

BTM T4100

UNIFLOR

OPERATING MANUAL



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FOREWORD

This operating manual is meant to provide information about your BTM T4100 Uniflor.

Operators for this machine need to have sufficient knowledge of the English language in order to understand this manual and safely operate the machine.

Furthermore information is given about the following:

- Using the system
- Specifications
- Modifying and technical data
- Debugging

This manual is constructed that it follows, as much as possible, the way the flowers are being transported and processed in the system.

Before you start using the system, you need to read this manual carefully. When in doubt or when something is not clear, please contact our service department at the following phone number **+31-497-555226**.

Operating the system is solely for those who

- Are at least **16 years of age**.
- Have complete knowledge of what is stated in this manual.
- Are fully aware of the possible dangers that can occur while operating the system or a part of it.

Everything that rotates and moves is subject to wear and tear. Regular greasing and tuning can significantly prolong your systems lifespan. Maintaining regularly is the way to keep your machines in optimal condition. This also means that there will be as less work- or production time loss as possible.

More information on these subjects is to be found in **chapter 3**.

INTRODUCTION

General description

Continuous searching for better and faster means of processing flowers, has resulted in the development of the BTM T4100. An all-purpose flower processing machine which offers a significant reduction in labour. It also guarantees a high level of quality and uniformity of your product.

Due to its all-purpose design, the machine can easily be modified to suit your specific demands for workspace and crop.

In order to apply the machine to virtual any crop, the following modules are adjustable in some way or another.:

- The belt speed.
- The cutting unit.
- The distance bar.
- The deleafer.
- The binder.

While processing the flowers, the sponge belt keeps the bunches firmly in place without doing any damage. This way, the bunches are nicely kept in place for cutting and deleafing.

Technical data

The gross capacity of the machine is 750 till 3000 bunches an hour.

Electrical connection: 1 phase + Zero + grounding (220 V); 40 amperes.

Installation

Pick a suitable spot to place your machine. Keep in mind the possible supply and feed out of flowers and a possible cooling cell. Furthermore keep in mind which other actions needs to take place on this spot.

On delivery the BTM mechanics will place and fine-tune your machine so that you can work efficiently.

Furthermore you will be offered a short course in how to operate, install and service your machine. The important parts of this course are also entailed in the manual.

In order to keep your machine in good working order, this manual also contains instructions on how to service and modify your machine. These instructions are clarified by photographs and/or drawings.

Please note:

- **Installing the machine can only be done by a licensed mechanic.**
- **Make sure all actions are carried out in the order listed in this manual.**
- **All possible operators of this machine need to be fully aware of the entire contents of the operating manual.**

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1.1 CONTROL PANEL

1.1.1 Description

Connect the machine using the plug to a suitable electrical socket. Before you can operate the machine, you need to put the main power switch to “1 on”. The switch is located to the side of the electrical cabinet and is shown in *figure 1.1.1*.

Using the buttons mounted on the electrical cabinet (*figure 1.1.2*) the machine can be operated. The standard control options are:

- Emergency stop (1)
- Standby (2)
- Start (3)
- Stop (4)



Figure 1.1.1

The control options are explained below.

Emergency stop

When pressing the emergency stop button (1) the machine will stop immediately. It will **not** complete the cycle it was in.

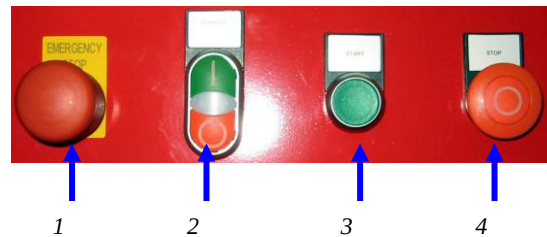


Figure 1.1.2

Please note, only use this button in case of an emergency and never in normal stop situations.

Standby

When the main power switch is turned to “1 on” the machine can not be started right away. First it needs to be put standby. This is done by pressing the green button (2).

The red button takes to machine off of standby. This button can for example be used during brakes.

Start

When pressing the start button (3) the machine will start processing.

Stop

When pressing the stop button (4) the machine will stop processing. It will also complete the cycle it was in before coming to a complete stop.

1.1.2 Extra control options

The following options can be implemented as extras:

- Supply belt on / off.
- Supply belts continuous or in steps.
- De-leaf unit on / off.
- Cutting unit on / off.
- Emergency stop cord.
- Start / stop cord.

Supply belts continuous or in steps

Using a knob on the control panel, you can make this setting. The knob has 4 positions:

- 0: *Continuous run of the belt.*
- 1: *2 steps*
- 2: *4 steps*
- 3: *6 or 8 (This is a one time setting, depending on the version of software) steps.*

De-leaf unit on / off

Using this button (*figure 1.1.3*) it is possible to turn off the de-leaf unit. More information on this topic can be found in the chapter on the de-leafer.



