaft correspond with the data in tab. 5.
3. Tighten bolts 8.

See fig. 29 and tab. 5.

tab. 5 Distances between the center of the outside guide and the main shaft in mm ( $\pm 5$  mm)

Model	0°	90°	180°
VC-16 RS LD	410	450	435
VC-16 RS ND	410	450	435
VC-16 RS HD	410	450	450
VC-12 RS (8")	450	450	450
VC-15 RS (8")	525	535	545
VC-20 RS LD			

tab. 5 Distances between the center of the outside guide and the main shaft in mm ( $\pm 5$  mm)

Model	0°	90°	180°
VC-20 RS ND	525	525	525
VC-20 RS HD			

#### 6.5.2.3 Outside product guide

Set outside product guide 3 as follows:

1. Loosen bolts 5.
2. Set the guide so that the measured distances between the center of the guide and the main shaft correspond with the data in tab. 6.
3. Tighten bolts 5.

See fig. 30 and tab. 6.

tab. 6 Distances between the center of the outside product guide and the main shaft in mm ( $\pm 5$  mm)

Model	A	B
VC-16 RS LD	520	490
VC-16 RS ND	520	490
VC-16 RS HD	520	490
VC-12 RS (8")	550	550
VC-15 RS (8")	665	710
VC-20 RS LD	625	595
VC-20 RS ND	625	595
VC-20 RS HD	625	595

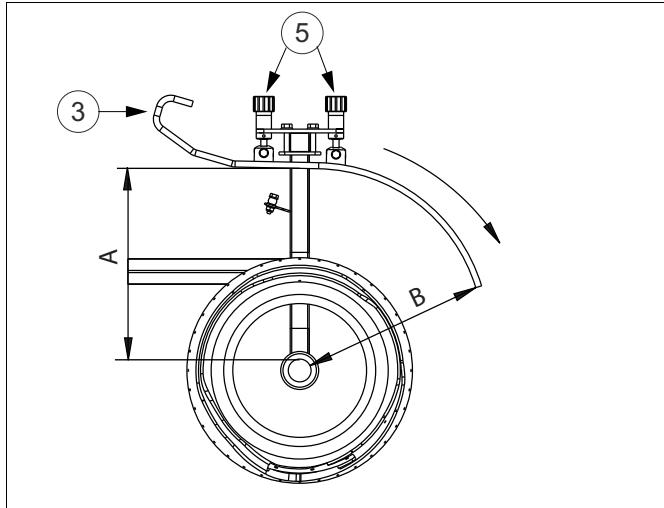


fig. 30 Setting the product guide horizontally

### 6.5.3 Setting the optional upper guide


**NOTE**

There is an optional upper guide on the VC-15 RS that must be adjusted.

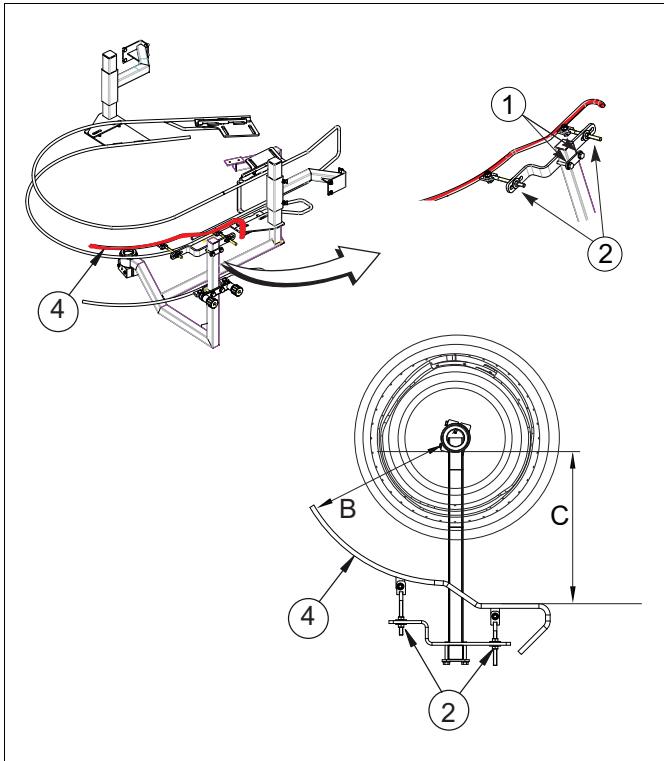


fig. 31 Setting the optional upper guide

Set upper guide **4** as follows:

1. Confirm the three basic guides are set according to paragraph 6.5 Setting the guides when 2-piece shackles are used.
2. Loosen the bolts of height adjusters **1** to adjust the height of the guide.
3. Set the guide so the distance between the bottom of the track profile and the center of the guide corresponds with **A** mm ( $\pm 5$  mm) in tab. 7.
4. Tighten the bolts of height adjusters **1**.

tab. 7 Setting optional upper guide distances in mm ( $\pm 5$  mm)

Model	<b>A</b> Height in mm	<b>B</b> in mm	<b>C</b> in mm
VC-15 RS (8")	655	535	600

5. Loosen the bolts of adjusters **2** to set the horizontal distances from the main shaft. The guide bar can be moved in and out as well as side to side to get the final settings.
6. Adjust the guide according to the settings in tab. 7, settings **B** and **C**.
7. Tighten bolts **2**.

See fig. 31, fig. 32 and tab. 7.

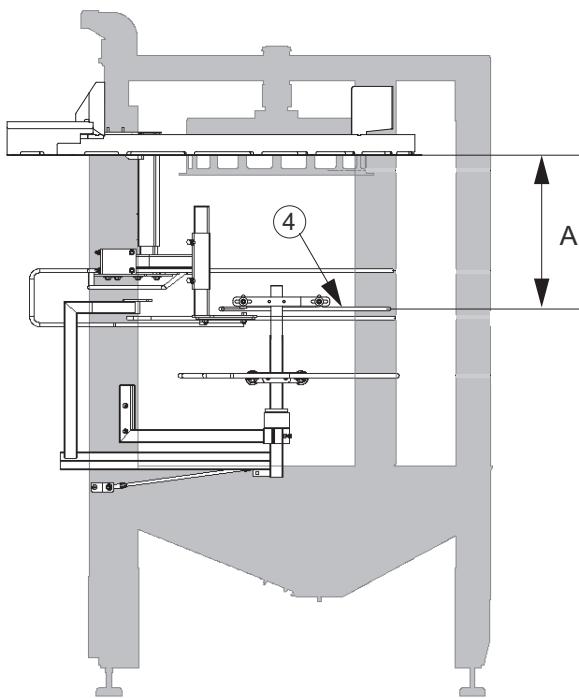


fig. 32 Setting the optional guide vertically

## 6.6 Setting the guides when rigid shackles are used



### NOTE

The machine height has to be set before performing this procedure.

Different guides direct the shackles with products through the machine; the inside guide 1, lower inside guide 2, the infeed guide 3 and the product guide 4. See fig. 33.

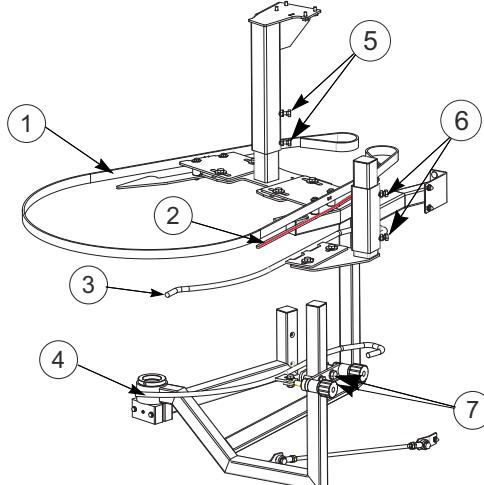


fig. 33 Vent cutter guides, rigid shackles

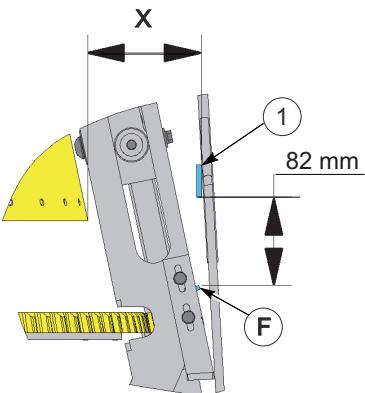


fig. 34 Vertical setting of the inside guide

### 6.6.1 Setting inside guide height

Set inside guide 1 height as follows:

1. Check the machine height and make adjustments if required. See paragraph 6.4 Setting the main shaft height.
2. Loosen bolts 5.
3. Confirm that the distance between the face of guide 1 and the frame edge F is 82 mm.
4. Tighten bolts 5 after setting is correct.

See fig. 34.

### 6.6.2 Setting inside guide radially

Set inside guide 1 relative to the cam as follows:

1. Loosen bolts 8 in the slots of the supports of the inside guide 1.
2. Adjust the guide in or out to meet the distances X shown in tab. 8.
3. Tighten bolts 8.

See fig. 34, fig. 35 and tab. 8.

tab. 8 Setting the horizontal (radial) position

Rigid Shackle 24-32"/348 chain	X in mm			
	0°	45°	90°	180°
1/4" or 6mm pen- dant- "L" clip	122- 125	122- 125	122- 125	115- 117
2 plate clevis pen- dant- "L" clip	113- 115	113- 115	113- 115	115- 118
Hook type attach- ment	105- 107	105- 107	105- 107	110- 112

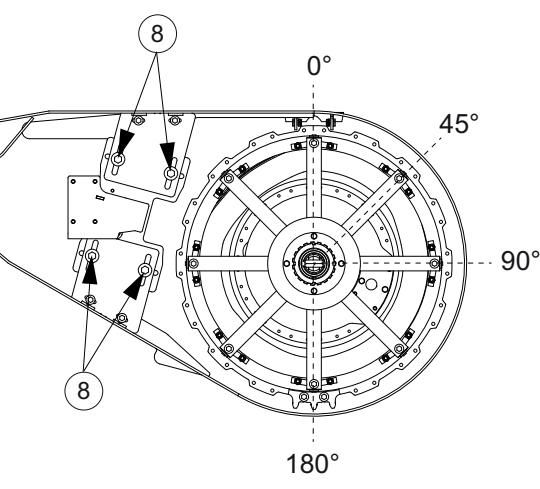


fig. 35 Inside guide position

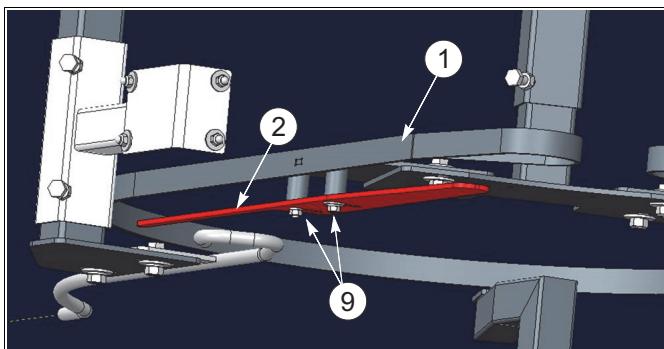


fig. 36 Lower inside guide radial settings

### 6.6.3 Setting lower inside guide

**NOTE**

The goal of this setting is to leave the shackle hanging vertically at 3-4° when finished.

