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User manual

Killer

K-15

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This is the original English user manual.



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Preface

Identification of the user manual

The index in the documentation set contains:

- Data about the machine plate.
- References to the related user manual/documentation.

Make sure that each machine has the correct user manual.

General data

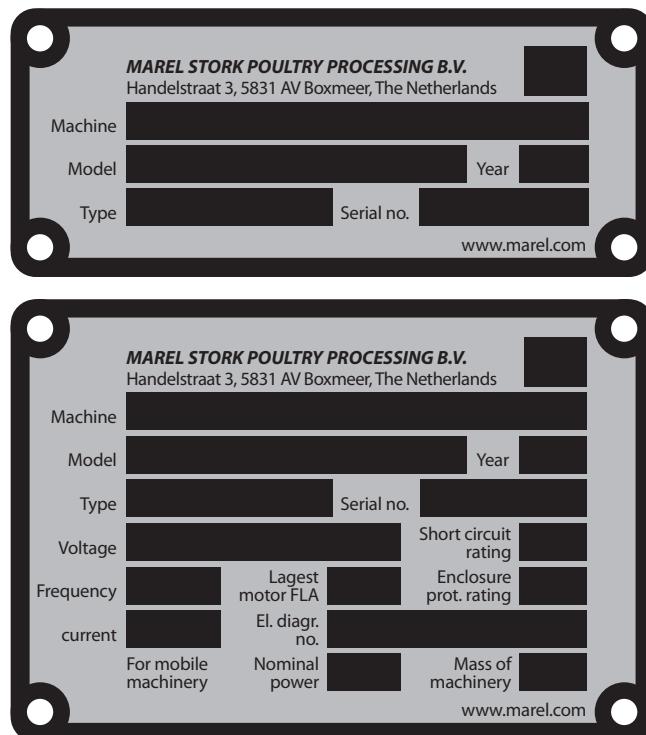


Figure 1 Examples of machine plates

This user manual contains information and instructions to operate the machine correctly and safely.

Make sure that all approved personnel that does work on the machine, has read and understood this user manual first. Always obey the instructions. Keep the user manual in an area that all approved personnel can access.

Get in touch with the manufacturer when you have questions.

Always provide these data when you get in touch with the manufacturer about the machine:

- Machine
- Machine model
- Machine type
- Serial number

See Figure 1.

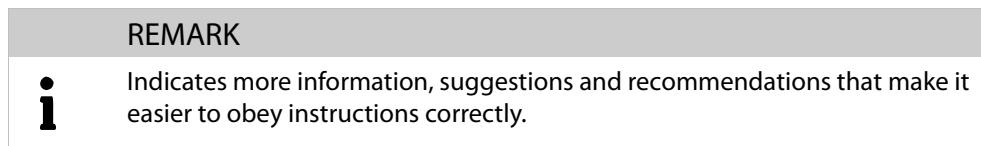
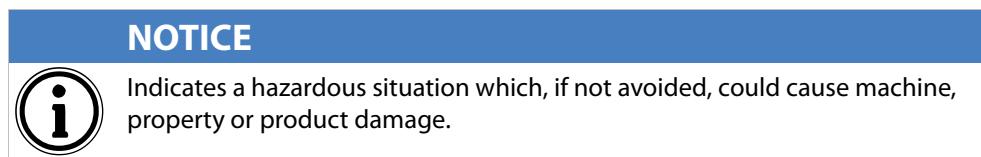
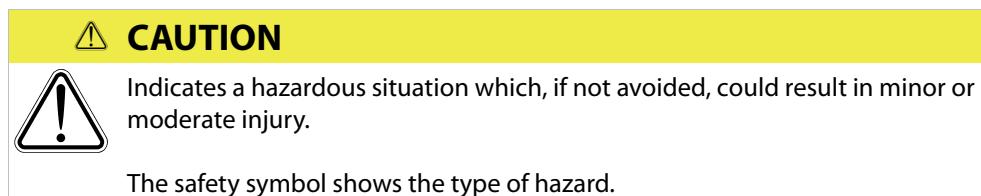
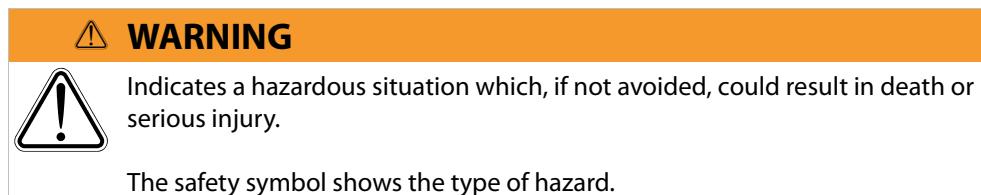
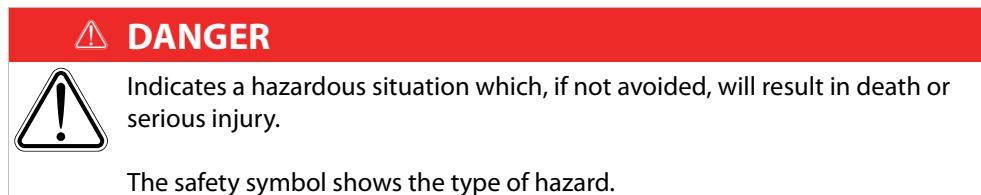
Always replace missing or damaged user manuals. When updates are available, replace the relevant pages in the user manuals.

Definitions

For the purpose of this user manual:

- "Machine" refers to either:
 - A module
 - An installation
 - A unit
 - A system with its related machines/control panel
- "Bird" or "birds" refers to either:
 - Chickens
 - Turkeys
 - Ducks
 - Geese
- "Product" or "products" refers to the body of a bird killed for meat.
- "Operator" refers to the person responsible for the:
 - Installation
 - Adjustments
 - Operation
 - Cleaning
 - Maintenance
 - Troubleshooting
- "Approved personnel" refers to persons, including operators, that are:
 - Professional
 - Competent
 - Fully trained
- "Buyer" refers to all companies that use the machine, regardless if the machine has been bought, leased, or is subject to other user rights.

Explanation of the text boxes



Explanation of the numbers, letters and references

References in the header and in the footer

The header has this information:

- The chapter title on each page.
- The machine name on the odd pages.
- The company name on the even pages.

The footer on each page has this information:

- The page number.
For example: 4.
- The document number and the publication date.
For example: 94024_01 ENG / 12 October, 2014.

Numbers and letters in the text

The numbers and letters in bold refer to the related item in the figure.

For example: Product guides **40** and **41**.

References to other user manuals

The text can have references to other user manuals:

- The names of these user manuals are between quotes.
- The document numbers of these user manuals are between brackets.

For example: See the user manual "Cleaning and disinfection" (90811).

REMARK

Maybe the illustrations in this user manual do not show your machine accurately. Remember this when you read this manual and operate the machine.
Some of the machine parts have their own documentation. See the index in the documentation set.

Log data

The appendices contain:

- Logbook
Use the logbook to keep data about production, maintenance, cleaning, inspection, defects, repairs, overhauls, modifications and other machine related activities in storage.
- Adjustments form
Use this form to register the data on the adjustments of the various machine parts for your birds or products.

General terms and conditions of sale

The general terms and conditions of sale applied by the Marel companies apply to this machine. These terms are printed in the documentation set.

Responsibilities

**WARNING**

When you install the machine in a different way than shown on our layout drawing and the "Technical Data", this can cause death or serious injury.

- Always install the machine as shown on the layout drawing or in the "Technical Data" of the manufacturer.
- When local legislation in your country or local conditions make a different layout or additional safety steps necessary, always contact the manufacturer.

The buyer must make sure that all personnel that does work on the machine has read and understood the information and instructions in this user manual.

The buyer must make sure that the personnel and the machine are safe.

In particular, the buyer must make sure that:

- Only approved personnel does the installation, adjustments, operation, cleaning, maintenance and troubleshooting of the machine correctly and in time.
- All approved personnel has access to the necessary data.
- All approved personnel has the necessary skills to do work on the machine.
- All approved personnel obeys all the rules and instructions.
- The machine is only used within the limits specified in this user manual, the "Technical Data" and the order confirmation.
- No one changes the initial condition of the machine without prior written permission from the manufacturer.

Changes to the machine

The information and instructions in this user manual give the latest status.

The manufacturer has the right to change the design and/or configuration of the machine. The manufacturer does not have the obligation to update or change machines delivered before.

Do not change the machine without prior written permission from the manufacturer.

For machines with a CE Marking, the EC Declaration expires when anyone changes the machine without prior written permission from the manufacturer (see the "EC Declaration of Conformity").

Use the machine

- Only use the machine for industrial purposes.
- Only use the machine within the limits specified in this user manual, the "Technical Data" and the order confirmation.
- Only use parts which the manufacturer has supplied, installed and/or approved.
- Other use requires prior written permission from the manufacturer.

Safety

Safety at work

The manufacturer informs you as correctly and completely as possible about the hazards and risks when you do work on the machine. The buyer must make sure that the approved personnel obeys the information and instructions in this user manual.

Do not let minors under 15 years of age do work on the machine, even if the national or local legislation in your country permits this.

Do all the work according to the rules and regulations on safety and environment.

⚠ WARNING	
	Loose-fitting clothing increases the danger of entrapment or entanglement in moving or rotating parts, or getting stuck in protruding parts. <ul style="list-style-type: none">• Wear close-fitting clothes.• Do not wear rings, necklaces or other jewelry.• Use a hairnet.• Wear slip-resistant, substantial footwear or safety shoes.

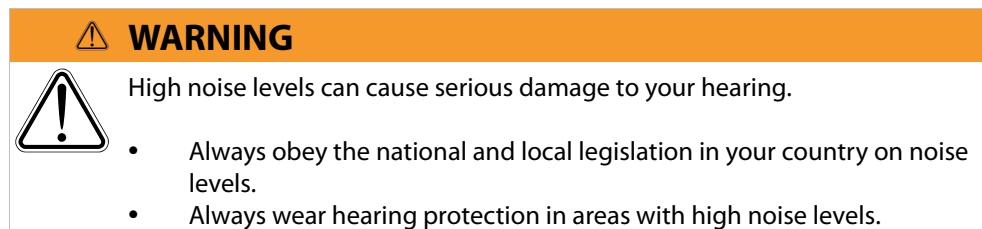
Safety labels

	Risk of injury from sharp objects.		Risk of injury from moving and rotating parts.
	Risk of injury from entrapment.		Risk of injury from electrical voltage.
	Risk of injury from high temperatures.		Risk of hearing loss from high noise levels.
	Approaching a dangerous area.		Risk of injury from breathing poisonous gases.
	Risk of injury from flammable substances that make a fire.		Risk of injury from ionizing radiation.
	Risk of injury from laser beams.		Risk of injury or damage to the machine when you step on the machine. Do not step on the machine.