Figure 1.1.3

Cutting unit on / off

Using this button (*figure 1.1.3*) it is possible to turn off the cutting unit. More information on this topic can be found in the chapter on the cutting unit.

Supply belt speed

When you turn the dial (*figure 1.1.4*) you can adjust the speed with which the supply belt runs. The higher the number, the faster it will go.



Figure 1.1.4

De-leaf speed

When you turn the dial (*figure 1.1.4*) you can adjust the de-leafing speed. The higher the number the higher the de-leafing speed.

Counter

The counter is a small display mounted next to the control buttons. It shows the amount of bunches the machines has processed. The counter can be reset (1). This way the counter can be used as a day counter



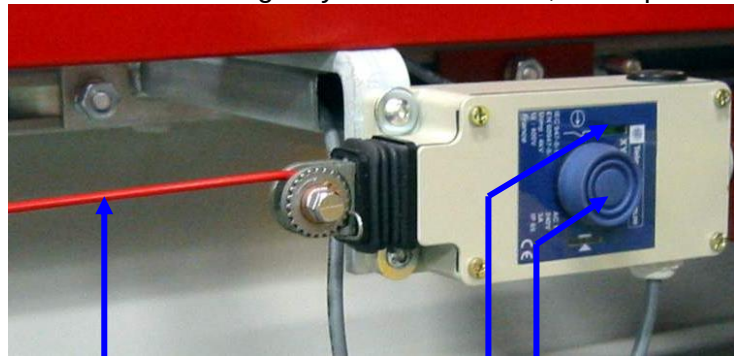
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Figure 1.1.5

Emergency stop cord

This cord is mounted along the machine. When an emergency situation occurs, u can pull the cord (1) anywhere on the machine. Doing this, the switch (2) will turn to “yellow” and the machine will immediately stop (like when you press the emergency stop button).

By pressing the button (3) the emergency stop cord will be reset and the switch will turn to “green”.



1

2

3

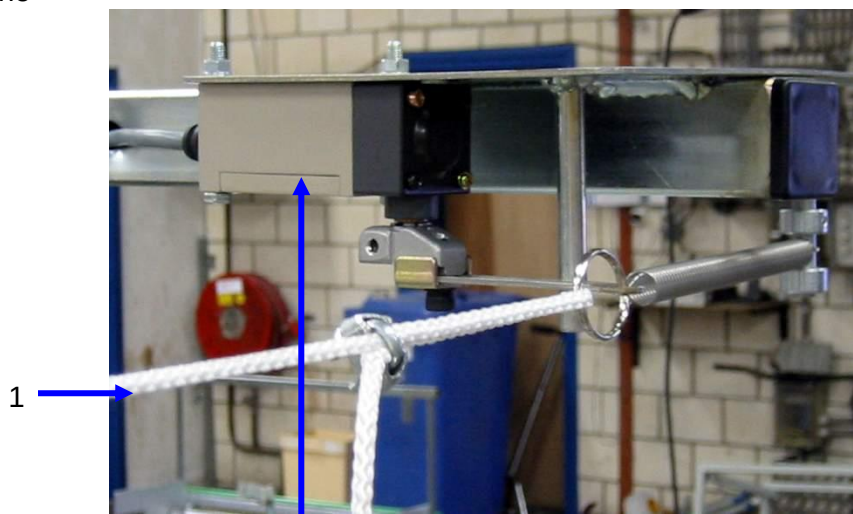
Figure 1.1.6

Start / stop cord

This cord is mounted along the machine, so that you can start or stop the machine anywhere you are at that moment.

By pulling the cord (1) the switch (2) will be operated and thus starting or stopping the machine.

This cord only works when the machine has been started once using the start button on the control panel.



1

2

Figure 1.1.7

1.2 SUPPLY BELTS

1.2.1 Description

This module consists of the following parts::

- Main belt
- Fore belt

The main belt is fitted with synthetic bunch holders. These make sure the bunches are supported sideways during transport. The bunch holders are fitted to a wide belt which carry the bunches during transport and processing.



Figure 1.2.1

The fore belt is for extra support of the stems. This belt runs at the same pace as the main belt.

1.2.2 Adjusting

Please note, NEVER adjust the run of the belt at the propulsion side.

When the belt does not run nicely in the centre of the rolls, you can adjust this run. At the end of the machine nuts are positioned with which you can adjust the run of the belt. In *figure 1.2.2* is shown how a proper belt run can be accomplished.