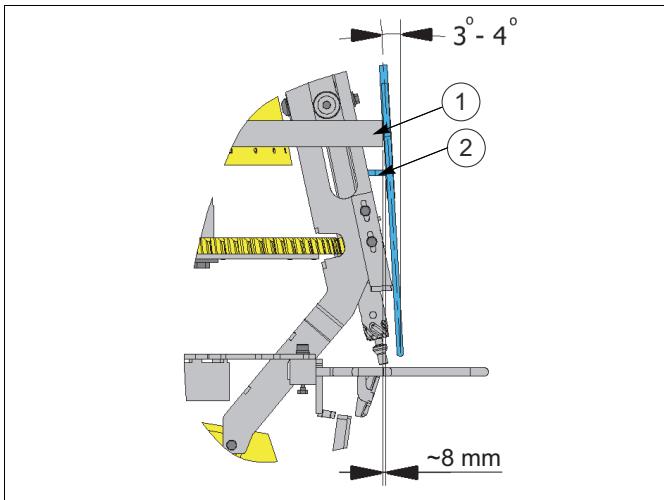


fig. 37 Lower inside guide (below infeed guide)

Set the lower inside guide **2** as follows:

1. Ensure the tip of the lower inside guide **2** is at the 0° point of the cam (see fig. 35).
2. Loosen bolts **9**.
3. Adjust the lower inside guide **2** out towards the shackle, approximately 8 mm away from the vertical face of the inside guide bar (this is intended only to be a starting point).
4. Set the guide so that the shackle hangs vertically 3-4°.
5. Tighten bolts **9**.

See fig. 35, fig. 36 and fig. 37.

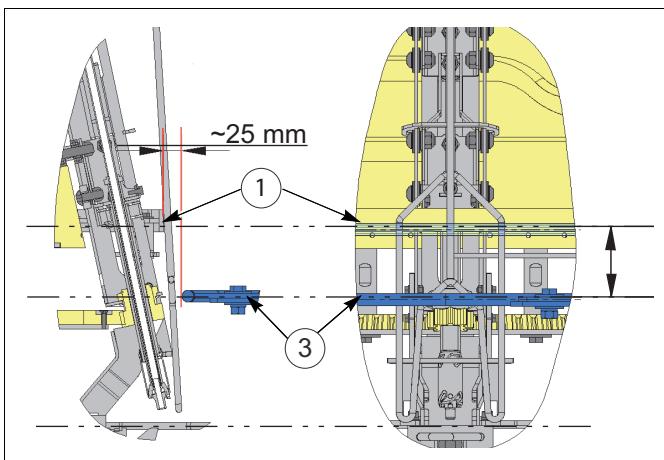


fig. 38 Infeed guide placement (side and front views)

### 6.6.4 Setting the infeed guide vertical distance

The vertical height of the infeed guide **3** is not critical, but it must be set between the center of the inside guide **1** face and the inside bend of the shackle yoke, as shown in fig. 38.

To set the infeed guide **3** height:

1. Loosen bolts **6**.
2. Raise or lower the infeed guide **3** so it is between the center of the inside guide **1** and the inside bend of the shackle yoke.
3. Tighten bolts **6**.

See fig. 38 and fig. 39.

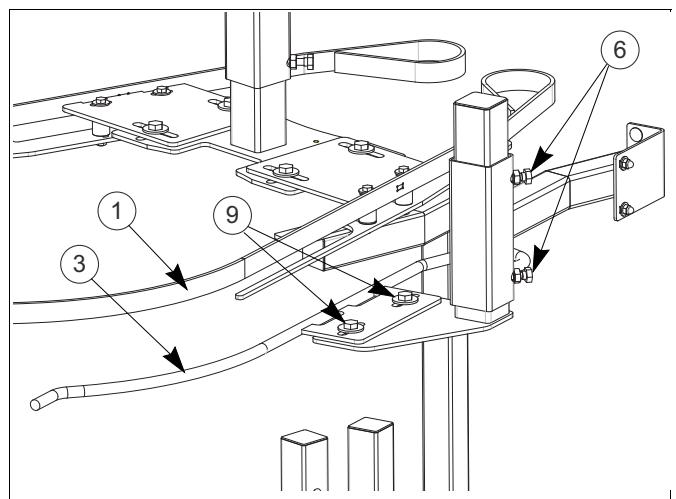


fig. 39 Infeed guide adjusting

#### 6.6.5 Setting the infeed guide horizontal distance

The horizontal distance between the inside guide 1 face and the infeed guide 3 is approximately 25 mm to allow for crossed shackles.

To set the infeed guide 3 horizontal distance:

1. Loosen bolts 9.
  2. Slide in or out until the infeed guide 3 is approximately 25 mm from the inside guide 1.
  3. Tighten bolts 9.
- See fig. 38 and fig. 39.

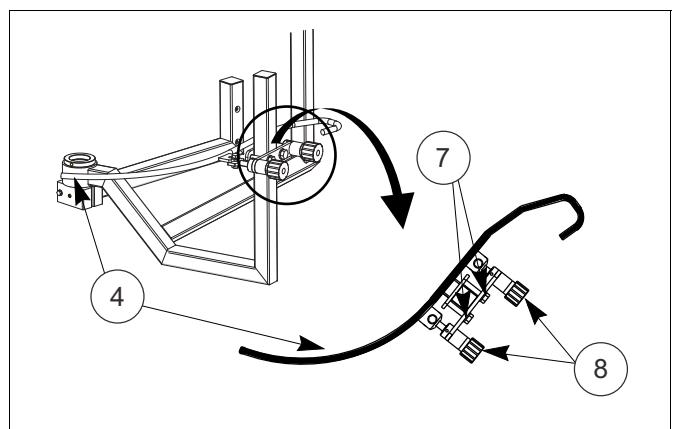


fig. 40 Product guide adjusters

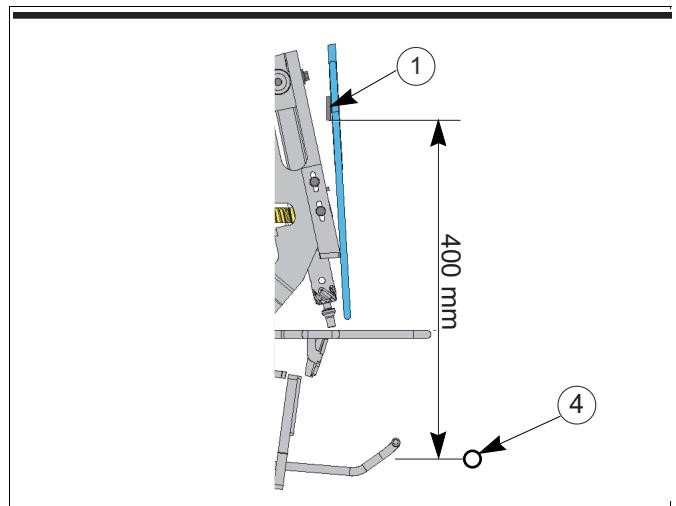


fig. 41 Product guide height setting

#### 6.6.6 Product guide

The product guide 4 is set so the product moves smoothly through the machine.

To set the height of the product guide;

1. Loosen bolts 7.
  2. Move guide bracket up or down until the product guide 4 is 400 mm below the bottom of the inside guide 1.
  3. Tighten bolts 7.
- See fig. 40 and fig. 41.

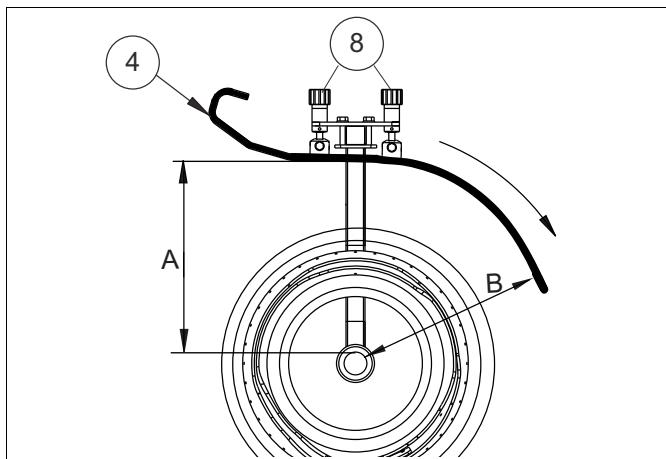


fig. 42 Setting the product guide radial distances

### 6.6.7 Setting the product guide radial distances

Set product guide 4 radial distance as follows:

1. Loosen bolts 8.
  2. Set the guide so that the measured distances between the center of the guide and the main shaft correspond with the data in tab. 9.
  3. Tighten bolts 8.
- See fig. 42 and tab. 9.

tab. 9 Setting the product guide radial distances in mm

Model	A	B
VC-16 RS	520	490

## 6.7 Setting the tail guide

If your machine has a tail guide, it will lead the bottom of the product near the vent cutter exit.



### NOTE

This is not an option on the VC-15RS model.

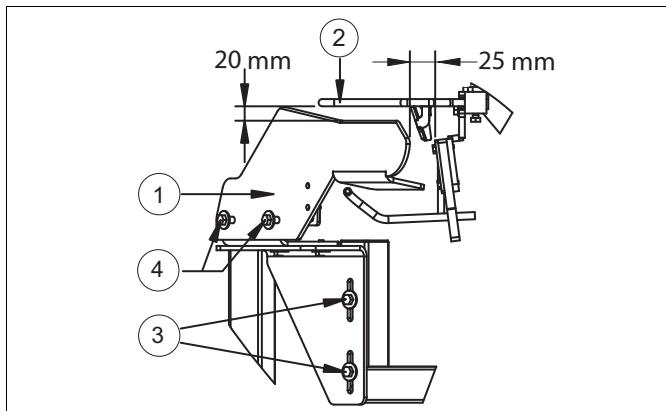


fig. 43 Setting the tail guide - vertical and horizontal

### 6.7.1 Vertical setting

Set the vertical position as follows:

1. Loosen bolts 3.
  2. Set tail guide 1 so there is a 20 mm distance between the bottom of spreader bracket 2 and the top of the tail guide.
  3. Tighten bolts 3.
- See fig. 43.