The machine and the user manual contain safety labels that identify possible dangers.

Noise emission

The manufacturer makes each machine as noiseless as possible. However, local conditions can make it necessary to wear hearing protection.



For the applicable noise levels see the "Technical Data".

High noise levels can be the result of:

- An incorrect installation or incorrect adjustments.
- Insufficient maintenance.

Hygiene and environment

Always obey the legislation on hygiene and environment during work on the machine.

Do not keep dangerous substances such as cleaning agents and maintenance chemicals in the production area.

Recycling

Sort material for recycling as much as possible.

Chemical waste

Always discard chemical waste separately.

Waste disposal

Only hand over waste materials to waste-disposal experts who obey the national and local legislation in your country.

Disassembly

Remove all dangerous parts such as knives or blades when you do not use the machine for an extended period of time or when you dispose of the machine.

Transport

Transport and storage

REMARK	
i	Make sure that only approved personnel does the procedures in this chapter.

- Please obey the instructions on the packaging during transport. See the packaging for data about transport weights.
- Make sure that the delivered machine or parts are correct. See the supplied documents.
- Examine if the machine has no transport damage.
- Get in touch with the manufacturer when the delivery is incorrect or damaged.
- Keep the machine clean, dry and free from humidity, dust and dirt.

Description

Scope

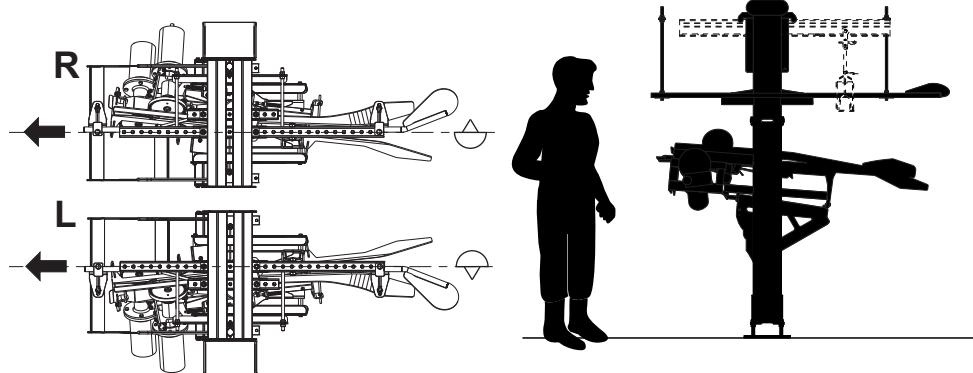


Figure 2 Right and left hand version

Figure 3 Height of the machine

The killer cuts through the bird's arteries. Then the bird has to bleed until it has no more blood. This is necessary for the scalding processing. The position of the killer is in the processing line and after the stunner or the CAS system.

It is possible to make three types of cuts with the machine:

- The neck cut (double)
- The throat cut
- The decapitation

This user manual is about the model

- K-15

REMARK



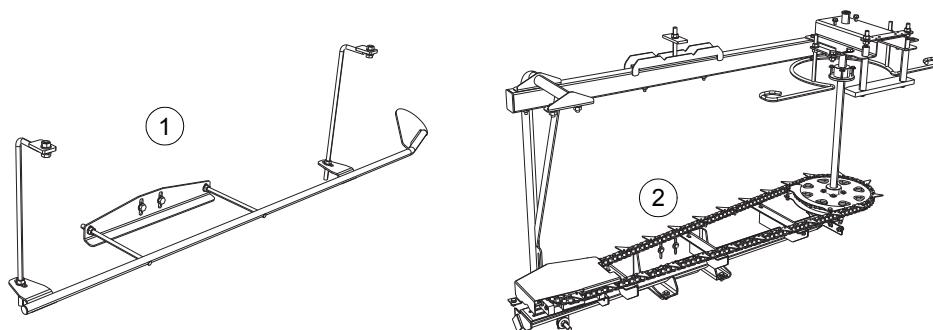
You can find the machine model on the machine plate.

- "K" is Killer.
- "15" is a model number.

The machine is available as:

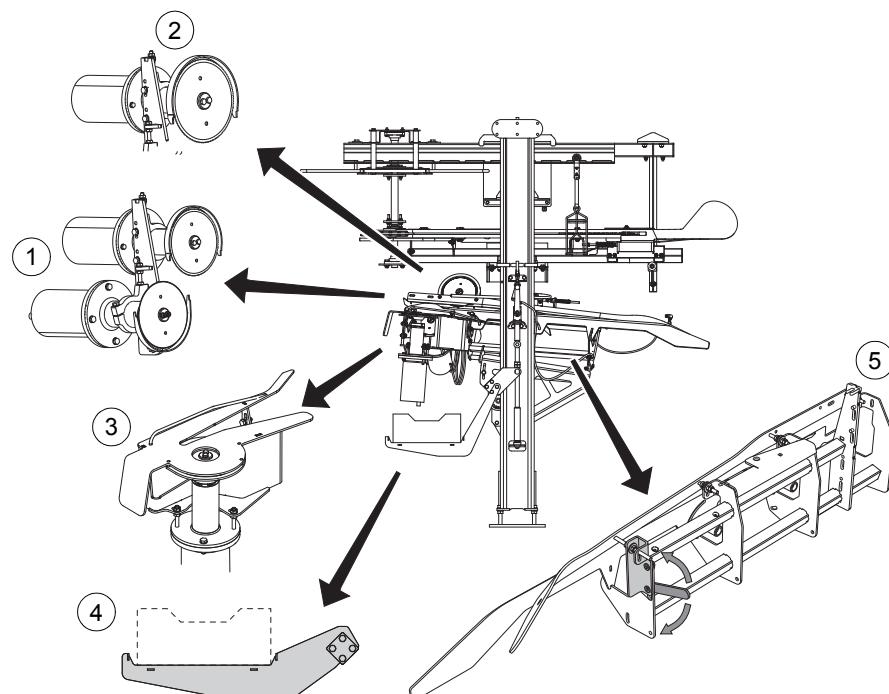
- Right-hand variant **R**
- Left-hand variant **L**

See Figure 2.

**Figure 4 Static shackle guide****Figure 5 Dynamic shackle guide**

The machine has static shackle guide **1** or dynamic shackle guide **2**. This depends on the used shackle.

See Figure 4 and Figure 5.

**Figure 6 Options**

The machine can have these options:

- 2 blades **1** for the double neck cut.
- Upper blade with a 250 mm diameter **2** for the decapitation.
- Back-up unit **3**.
- Crate holder **4**.
- Quick adjustment **5**.

See Figure 6.

Components of the machine

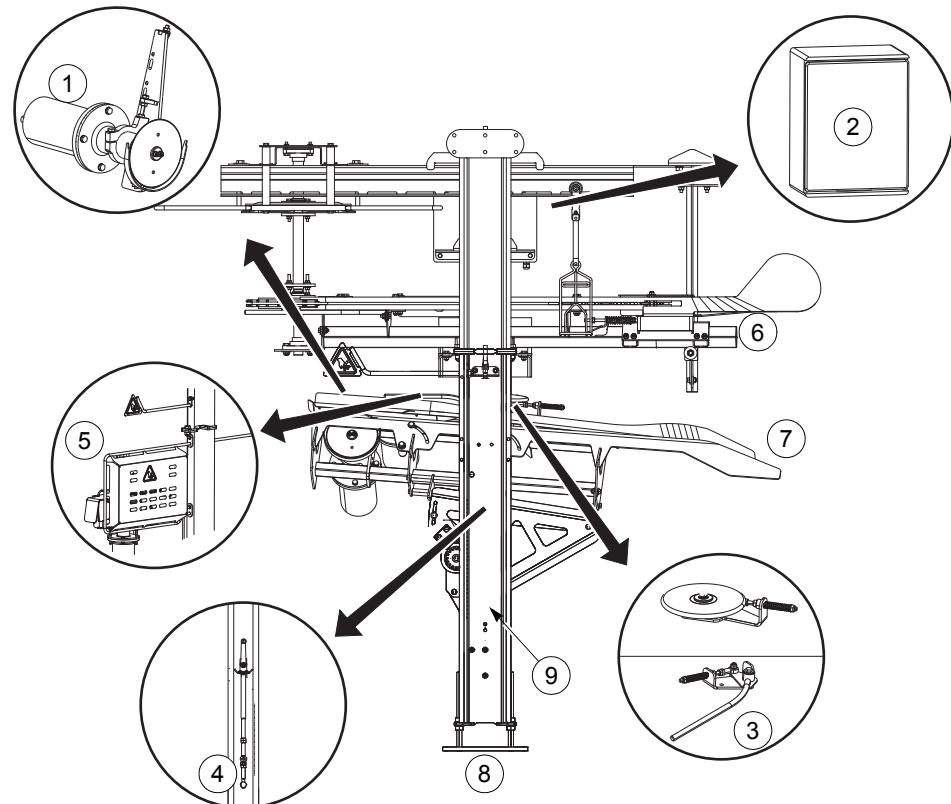


Figure 7 Components of the machine

The machine has these main components:

1. Cutting units
2. Control panel of the cutting unit
3. Pressure guides
4. Height adjustment
5. Safety guard
6. Dynamic shackle guide
7. Product guides
8. Adjustable legs
9. Frame

See Figure 7.