In order to know which roll you need to adjust to adjust the desired belt, you need to look at

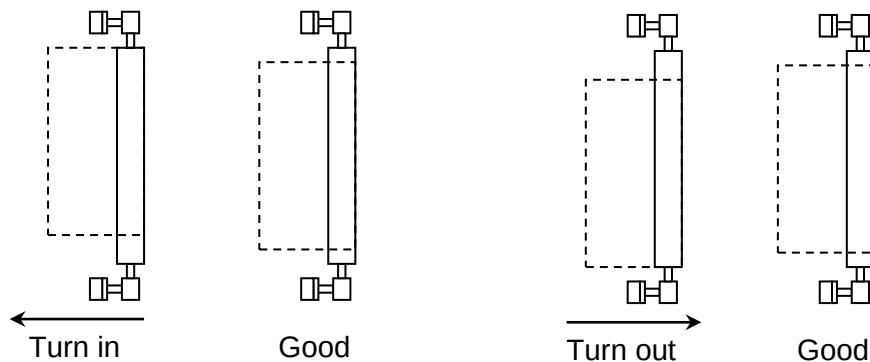


Figure 1.2.2

the following figures.

In order to adjust the main belt (including the stainless steel bunch holders) you need to adjust the roll pointed out in *figure 1.2.3*.

At the side of the driving unit, you can only adjust the top roll (3). Other roll may not be adjusted



Figure 1.2.4

because also the tension in the chain will be altered by this action.

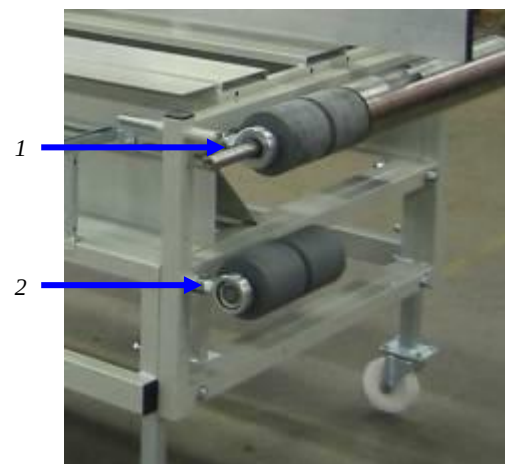


Figure 1.2.3

1.3 ADJUSTABLE DISTANCE BAR

1.3.1 Description

Using this bar, you can adjust the processing length of the bunches. You need to place the flowers against the bar. When the right processing length is made, all the bunches will be processed at the same length.



Figure 1.3.1

Clean the bar on a regular bases. This way, the accumulating dirt on the bar will not damage the flowers.

1.3.2 Adjusting

In order to adjust the position of the bar, please follow the instructions listed below:

- Look at *figure 1.3.2*.
- Loosen the bar using the knobs.
- Rotate the bar to the desired position.
- Re-tighten the knobs.



Figure 1.3.2

The processing length of the bunches is directly linked to the cutting length. The figure below displays how they are linked.

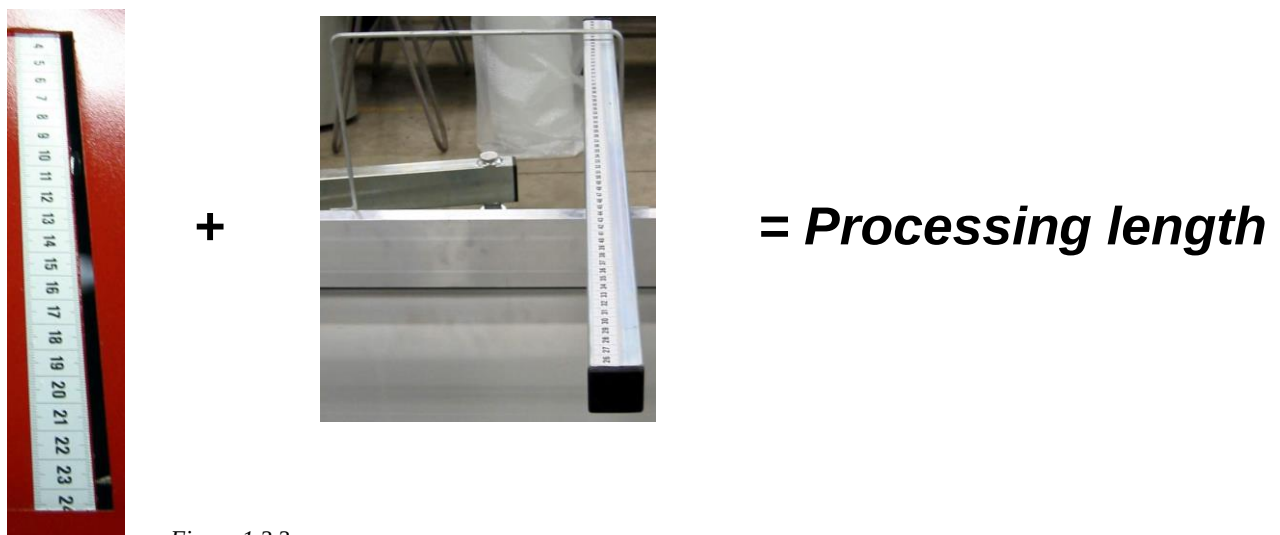


Figure 1.3.3

1.3 ROTATING BLADE

1.3.1 Description

The rotating blade shortens the bunches to the desired length. It consists of an electrical motor and circular blade which continuously is rotating when the machine is switched on.