### 6.7.2 Horizontal setting

Set the horizontal position as follows:

1. Loosen bolts 4.
  2. Set tail guide 1 so there is a 25 mm distance between the tail guide and the back of spreader bracket 2.
  3. Tighten bolts 4.
- See fig. 43.

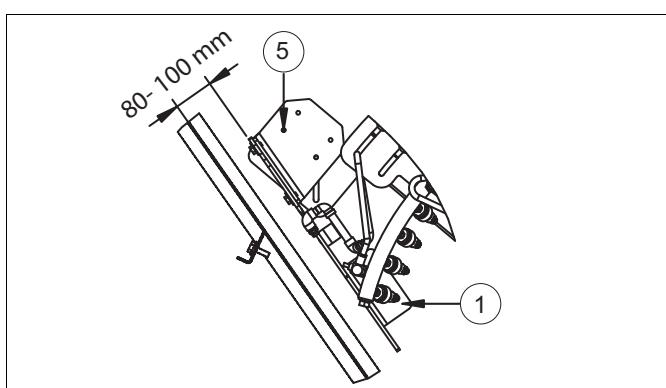


fig. 44 Setting the tail guide - width

### 6.7.3 Width setting

Set the width position as follows:

1. Loosen bolts 5.
  2. Set tail guide 1 so there is a 80-100 mm distance between the tail guide and the shackle.
  3. Tighten bolts 5.
- See fig. 44.

## 6.8 Setting the spreader brackets

The spreader brackets spread the legs so the vent blade can make a proper cut.



### TIP

Use the auxiliary tool that has been supplied with the machine for setting operations.

Set the spreader brackets as follows:

1. Disconnect the machine from the conveyor. See paragraph 9.2 Disconnecting and connecting the machine from the overhead conveyor.
2. Check the machine height and make adjustments if required. See paragraph 6.4 Setting the main shaft height.

### WARNING

Danger of injuries caused by blade.

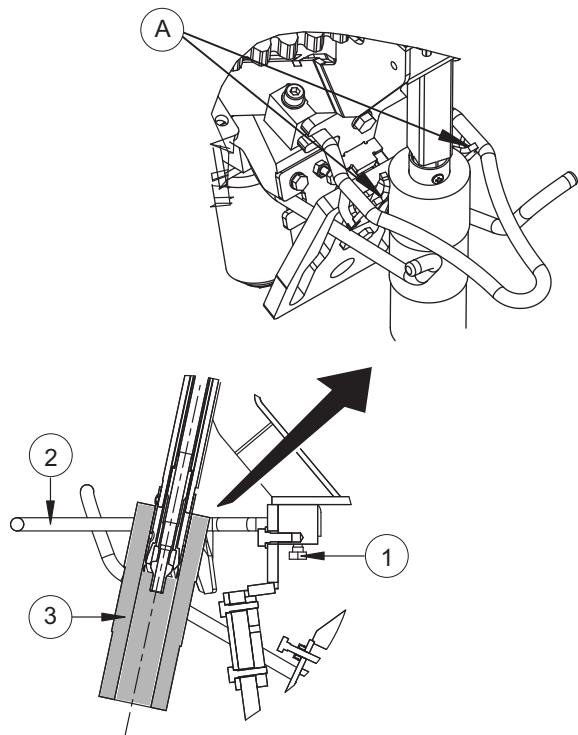


fig. 45 Setting the spreader brackets

3. Loosen bolt **1** a few turns.
4. Slide auxiliary tool **3** with the correct drilling over the vent blade. The spreader brackets should touch the tool in areas **A**. See fig. 45 (top).
5. Put spreader bracket **2** against the required section of the auxiliary tool **3**.
6. Tighten bolt **1**.
7. Set the other spreader brackets.

See fig. 45 and tab. 10.

tab. 10 Dimensions of the auxiliary tool in mm

Model	Drilling	Section of the auxiliary tool
VC-16 RS LD	23	13
VC-16 RS ND	28	13
VC-16 RS HD	28	14
VC-12 RS (8")	31	13
VC-15 RS (8")	34	13
VC-20 RS LD	23	13
VC-20 RS ND	28	13
VC-20 RS HD	28	14

## 6.9 Setting the hip lifters

At a pre-set moment the product is pressed against the back plate. The hip lifters must be at a maximum height at these positions.

### 6.9.1 Setting the lifting position

Set the lifting position as follows:

1. Put the unit at the correct position in relation to the cam according to tab. 11. Also see paragraph 6.1 Curve location.

tab. 11 Unit position to set hip lifters

Model	Position
VC-16 RS	25°
VC-12 RS (8")	25°
VC-15 RS (8")	30°
VC-20 RS	25°

2. Loosen bolts 3 (4x).



**NOTE**

When turning the lower curve 2, the height adjustment must not change (blockage).

3. Turn lower curve 2 until lifters are held at the maximum height.
4. Tighten bolts 3.

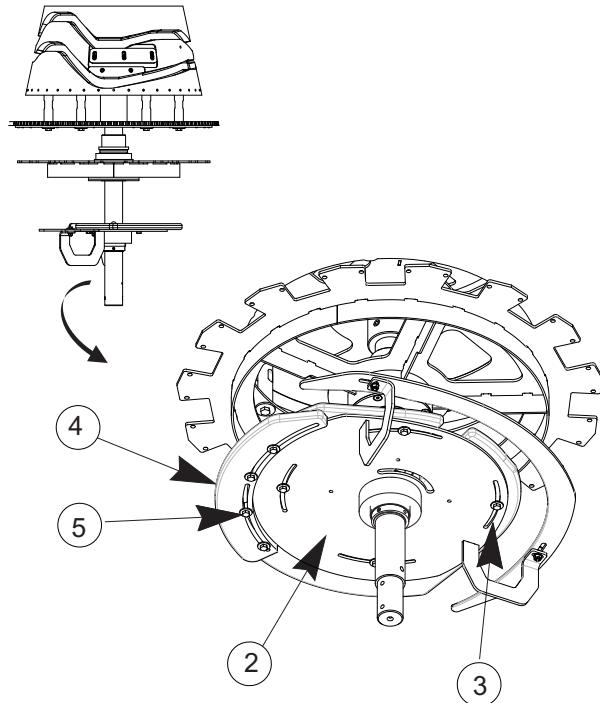


**NOTE**

The rolls (bottom of the units) must not be blocked. Check if the hip lifter is pressed down far enough so it will not touch the tail guide.

5. Loosen bolts 5 (4x). Set the rotation of the secondary cam 4 so that the lifters are held up until the blade has gone to full depth and is starting to back up.
  6. Tighten bolts 5.
- See fig. 46 and tab. 11.

fig. 46 Setting the lifting position



### 6.9.2 Setting the height

The height of lower curve **2** determines the height of the hip lifters.

Set the height of the hip lifters as follows:

1. Set the lifting position of the hip lifters. See paragraph 6.9.1 Setting the lifting position.

**WARNING**

Danger of injuries caused by blade.

2. Put the unit at 90°. See paragraph 6.1 Curve location.
3. Loosen socket-head screws **1** (2x).
4. Put lower curve **2** at the correct height by turning ring **3**.
5. Check if the height of the hip lifters corresponds with the data in tab. 12.

**NOTE**

The hip lifters must just miss the spreader bracket on either side.

tab. 12 Standard settings in mm

Model	Distance x
VC-16 RS LD	120
VC-16 RS ND	125
VC-16 RS HD	135
VC-12 RS (8")	150
VC-15 RS (8")	150
VC-20 RS LD	115
VC-20 RS ND	120
VC-20 RS HD	122

6. Tighten socket-head screws **1** (2x). See fig. 47, fig. 48 and tab. 12.

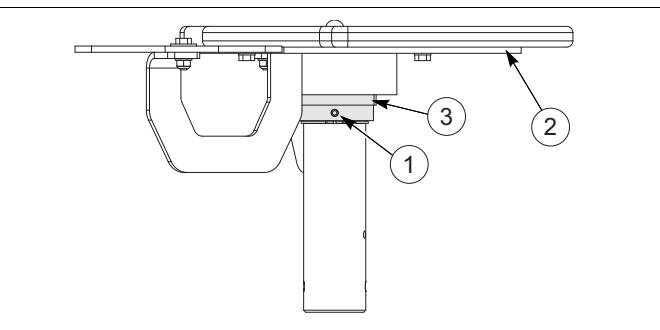


fig. 47 Setting the hip lifters height

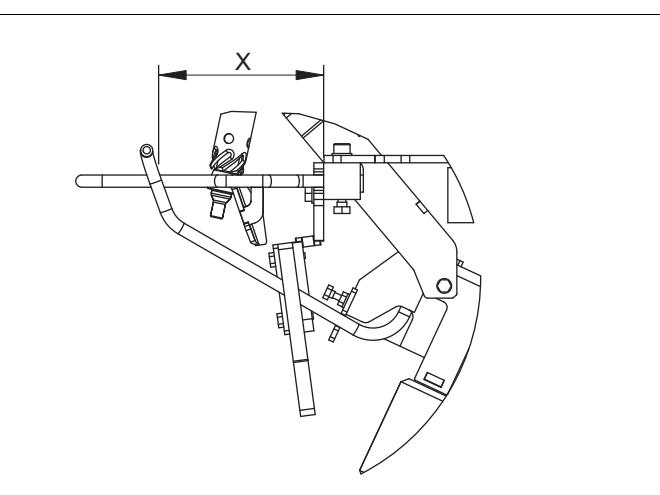


fig. 48 Distance measures for the height adjustment

## 6.10 Setting the cutting units in relation to the shackle

Proper positioning of the product requires the vent cutter to be ahead of the shackle.

Carrier pin **1** makes the connection between the drive wheel driven by the overhead conveyor and the unit wheel. The position of the units/shackle is adjusted by adjusting plate **3**.

