USER'S MANUAL

Neck Skin Inspection Machine
NIC-24V RS; NIC24M RS; NIC-18V RS 8"

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Marel Poultry B.V.

Handelstraat 3
P.O. Box 118
5830 AC Boxmeer
The Netherlands

T: +31 (0)485 586111
F: +31 (0)485 586222
I: marel.com/poultry

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This User's Manual is a translation of the original User's Manual.

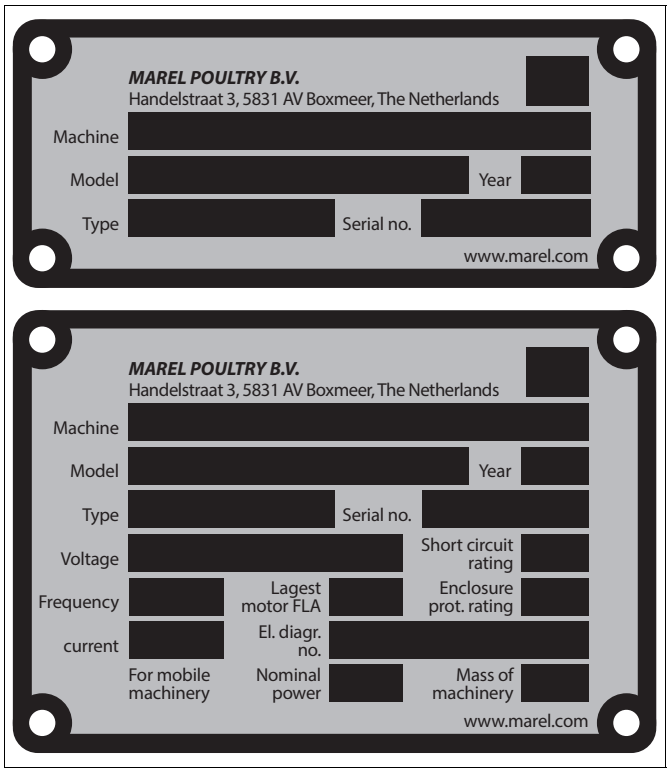


fig. 1 Machine plate example

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 aquainted 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.

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.


Risk of injury from sharp objects.


Risk of injury from 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 when you climb the machine.

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 Field of application

The Neck Skin Inspection Machine removes residue from the crop, trachea, gullet and thymus from the neck skin.

The following models are described in this User's Manual:

tab. 1

Machine code	Model	Type
C3075	NIC-24V RS SHD	I/O
C3076	NIC-24M RS	I/O
C3077	NIC -24V RS	I/O
C3078	NIC-24M RS	O
C3067	NIC-18V RS 8"	I/O

NOTE
The machine model is shown on the machine plate.

- "NIC" stands for Neck skin Inside Cleaner.
- The number stands for the number of units in the machine.
- "V" stands for Vacuum.
- "M" stands for Mechanical.
- "RS" stands for "Reference Series".
- 8" indicates 8" line for heavy product.
- "SHD" stands for Super Heavy Duty, which means that the machine is suitable for processing the heaviest products.
- "I/O" stands for Inside/Outside which means that the machine is fitted with an inside/outside washer.
- "O" stands for Outside which means that the machine is fitted with an outside washer.

NOTE
When the model is not mentioned separately, the information for all models applies.

The machine can be supplied with a span lager than or equal to 180° in a:
- right-hand model **R**.
- left-hand model **L**.

See fig. 2 and fig. 3.

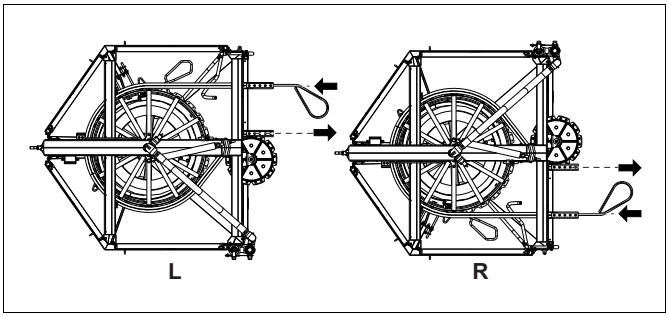


fig. 2 Machine model with a span larger than 180°

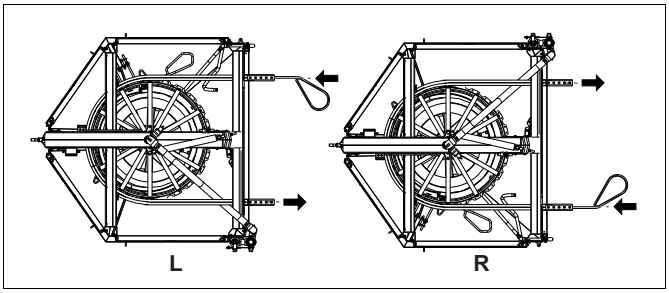
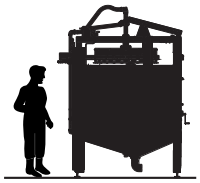


fig. 3 Machine model with a span equal to 180°



4.2 Machine names

1. Curve
2. Unit
The set of units which runs round the curve is called a carousel.
3. Drill
4. Height adjustment
5. Overload limiter
6. Track profile
7. Brush
8. Guide wheel
9. Infeed guide
10. Inner shackle guide
See fig. 4 and fig. 5.

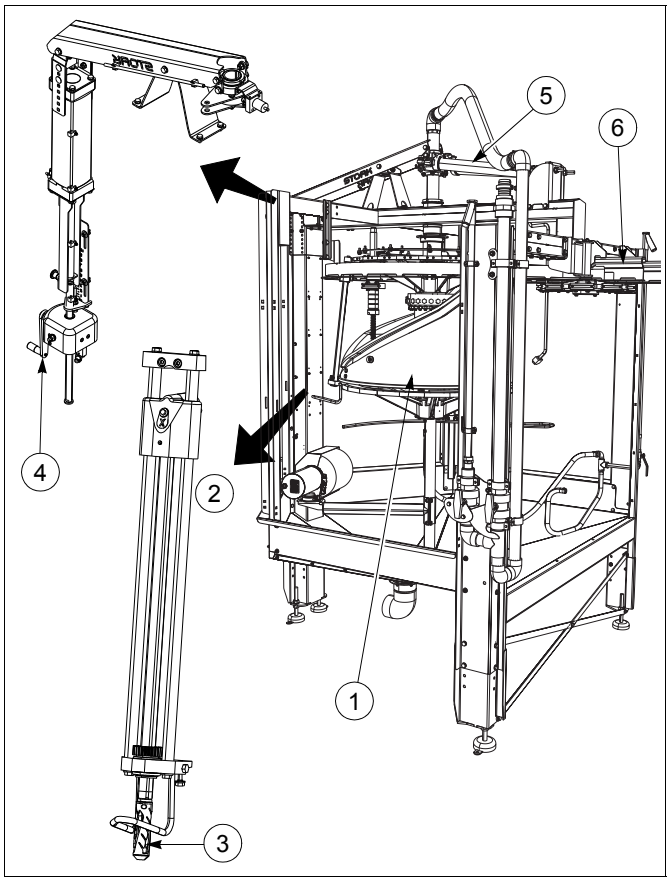


fig. 4 Front view names

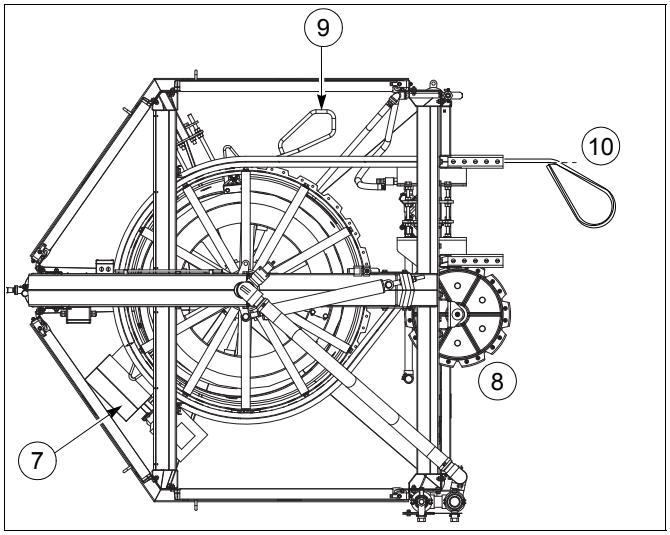


fig. 5 Top view names

4.3 Process description

The curve in the carousel ensures the vertical movement of the drill units.
There are two systems for removing the residue from the neck cavity:

4.3.1 Vacuum system

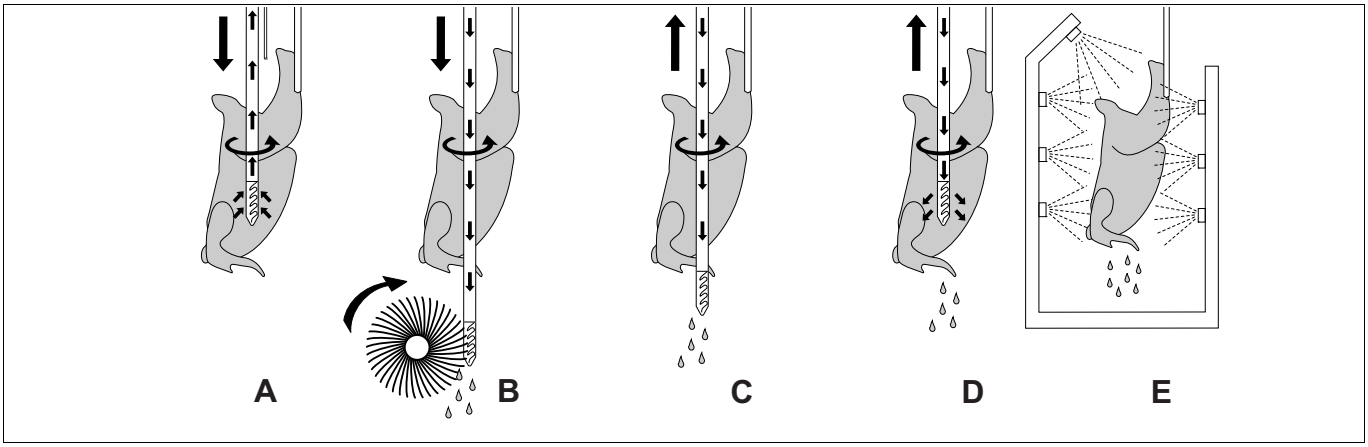


fig. 6 Vacuum system process description

A
When the drill reaches the neck cavity during the downward movement a vacuum is connected to the drill by way of a distributor head.
This sucks the trachea and crop residue against the teeth of the drill. The teeth of the rotating drill scrape them out of the neck skin.

B and **C**
The crop and trachea mass are removed from the neck cavity while still turning and then the drill is cleaned externally outside the product with a plastic brush and a sprayer.

During the upward movement water is supplied to the drill head via the distributor head so that the drill is also cleaned internally.

D
The clean drill is carried back through the product and the spray water continues to flow through the drill.
This water flushes any remaining crop content from the neck and intestinal cavity and blasts the neck skin from the turning drill to prevent neck skin damage.

E
When leaving the machine the product is cleaned externally with powerful water jets.
See fig. 6.