The shorten length is adjustable. This is done by adjusting the index board.

1.3.2 Adjusting

Please note, the machine needs to be switched off while adjusting the rotating blade.

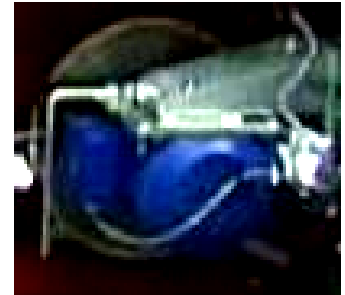


Figure 1.3.1

Changing the blade

In order to change the blade, please follow the instructions listed below:

- Put the main switch onto "0" and secure it by hanging a lock through it.
- Look at *figure 1.3.2*.
- Remove the securing pin from the bolt (1).
- Loosen the bolt (1) a few turns. The electrical motor can now be rotated.
- **Please note, the blade can cause cuts if handled without care.**
- Turn the electrical motor so you can reach the blade.
- Loosen the bolt that keeps the blade in place and remove the blade.
- Mount the new blade and re-fasten the bolt.
- Rotate the motor back in position, re-fasten the bolt (1) and place back the securing pin.

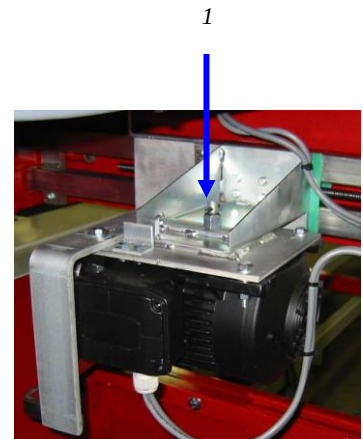


Figure 1.3.2

1.5 DE-LEAFER

1.5.1 Description

This part of the machine takes care of de-leafing the stems of the flowers. The de-leafing length can be adjusted by rotating the entire unit.

Depending on the type of flower, the following parameters can be adjusted:

- The de-leafing speed.
- The hardness of the brushes.

The speed of de-leafing can be adjusted by turning the button for de-leafing speed. For more information about this, please check chapter 1.1

The brushes are available in the following hardness:

- Soft.
- Medium.
- Hard.

Depending on the type of de-leafing unit a combination of the three types can be fitted.

1.5.2 Adjusting

Adjusting the de-leaf angle and length

It is possible to vary the angle with which the stems are being de-leaved. In order to do so, you need to turn the lever (*figure 1.5.2*). This lever is mounted on the front of the processing cabinet. By rotating the de-leafer, you can adjust the angle of de-leafing. The maximum de-leaf length is linked with the cutting length as shown in the figure below.

$$\text{Maximum deleaf length} = \text{Cutting length} - 3\text{cm}$$

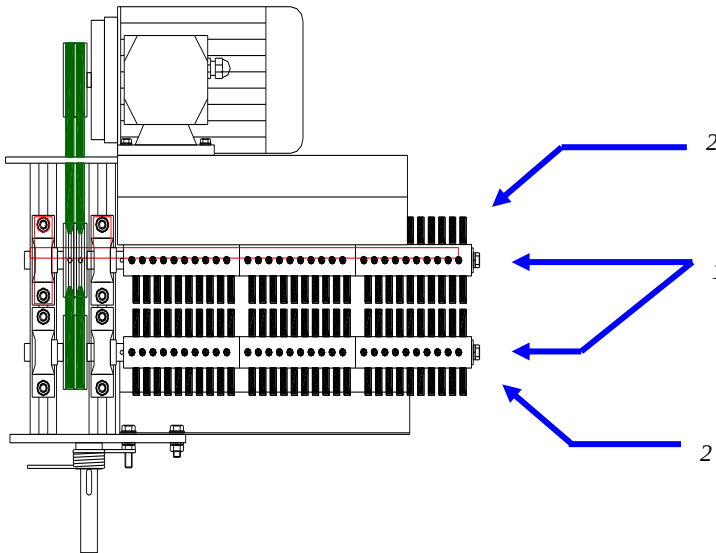


Figure 1.5.1

- Re-tighten the bolts (1).
- Rotate the unit back into position.

Changing the brushes

When the brushes need changing, please follow the instructions listed below:

- Look at *figure 1.5.1*.
- Rotate the unit using the lever so you can reach the brushes.
- Loosen the bolts (1).
- Remove the old brushes.
- Make sure the outer brushes are cut off at an angle. This way the bunches are guided into the brushes. For more detail look at *figure 1.5.2*.
- Slide the new brushes onto the axles..

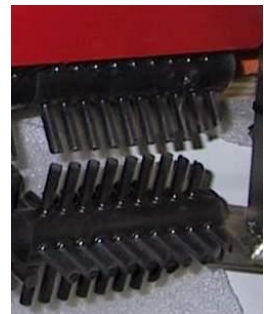


Figure 1.5.2

Replacing the snare

When the snare needs to be replaced, please follow the instructions listed below:

- Rotate the unit, using the lever, so you can reach the snare.
- Remove the bottom bearings.
- Remove the snares.
- Mount the new snares.
- Re-mount the bearings.
- Rotate the unit back into position.