Set the cutting unit as follows:

1. Loosen bolts **2** a few turns.
2. Adjust the plates on the drive wheel so that the timing of the shackle is according to tab. 13.

tab. 13 Timing settings in mm

Shackle type	<b>T ± 1</b>
Marel Poultry ES Nuova	30
Marel Poultry NU-Tech	35
Marel Poultry Kill	-
Meyn	50
Rigid 24"- 32"	16

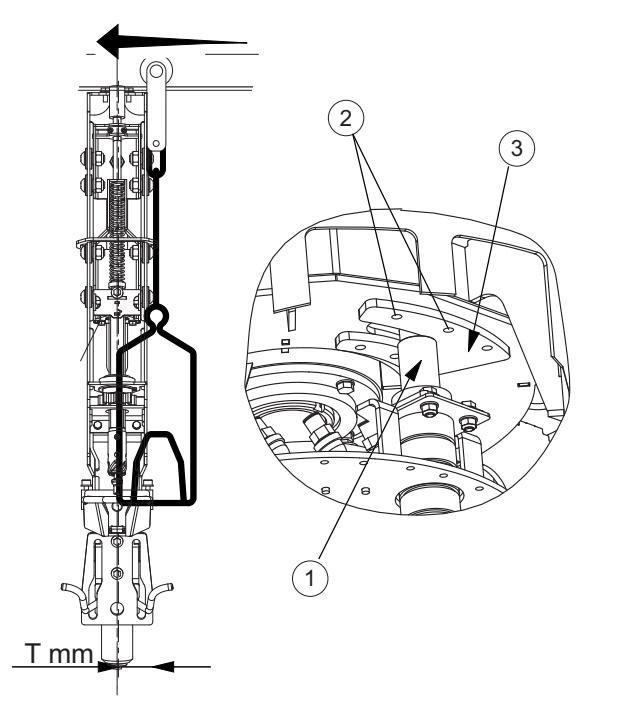


fig. 49 Unit/shackle position

3. Tighten bolts **2**.
4. Check if the products are positioned properly. See fig. 49 and tab. 13.

## 6.11 Setting the pin height in relation to the clamp

The height of the descending hollow pin is important for clasping the vent correctly.

Set the height of the pin as follows:

**WARNING**  
Danger of injuries caused by blade.

- Put the leading edge of the unit frame 1 in the center of the hole 2 located at 121°.

**NOTE**

As a reference dimension, the distance from the bottom of the clamp to the bottom of the pin is 20 mm.

- Loosen bolts 3.
- Push pin 4 up until the shoulder on pin 4 presses ring 5 against the internal shoulder on clamp 6.
- Tighten bolts 3.  
See fig. 50.

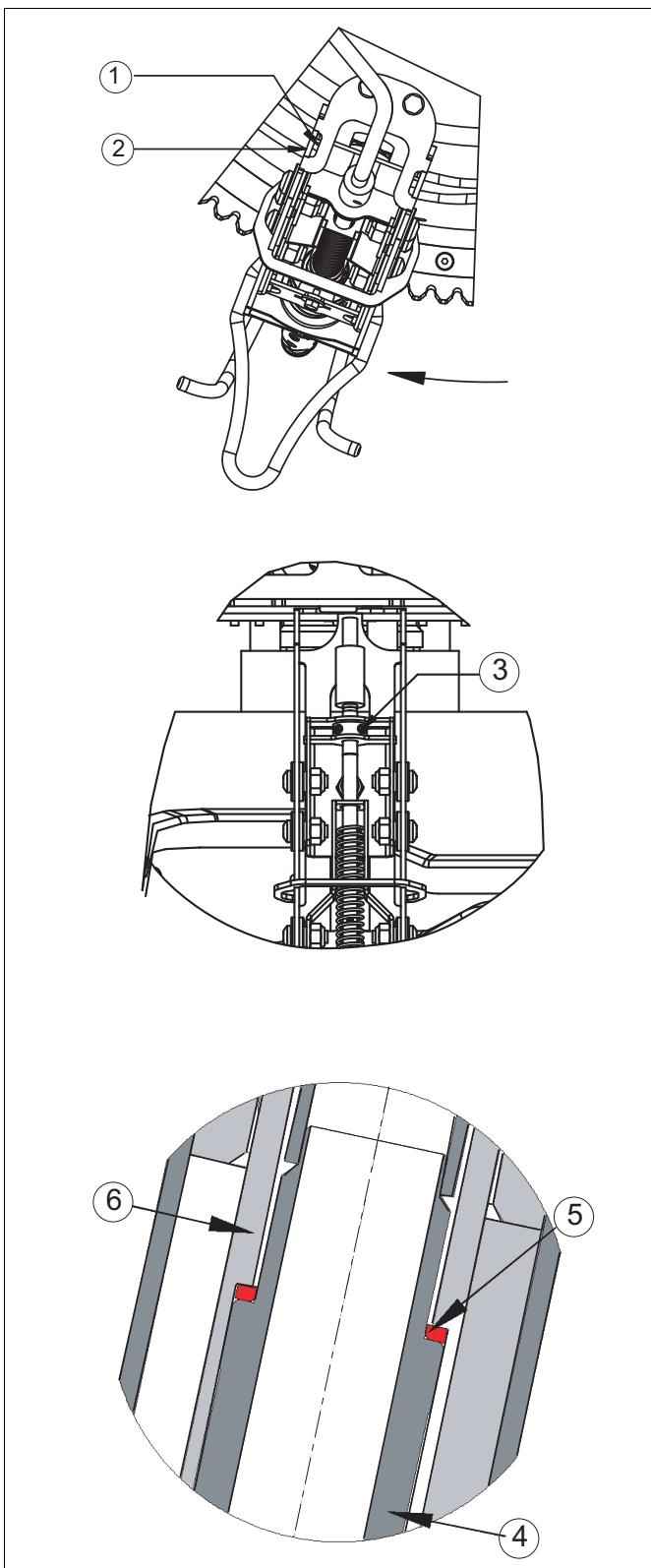


fig. 50 Setting the pin height

## 6.12 Setting the position of the clamp in relation to the blade

The position of the clamp determines the volume to be drilled out. The clamp's position can be set by means of an insert segment 1 attached to the curve slot.



**NOTE**

The setting of the position of the clamp affects the degree of intestine damage.

Set the position of the clamp as follows:



**WARNING**

Danger of injuries caused by blade.

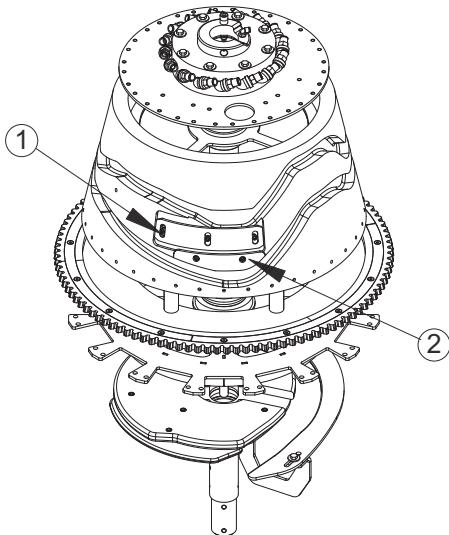


fig. 51 Setting the position of the clamp

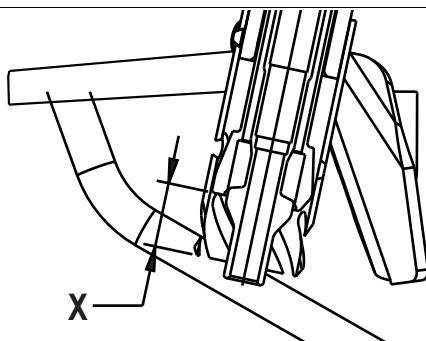


fig. 52 Clamp in blade

1. Loosen the 3 bolts in insert segment 1.

2. Set the position according to tab. 14.

3. Tighten the 3 bolts in insert segment 1.

See fig. 51, fig. 52 and tab. 14.

tab. 14 Settings of the clamp/blade position in mm

Model	Height x
VC-16 RS LD	14
VC-16 RS ND	16
VC-16 RS HD	16
VC-12 RS (8")	23
VC-15 RS (8")	18
VC-20 RS LD	14
VC-20 RS ND	16
VC-20 RS HD	16

## 6.13 Setting the blade depth



**NOTE**

The machine is shipped with extra blade-depth inserts **2**.

After initial start-up, the installation team will determine which blade-depth insert **2** is best for processing the product, and the installation team will perform a one-time installation and set-up with the correct insert.



**NOTE**

Keep extra blade-depth inserts in case your processed product changes and adjustment may be necessary.

See fig. 51.

## 6.14 Setting the spring tension of the hip lifters

A spring lifts the hip lifters. This is done with an adjustable force.

Set the spring tension as follows:



**WARNING**

Danger of injuries caused by blade.

1. Put the unit in position between 20° and 30°. Also see paragraph 6.1 Curve location.
2. Set distance **X** between nut **1** and bolt **2** according to tab. 15.

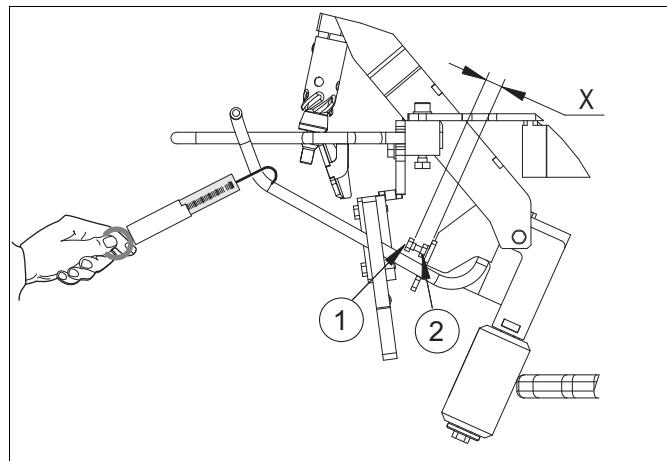


fig. 53 Hip lifters spring tension

tab. 15 Settings of the hip lifter spring tension in mm

Model	Distance X
VC-16 RS LD	19
VC-16 RS ND	19
VC-16 RS HD	19
VC-12 RS (8")	15
VC-15 RS (8")	15
VC-20 RS LD	19
VC-20 RS ND	19
VC-20 RS HD	19

3. Also set the spring tension for the other units. See fig. 53 and tab. 15.

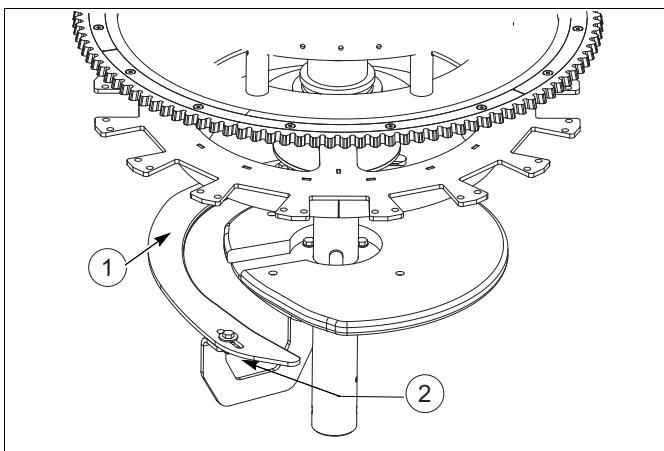


fig. 54 Hip lifters down holder

## 6.15 Setting the down holder of the hip lifters

Down holder 1 has been mounted to lower curve 2. The down holder positions the hip lifters so:

- the processed products can be unloaded at the exit.
- the unprocessed products can enter at the infeed.
- the hip lifters cannot come into contact with the tail guide.