4.4 Mechanical system (M system)

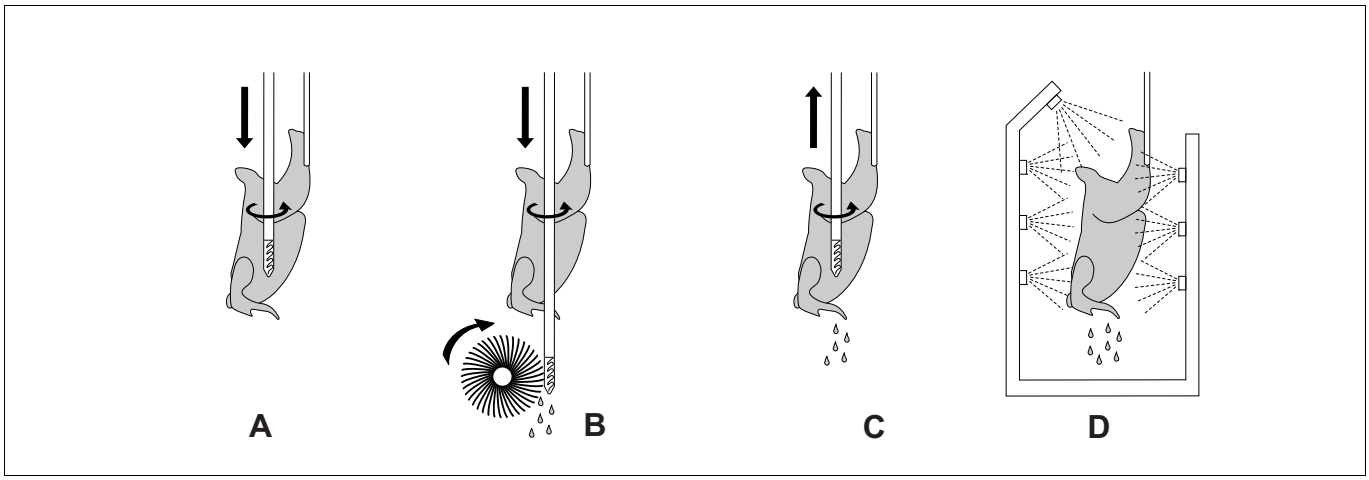


fig. 7 Mechanical system process description

A and **B** and **C**
When the drill reaches the neck cavity in the downward movement then the residue of trachea and crop are caught by the teeth of the rotating drill and then scraped from the neck skin. The trachea is mainly caught by the membranes.

If equipped with an inside washer: the crop and trachea mass are removed from the neck cavity while still turning and then the drill is cleaned externally outside the product with a plastic brush and a sprayer.
The clean drill is returned through the product during the upward movement.

D
When leaving the machine the product is cleaned externally with powerful water jets.
See fig. 6.

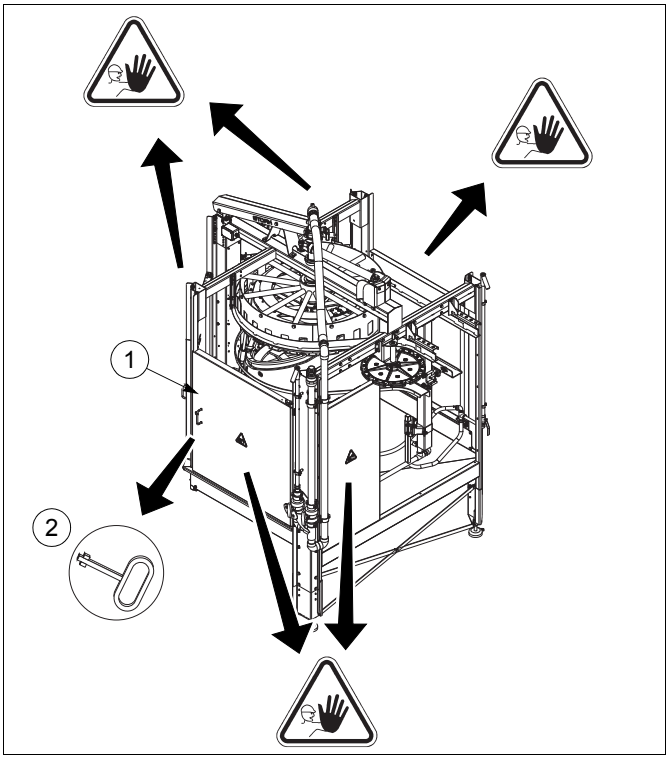


fig. 8 Safety provisions

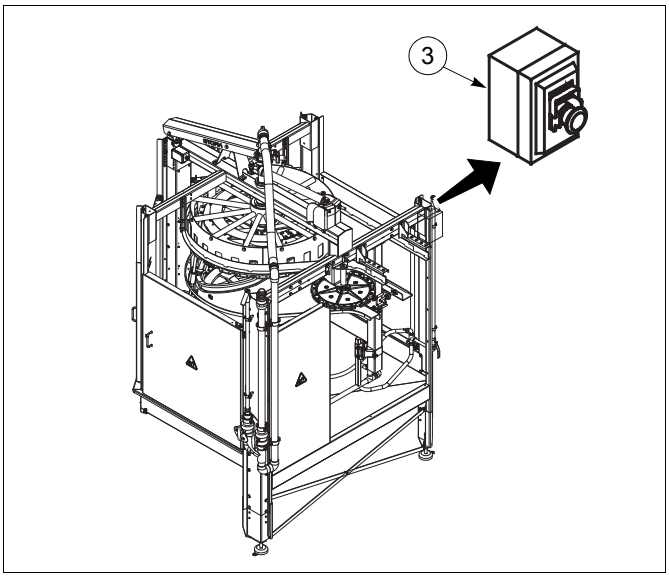


fig. 9 Emergency stop

4.5 Safety provisions

The machine has the following safety provisions:
- Doors **1** (4x). See fig. 8.
- Key **2** for opening and closing the doors.
- Emergency stop and/or emergency stop cord within reach.

See fig. 8.

The machine can be fitted with the following safety feature:
- Emergency stop button **3** on the machine.

See fig. 9.

MORTAL DANGER
Never remove, bridge or block safety provisions.

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.**

You will find safety labels on the machine as shown in fig. 8.
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).

4.6 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

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 Setting 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 points:
- Make sure that the surface is solid and level and that there is sufficient space to move around the machine for carrying out work.
- Take account of the setup requirements for the other machines.
- Make sure there is sufficient lighting to work safely on the machine.

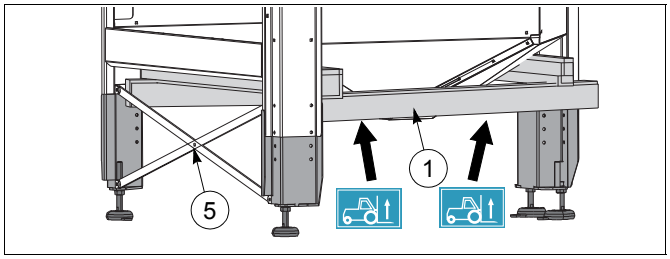


fig. 10 Transport frame

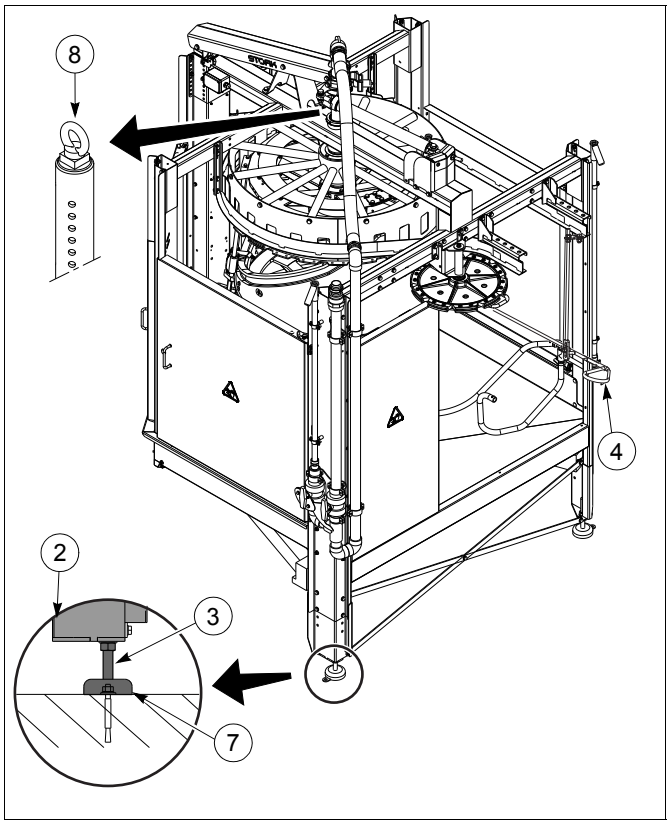


fig. 11 Machine set-up

Set the machine up as follows:

TAKE CARE
Never use hoist eyelet **8** for lifting the machine.
Only use the hoist eyelet for overhauling activities such as replacing the main shaft.

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.
2. Remove the packaging around the machine.
3. Lift the machine up using a hoist or a forklift truck and remove the base.

MORTAL DANGER
Make sure that unauthorised persons are not in the direct vicinity when hoisting the machine. Be aware of the centre of machine's gravity. See the "Technical Data".

4. Hoist the machine until the Overhead Conveyor is in line with the adjoining track sections.
5. Fit reinforcement cross **5** and the adjustment legs **2** together with the adjustable feet **3** onto the machine.
6. Remove the transport frame **1**.
7. Set the height with the adjustable feet **3** so that the Overhead Conveyor is in line with the adjoining belt sections.
8. Use adjustable feet **3** to level the frame.
9. Fit guide **4**.
10. Attach the foot plates **7** to the floor.
11. Connect the machine to the Overhead Conveyor. See the User's Manual Overhead Conveyor.

See fig. 10 and fig. 11.

5.2 Connection

5.2.1 Connecting up electricity

MORTAL DANGER
Do the work described in this chapter only if:

1. **the power supply to the machines and/or control panels is switched off.**
2. **all the electrical plugs of the machine have been removed from the wall sockets.**
3. **all the main switches have been fitted with a padlock.**
4. **all measures have been taken to prevent that the electricity is unintendedly switched on.**

Take care when performing the work.

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".

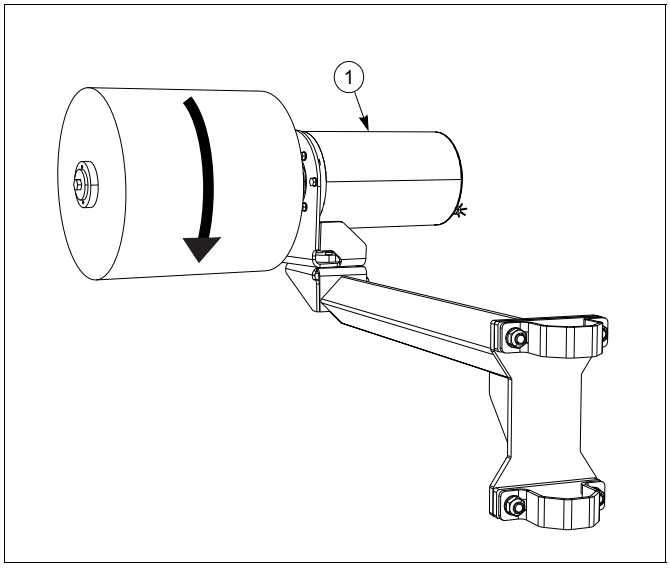


fig. 12 Transport frame

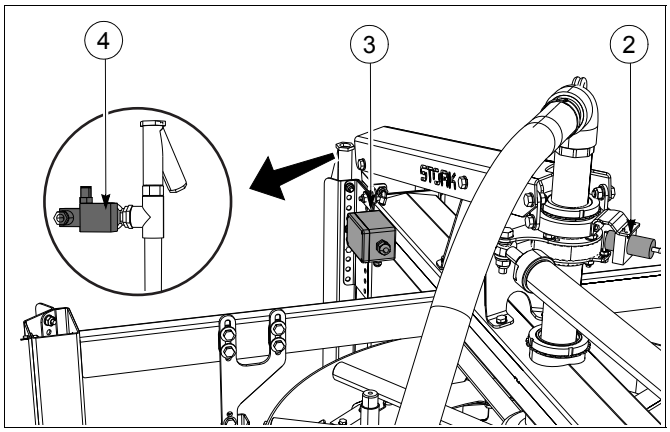


fig. 13 Electrical connections

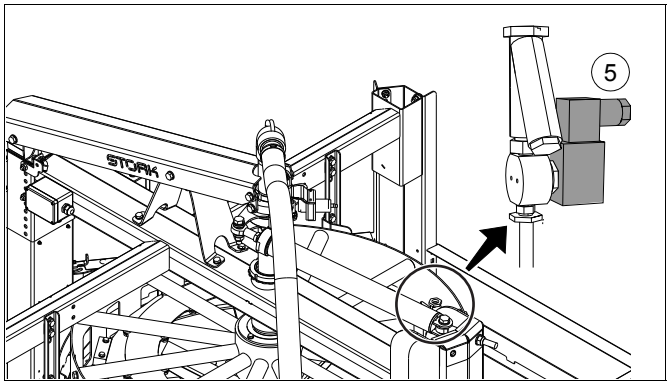


fig. 14 Magnetic valve connection for machines connected to chlorinated water

- Motor **1** for driving the brush and Proximity switch **2** of the overload limiter are wired to the terminal box **3**.
  - Connect the terminal box to the Overhead Conveyor Control Panel.
  - After connection, check the operation of the motor. See paragraph 5.2.1.1 Check the operation of the brush motor.
  - After connection, check the operation of the proximity switch. See paragraph 5.2.1.2 Check the operation of the overload limiter proximity switch.