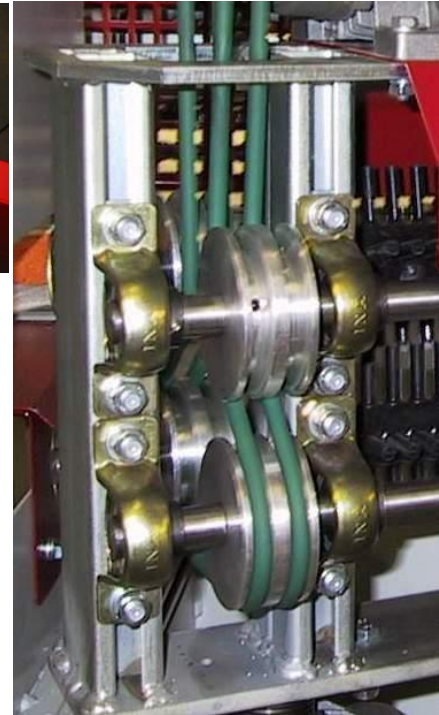
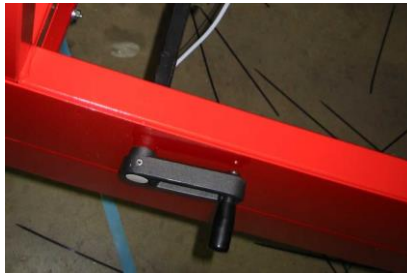


Figure 1.5.3

1.6 SPONGEBELT

1.6.1 Description

The sponge belt keeps the bunches firmly in place while they are being processed. It does this without damaging the flowers. The belt can be adjusted in height

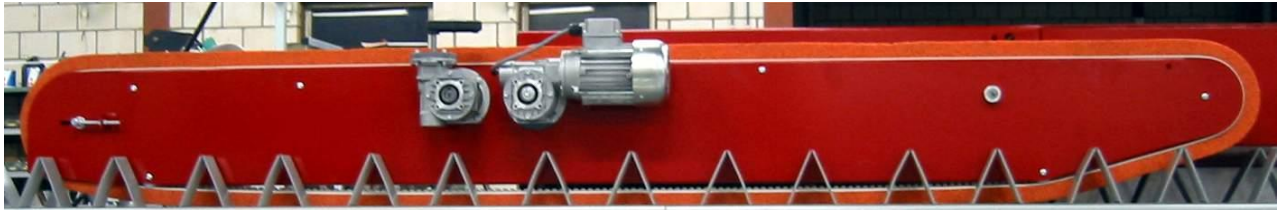


Figure 1.6.1

1.6.2 Adjusting

Adjusting the belt height

By adjusting the height of the sponge belt, you can alter the pressure with which it presses down onto the flowers. In order to adjust the height, please follow the instructions listed below:

- Make sure the machine is switched off.
- Look at *figure 1.6.2*.
- Rotate the lever (1) to achieve the desired belt height. The reductor (2) makes it possible to adjust the belt with great accuracy..
- The electrical motor (3) drives the sponge belt.

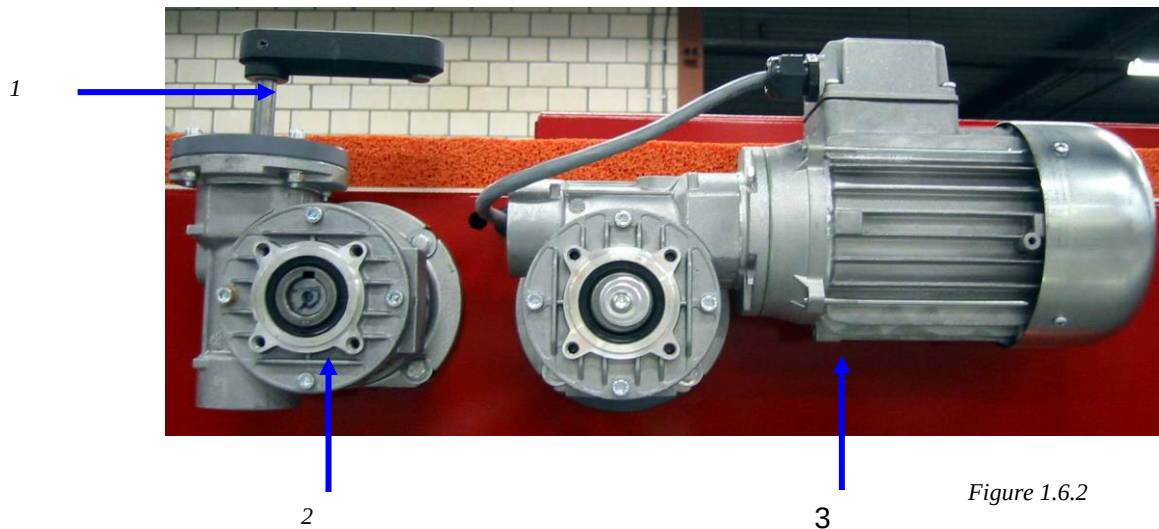


Figure 1.6.2

1.7 BINDERTRAY

1.7.1 Description

This tray is used to place a binder. In order to make the position of the binder adjustable, the tray can be moved backwards and forwards. This is done by turning the lever (1).