Set the down holder as follows:

1. Put the unit in the position where the processed products leave: between 240° and 270°. Also see paragraph 6.1 Curve location.
2. Loosen bolts 2 (2x).
3. Turn down holder 1 so the hip lifters arrive at a low position.
4. Tighten bolts 2 (2x).

See fig. 54.

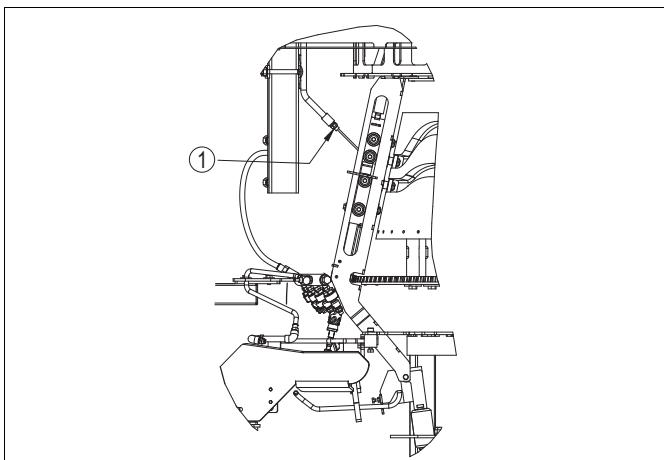


fig. 55 Upper unit tail guide spray nozzle

## 6.16 Setting the spray nozzles

The vent cutter has two spray pipes:

- one spray pipe 1 for lubricating the unit.
- one with five adjustable spray nozzles 2 for cleaning the machine components that come into contact with the product plus spray pipe 3, which helps position the vent in preparation for the opener.

See fig. 55 through fig. 58.

### 6.16.1 Spray nozzle for the lubrication of the unit

Set full jet spray nozzle 1 so the jet is aimed at the drum and the bearings.

See fig. 55.

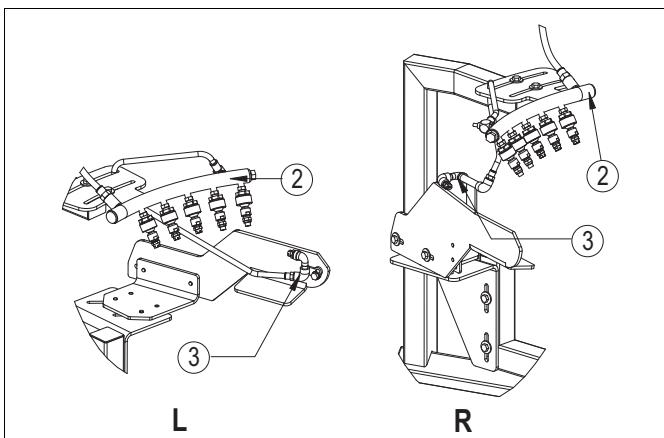


fig. 56 Spray nozzles

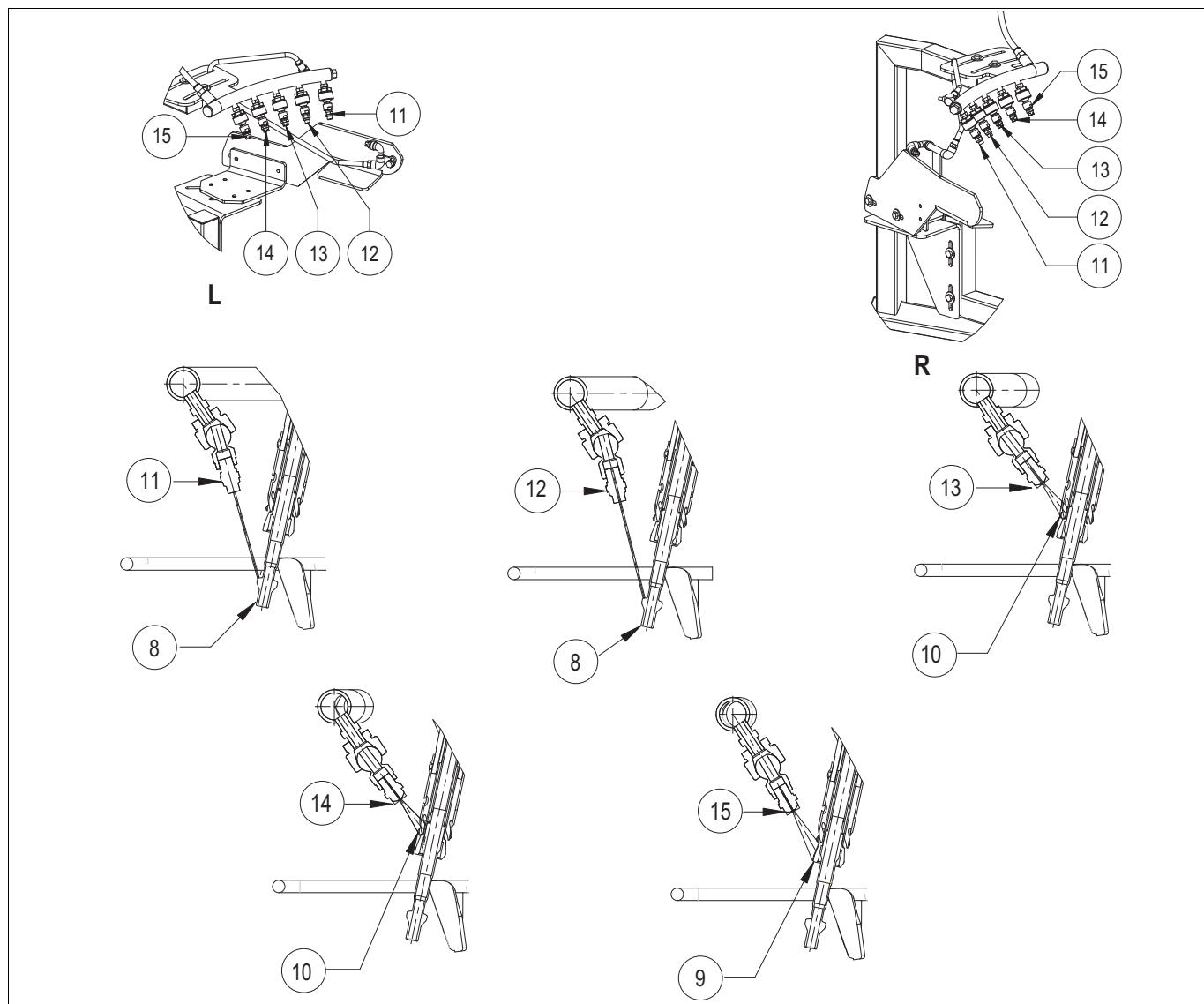


fig. 57 Setting the spray nozzles

### 6.16.2 Spray nozzles for cleaning the machine components

Set the spray nozzles in spray pipe 2 with the five adjustable spray nozzles horizontally as follows:

- Aim fan jet spray nozzle 11 and 12 at the top of the swelling of pin 8.
- Aim fan jet spray nozzle 13 at the bottom cutting sides of the vent blade 10.
- Aim fan jet spray nozzle 14 at the top cutting sides of the vent blade 10.
- Aim fan jet spray nozzle 15 at the end of the vent clamp 9.

See fig. 57.

### 6.16.3 Spray nozzle at the tail guide

Set the spray nozzle as follows:

1. Aim spray nozzle 3:
  - forward in a left-hand execution **L**.
  - backward in a right-hand execution **R**.

See fig. 58.

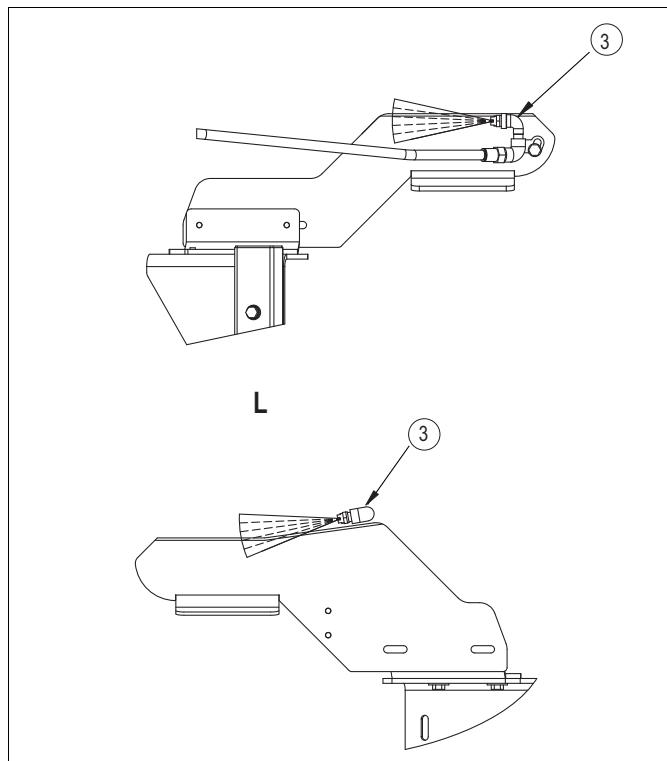


fig. 58 Setting the tail guide spray nozzle

## 7 OPERATION

The following instructions apply if the control panel is provided by the manufacturer and it is connected in accordance with the manufacturers electrical diagrams.