See fig. 12 and fig. 13.

- Machine without chlorinated water connection
  - Connect magnetic valve **4** to the Overhead Conveyor Control Panel. See paragraph 5.2.1.3 Connect magnetic valve.
- Machine with chlorinated water connection
  - Connect magnetic valve **5** to the Overhead Conveyor Control Panel. See paragraph 5.2.1.3 Connect magnetic valve.

See fig. 12 and fig. 14.

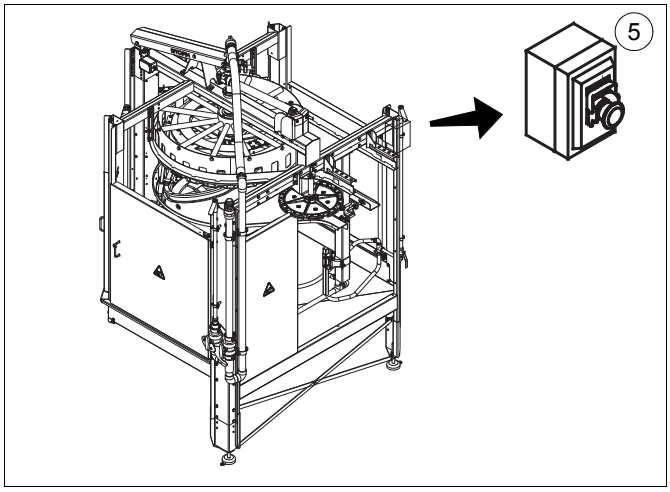


fig. 15 Connecting up emergency stop

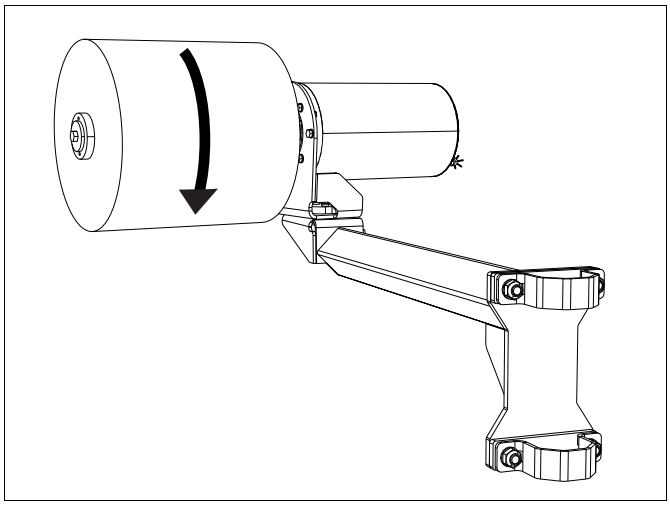


fig. 16 Brush motor

Machine with emergency stop:

- Emergency stop switch **5** stops after the switching on all the electrical controls to the machine.
  - Connect the emergency stop switch **5** to the Overhead Conveyor Control Panel. See the User's Emergency Stop Provisions.
  - After connection, check the operation of the emergency stop switch. See the User's Emergency Stop Provisions.

See fig. 15.

5.2.1.1 Check the operation of the brush motor

- After connection first check the direction of rotation of the motor.
- After connection check if the motor starts when the Overhead Conveyor belt is started up.

See fig. 16.

TAKE CARE
An incorrect direction of rotation can lead to damage to the machine.

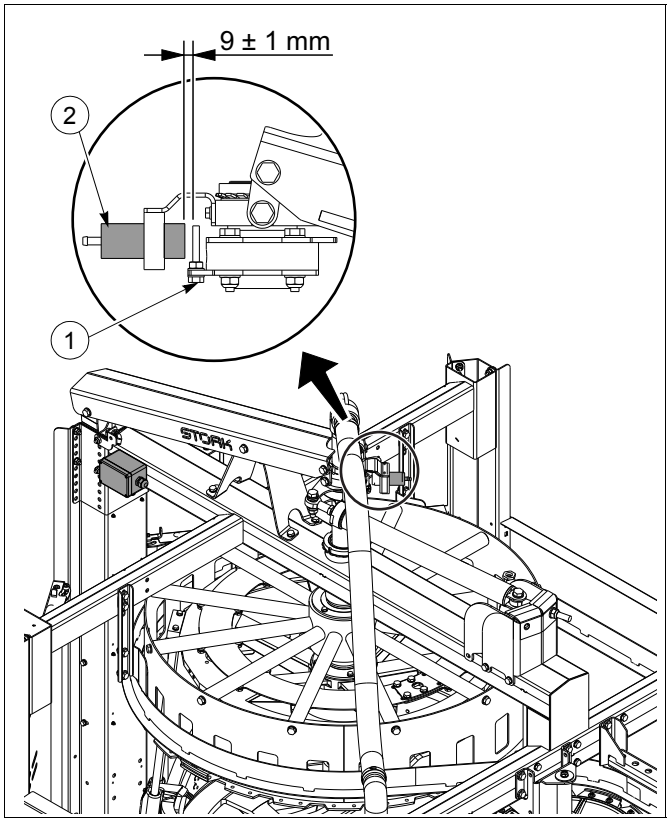


fig. 17 Proximity switch

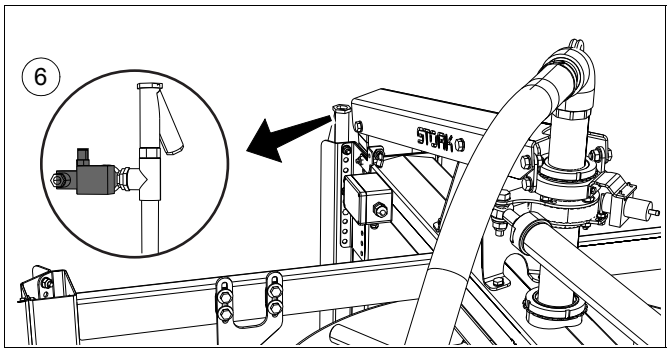


fig. 18 Magnetic valve connection, non-chlorinated water

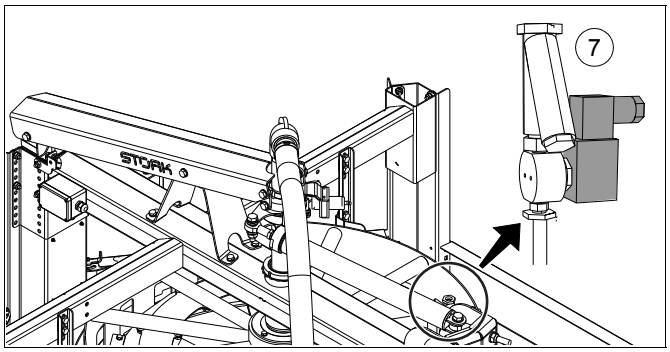


fig. 19 Magnetic valve connection, chlorinated water

5.2.1.2 Check the operation of the overload limiter proximity switch

If the machine is subjected to an overload (due to a technical defect, for example), bolt **1** on the proximity switch **2** is withdrawn. The proximity switch will be deactivated, resulting in the Overhead Conveyor drive motor(s) being switched off.

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

During operation the proximity switch is activated.

- After connection of the terminal box check that the drive motor(s) of the Overhead Conveyor is (are) switched off when overload limiter **2** is activated.

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

To guarantee the proper functioning of the proximity switch there must be a distance of 9 ± 1 mm between the bolt and the proximity switch.
See fig. 17.

5.2.1.3 Connect magnetic valve

The magnetic valve opens the cold water supply for lubricating the guide shafts.

- Machine without chlorinated water connection
  Magnetic valve **6** should be connected so that the water supply is opened when the Overhead Conveyor is switched on. See fig. 18.
- Machine with chlorinated water connection
  Magnetic valve **7** should be connected so that the water supply is opened when the Overhead Conveyor is switched on. See fig. 19.

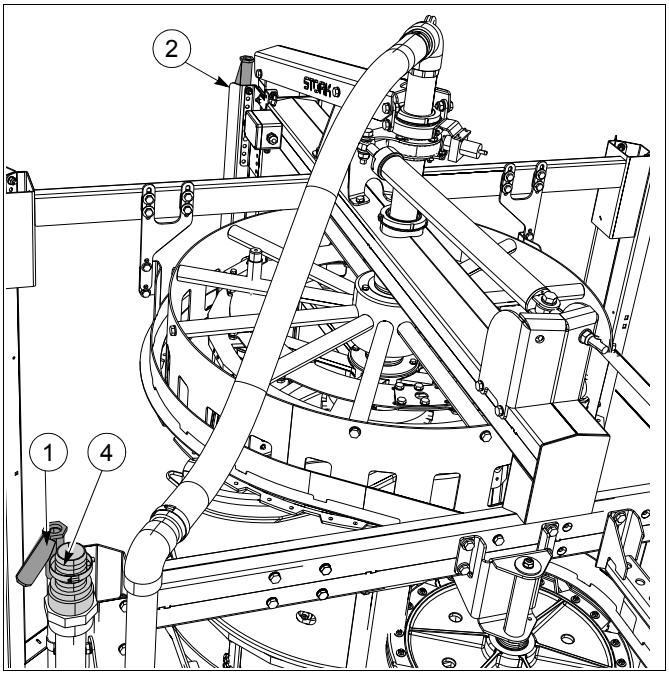


fig. 20 Connect water supply, non-chlorinated water / connect vacuum

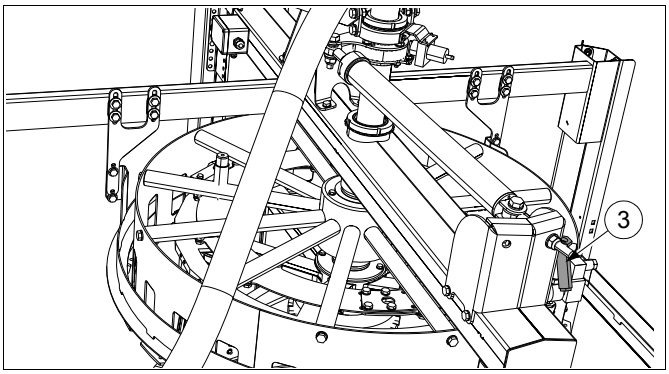


fig. 21 Connect water supply, chlorinated water

5.2.2 Connect the water

Hot water
The hot water is used for the internal flushing of the machine after production. See also paragraph 8.2 Flush the machine internally.
- Connect point **1** to the hot water supply.

See fig. 20.