Process description

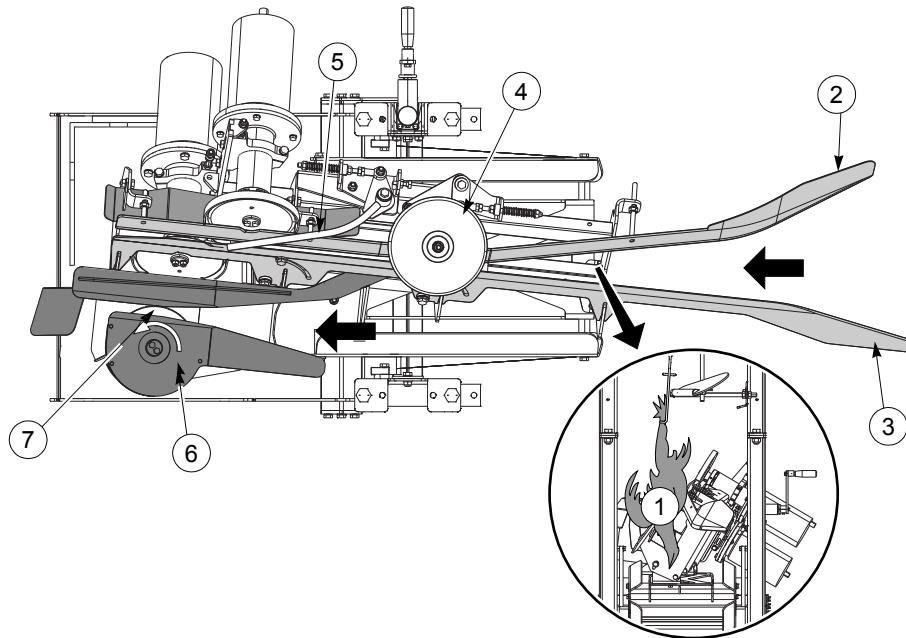


Figure 8 Process description

Broilers **1** go into the machine between product guides **2** and **3**. Product guide **2** pushes the birds away, so that the blade of the killer does not cut the wings of the bird. The sprayers make the guides wet so the birds slide easily over the product guides. Pressure wheel **4** pushes against the back of the bird to make sure that only the neck of the broiler comes between product guides **2** and **3**. Pressure guide **5** pulls the head up so that the cut is as near as possible to the beak.

The machine can have back-up unit **6**. The birds that went incorrectly into the machine go to the back-up unit. After blade **7** cuts through the neck the head falls down into a crate.

See Figure 8.

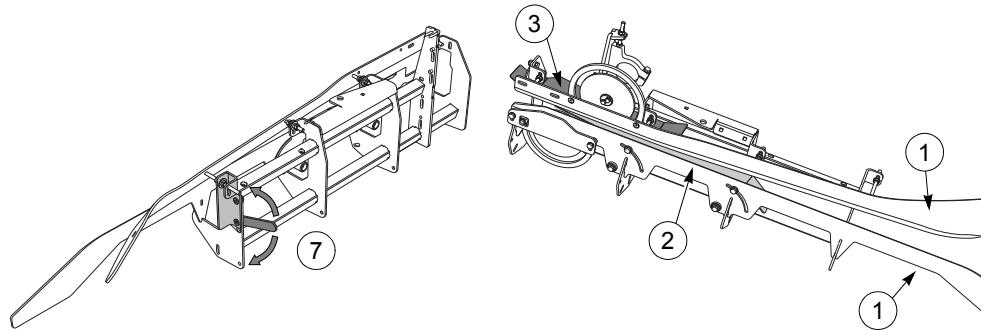


Figure 9 Quick adjustment of the product Figure 10 Blades and the guides guide

The product guides have quick adjustment **7** if:

- the live weight of the birds is less than 1200 grams.
- the flock variance is greater than 2000 grams.

With the quick adjustment you can adjust the distance between the product guides. See Figure 9.

The machine can make these cuts:

- The neck cut. See paragraph Neck cut on page 16.
- The throat cut. See paragraph Throat cut on page 16.
- The decapitation. See paragraph Decapitation on page 17.

The machine has different blades and guides to make the different cuts. The guides that follow are schematically shown in the related chapter.

Neck cut

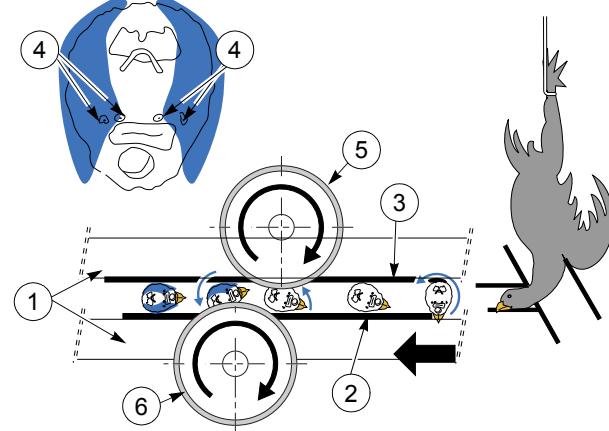


Figure 11 Process description if the neck cut

For the neck cut the machine has two cutting units, bottom head guide **2** and top head guide **3**. Product guides **1** and the head guides put the bird in the correct position for the blades. The bottom head guide turns the neck so that the neck is rearward. The top head guide prevents that the head turns too far. Blade **5** and **6** cut through arteries **4** of the bird.

See Figure 11.

Throat cut

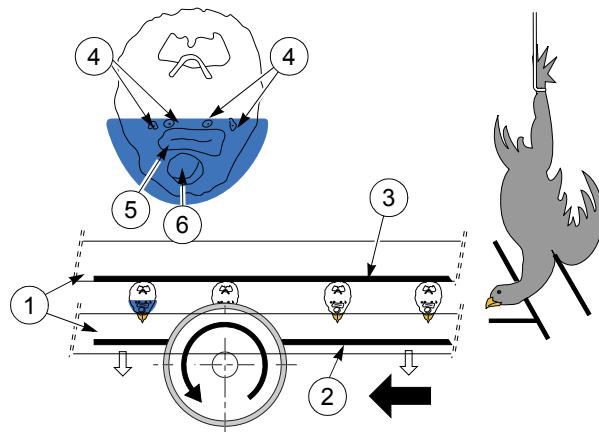


Figure 12 Process description if the throat cut

For the throat cut the top blade is not necessary and bottom head guide **2** is in the low position. Product guides **1** and top head guide **3** put the bird in the correct position for the blades. When the birds come at the cutting unit, the blades cut arteries **4**, esophagus **5** and trachea **6**. See Figure 12.

Decapitation

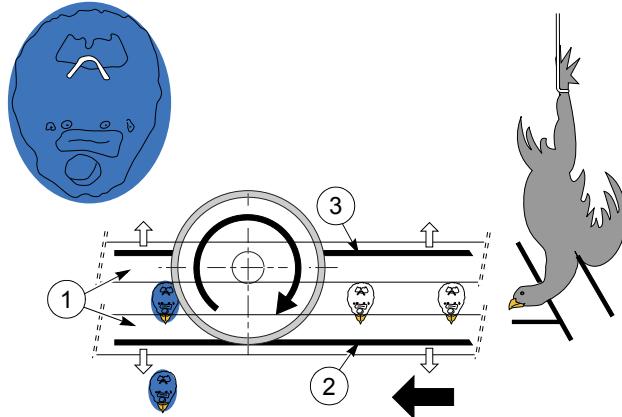


Figure 13 Process description if the decapitation

The upper blade unit makes this cut with a blade with a diameter of 250 mm. Head guide **2** and **3** are in the lowest position. Product guides **1** put the bird in the correct position for the blade. When the products come at the cutting unit, the cutting unit cuts the head loose. See Figure 13.

Safety provisions

⚠️ WARNING



Some parts of the machine, for example moving or rotating parts, blades and electrical components can cause death or serious injury. Safety provisions at or near these parts must prevent hazards to persons.

Do not remove, block or bypass the safety provisions.

⚠️ WARNING



When you install the machine in a different way than shown on our layout drawing and the "Technical Data", this can cause death or serious injury.

- Always install the machine as shown on the layout drawing or in the "Technical Data" of the manufacturer.
- When local legislation in your country or local conditions make a different layout or additional safety steps necessary, always contact the manufacturer.

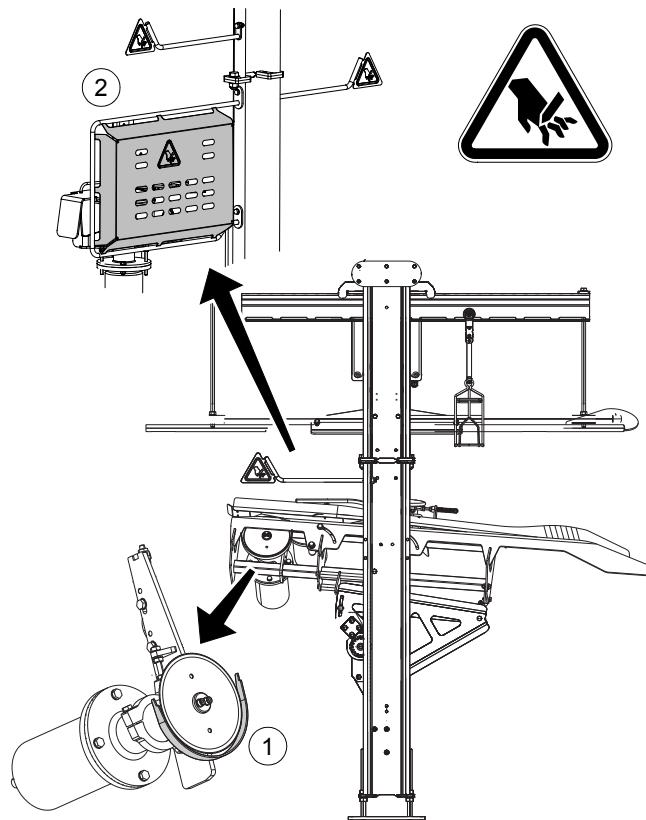


Figure 14 Safety provisions

The machine has these safety provisions:

- Safety guards **1** around the cutting unit.
- Safety guard **2** in front of the back-up unit.

There are safety labels on the machine.

See paragraph Safety labels on page 7 for an explanation of the safety labels.



WARNING



Some parts of the machine, for example moving or rotating parts, blades and electrical components can cause death or serious injury. Safety labels at or near these parts identify the type of hazard.

- Regularly examine if the safety labels are in place, not damaged and recognizable. See the paragraph Maintenance schedule in this user manual.
- If not, apply new safety labels. See the user manual "Safety labels" (90840).

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 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

Installation

The manufacturer is responsible for the installation of the machine.
Buyers who do the installation themselves, must obey the instructions that follow.