Moving the tray, moves the position of the elastic on the bunch. When moving the tray, keep in mind that is highly recommended to bind the bunches on the section of the stems that is de-leafed.

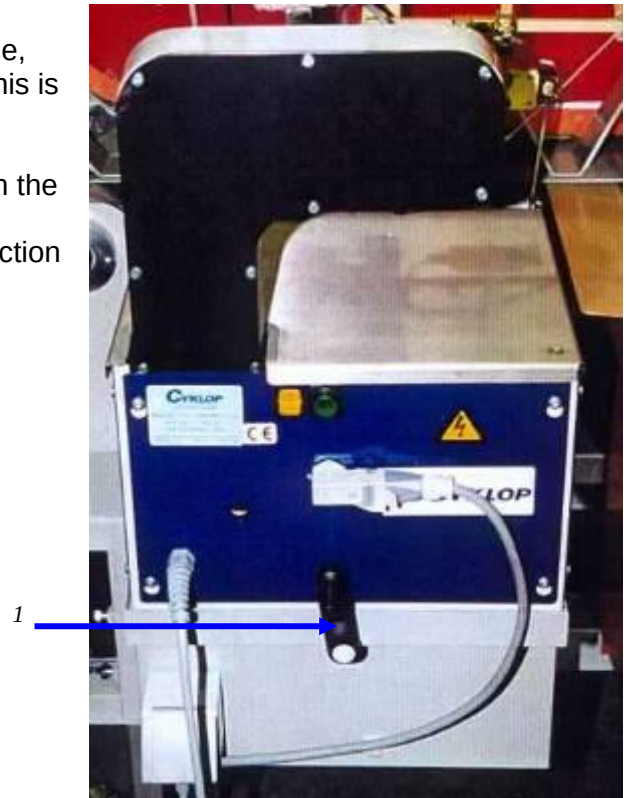


Figure 1.7.1

1.8 TAKE OVER BELTS

1.8.1 Description

At the end of the main belt, the supply belt descends. The take over belts support the flowers during transport to a buffer belt or take off place. In the figure the belts are shown.

Clean the pulleys (1) and the grooves in them on a regular bases.

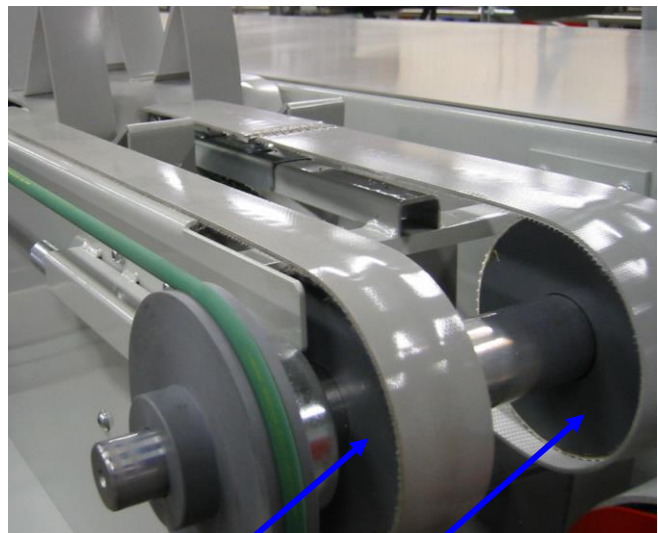


Figure 1.8.1

1.9 DRIVING UNIT

1.9.1 Description

This unit drives the belts of the machine. The driving is done by an electrical motor. This motor powers rolls, which drive the belts.

Please note, never adjust the driving unit. This should at all times be done by a licensed mechanic.

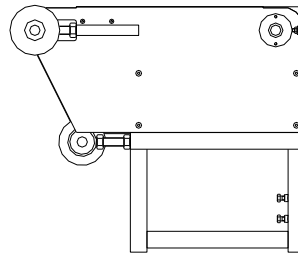


Figure 1.9.1

1.10 BUFFER BELT

1.10.1 Description

The processed bunches automatically drop onto the buffer belt after the take off belt is full.

The buffer belt operates independently of the machine. When the belt “sees” a bunch it will make a step. This step makes the belt run for a pre-determined amount of time. This time is adjustable by turning the dial (1) which is located at the front of the buffer belt.

Make sure that when you need to re-install the buffer belt the top of the buffer belt is 30mm below the top of the take-off belt.