Cold water
- Non chlorinated water connection
  Connect point **2** to the water supply system. See fig. 20.
- Chlorinated water supply
  Connect point **3** to the water supply system. See fig. 21.

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.

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

5.2.3 Connect vacuum
The vacuum ensures the removal of the product remains.
- Connect point **4** to the vacuum system.

For connection and consumption details consult the "Technical Data".
See fig. 20.

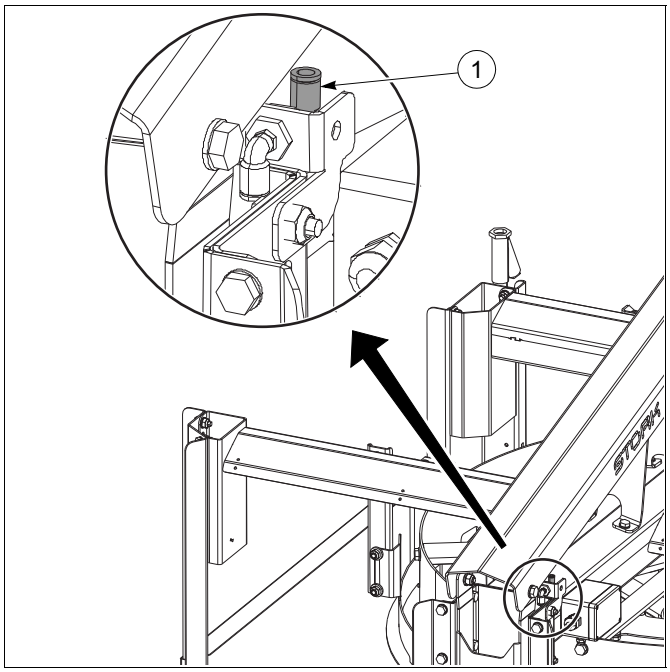


fig. 22 Connect compressed air

5.2.4 Connecting the compressed air

The machine has pneumatic components which are operated by compressed air.

- Connect point **1** to the compressed air system.

For connection and consumption details consult the "Technical Data".
See fig. 22.

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.

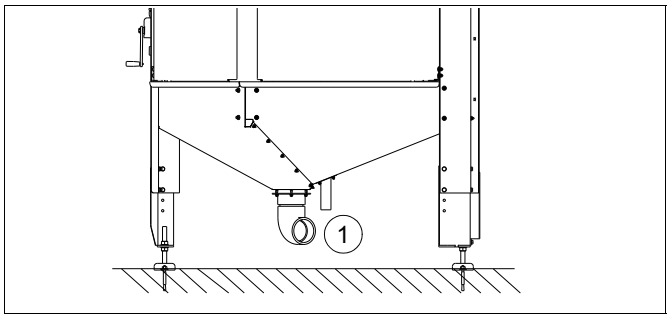


fig. 23 Connect drain

5.2.5 Connect drainage receptacle

- A pipe can be fitted to the drain from the collecting bin **1** so that the spray water and the product remains can be discharged.

For connection and consumption details consult the "Technical Data".
See fig. 23.

5.3 Cleaning the machine after installation

Clean the machine thoroughly before putting it into operation for the first time.
See paragraph 8.1 Clean the machine after production.

6 ADJUSTMENT AND SETTING

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

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.

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.**

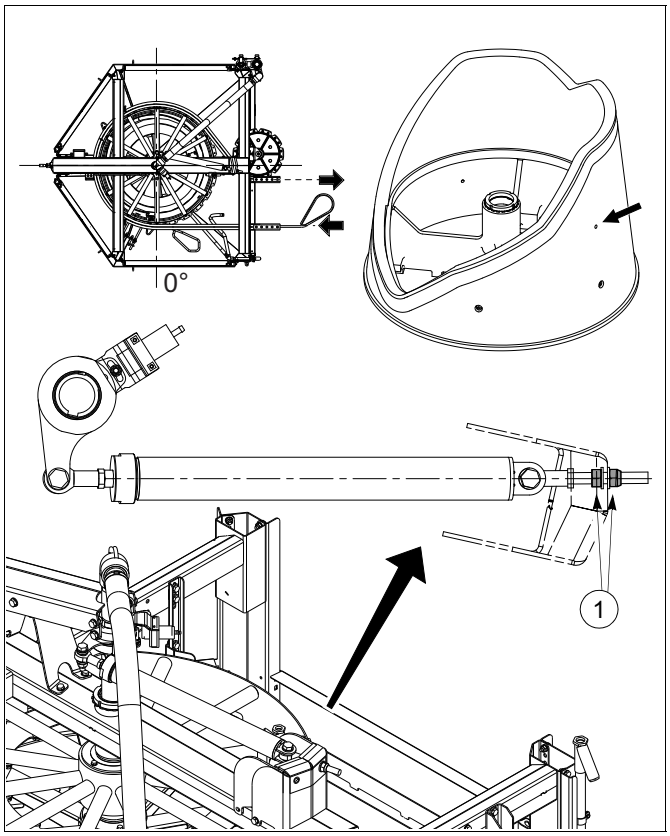


fig. 24 Set zero point

6.1 Set zero point

Make sure that the reference point on the curve is level with the zero point of the machine.
Do this by adjusting nuts **1** on the overload limiter.
See fig. 24.

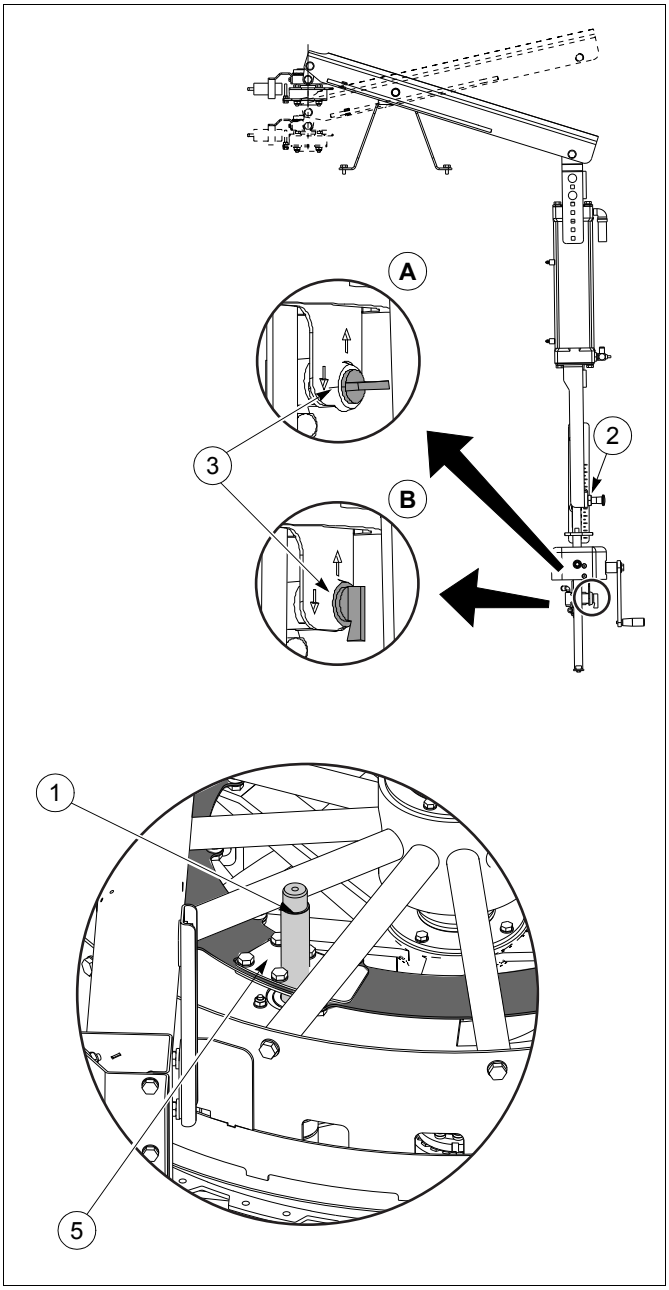


fig. 25 Coupling and decoupling the machine

6.2 Coupling and decoupling the machine

Carrier pin **1** makes a connection between the drive wheel which is driven by the Overhead Conveyor and the unit wheel. Fixing pin **2** of the height adjustment ensures that the machine remains engaged when the compressed air fails..

WARNING
Various parts move while the units are rotating. Beware of getting your hands caught.

Uncouple the machine as follows:
1. Stop the Overhead Conveyor. See the User's Manual Overhead Conveyor.
2. Pull fixing pin **2** out and hold on to it.
3. Set switch **3** to position "**A**".
   - The pneumatic cylinder extends so that the main shaft with the curve and also the units drop.
4. Release fixing pin **1** again.

See fig. 25.

Couple the machine as follows:
1. Stop the Overhead Conveyor. See the User's Manual Overhead Conveyor.
2. Set switch **3** to position "**B**".
   - The pneumatic cylinder retracts so that the main shaft with the curve and the units go to the set height. See paragraph 6.4 Setting the height for the height adjustment.
3. Turn the carousel with the units against the direction of rotation until the carrier pin **1** falls into the recess of plate **5**.

See fig. 25.

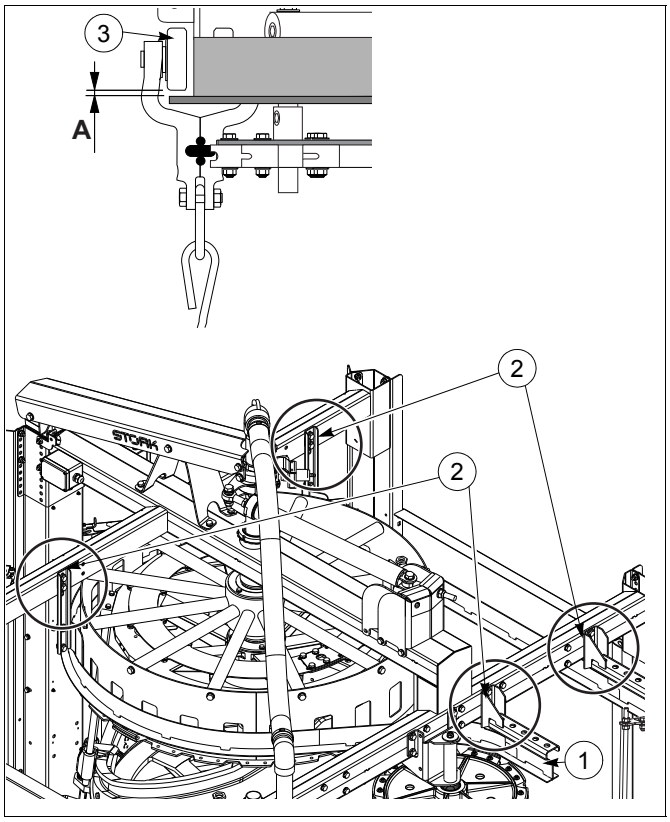


fig. 26 Track height

6.3 Adjust track height

Track section **1** connects to the Overhead Conveyor belt from the processing plant.

The adjustment of the track height depends on the type of track profile and shackle.

Adjust the track height as follows:
1. Loosen bolts **2** a number of turns.
2. Adjust measurement **A**, the distance between the bottom of the trolley wheel and the top of the Overhead Conveyor belt in accordance with tab. 2.
   - Trolley **3** must not touch the Overhead Conveyor.
3. Tighten bolts **2**.

NOTE
Check that track section **1** runs horizontally.

See fig. 26.

tab. 2 Adjust track height

Track profile	**Distance A**
T-profile	1 mm
.....*	**.....***

* to be completed by the user.
See fig. 26.