⚠ WARNING



The procedures in this chapter can cause death or serious injury.

Make sure that only approved personnel has the procedures in this chapter.

REMARK



Make sure that only approved personnel have access to the keys.

Install the machine

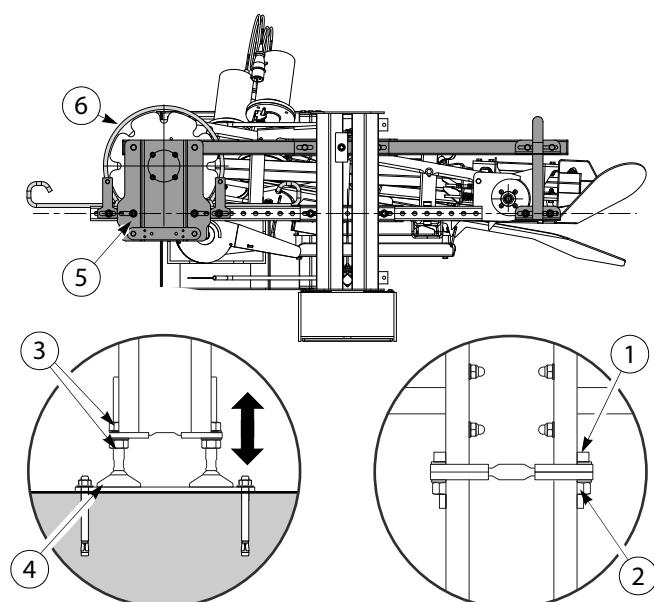


Figure 15 Install the machine

⚠️ WARNING

When you install the machine in a different way than the layout drawing and the "Technical Data" show, this can cause death or serious injury.

- Always install the machine as the layout drawing or the "Technical Data" of the manufacturer shows.
- If the local legislation in your country or local conditions make a different layout or more safety steps necessary, contact the manufacturer.

Note the following points:

- Make sure that the surface is solid and level and that there is sufficient space to move around the machine to do work.
- Think about of the set-up requirements for the other machines.
- Make sure that there is sufficient lighting to work safely on the machine.

Install the machine as follows:

1. Move the packaged machine to the correct position with a forklift truck or a pallet wagon.
2. Remove the packaging around the machine.

⚠️ WARNING

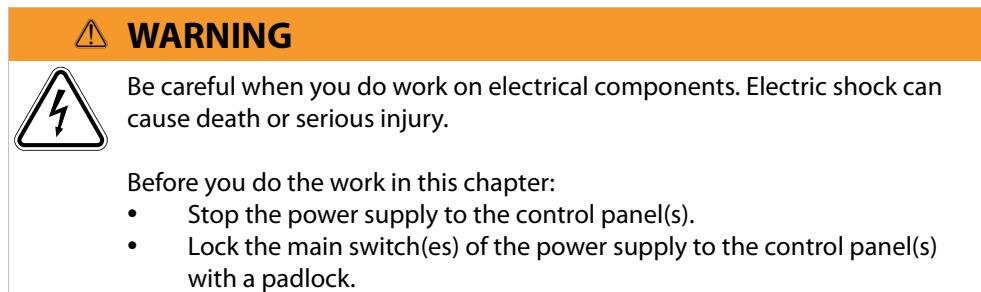
When you lift the machine, make sure that it cannot fall or tilt. If a machine falls or tilts, this can cause death or serious injury.

- Be aware of the centre of gravity of the machine. See the "Technical Data".
- Make sure that only the approved personnel moves the machine.
- Make sure that no person is below a lifted machine.
- Make sure that the lifting equipment is suitable for the load and in good condition.

3. Lift the machine with a hoist or a forklift truck and remove the base.
4. Attach the legs with bolts **1** and nuts **2**.
5. Lift the machine until the overhead conveyor is in line with the adjacent track sections.
6. Set the correct height of each adjustable foot with nut **3**. The height is correct when the overhead conveyor is in line with the adjacent overhead conveyor sections.
7. Connect the machine to the overhead conveyor.
8. Attach foot plates **4** to the floor.
9. **Dynamic shackle guide:**
 - Install frame **5** and bracket **6** if the machine has a dynamic shackle guide.

See Figure 15.

Install the electrical components



Obey the instructions of the manufacturer, the local legislation and the local requirements when you connect the machine for the first time. Make sure that the local voltage and frequency are the same as the data on the machine plate.

For more information, see the electrical circuit diagrams of the manufacturer. For details about the connections and the consumptions, see the "Technical Data" and the user manual "Explanation of symbols Technical Data" (90819).

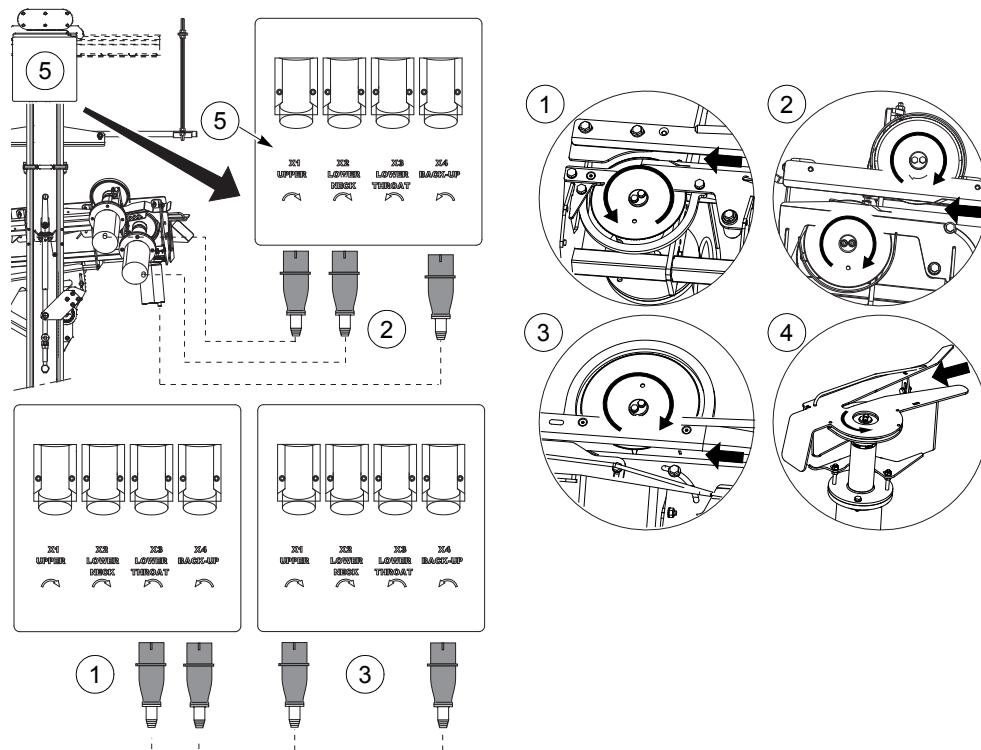


Figure 16 Electrical components

Figure 17 Motor direction of rotation

The motors drive the rotating blades of the cutting units. The motors have an electrical plug.

- Connect the electrical plugs to terminal box 5 in relation to Figure 16 and the text that follows:
 - Throat cut 1
 - Neck cut 2
 - Decapitation 3
- Connect the terminal box to the electrical installation.

NOTICE

The direction of rotation of the motors must be correct. If not, damage to the machine is possible.

- Check after the connection the rotation direction of the blade. The text that follows is related to Figure 17:
 - Throat cut **1**
 - Neck cut **2**
 - Decapitation **3**
 - Back-up unit **4**

See Figure 16 and See Figure 17.

Water connections

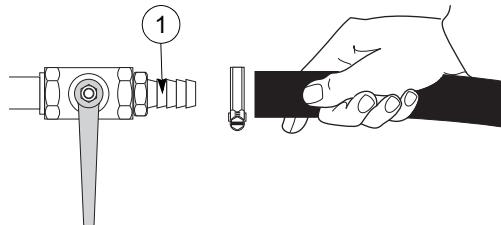


Figure 18 Water connection

The sprayers make the guides wet so the birds slide easily over the product guides.

- Connect point **1** to the supply system of the high pressure water.
For details about the connections and the consumptions, see the "Technical Data" and the user manual "Explanation of symbols Technical Data" (90819).
See Figure 18.

Clean the machine after the installation

Clean the machine thoroughly before you put it in operation for the first time.
See paragraph Clean the machine after the production on page 42.

Adjustments

⚠ WARNING



The procedures in this chapter can cause death or serious injury.

Make sure that only approved personnel has the procedures in this chapter.

⚠ WARNING



Be careful when you start to work on the machine. Make sure that an accidental start of the machine is not possible. If not, this can cause death or serious injury.

Before you do the work in this chapter:

- Turn off the main switch(es) of the control panel(s).
- Lock the main switch(es) of the control panel(s) with a padlock, or remove the machine plugs from the wall sockets.

REMARK



The adjustments in this user manual are basic values. To make the technical or technological performance of the machine better, changes can be necessary. Record the old and new values in the appendix Adjustments form.

Shackle guides

The shackle guide guides the shackle through the machine. The machine can have a static guide or a dynamic shackle guide. A static shackle guide is necessary for a static shackle. A dynamic shackle guide is necessary for a dynamic shackle.

Adjust the static shackle guide

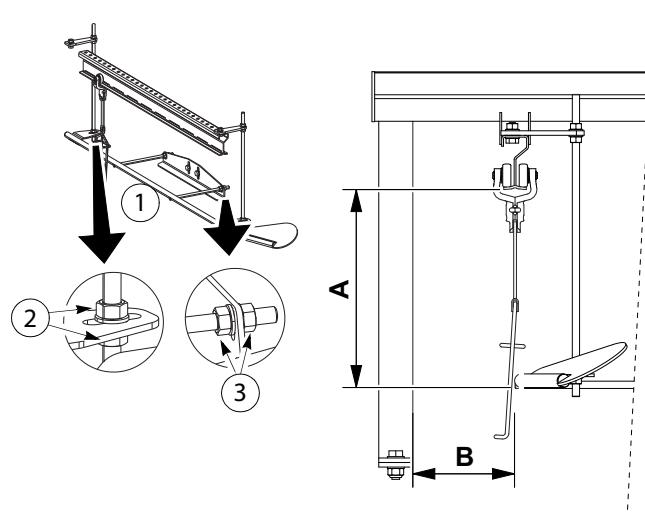


Figure 19 Adjust the static shackle guide



VALUES

A = 435 mm

B = 224 mm

Adjust the static guide **1** as follows:

1. Vertical
 1. Loosen bolts **2**.
 2. Adjust the distance between the lower side of the sigma profile and the lower side of the shackle to value **A**.
 3. Tighten bolts **2**.
2. Horizontal
 1. Loosen bolts **3**.
 2. Adjust the distance between the frame and the shackle guide to value **B**.
 3. Tighten bolts **3**.