**MORTAL DANGER**  
Activities described in this chapter must be carried out by competent, professional and trained personnel.

**WARNING**

First read paragraph 7 OPERATION before processing products.

### 7.1 Emergency stop



**NOTE**

Only use the emergency stop in an emergency situation. For routine stops, see paragraph 7.2 Starting and stopping the machine

In case of an emergency:

- pull the emergency stop cord.
- press the emergency button.

See fig. 59 and fig. 60.

When the emergency stop has been operated the overhead conveyor/eviscerating system stops. An alarm report appears on the Control Panel, see User's Manual "Overhead Conveyor" (90714 or 90727).

Solve the emergency as follows:

1. Have an authorized person solve the emergency.



**MORTAL DANGER**  
Make sure that nothing is done on the machine until the emergency stop is released.  
Warn everybody near the machine before you start the machine again.

2. Unblock the emergency stop. See User's Manual "Overhead Conveyor" (90714 or 90727) and User's Manual "Emergency Stop Provisions" (90839).
3. Proceed with processing products, see paragraph 7.2 Starting and stopping the machine.

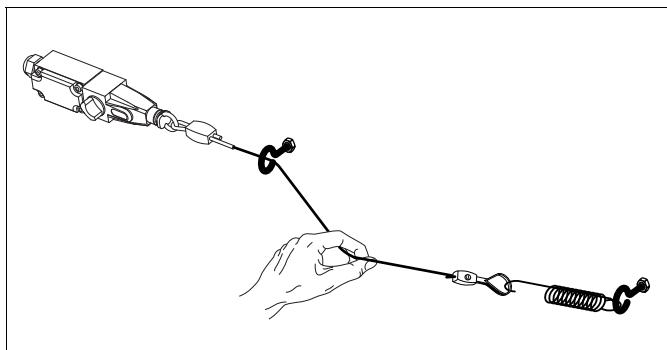


fig. 59 Emergency stop cord

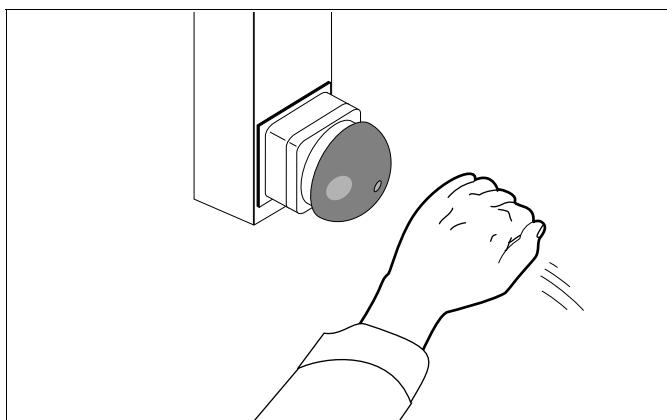


fig. 60 Emergency stop button

## 7.2 Starting and stopping the machine

**NOTE**

**Before putting the machine in operation:**  
The machine is driven by an overhead conveyor and is switched on and off at the same time.

### 7.2.1 Starting the production line

Put the line in operation as follows:

1. Close the guard. See paragraph 7.3 Closing/opening the guard.
2. Put the valves in the water supply in the correct position. See paragraph 7.4 Operating the water supply.
3. Operate the pneumatic vacuum valve. See paragraph 7.5 Operating the pneumatic vacuum valve.

**DANGER TO LIFE**

**Before starting the overhead conveyor, make sure that the guards are closed and have been locked with a key.**

4. See User's Manual "Overhead Conveyor" (90714 or 90727) on starting and stopping the machine.

### 7.2.2 Stopping the production line

Put the line out of operation as follows:

1. See the User's Manual "Overhead Conveyor" (90714 or 90727).
2. Switch the pneumatic vacuum valve off. See paragraph 7.5 Operating the pneumatic vacuum valve.
3. Put the valves in the water supply in the correct position. See paragraph 7.4 Operating the water supply.

## 7.3 Closing/opening the guard

The vent cutter has hinged guards. Open and close/lock the guards with the special key supplied by the manufacturer.

See fig. 61.

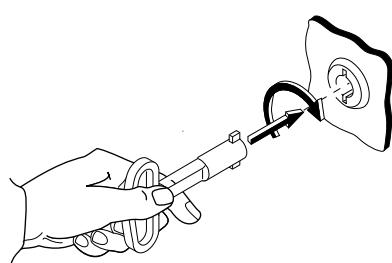


fig. 61 Closing and opening the guard

## 7.4 Operating the water supply

The vent cutter has manually operated ball valves in the water supply pipes.

Operate the water supply as follows:

1. Open valve **1** before starting the overhead conveyor.
2. Put switch **3** in position "I".
3. Check to make sure valve **2** (hot water) is closed during operation.

See fig. 62 (top).

Clean the machine as follows:

1. After the machine has stopped, close valve **1**.
2. Open valve **2**.
3. Put switch **3** in position "0".

See fig. 62 (bottom).

## 7.5 Operating the pneumatic vacuum valve

The vent cutter has a switch **3** for operating the pneumatically operated vacuum valves (**A** & **B**) to prevent water from entering the vacuum pump.

Operate the switch as follows:

1. Put switch **3** in position "I" before starting the overhead conveyor and operations.
2. Put switch **3** in position "0" after the machine has stopped to clean the machine.



### NOTE

Vacuum valve **A** is operated simultaneously with pneumatic valve **B** in such a way that when **A** is open, **B** is closed and vice versa.

See fig. 62 (middle).

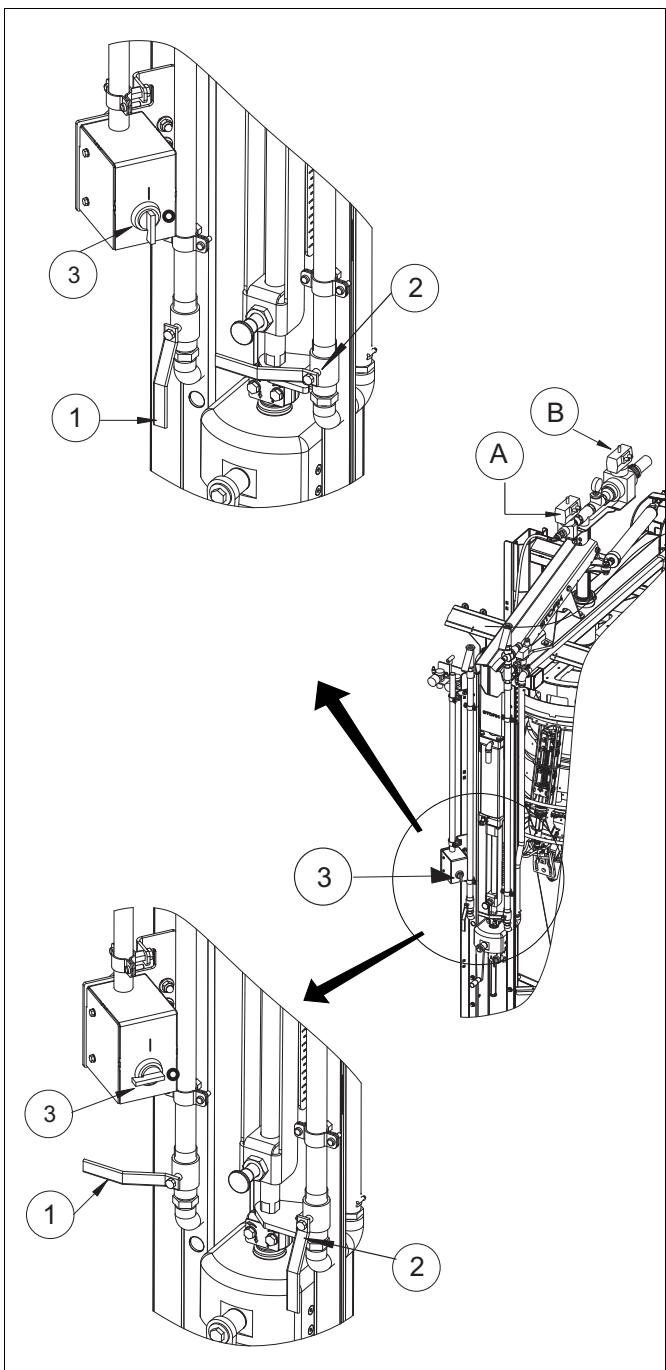


fig. 62 Water supply and Pneumatic vacuum valve

## 8 CLEANING



**MORTAL DANGER**  
Activities described in this chapter must be carried out by competent, professional and trained personnel.



**MORTAL DANGER**  
Activities described in this chapter must only be carried out if the power supply to the machine and/or control panel is switched off.

1. Switch off main switch(es) of the control panel(s)  
or  
remove all machine plugs from the wall sockets.
2. Lock the main switch(es) with a padlock.
3. Take all measures to prevent unintentional recovery of the power supply.
4. Proceed carefully during carrying out the work.



**NOTE**

Consult the User's Manual "Cleaning and Disinfection" (90811).

### 8.1 Cleaning after production

Open the machine guards for cleaning. See paragraph 7.3 Closing/opening the guard.

Carry out the cleaning instructions as follows:

1. Clean the entire machine thoroughly both inside and out each day. Also see the User's Manual "Cleaning and Disinfection" (90811).
2. Put the switch of the pneumatically operated valve in position "0". See paragraph 7.5 Operating the pneumatic vacuum valve.
3. Put the valves in the water supply in the correct position. See paragraph 7.4 Operating the water supply.

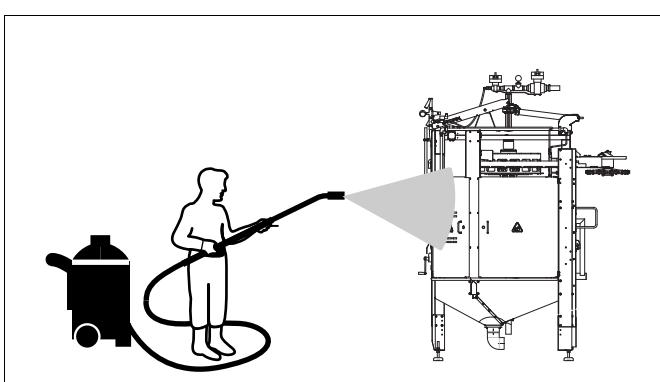


fig. 63 Cleaning

## 9 MAINTENANCE



**MORTAL DANGER**  
Activities described in this chapter must be carried out by competent, professional and trained personnel.