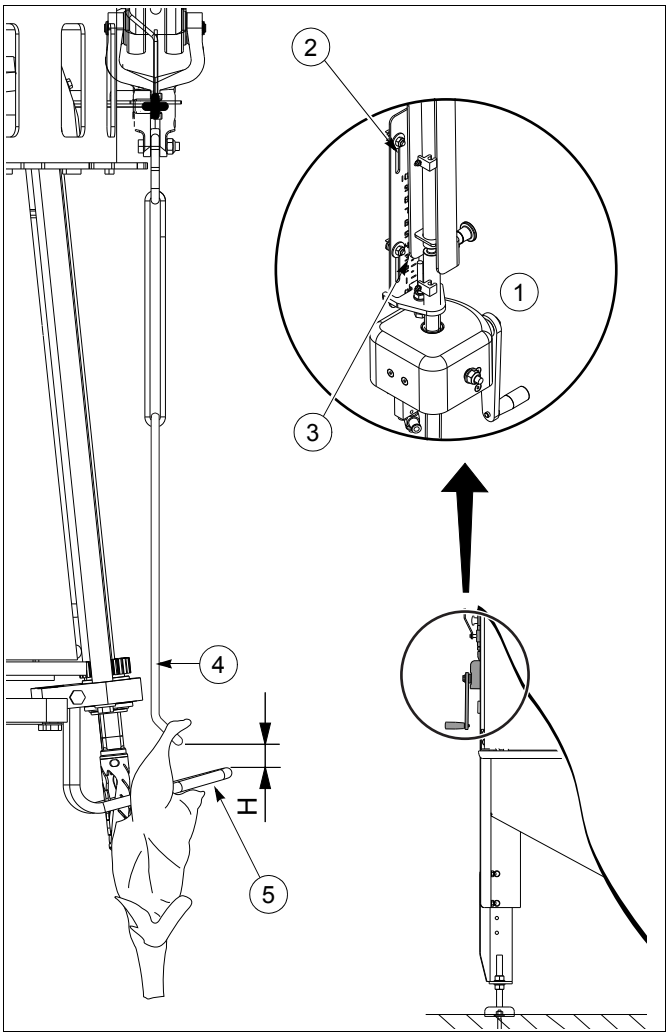


fig. 27 Setting the height

6.4 Setting the height

The height adjustment can be used to adjust the height of the fixed and moving unit compared to the product.

Adjust as follows:

1. Use lever **1** so that the distance between the bottom of the shackle **4** and the top of spreader bracket **5** according to tab. 3. Turn lever **1:**
   - anticlockwise to decrease distance **H.**
   - clockwise to increase distance **H.**

TAKE CARE
Make sure that the spreader brackets remain under the shackles.

TIP
The height adjuster is fitted with ruler **2** and indicator **3** to read out the setting easily.
The scale of the ruler is as follows:
- position 0, highest position of the main shaft with curve.
- position 10, 100 mm lower than position 0.

tab. 3 Adjust the machine height

Shackle	**Distance H**
Nuova	19 mm
Nu-tech	14 mm
Rigid 24”	9 mm
.....*	**.....***

See fig. 27.

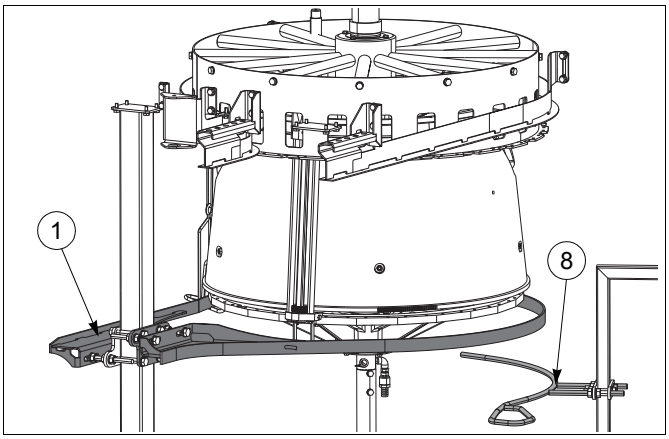


fig. 28

6.5 Adjust guides

The machine can be fitted with the following guides:
- Inner shackle guide **1**
  See paragraph 6.5.1 Inner shackle guide for adjusting the guide.
- Infeed guide **8**
  See paragraph 6.5.2 Adjust the product guide for adjusting the guide.

See fig. 28.

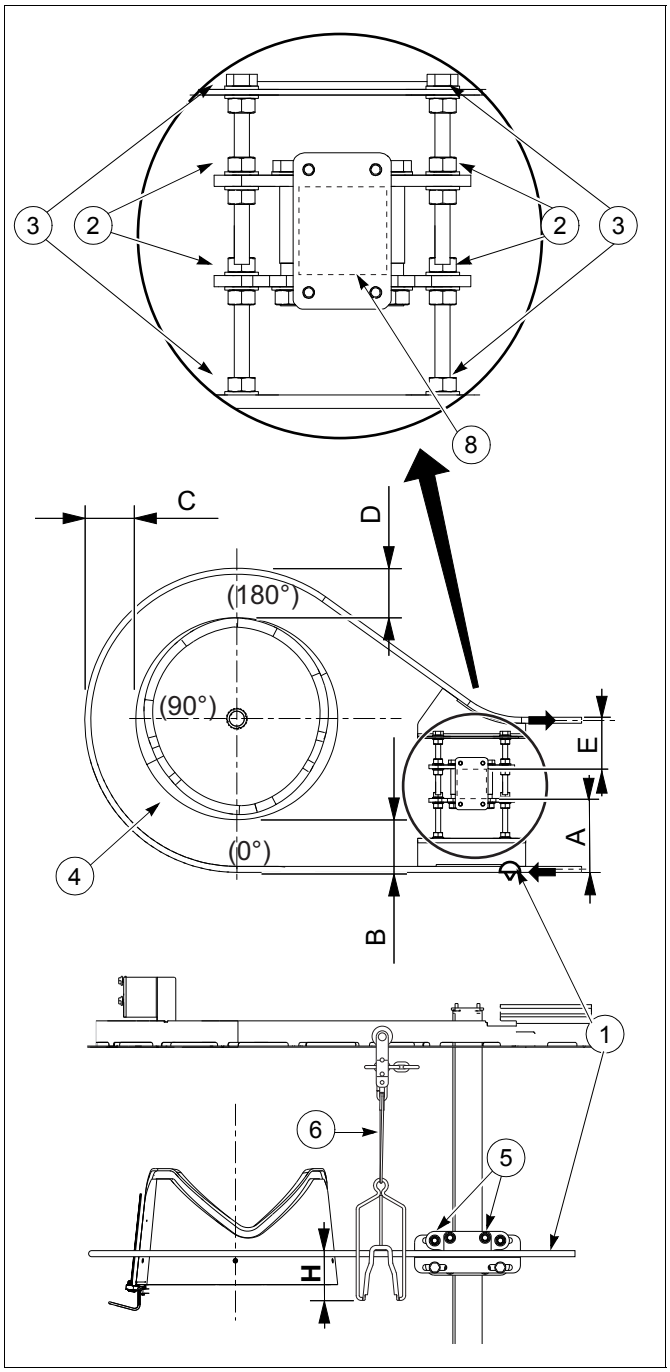


fig. 29 Adjust guides

6.5.1 Inner shackle guide

Inner shackle guide **1** positions the products in the units and prevents the shackles getting stuck in the machine.

Width

Adjust as follows:

1. Undo nuts **2 and 3**.
2. Set the distances below as follows tab. 4:
   - Distance **A**, between support **8** and outer side of guide **1**
   - Distance **B**, **C** en **D,** between the outside of curve **4** and the outside of guide **1**
3. Adjust the inner shackle guide as follows tab. 4.
4. Tighten nuts **2** and **3** again.

tab. 4 Adjust inner shackle guide

	Distance				
Shackle	**A**	**B (0°)**	**C (90°)**	**D (180°)**	**E**
Nuova	170 mm	90 mm	80 mm	90 mm	155 mm
Nu-Tech	170 mm	90 mm	80 mm	90 mm	155 mm
Rigid 24”	..	..	..	..	..
.....*	**.....***	**.....***	**.....***	**.....***	

* to be completed by the user.
See fig. 29.

Height

The adjustment of the height of guide **1** depends on the type of track profile and shackle.

Adjust the height as follows:

1. Adjust the machine up to the correct height. See paragraph 6.4 Setting the height.
2. Undo nuts **5**.
3. Adjust the distance between the top of inside shackle guide **1** and bottom of shackle **6** according to tab. 5.
4. Tighten nuts **5**.

See fig. 29.

tab. 5 Adjust the height of the inner shackle guide

Shackle	**Distance H**
Nuova	260 mm
Nu-Tech	260 mm
Rigid	140 mm
.....*	**.....***

* to be completed by the user.

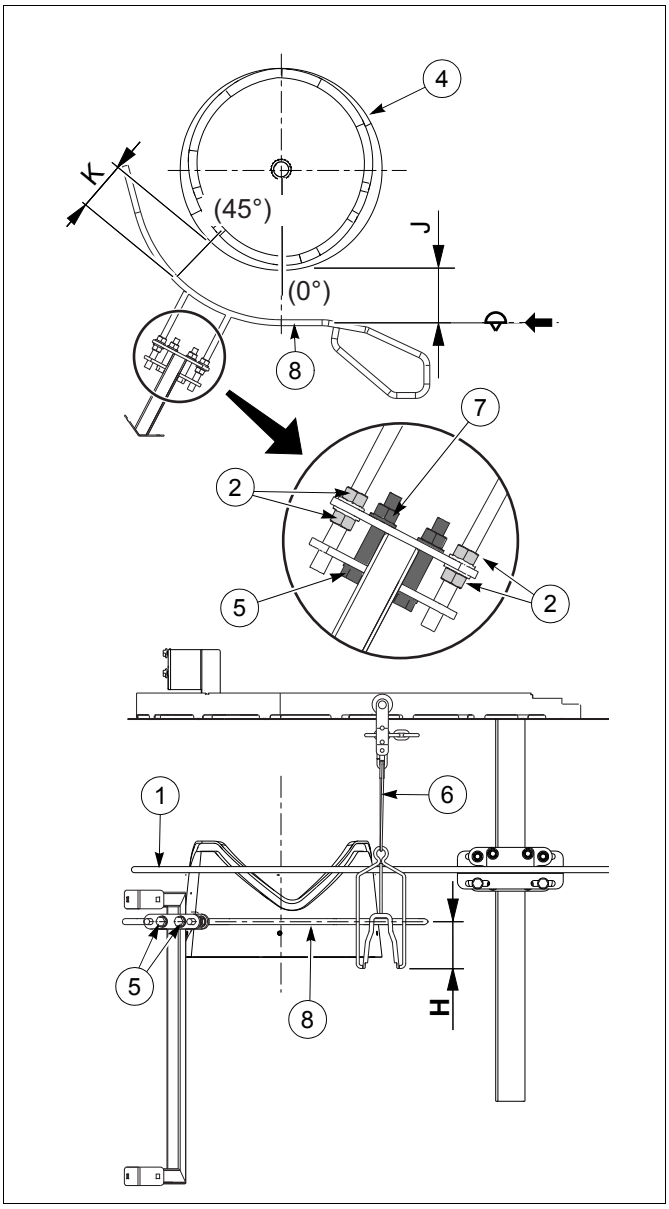


fig. 30 Adjust guides

6.5.2 Adjust the product guide

Product guide **8** positions the products in the inner/outer washing units.

Width

Adjust as follows:

1. Undo nuts **2**.
2. Set the distances below as follows tab. 6:
   - Distance **J**, between the outside of curve **4** and the centre of product guide **8**.
   - Distance **K**, between the outside of curve **4** and the centre of product guide **8**.
3. Tighten nuts **2** again.

tab. 6 Adjust the product guide

	Distance	
Shackle	**J (0°)**	**K (45°)**
Nuova	110 mm	100 mm
Rigid	110 mm	100 mm
.....*	**.....***	**.....***

* to be completed by the user.

Height

The adjustment of the height of product guide **8** depends on the type of track profile and shackle.