See Figure 19.

Adjust the dynamic shackle guide

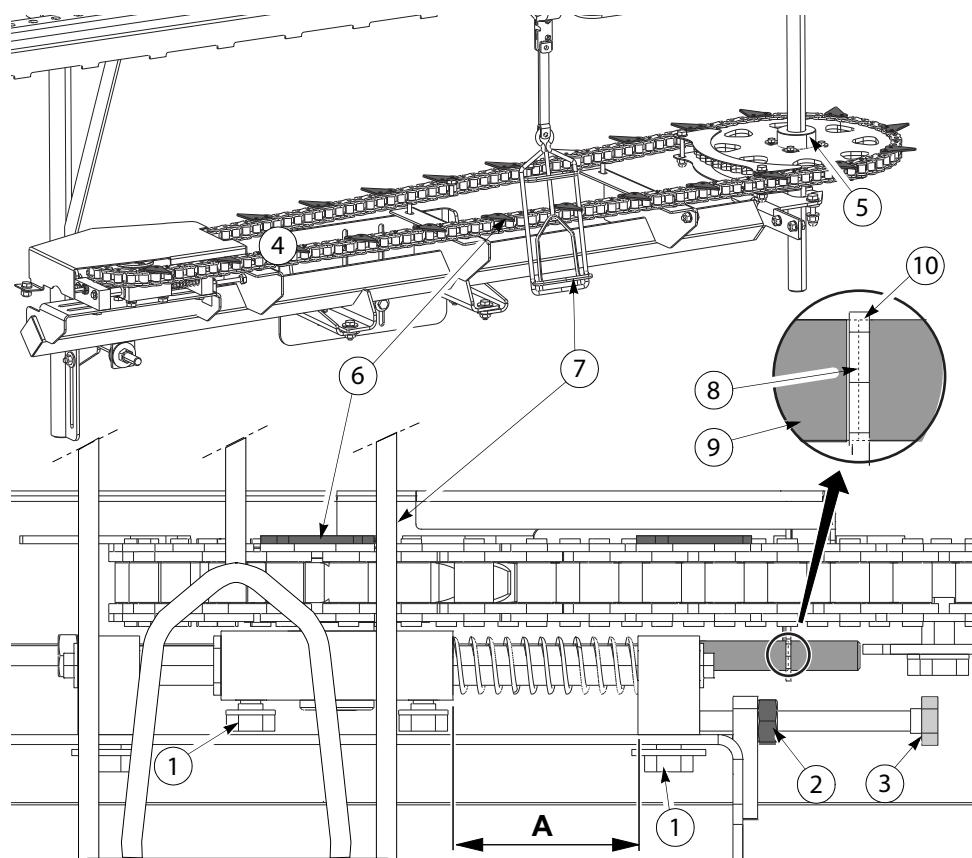


Figure 20 Adjust the dynamic shackle guide



VALUES
A = 75 mm

REMARK

- i** You can examine if value **A** has the correct adjustment. If mark **8** on axis **9** is in line with strip **10** than value **A** is correct.

Adjust the chain tension for the dynamic shackle guide as follows:

1. Loosen bolts **1**.
2. Loosen nut **2**.
3. Use bolt **3** to adjust the distance to value **A**.
4. Tighten nut **2**.
5. Tighten bolts **1**.

See Figure 20.

Adjust the synchronisation of dynamic shackle guide **4** as follows:

1. Loosen bolts **5**.
2. Rotate the gearwheel so that teeth **6** catch shackle **7** on the inner side. The shackle must hang vertically.
3. Tighten bolts **5**.

See Figure 20.

Adjust the pressure guide

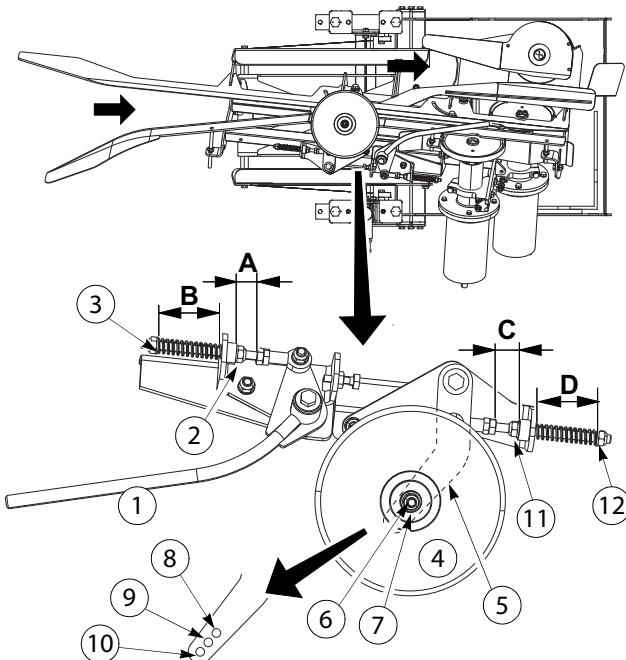


Figure 21 Adjust the pressure guide



VALUES

A = 20 mm

B = 85 mm

C = 10 mm

D = 75 mm

The pressure guides position the birds in the product guides to let the cutting unit make a cut just under the beak.

The cutting unit in the machine now makes a cut immediately under the beak.

Adjust pressure guide **1** as follows:

1. Use nut **2** to adjust the distance to value **A**.
2. Use nut **3** to adjust the distance to value **B**.

Adjust pressure guide **4** as follows:

1. Install arm **5** of the pressure guide in the correct opening.

Do this as follows:

1. Remove bolt **6** and nut **7**.
2. Place the arm in:
 - Opening **8** for birds with a weight of 800 -2000 gram.
 - Opening **9** for birds with a weight of 1500 -3000 gram.
 - Opening **10** for birds with a weight of 3000 - 4500 gram.
3. Install bolt **6** and nut **7**.
2. Set with nut **11** the distance of value **C**.
3. Set with nut **12** the distance of value **D**.

See Figure 21.

Adjust the product guide

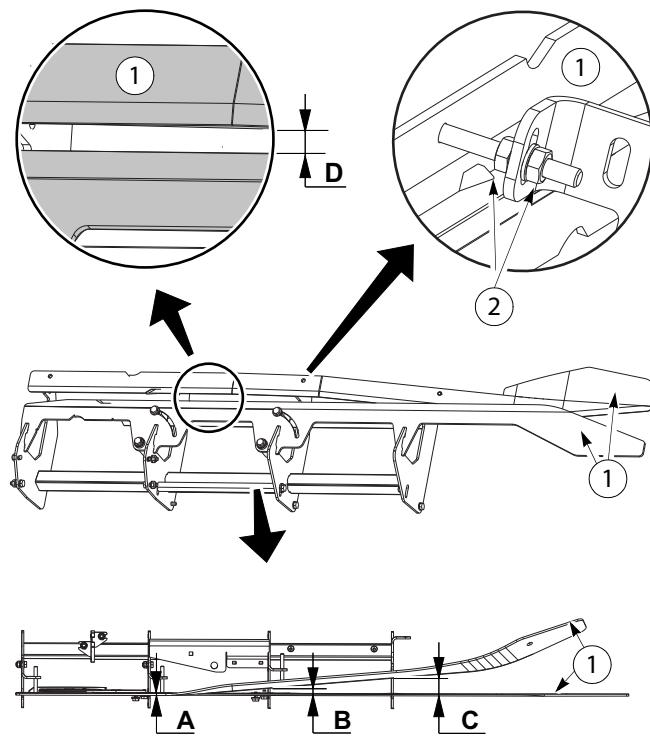


Figure 22 Adjust the product guide

Table 1 The values for the product guide

		VALUES
A	(mm)	0
B	(mm)	3
C	(mm)	30
D	(mm)	18 for birds with a weight of 800 -2000 gram 20 for birds with a weight of 1500 -3000 gram 22 for birds with a weight of 3000 - 4500 gram

Product guides **1** put the product in front of the cutting unit properly.

Adjust product guide **1** as follows:

1. Loosen nuts **2** a number of turns.
 2. Set the product guide to the distance of value **A**, **B**, **C** and **D**.
 3. Tighten nuts **2**.
- See Figure 22.

Adjust the cutting unit

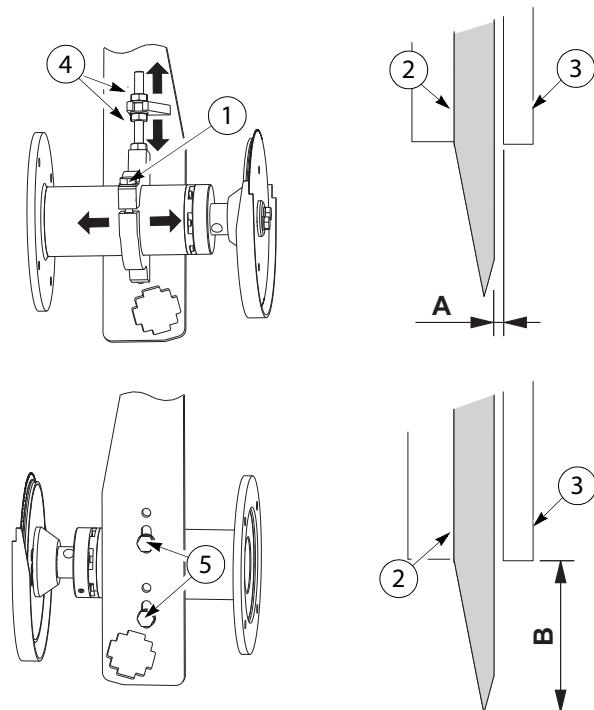


Figure 23 Adjust the cutting unit



VALUES

A = 0-0.5 mm

B = 7 mm

You can adjust the width and the height of the cutting units.