**MORTAL DANGER**  
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1. Switch off main switch(es) of the control panel(s)  
or  
remove all machine plugs from the wall sockets.
2. Lock the main switch(es) with a padlock.
3. Take all measures to prevent unintentional recovery of the power supply.
4. Proceed carefully during carrying out the work.

### 9.1 Maintenance schedule

The schedule includes a list of all the maintenance activities which must be carried out. Good, regular maintenance increase the life span of the machine, improves safety and decreases the chance of faults.

Clean	Check	Set or replace	Lubricate
-------	-------	----------------	-----------

tab. 16 Maintenance schedule

Frequency	Component	Activity	Maintenance	Para-graph
Daily	Safety provisions		Make sure all the safety devices work properly and check the presence of the safety labels.	4.4
	Blades		Check the sharpness of the blades.	9.7
	Pins		Check for blockage of the pins. Clean if required.	9.6
	Vacuum pipework		Check for blockage. Clean if required.	-
Weekly	Spray nozzles		Check for blockage. Clean if required.	-

tab. 16 Maintenance schedule

Frequency	Component	Activity	Maintenance	Para-graph
Monthly	Entire machine		Check for wear, fracture and smooth running of the moving parts.	-
Quarterly	Vent blades		Grind or replace the vent blades.	9.7

## 9.2 Disconnecting and connecting the machine from the overhead conveyor

A number of maintenance operations require disconnecting the machine from the overhead conveyor.

### 9.2.1 Disconnecting

Proceed as follows:

1. Stop the overhead conveyor. See User's Manual "Overhead Conveyor" (90714 or 90727).
  2. Pull the spring-loaded fixture bolt **1** out.
  3. Rotate dial **2** counter-clockwise.
- See fig. 64.

### 9.2.2 Connecting

To connect the overhead conveyor:

1. Rotate dial **2** clockwise.



#### NOTE

The overhead conveyor must not be started when the carrier pin has been removed!

See fig. 64.

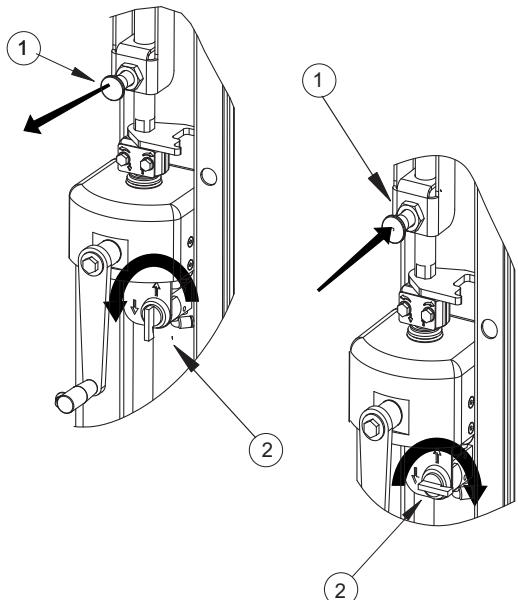


fig. 64 Disconnecting the machine

### 9.3 Demounting and mounting the units

#### 9.3.1 Demounting

Demount a unit as follows:

1. Disconnect the vent cutter from the overhead conveyor. See paragraph 9.2 Disconnecting and connecting the machine from the overhead conveyor.
2. Disconnect the inside guide at one side. See paragraph 9.4 Demounting and mounting the inside guides.
3. Put the vent cutter unit in the 90° position. Pull up coupling **1** and remove the air hose.
4. Loosen fixing bolts **2** and **3**.
5. Remove the unit from the machine.  
See fig. 65 and fig. 66.

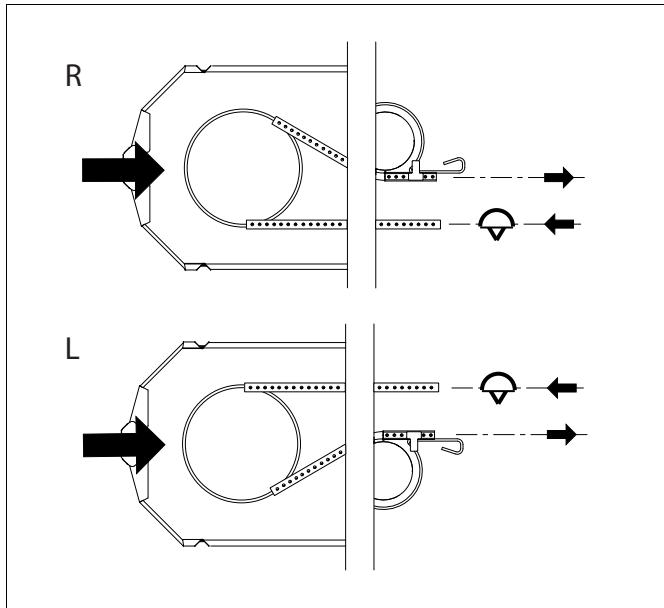


fig. 65 Vent cutter position

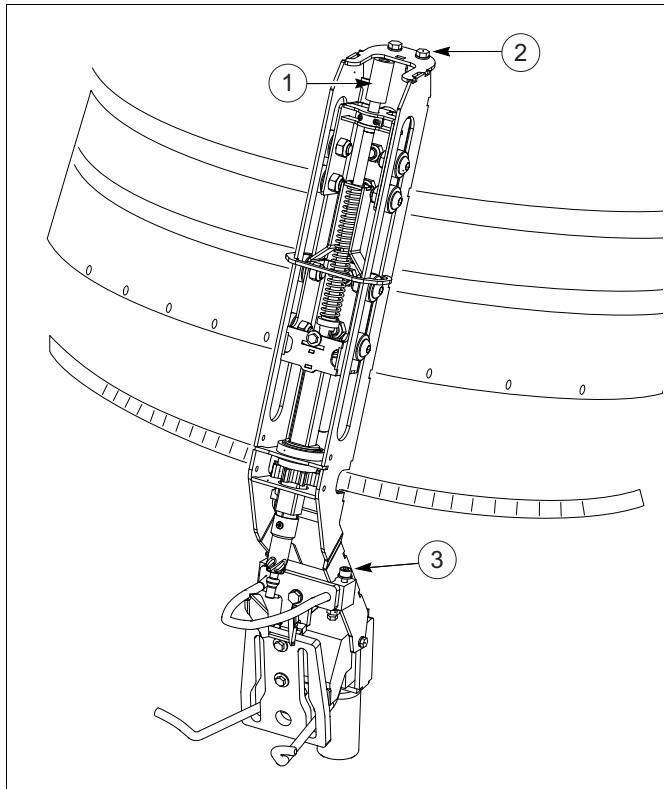


fig. 66 Demounting and mounting a unit

### 9.3.2 Mounting

Mount a unit as follows:

1. Check if the vent cutter is in the 90° position. See fig. 65.
2. Put the unit in the machine and mount fixing bolts **3** without tightening them yet.
3. Tighten fixing bolts **2**.
4. Tighten fixing bolts **3**.
5. Put the air hose on coupling **1**.
6. Check the hose connection: they must be attached so the air comes on after the cloaca pin **4** starts down.

See fig. 65, fig. 66, fig. 67 and fig. 68.

#### 9.3.2.1 Check the operation of the cloaca pin

Check the cloaca pin operation as follows:

1. Position the first unit at 235° to the upper cam by rotating the units.
2. Slowly advance the unit and verify that cloaca pin **4** starts to move down before the air comes on.
3. Continue checking all units.

See fig. 68.

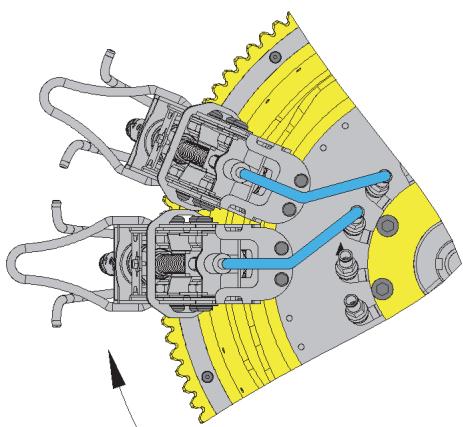


fig. 67 Unit - distributor head hose connection

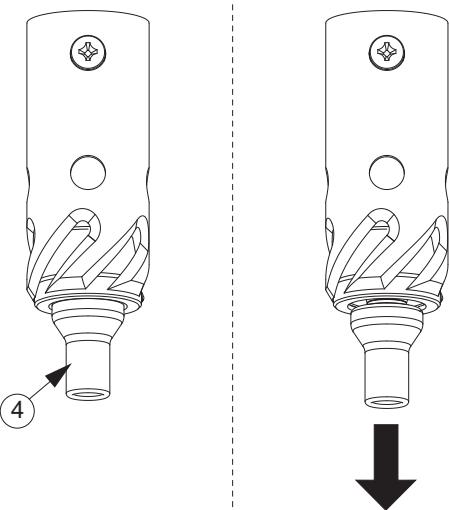


fig. 68 Cloaca pin position

## 9.4 Demounting and mounting the inside guides

Demounting the inside guides allows easier access to the units. Settings remain intact.

Demount an inside guide as follows:

1. Locate the guide support 1.
  2. Loosen the bolts 2.
  3. Carefully pull the guide loose and remove.
- Mount in reverse order. (See note.)  
See fig. 69.



fig. 69 Demounting and mounting the inside guide

**NOTE**

Tighten the bolts properly while mounting the inside guide.

## 9.5 Demounting and mounting the vent blade

The vent blade has to be demounted and mounted for maintenance operations.

**WARNING**

Danger of injuries caused by blade.

Demount the vent blade as follows:

1. Disconnect the machine from the overhead conveyor. See paragraph 9.2 Disconnecting and connecting the machine from the overhead conveyor.
2. Put the vent cutter unit in the 90° position. See fig. 70.
3. Remove special screw 1 and blade 2. Place screw in secure location.



**NOTE**

Do not lose the special screw.

Mount the vent blade in reverse order.

See fig. 71.