Adjust the height as follows:

1. Adjust the machine up to the correct height. See paragraph 6.4 Setting the height.
2. Undo bolts **5** and nuts **7**.
3. Adjust the distance between the centre of product guide **8** and the bottom of shackle **6** according to tab. 7.
4. Tighten nuts **5 and bolts 7**.

See fig. 30.

tab. 7 Adjust height of product guide

Shackle	**Distance H**
Nuova	30 mm
Rigid	90 mm
.....*	**.....***

* to be completed by the user.

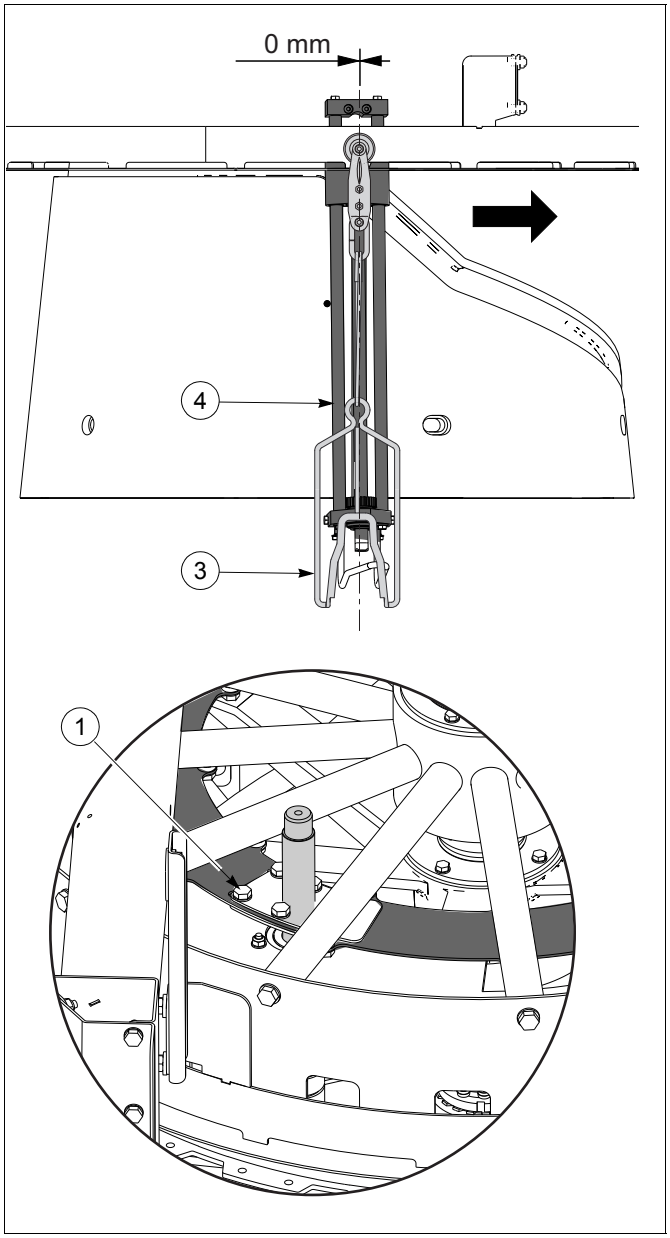


fig. 31 Adjust the timing of the spreader bracket compared to the shackle

6.6 Adjust the timing of the unit compared to the shackle

For the proper positioning of the product, the spreader bracket must be adjusted compared to the shackle. Adjust this as follows:

1. Couple the machine. See paragraph 6.2 Coupling and decoupling the machine.
2. Loosen bolts **1** a number of turns.
3. Turn the carousel until the centre line of unit **4** lies in line with the evisceration shackle **3**.

WARNING
Various parts move while the unit is rotating. Beware of getting your hands caught.

4. Tighten bolts **1**.
5. During production check whether the movable washing unit is properly positioned in the products.

See fig. 31.

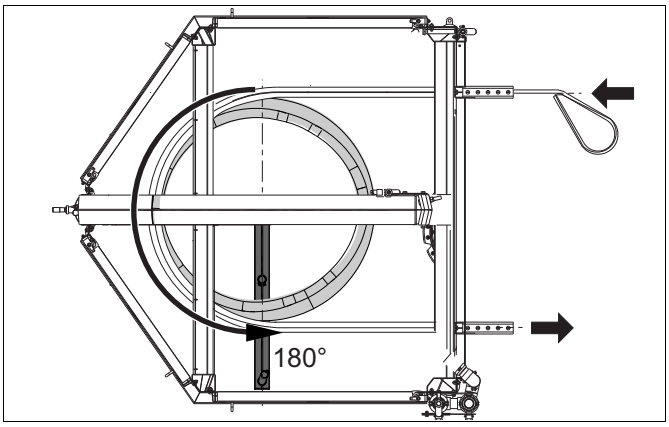


fig. 32 Outside washer, span arch equal to 180°

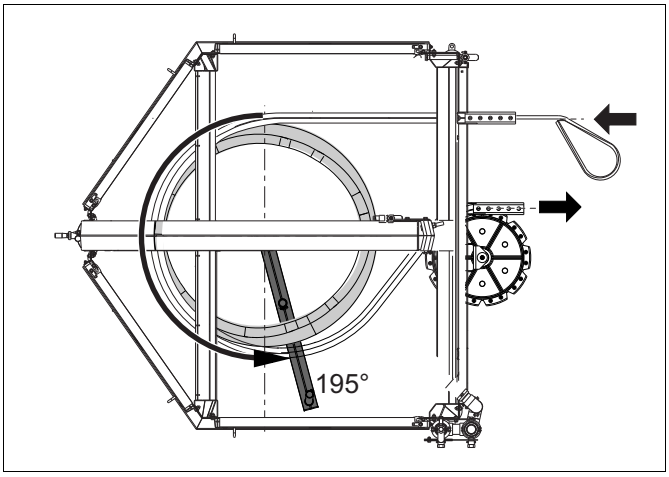


fig. 33 Outside washer, span arch greater than 180°

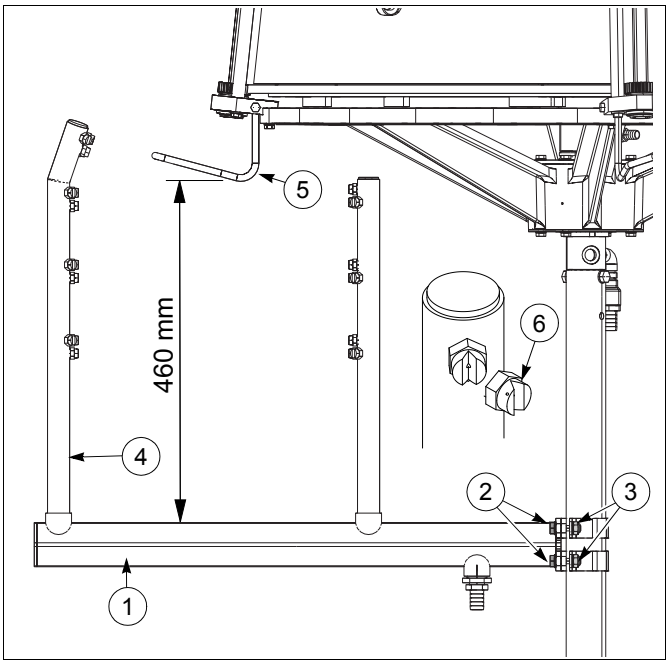


fig. 34 Adjust sprayers

6.7 Adjust sprayers

Outside washer **1** cleans the product.

Adjust the outer washer as follows:
1. Undo bolts **2** and nuts **3**.
2. Adjust the outer washer as follows, depending on the type of machine:
   - Machine with a span arch equivalent to 180°. Adjust the outer washer to 180° by rotating it. See fig. 32.
   - Machine with a span arch greater than 180°. Adjust the outer washer to 195° by rotating it. See fig. 33.
3. Set the distance between the top of the outer washer **1** and the bottom of spread bracket **5** to 460 mm.
   - Nozzles **6** must be in vertical position.
4. Tighten bolts **2** and nuts **3** again.

See fig. 34.

Sprayers **7** lubricate the unit's guide shafts and the perforations.
- Make sure that the sprayers are properly aimed at the shafts.
- The nozzles must be in vertical position.

See fig. 35.

Sprayer **8** cleans the unit perforations.
- Ensure that the sprayer is aimed at the perforations.
- The nozzle must be in vertical position.

See fig. 35.

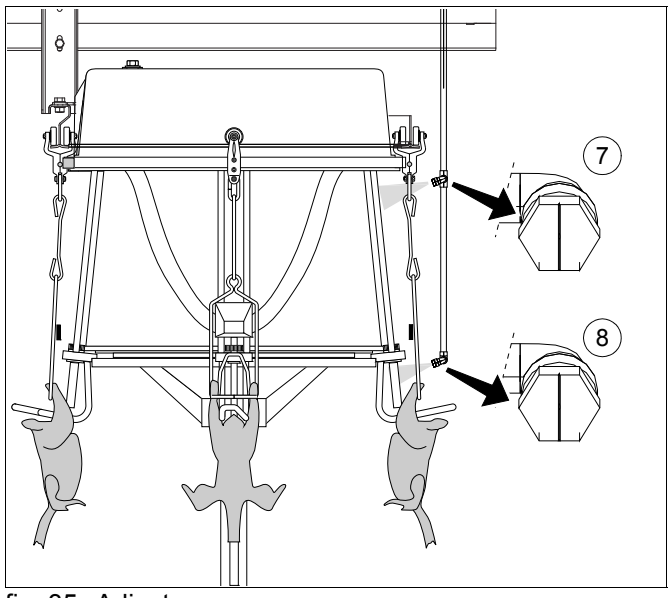


fig. 35 Adjust sprayers

s

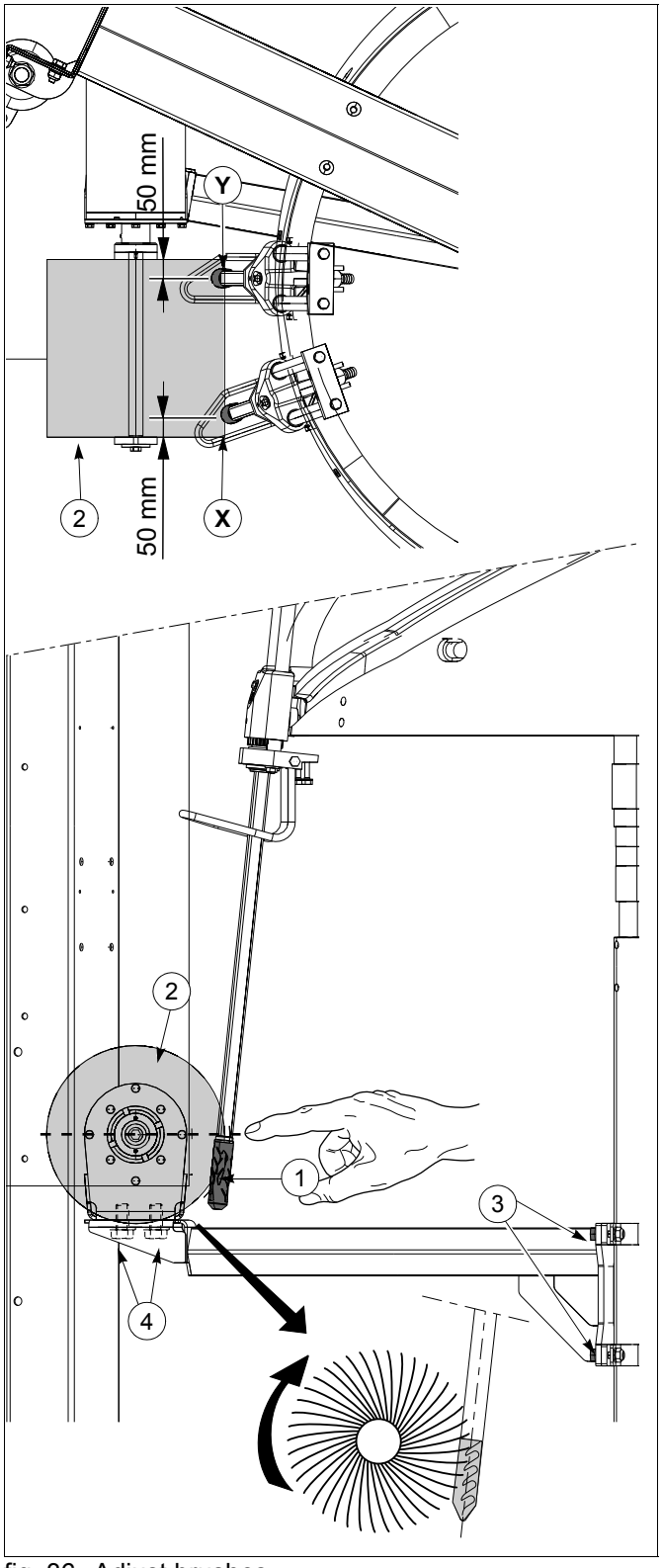


fig. 36 Adjust brushes

6.8 Adjust brush

Drill **1** is cleaned externally by brush **2**.