1

Fig 1 .10..1

1.11 RESILIENT CLOTH

1.11.1 Description

This part of the machine acts as a temporary buffer. The cloth catches the bunches which can not be processed by the operator immediately and is placed at the end of the feed out belt or buffer belt.

The more weight is put into the cloth, the further it rolls down.

Using the knob (2) you can pull out the spring and adjust the tension in it. By doing this, you can control the maximum weight that the cloth can handle.



Figure 1.11.1

2 SHIPPING AND STORAGE

A situation may occur that a machine has to leave its normal workspace. Reasons for this to happen can be, maintenance to the greenhouse, maintenance to the machine, (temporary) use of an other machine, etc.

In order to prepare the machine for shipping and/or storage, please follow the instructions listed below:

Please take your time disassembling the machine. This results in a better and faster re-assembly then when you disassemble hastily.

- All power switches need to be turned to “0” or “Off”.
- The main power needs to be disconnected.
- All parts that can be roll in and/or folded in, need to be roll in and/or folded in and, where possible secured.

At this time the machine is ready to be transported. You can move the machine (forklift) to the spot where it is to be stored or loaded onto the transport.

Make sure that the storage room meets the following demands:

- A temperature between 10°C and 50°C.
- A low amount of moisture in the air.
- A firm, steady and straight ground to stand on.

When the machine is placed on a transport make sure that the following circumstances are present:

- The machine is secured
- In case of bad weather, the machine is covered.

3 MAINTENANCE

In order to ensure a minimum of malfunctions to your machine, it is necessary to follow the maintenance instructions listed below. **Corrections are allowed** to be carried out by a skilled operator, **repairs have to** be carried out by a licensed mechanic.

When a malfunction is identified, mechanical as well as electrical, it immediately needs to be taken care of by a skilled operator / licensed mechanic. Parts that are subject to wear and tear, need to be replaced timely in order to prevent stagnation and consequential damage.

Beware:

- **When in doubt, always contact a licensed mechanic.**
- **It is not permitted to dismount parts of the machine.**
- **Malfunctions that originate from normal wear and tear, injudicious use, defective maintenance or which originate after modification or repair by or ordered by customer or by a third party, are excluded from warranty.**
- **Always turn off the main power before maintaining the machine.**

3.1 Immediate maintenance

Belts in general

When employing the belts, you need to check the following points:

- The correct run of the belts. (the correct run of the belt is when the belt is running completely on the rolls). When the belt crosses the ends of the rolls the run needs to be corrected by a skilled operator (*Figure 3.1.1*).
- The belt for deformities and / or damages. If necessary, fix or replace (or have fixed or replaced) immediately.
- The belt needs to be free from dirt, water and objects (flowers and buckets excluded). Remove these before starting up the machine.
- The machine needs to be protected from pollution and damage by external objects.

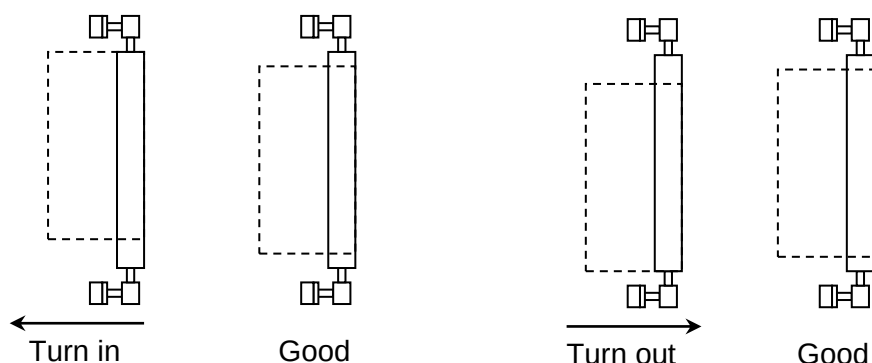


Figure 3.1.1

3.2 Daily maintenance

Cutter

- Check for damages and repair them where necessary.

General

- After start-up check for out of the ordinary sounds produced by the belts and bearings.
- Check the machine for a normal operation. All the motors need to make a homogenous sound.

Belts in general

- Check the belts for damages and / or ravel. Fix them where necessary.
- Clean the belts with water and if necessary with soap. Dry them afterwards.

Binder

- Clean regularly to make sure that there is no remaining dirt on the binder.

Deleafer

- Check for damages and fix them where necessary.

3.3 Weekly maintenance

Binder

- Clean the binder of all dirt. Internal as well as external.

Cutter

- Check the stop position and adjust when needed.

Deleafer

- Remove all leaves that remain.

Rolls

- Before inspecting the rolls, make sure the machine is switched off. Check the rolls for dirt and clean them when needed.

3.4 Monthly maintenance

Chains

- Spray them with chain grease.
- Where needed, tighten them

Electrical motors

- Check all motors for leakage. When necessary, replace or fix them immediately.

General

- Grease all bearings that need greasing.