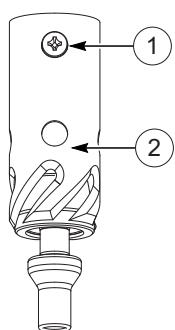


fig. 71 Demounting and mounting the vent blade

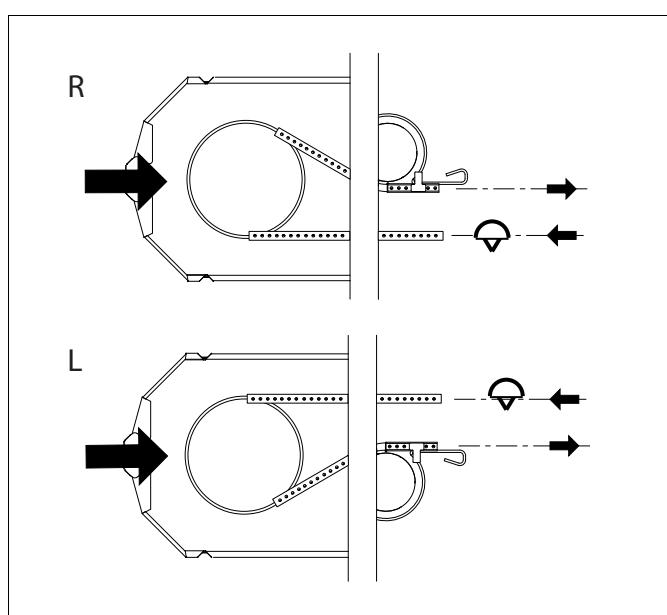


fig. 72 Unit position

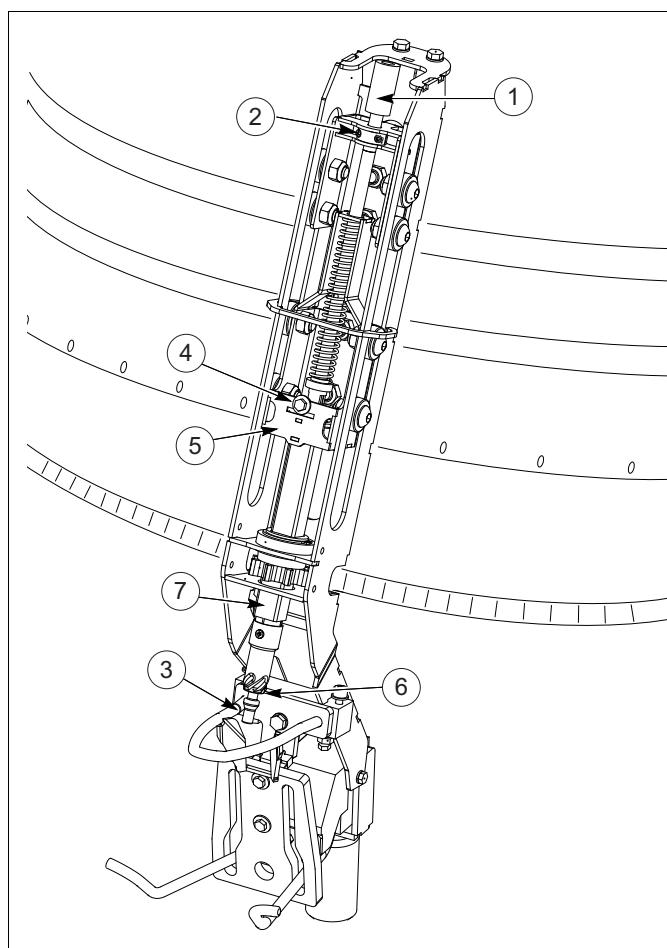


fig. 73 Demounting and mounting the pin and clamp

## 9.6 Demounting and mounting the pin and clamp

The pin and clamp have to be demounted and mounted for maintenance operations.



### WARNING

Danger of personal injury caused by sharp vent blade - demount the vent blade before working on the pin. See paragraph 9.5 Demounting and mounting the vent blade.

#### 9.6.1 Demounting the pin

Demount the pin as follows:

1. Disconnect the vent cutter from the overhead conveyor. See paragraph 9.2 Disconnecting and connecting the machine from the overhead conveyor.
2. Put the unit whose pin has to be demounted in the 90° position. See fig. 72.
3. Pull up coupling 1 and remove the air hose.
4. Loosen fixing bolts 2.
5. Remove pin 3 from the machine.  
See fig. 73.

#### 9.6.2 Demounting the clamp

Demount the clamp as follows:

1. Demount the pin. See paragraph 9.6.1 Demounting the pin.
2. Loosen bolt 4.



### NOTE

Watch the spring pressure setting. See paragraph 6.14 Setting the spring tension of the hip lifters.

3. Pull plate 5 forward and take hold of clamp 6.
4. Pull clamp 6 down from cutting shaft 7.
5. Remove plate 5 at the front.  
See fig. 73.

#### 9.6.3 Mounting the pin and clamp

Mount the pin and the clamp in reverse order as described in 9.6.1 Demounting the pin and paragraph 9.6.2 Demounting the clamp.

Carefully do the following:

1. Keep plate 5 in the correct position in the unit so the end of clamp 6 can be guided through the round opening.
2. Secure plate 5 with bolt 4.
3. Set the height of pin 3 and clamp 6. See paragraph 6.11 Setting the pin height in relation to the clamp.
4. Fasten pin 3 with bolts 2.

5. Put the air hose on coupling 1. Check the hose connection. Also see paragraph 9.3 Demounting and mounting the units.
6. Connect the vent cutter to the overhead conveyor. See paragraph 9.2 Disconnecting and connecting the machine from the overhead conveyor. See fig. 73.

## 9.7 Grinding the blades

An optimum cutting result requires blades to be sharp. Grind the blades with a whetstone. If this is not possible, use a grinding stone.



When the vent blade is ground with a whetstone, the grinding instructions are as follows:

1. Demount the blade. See paragraph 9.5 Demounting and mounting the vent blade.
2. Grind the blade according to the data in fig. 74.  
- The minimum length X = 63 mm.

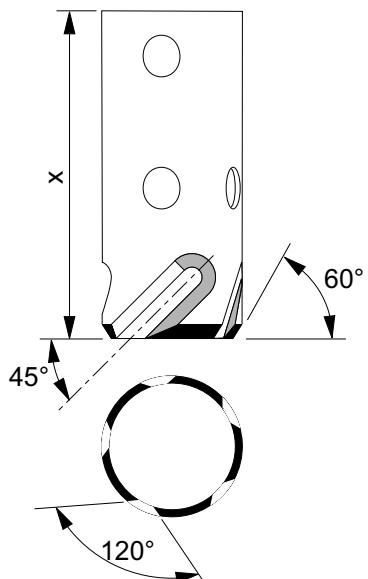


fig. 74 Vent blade grinding instructions

## 9.8 Pneumatic diagram

You can find the following components in fig. 75:

1. Water supply valve
  2. Vacuum valve
  3. Pneumatic components pressure regulator
  4. Pin pressure regulator
  5. Valve
- See fig. 75.

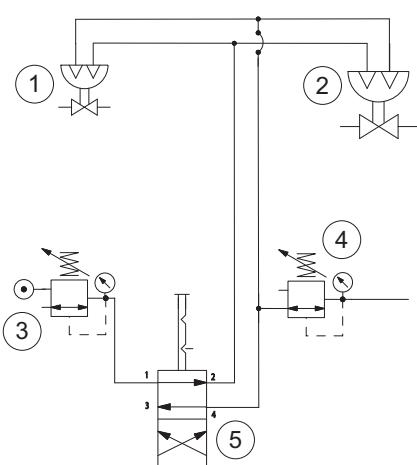


fig. 75 Pneumatic diagram

## 10 TROUBLESHOOTING



**MORTAL DANGER**  
Activities described in this chapter must be carried out by competent, professional and trained personnel.



**MORTAL DANGER**  
Activities described in this chapter must only be carried out if the power supply to the machine and/or control panel is switched off.

1. Switch off main switch(es) of the control panel(s)  
or  
remove all machine plugs from the wall sockets.
2. Lock the main switch(es) with a padlock.
3. Take all measures to prevent unintentional recovery of the power supply.
4. Proceed carefully during carrying out the work.

### 10.1 Failure list

The following failure list includes the most usual failures, their possible cause and solution. Always fix failures as quickly as possible.

tab. 17 List of Faults

Fault	Possible cause	Possible remedy	Paragraph
The products are not positioned properly.	The cutting unit arrives at the product too early or too late.	Reset the position of the cutting unit in relation to the shackle.	6.10
	The products do not suspend from the bottom of the shackle.	The products are not shackled or rehung properly.	4.5
	The cutting unit has been set too low.	Reset the machine height properly.	6.11
	The products swing or move during the supply.	Set the infeed and shackle guide.	6.5
The vent blade is blocked.	The setting of the spray nozzles is not correct.	Reset the spray nozzles.	
	The water pressure is too low.	Check the water pressure.	5.2.1.3
	The products are not positioned properly.	See fault "The products are not positioned properly".	-
There is too much intestine damage right under the vent.	The pin has been damaged.	Sand down the pin or replace it.	9.6

tab. 17 List of Faults

Fault	Possible cause	Possible remedy	Para-graph
The vents are not cut loose or not cut loose enough.	The distance between the vent blade and the back support is not correct.	Reset the spreader brackets.	6.8
	The vent blade does not lower sufficiently far into the product.	Check the distance between the hip lifters and the fastening block and adjust the hip lifters and fastening block if necessary.	6.9
		Check the spring pressure of the hip lifters and adjust it if necessary.	6.14
	The vent blade is not sharp enough.	Grind or replace the vent blade.	9.7
	The vent blade is blocked.	Clean the vent blade. Also see fault "The vent blade is blocked".	9.5
	The orbicular muscle is wrapped around the pin.	Remove the orbicular muscle material.	9.6
There is too much intestine damage at the bottom of the intestine pack.	The vent blade is lowered too deep into the product.	Check the distance between the hip lifters and the fastening block.	6.9
Too many bursas Fabricius stay behind.	The distance between the vent blade and the back support is not correct.	Reset the spreader brackets.	6.8
The vent is not pulled up after it has been cut loose.	The pin and the clamp are contaminated.	Clean the pin and the clamp. Also see fault "The vent blade is blocked".	9.6
	The vents are not cut loose properly.	See fault "The vents are not cut loose or not cut loose enough".	-
The vent is pulled too far out of the product.	The vent is unloaded too late.	Restore the zero point of the curve.	6.3
		Reset the spray nozzles.	
		Put the air hoses back one unit.	-

## **Appendix 1: LOGBOOK**

You can use the logbook to maintain a record of production, maintenance, cleaning, checks, faults, repairs, overhauls, modifications and other measures.

## **Appendix 2: SETTINGS**

Note here the settings for the components for various products.