Adjust the brush as follows:

1. Couple the machine. See paragraph 6.2 Coupling and decoupling the machine.
2. Turn the carousel until the drill **1** of the unit has reached the deepest point.

WARNING
Various parts move while the unit is rotating. Beware of getting your hands caught.

3. Loosen bolts **3** a number of turns.
4. Adjust the height of the brush so that the upper side of the drill is level with the centre line of the brush.
5. Rotate the brush together with the support so that the distance between the centre of perforation **1** and outer edge of brush **2** is 50 mm.
6. Tighten bolts **3** again.
7. Loosen bolts **4** a number of turns.
8. Adjust the angle of brush **2** so that positions **X** and **Y** touch half of the perforations.
9. Tighten bolts **4** again.

See fig. 37.

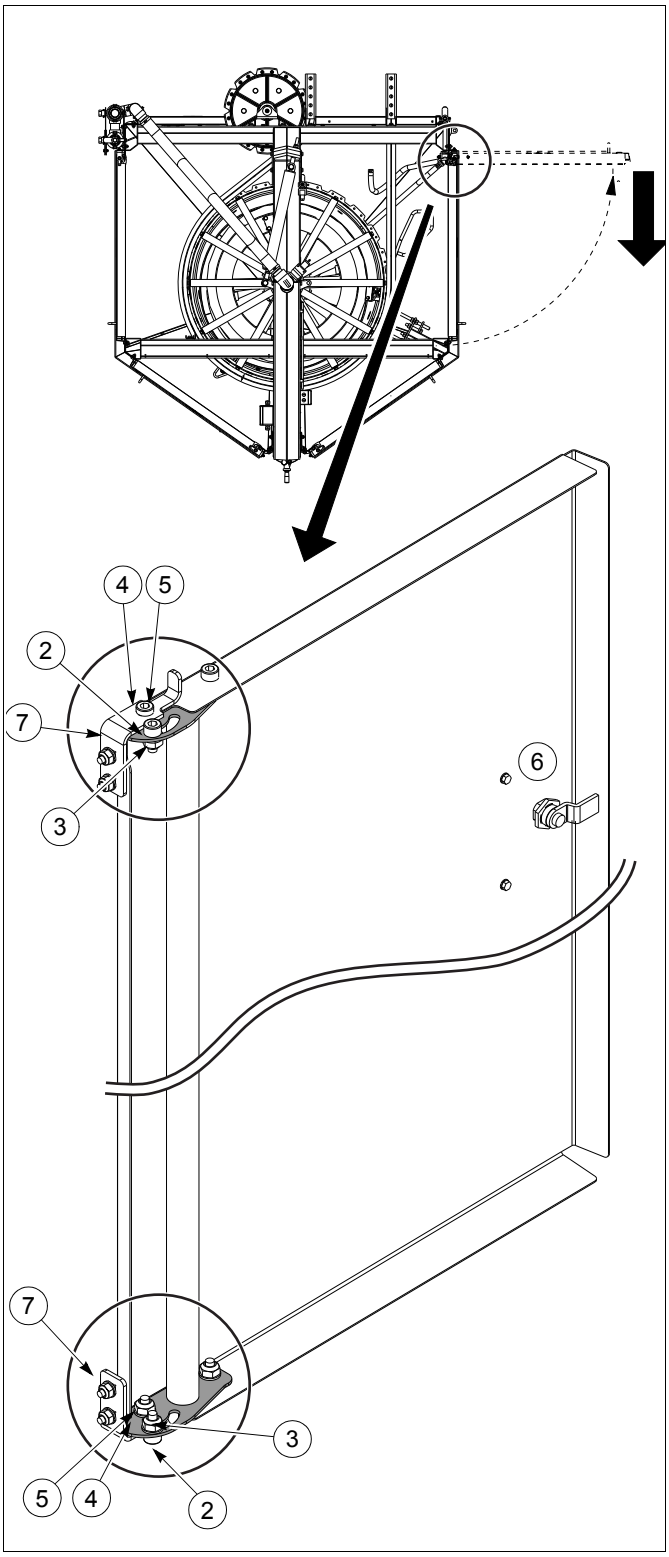


fig. 37 Adjust doors

6.9 Adjust doors

The machine doors are fitted with adjustable stops to prevent a door from being opened too far.

Adjust the stop as follows:
1. Undo bolt **2** and nut **3** a number of turns.
2. Adjust the stop so that during the opening of a door no obstacle is touched.
3. Tighten bolt **2** and nut **3** again.

See fig. 37.

TIP
The direction that the door opens can be changed.

Fit the door so that the direction opening is the same as the transport direction of any neighbouring conveyor system.

Do as follows:
1. Undo bolt **4** and nut **5**.
2. Fit the hinges **7** on the desired frame.
3. Turn the door round to change the direction of opening.
4. Tighten bolt **4** and nut **5** again.

See fig. 37.

Check and fit lock **6** so that the door can be locked.

TIP
The stop can be removed to open the door further.

7 OPERATION

MORTAL DANGER
It is forbidden to approach within the protected or the non-protected zone of a machine which is switched on.

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

WARNING
First read chapter 7 Operation prior to processing products.

7.1 Emergency stop

NOTE
Only use the emergency stop in an emergency situation.

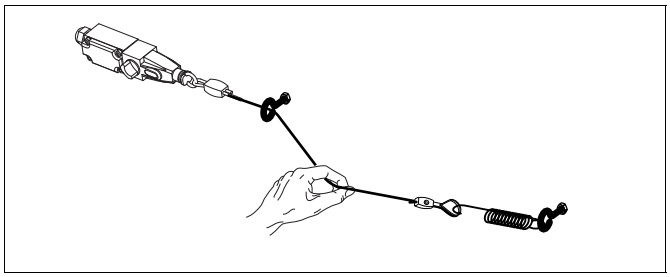


fig. 38 Emergency stop cord

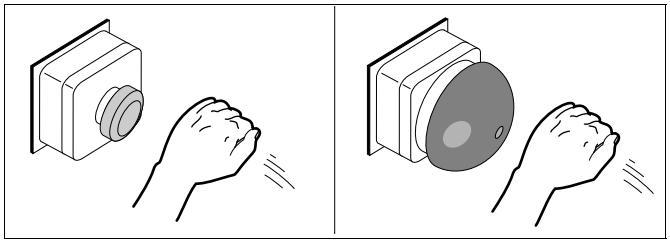


fig. 39 Emergency stop button

In an emergency you must:
- pull the emergency stop cord.
- press the emergency stop button.

See fig. 38 and fig. 39.

When the emergency stop has been operated the Overhead Conveyor stops. All electrical connections to the machine are switched off.
An alert will appear on the Control Panel, see the User's Manual Overhead Conveyor Control Panel.

Deal with the emergency situation as follows:
1. The emergency situation should only be dealt with by authorised persons.

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. De-block the emergency stop. See the User's Manuals Overhead Conveyor Control Panel and Emergency Stop Provisions.
3. Proceed with processing the products, see paragraph 7.4 Processing products.

7.2 Close / open doors

The machine has hinged doors. Open and close or lock doors **1** with the bit key provided **2**.
See fig. 40.

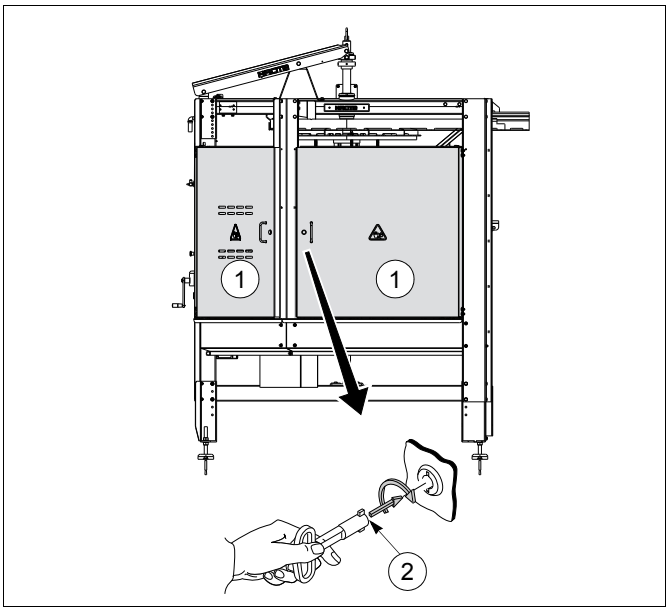


fig. 40 Lock doors

7.3 Valves

7.3.1 Valve vacuum

The vacuum ensures the removal of the product remains.
Operate valve **1** of the vacuum as follows:
1. Valve open, position **A**.
2. Valve closed, position **B**.

See fig. 40 and fig. 41.

7.3.2 Valves for water supply

Hot water
The hot water is used for the internal flushing of the machine after production.
Operate valve **2** of the hot water as follows:
1. Valve open at position **C**.
2. Valve closed at position **D**.

See fig. 41.

Cold water
The cold water is used for cleaning the products and for the internal cleaning of the drills.

Operate valve **3** for cold water as follows:
1. Valve open, position **E**.
2. Valve closed, position **F**.

See fig. 41.

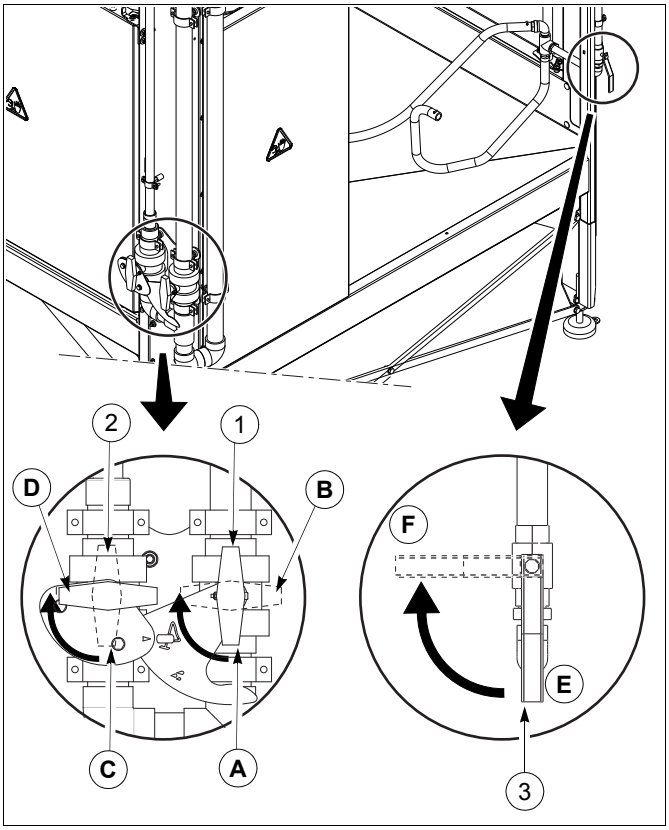


fig. 41 Valves

7.4 Processing products

Processing products is carried out as follows:

1. Stop the Overhead Conveyor. See the User's Manual Overhead Conveyor Control Panel.
2. Check that the machine is connected. See paragraph 6.2 Coupling and decoupling the machine.
3. Adjust the height of the machine. See paragraph 6.4 Setting the height.
4. Check that the guides are in the correct position. See paragraph 6.5 Adjust guides.
5. Close all the doors around the machine. See paragraph 7.2 Close / open doors.
6. Open the spray water supply and the vacuum supply. See paragraph 7.3 Valves.
7. Start the Overhead Conveyor. See the User's Manual Overhead Conveyor Control Panel.
8. Check once again the height of the machine during product processing. See paragraph 6.4 Setting the height.
9. During production check regularly that the sprayers are not blocked.