- With the width adjustment you can set the height of the cut in the neck.
- With the height adjustment you can set the depth of the cut.

Adjust the width as follows:

1. Loosen bolt **1** a number of turns.
2. Adjust the distance between blade **2** and product guide **3** to value **A**.
3. Tighten bolts **1**.

See Figure 23.

Adjust the height as follows:

1. Loosen nuts **4** a number of turns.
2. Loosen bolts **5** a quarter of a turn.
3. Adjust the distance between blade **5** and product guide **6** to value **B**.
4. Tighten bolts **5**.
5. Tighten nuts **4**.

See Figure 23.

Adjust the insertion plate for the throat cut

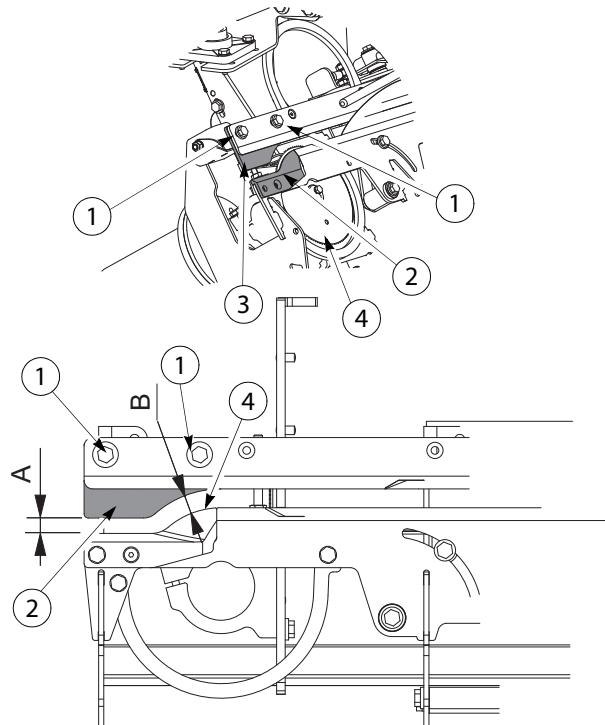


Figure 24 Adjust the cutting unit



VALUES

A = 22 mm

B = 20 mm

Adjust the plates as follows:

1. Loosen bolt **1** a number of turns.
2. Adjust the distance between guide **2** and **3** to value **A**.
3. Adjust the distance between the guide **3** and blade **4** to value **B**.
4. Tighten bolts **1**.

See Figure 24.

Adjust the insertion plate for the neck cut (option)

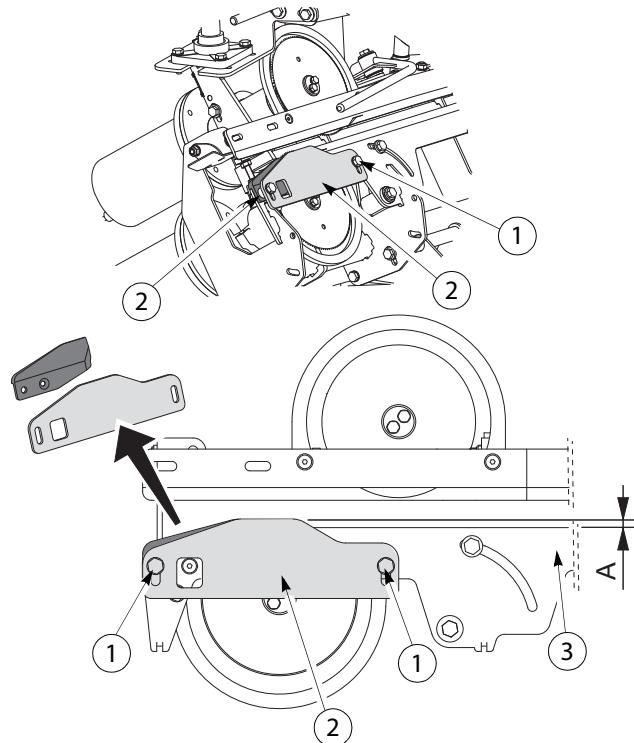


Figure 25 Adjust the cutting unit



VALUES

A = 10 mm

Two insertion plates are on top of the lower blade when the machine makes a neck cut.

Adjust the plates to make a neck cut as follows:

1. Loosen bolt **1** a number of turns.
2. Adjust the height of plate **2** to value **A** above head guide **3**.
3. Tighten bolts **1**.

See Figure 25.

Adjust the back-up unit (option)

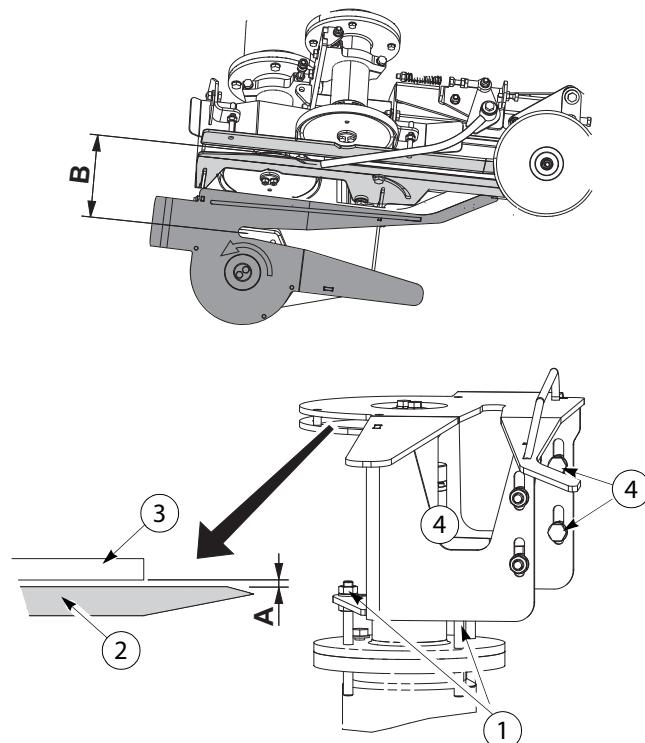


Figure 26 Adjust the back-up unit



VALUES

A = 3 mm

B = 120 mm

The back-up unit has an adjustable rotating blade.

Adjust the height of the blade as follows:

1. Loosen bolt **1** a number of turns.
2. Adjust the distance between blade **2** and product guide **3** to value **A**.
3. Tighten bolts **1**.

See Figure 25.

Adjust the position of the back-up unit as follows:

1. Loosen bolt **4** a number of turns.
2. Set horizontal distance **B** between the centre of the cutting unit product guides and the centre of the back-up unit product guides **3** to value **B**.
3. Adjust the bottom of both product guides to the same height.
4. Tighten bolts **4**.

See Figure 26.

Operation

These instructions are applicable when:

- The manufacturer supplied the control panel.
- The control panel is connected in accordance with the electrical diagrams of the manufacturer.

⚠ WARNING



The procedures in this chapter can cause death or serious injury.

Make sure that only approved personnel has the procedures in this chapter.

⚠ WARNING



If you do not operate the machine correctly, this can cause death or serious injury.

Make sure you read and understand the information and instructions in this chapter before you operate the machine.

Emergency stop

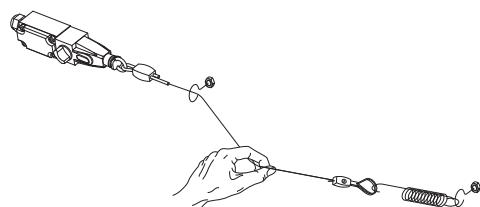


Figure 27 Emergency stop cord

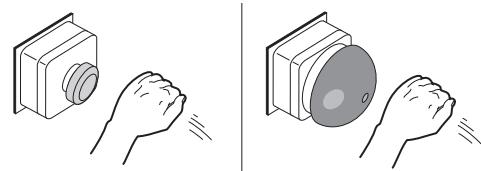


Figure 28 Emergency stop button

REMARK



Use the emergency stop only in an emergency situation.

In an emergency situation:

- Pull the emergency stop cord.
- or
- Push the emergency stop button.

See Figure 27 and Figure 28.

After you have operated the emergency stop:

- All the electrical drives in the processing line that contains the emergency stop switch off.
- The pneumatic parts go to or stay in a safe position.
- The hydraulic parts stay in the current position.
- The heating systems hold the temperature.
- The machine state changes to "Emergency stop".
- An error is indicated.

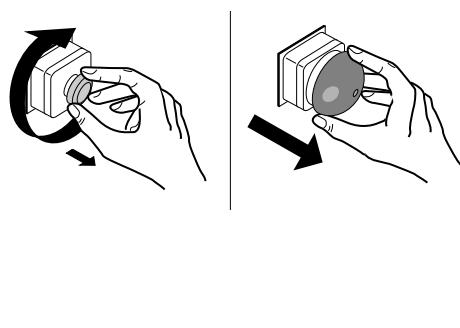


Figure 29 Release the emergency stop button

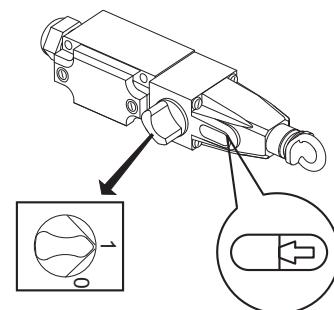


Figure 30 Release the emergency stop cord switch

⚠ WARNING



If the machine starts while persons are near the machine, this can cause death or serious injury.

Before you start the machine:

- Examine if no person is near the machine.
- If a person is near the machine, tell that person to go away from the area.

REMARK



After an emergency stop, remove all the remaining products first. Then start the machine again.

When you solve the emergency situation, these instructions apply:

1. Let approved personnel solve the emergency situation.
2. Push the button "Reset horn" to switch it off (optional).
3. Do these steps to release the emergency stop:
 - Pull out the emergency stop button or turn it clockwise. See Figure 29.
 - or
 - Turn the rotary switch on the emergency stop cord to position "1". See Figure 30.
4. Push the button "Reset emergency stop".
5. Do the procedure to switch on or start the machine.