3.5 Half yearly maintenance

Entire maintenance of all rotating parts

- Check all rotating and moving parts for wear and tear, damages, tolerance limits. Where necessary repair or replace immediately;
 - Rolls
 - Bearings
 - Sprockets
 - Reducing pulleys
 - Etcetera



- **Never** make any changes to the machine when it is running
- It is **forbidden** to be on top or underneath the machine, especially when it is running.
- While working with the machine, it is **not necessary** to be in close proximity or even contact with rotating and/or moving parts. **Turn off** the machine if the situation demands that you do have to be in close proximity or contact with these parts.
- Keep **children** away from the machine, especially when it is running.
- **Never** throw or squirt water onto the machine.
- **Always** disconnect the current before cleaning or maintaining your machine.
- **Only** connect the machine to an approved electrical outlet (3 phase + grounding, 16 amps).
- This machine is **solely** suited for transporting and processing flowers.
- Operating this machine is solely for those who are at a minimum age of **16 years**. They also need to be fully aware of the dangers that operation of this machine can pose. Furthermore, it is necessary to have knowledge of what is written in this manual.
- It is wise to unplug the machine during (lunch) breaks or when it is not being used. It is also possible to push the emergency stop button in case of these events



This sticker tells of possible danger of serious injuries like cuts, bruises or bone fractures

Figure 4.1.1



This sticker tells of possible danger of rotating parts.

Figure 4.1.1



This sticker is located on the electrical cabinets and tells of possible danger due to high voltage.

Figure 4.1.2

5 DISPOSING

In this chapter is listed how you can dispose of your machine in a responsible fashion. Some parts of your machine can be re-used. Other parts need to be discarded separately from others. The specifications are listed below.

5.1 Conveyor belts

The belts need to be taken from the rolls they're mounted on. They can be discarded in a container suited for this purpose.

5.2 Electrical motors

The electrical motors need to be removed and treated the same as steal parts. The parts containing oil need to be drained of the oil before discarding them.

If you choose to further dismantle the motor, you can remove the wiring and coil. These parts contain copper and can be re-used.

Dismantling on this level is not obligatory.

5.3 Steal parts

The largest part of the machine is constructed out of steal. Then entire frame, hoods, rolls, are examples of steal parts. These parts do not need to be dismantled, but can be left in one piece and treated as scrap metal.

5.4 Electrical parts

This mostly concerns the wiring en the electrical cabinet These parts you can unscrew and take off. A dealer in scrap metal will probably be interested in the copper in the wires. The rest can be discarded in a normal dumpster provided by your local waste disposal company.

5.5 Plastics

The plastics are used to ease the guidance of certain rotating and moving parts. An example of where this plastic (PE 1000) is used, is the snare guidance. You can recognize it by its green color. This PE can be discarded with the conveyor belts.

5.6 Batteries

For batteries there are special rules concerning the environment. A battery is seen as chemical waste. Treat it accordingly.

6 DEBUGGING

With thermal failures, the thermal block needs to be re-set. Always wait 30 seconds to a minute before resetting the block. Figure 6.1.1 shows a thermal protection. When the glass (1) is coloured yellow, the block is in “failure”. You now need to re-set the block using the re-set button (2). The glass will now turn transparent and the machine can be re-started.

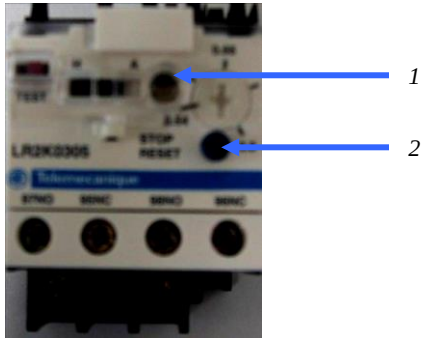


Figure 6.1.1

With all frequency controller related problems, you need to switch the machine off of stand-by, wait for 20 seconds and then put the machine back to stand-by.

When an error occurs that is not listed in the above, please contact our service department at the following phone number **+31-497-555226**.

7 WARRANTY

The warranty you have on your machine is stated in the Metaalunie Conditions article 14.

Listed below are the most important warranty conditions:

- BTM gives 6 months warranty on the construction and parts.
- Parts that break or fail within the legal warranty period, will be sent to the customer, free of charge.
- The costs for disassembly, assembly, travel expenses, possible hotel costs, will be charged to the customer.
- No warranty is given for defects that are a result of:
 - Normal wear and tear
 - Injudicious use
 - Non-maintenance or defective maintenance
 - Installation, assembly, modification or repair by the customer or by third parties.
- When parts of the machine are or have been submerged in water, the warranty on these parts will be no more.
- The customer may no longer invoke an instance of non-performance if he does not lodge a written claim with the contractor within 14 days of the date on which he discovers the defect or could reasonably be expected to discover it.

For any questions you may have concerning warranty, please contact our service department at the following phone number **+31-497-555226**.