7.5 Do not process products

Non-processing of products is carried out as follows:

1. Stop the Overhead Conveyor. See the User's Manual Overhead Conveyor Control Panel.
2. If necessary, rinse and clean the machine. See chapter 8 CLEANING.
3. Close the spray water supply and the vacuum supply. See paragraph 7.3 Valves.
4. Disengage the machine. See paragraph 6.2 Coupling and decoupling the machine.
5. Start the Overhead Conveyor. See the User's Manual Overhead Conveyor Control Panel.

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 Clean the machine after production

Open the doors of the machine for cleaning. See paragraph 7.2 Close / open doors.

Carry out the cleaning instructions as follows:

1. Disengage the machine. See paragraph 6.2 Coupling and decoupling the machine.
2. Close the valves of the water supply. See paragraph 7.3 Valves.
3. Clean the whole machine daily both externally and internally. See also the User's Manual Cleaning and disinfection.
4. Couple the machine. See paragraph 6.2 Coupling and decoupling the machine.

See fig. 42.

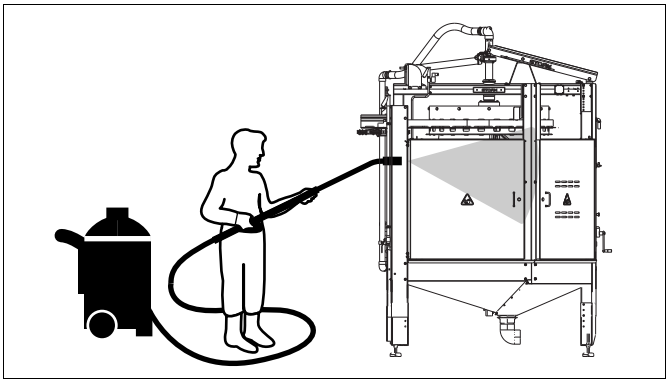


fig. 42 Clean the machine

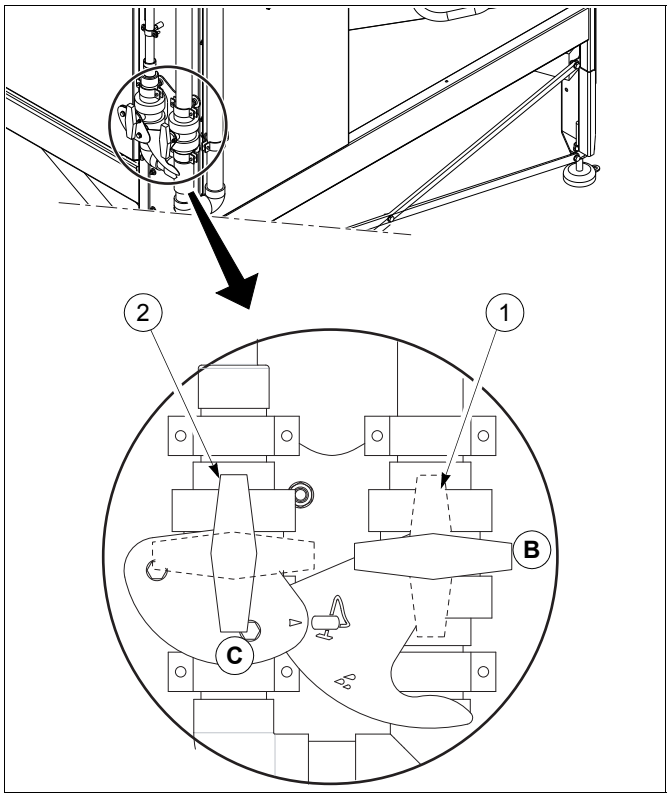


fig. 43 Flush the machine internally

8.2 Flush the machine internally

The rinsing water flushes the product remains from the vacuum lines and the drill. Rinse the machine immediately after production so that no remains accumulate.

Flush the machine internally as follows:
1. Close off the vacuum using valve **1, position B**.
2. Start the Overhead Conveyor.

MORTAL DANGER
The starting of the Overhead Conveyor belt must be carried out by competent, professional and trained personnel.

3. Turn valve **2** of the rinsing water open, **position C**. See fig. 43.

The inside of the machine will now be flushed.

9 MAINTENANCE

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.**

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.

 Cleaning	 Checking	 Setting or replacing	 Lubrication

tab. 8 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.	4.5
Weekly	Spray nozzles		Check and clean sprayers.	6.7
Weekly	Filter in the hot and cold water supplies.		Check the filter and clean if necessary.	-
Weekly	Fixing pin		Check the operation of the fixing pin. It should be possible to operate the pin easily.	6.2

tab. 8 Maintenance schedule

Frequency	Component	Activity	Maintenance	Para-graph
Weekly	Carrier pin		Check the operation of the carrier pin.	6.2
Monthly	Whole machine		Check for wear, breakage and the free running of moving parts.	-
Every 500 operational hours	Curve rollers		Check for wear.	-

9.2 Check the force of the unit wheel

NOTE
You must remove the units in order to check the force.

To ensure the machine is working properly, check the force of unit wheel **1** on main shaft **2** as follows:

1. Place key **3** on bolts **4** and **5**.
2. Place a measuring tool as shown in fig. 44.
3. Use the measuring tool to check whether unit wheel **1** turns at a force of 24 N.
   - Turn bolt **6** clockwise to increase the force.
   - Turn bolt **6** counterclockwise to reduce the force.

See fig. 44.

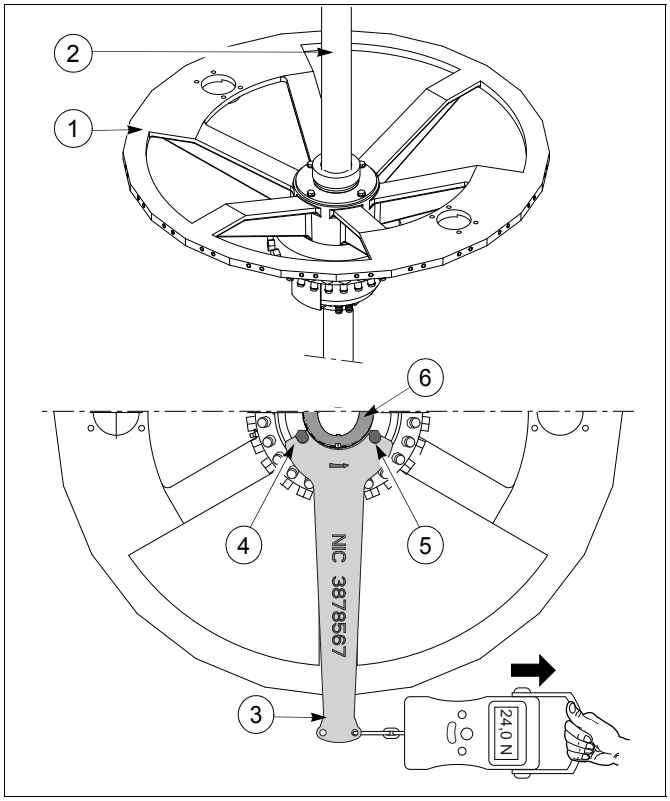


fig. 44 Check the force of the unit wheel

9.3 Lubrication

Lubricate the following parts:

- Use grease nipple **1** to lubricate the bearings of the main shaft as required.

See fig. 45 and tab. 9.

TAKE CARE
Never mix lubricants from different manufacturers or different types.

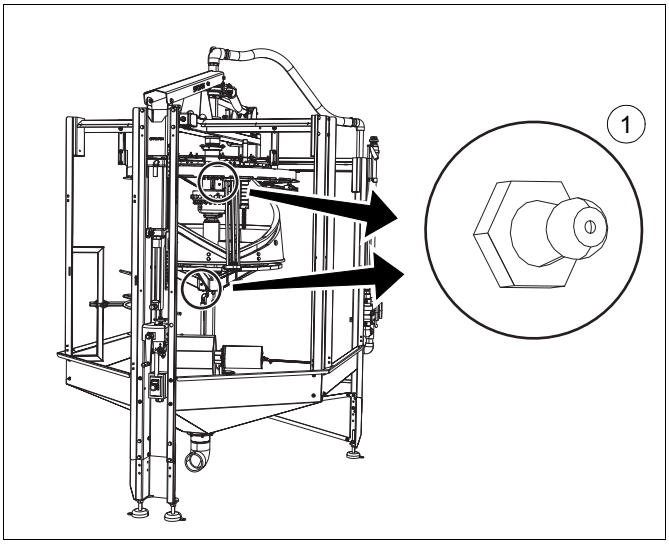


fig. 45 Lubrication

tab. 9 Lubricants

	Change every [(a) h / h / yr]			**Capacity [litres]**	TEXACO	Mobil	Esso	Shell
1.	-	-	-	As required.	Cygnus grease 2	Mobil Grease FM102	Carum 330 2	Cassida RLS 2

(a) First change[h]/ changing interval [h]/ max. changing interval [yr]

10 FAULTS

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. 10 Fault list

Fault	Possible cause	Possible solution	Paragraph
Product is not positioned properly.	Product is not suspended properly:	Ensure the proper input of the products.	-
	Guides not properly adjusted.	Check and correct the guides.	6.5
	The force of the unit wheel on the main shaft is not properly adjusted.	Adjust the force of the unit wheel on the main shaft properly.	9.2
Product does not run properly in the machine.	Machine height adjustment not correct.	Adjust height.	6.4
	Spread bracket does not run between the legs properly, timing is not correct.	Check and correct the timing.	6.6
	The force of the unit wheel on the main shaft is not properly adjusted.	Adjust the force of the unit wheel on the main shaft properly.	9.2

tab. 10 Fault list

Fault	Possible cause	Possible solution	Paragraph
No or insufficient vacuum.	Vacuum system blocked.	Clean vacuum system.	8.2
	Vacuum leaks in the bearing bushes of suction pipes.	Check the sprayer lubrication of the bearing bushes.	6.7
		Replace the bearing bushes.	-
	Vacuum valve in wrong position.	Set the vacuum valve in the correct position.	7.3
Difference in vacuum between the various suction units.	One or more drills (partially) blocked.	Check and clean if required.	-
Sprayers do not work properly.	Sprayers blocked.	Clean the sprayers.	-
	Filter in the supply blocked.	Clean the filter in the supply.	-
Overload protector switches machine off.	Proximity switch not properly adjusted.	Check the adjustment of the proximity switch.	5.2.1.2
	Proximity switch faulty.	Replace proximity switch.	
	Resistance in main shaft is too great.	Check bearings, replace if necessary.	-
	Unit blocks due to contamination, stuck bearings or a fault.	Check unit and clean or repair where necessary.	-

Appendix 1: LOGBOOK

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

Date	Carried out by	Activity

Appendix 2: SETTINGS

Note here the settings for the components for various products.

Component	Chapter	Date	Product:	Product:	Product: .....