Select the type of cut

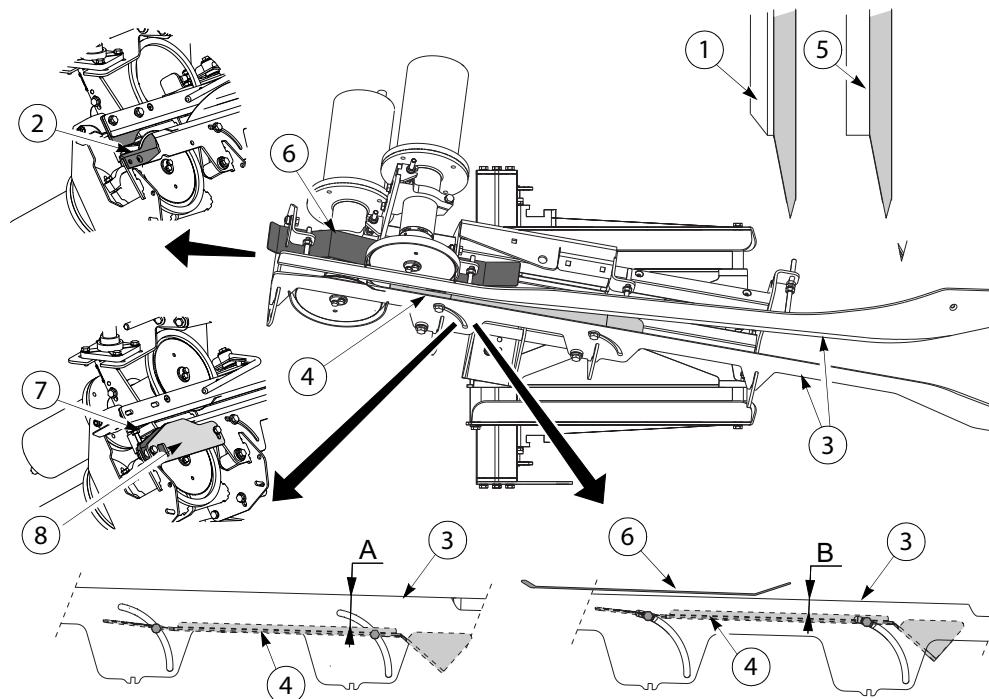


Figure 31 Select the type of cut



VALUES

A = 30 mm

B = 15 mm

If the machine has an option for a neck cut it is possible to choose between a throat cut or a neck cut.

If the machine has the for a neck cut it is possible to choose between a throat or an neck cut. Make changes to the machine if you want a different cut.

Throat cut

Adapt the machine for a throat cut as follows:

1. Connect the electrical plug of the motors so that the cut is possible. See chapter Install the electrical components on page 22.
2. Make sure that support disk **1** is installed. The disk has a slope side.
3. Make sure that insertion plates **2** are installed. See chapter Adjust the insertion plate for the throat cut on page 31.
4. Adjust the distance between the top side of product guide **3** and the top side of head guide **4** to value **A**.

See Figure 31.

Neck cut

Adapt the machine for a neck cut as follows:

1. Connect the electrical plug of the motors so that the cut is possible. See chapter Install the electrical components on page 22.
2. Make sure that support disk **5** is installed. The disk has a right angle.
3. Make sure that head guide **6** is installed.
4. Make sure that insertion plate **7** and **8** are installed. See chapter Adjust the insertion plate for the neck cut (option) on page 32.
5. Adjust the distance between the top side of product guide **3** and the top side of head guide **4** to value **B**.

See Figure 31.

Adjust the height of the machine

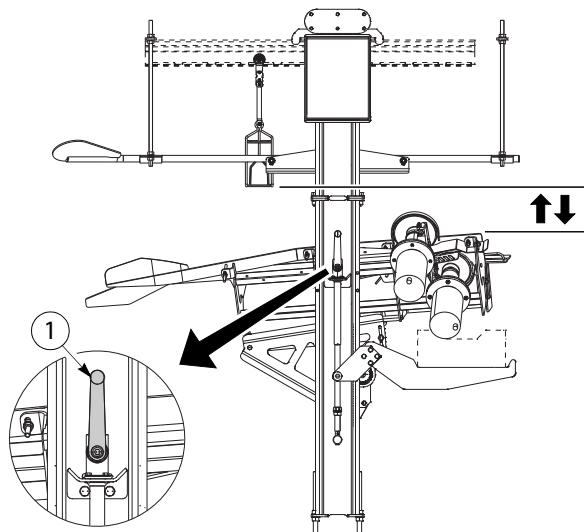


Figure 32 Adjust the height of the machine

Use handle **1** of the height adjustment to adjust the height of the processing unit in relation to the shackle.

Adjust the height of the processing unit as follows:

- Rotate handle **1** clockwise to lift the machine.
- Rotate handle **1** anticlockwise to lower the machine.

See Figure 32.

Start the machine

Start the machine as follows:

1. Prepare the machine for the type of cut. See chapter Select the type of cut on page 37.
2. Connect the electrical plugs to the wall sockets. See chapter Install the electrical components on page 22.
3. Turn on the water supply of the product guides.
4. Adjust the machine to the correct height. See chapter Adjust the height of the machine on page 38.

⚠️ WARNING

If the machine starts while persons are near the machine, this can cause death or serious injury.

Before you start the machine:

- Examine if no person is near the machine.
- If a person is near the machine, tell that person to go away from the area.

5. Start the overhead conveyor. See User manual "Overhead conveyor" (90727).
6. Check the direction of rotation of the blades. See chapter Install the electrical components on page 22.

Position of the operator

After the machine there must be an operator to check if the machine makes a correct cut. The position of the operator must obey the conditions that follow:

- The operator must stand at the breast side of the broilers. At this position you can examine the cut correctly.
- 10 seconds distance from the machine. This makes sure that broilers can bleed dry if the operator must make a manual cut.

Stop the machine

Stop the machine as follows:

1. Stop the overhead conveyor. See User manual "Overhead conveyor" (90727).
2. Turn off the water supply of the product guides.
3. Remove the electrical plugs from the wall sockets. See chapter Install the electrical components on page 22.

Clean the machine

WARNING



The procedures in this chapter can cause death or serious injury.

Make sure that only approved personnel has the procedures in this chapter.

REMARK



See the user manual "Cleaning and disinfection" (90811).

WARNING



Be careful when you start to work on the machine. Make sure that an accidental start of the machine is not possible. If not, this can cause death or serious injury.

Before you do the work in this chapter:

- Turn off the main switch(es) of the control panel(s).
- Lock the main switch(es) of the control panel(s) with a padlock, or remove the machine plugs from the wall sockets.

Clean the machine after the production

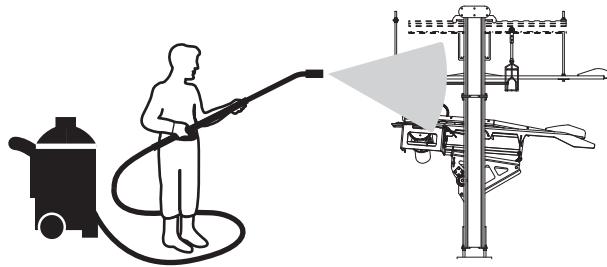


Figure 33 Clean the machine

Clean the machine every day. Clean the inner and outer parts of the machine fully.
See the user manual "Cleaning and disinfection" (90811).
See Figure 33.

Maintenance

Introduction

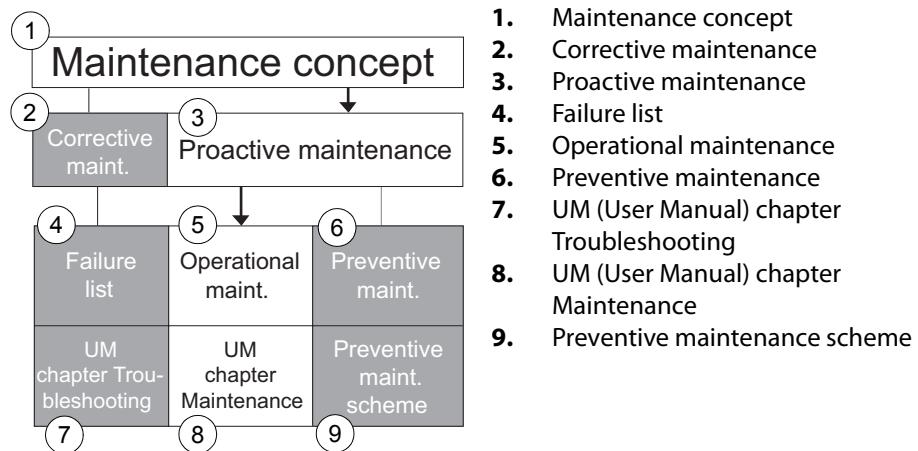


Figure 34 Maintenance

Do the maintenance work on time and accurately to keep the condition of the machine at the highest technical and technological level possible.

Regular visual inspections of the machine will help you to find possible technical or technological deviations at an early stage.

Figure 34 shows maintenance concept **1**. This chapter describes operational maintenance **5** as a part of the maintenance concept.

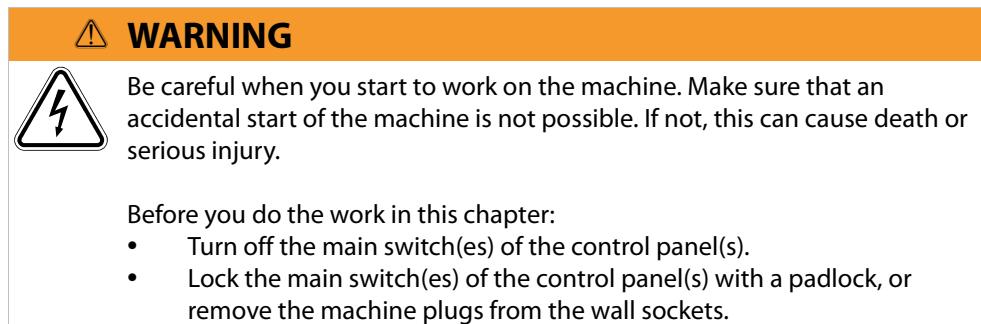
Chapter Troubleshooting gives the possible steps during corrective maintenance **2**. For more information about preventive maintenance **6**, ask the manufacturer.

⚠️ WARNING



The procedures in this chapter can cause death or serious injury.

Make sure that only approved personnel has the procedures in this chapter.



Operational maintenance

The maintenance schedule gives the operational maintenance practices. See paragraph Maintenance schedule on page 44.

Maintenance schedule

The maintenance schedule contains information about the operational maintenance items and operational maintenance intervals. Please obey this information to keep the machine in good condition.

REMARK							
 Keep the correct spare parts in stock.							

Table 2 Maintenance schedule

Item	Daily*	Weekly*	2-Weekly*	Monthly*	3-Monthly*	6-Monthly*	Yearly*	If necessary	Clean	Description	Done	Pg
									Examine			
Safety provisions									 Clean	Examine the operation of the safety provisions.	17	
									 Examine	Lock, replace, repair or install the safety provisions.		
Safety labels									 Adjust / set up / replace	Examine if there are safety labels (in place, not damaged and recognizable).	7	
									 Lubricate the machine	Apply new safety labels on the machine.		
Blade									 Clean	Examine the blade (sharpness, not damaged).	-	-
									 Examine	Replace the blade.		
Dynamic shackle guide chain									 Clean	Examine the chain for tensioning and wear.	-	47
									 Examine	Adjust the chain tension or replace the chain.		
Spray nozzles									 Clean	Examine the operation of the spray nozzles.	-	
									 Examine	Clean the spray nozzles.		
Water filter									 Clean	Examine the water filter for cleanness.	-	48
									 Examine	Clean the water filter.		

Table 2 Maintenance schedule

Item	Daily*	Weekly*	2-Weekly*	Monthly*	3-Monthly*	6-Monthly*	Yearly*	If necessary	Clean	Examine	Adjust / set up / replace	Lubricate the machine	Description	Done	Pg
Full machine				eye									Examine for wear, broken parts a smooth operation of moving parts.	-	-
								hand					Replace or repair.	-	

* Maintenance frequency based on 40 production hours/week.

Micro denture blade (no grinding)

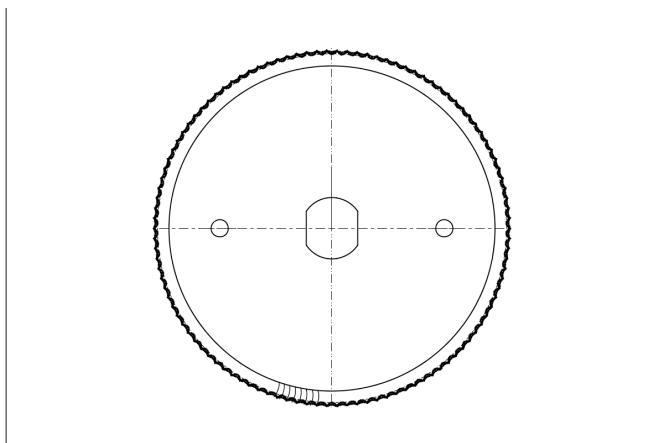


Figure 35 Micro denture blade (no grinding)

This machine has one or more micro denture blades.

REMARK	
i	Do not grind the micro denture blades. Always replace blunt micro denture blades.

Figure 35 shows a new micro denture blade.
See paragraph Assemble/disassemble the blade.

Assemble/disassemble the blade

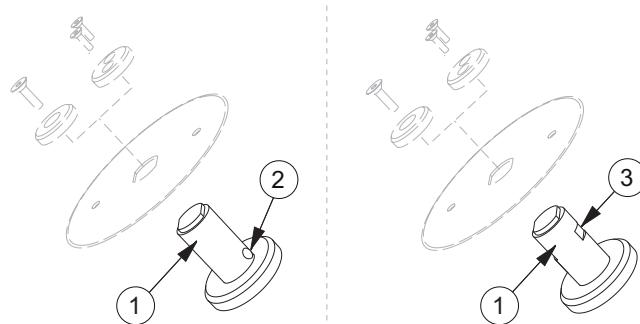


Figure 36 Assemble/disassemble the blade

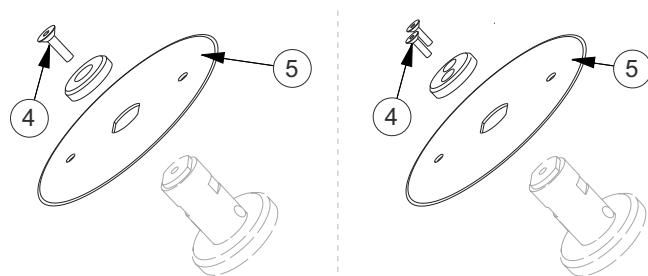


Figure 37 Replace the blade

The assembly/disassembly of the blade is necessary when you:

- Replace the blade.
- or
- Grind the blade.



WARNING



Blades can cause death or serious injury.

Always wear protective gloves when you do work on the blades.

Do these steps to disassemble/assemble the blade:

1. Lock shaft **1** with:
 - A screwdriver in hole **2**.
 - or
 - A wrench on recess **3**.
2. Remove bolts **4**, the washers and the press-on rings.
3. Remove blade **5**.
4. Install the (new) blade.

REMARK

- i** The facet of the installed asymmetric blade must be on the same side as it was on the removed blade.

5. Assemble the blade in the opposite sequence.

REMARK

Adjust the working height of the blade.

See Figure 36 and Figure 37.

Chain length of the dynamic shackle guide

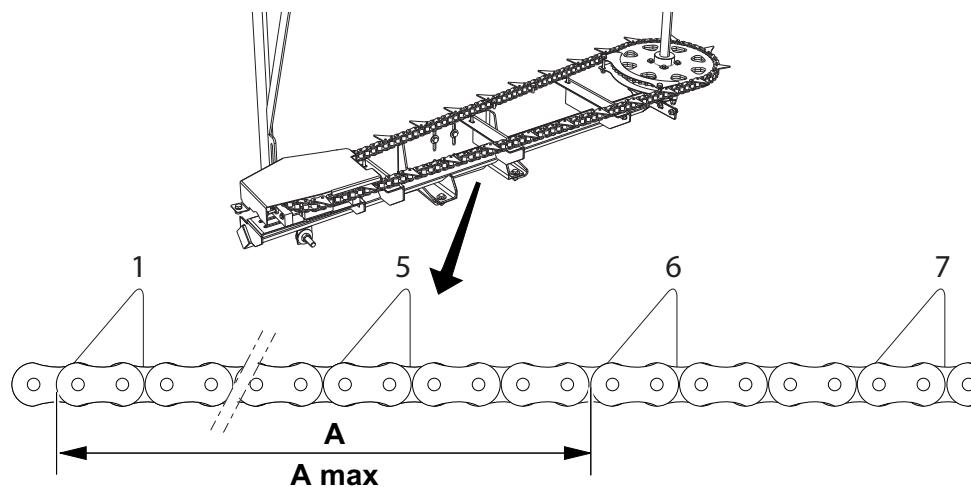


Figure 38 The length of the chain of the dynamic shackle guide

**VALUES**

A = 914,4 mm

A max = 931,4 mm

For a new chain the distance between the first and the sixth tooth of the dynamic shackle guide is value **A**.

Replace the chain if the chain has a length of value **A max** or more.

Examine the adjustments when you replace the dynamic shackle guide. See chapter
Adjust the dynamic shackle guide on page 27.

See Figure 38.

Clean the water filter

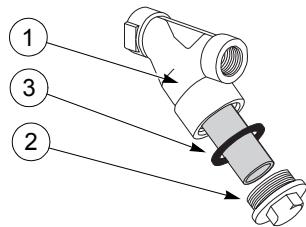


Figure 39 Clean the water filter

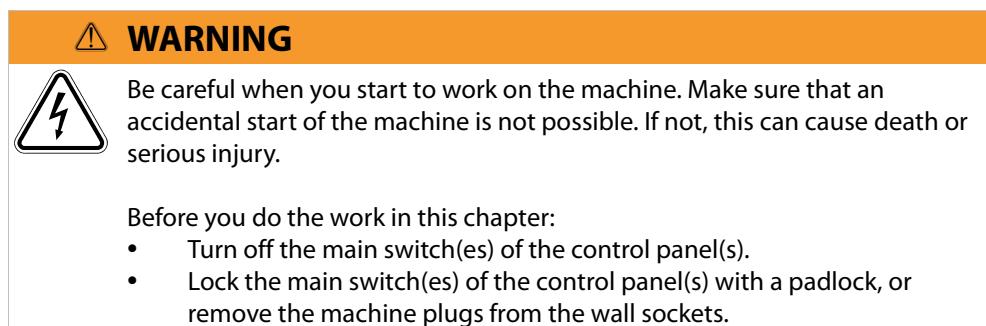
The water filter removes solid contamination from the water.

Do these steps to clean water filter **1**:

1. Close the valve in the water supply line before the filter.
2. Remove screw cap **2**.
3. Remove sieve **3** from the filter housing.
4. Clean sieve **3** with clean water. If necessary, replace the sieve.
5. Put back screw cap **2**.
6. If applicable, do these steps again for the other water filters.

See Figure 39.

Troubleshooting



Overview of possible problems

The overview of possible problems shows possible faults and solutions. Always examine and solve a problem as soon as possible.

Table 3 Overview of possible problems

Possible problem	Possible cause	Possible solution	Pg
The machine does not cut the broilers.	The adjustment of the machine is to low.	Adjust the machine is a higher position.	38
	The motor of the rotating blade does not operate.	Connect the motors.	22
	The height adjustment of the rotating blade is not correct.	Adjust the height of the rotating blade correctly.	30
	The adjustment of the guides is not correct.	Adjust the height of the guides correctly.	25
	The spread of the flock is too large.	Keep the spread of the flock small.	19
The broilers become red.	The depth of the cut of the broiler is not sufficient.	Increase the depth of the cut.	30
	The blade is blunt.	Replace the blade.	45

Table 3 Overview of possible problems

Possible problem	Possible cause	Possible solution	Pg
The wings are damaged,	The position of the machine is too high.	Put the machine is a lower position.	38
	The adjustment of the pressure guides is not correct.	Adjust the pressure guides correctly.	28
	The distance between the stunner and the killer is too large.	Decrease the distance between the stunner and the killer.	-
	The broilers are not stunned.	Adjust the stunner.	-

Appendix 1: Logbook

Use the logbook to register the data on the production, maintenance, cleaning, tests, problems, repairs, overhauls, modifications, and the other works.

Appendix 2: ADJUSTMENTS FORM

Use this form to register the data on the adjustments of the various machine parts for your products.