



# Technical Handbook

## *PEPPERSHUTTLE*



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This “*PEPPERSHUTTLE*” Technical Handbook” is based on the standard *BENOMIC* V11 handbook. This handbook serves as a **supplement** to the standard *BENOMIC* V11 handbook, and both handbooks should be supplied.

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The machine is manufactured by:



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## **1. Declaration**

### **1.1 Copyright**

Berg Hortimotive  
De Lier, 2020

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### **1.2 Liability**

Berg Hortimotive does not accept liability for dangerous situations, accidents and damage that occur as a result of ignoring warnings or instructions, such as those shown on the *BENOMIC*, or contained in this and the standard *BENOMIC* documentation - for example:

- inexperienced or incorrect usage or maintenance
- being used for applications other than those for which it was designed, or in circumstances other than those given in this and the standard *BENOMIC* documentation
- the use of components or spare parts which are not prescribed
- repairs carried without the consent of Berg Hortimotive and/or a certified dealer
- changes to the *PEPPERSHUTTLE HARVESTING SYSTEM* include the following:
- alterations to the controls
- welding, mechanical works, etc
- extensions to the *PEPPERSHUTTLE HARVESTING SYSTEM* or its controls

Berg Hortimotive does not accept liability when:

- customers do not meet their obligations with respect to Berg Hortimotive (financial or otherwise)
- consequential damage is caused by defects on the *PEPPERSHUTTLE HARVESTING SYSTEM* - e.g. interruption of business, delays, etc.

### **1.3 Guarantee**

For a period of 6 months after delivery, Berg Hortimotive gives the client a warranty on material and manufacturing defects that occur during normal use. This warranty does not apply if the defects are caused by improper use or causes other than by material and manufacture, if Berg Hortimotive - following consultation with the client - delivers used material or used goods or if the cause of the defects cannot be demonstrated clearly.

The warranty provisions are set out in the *METAALUNIE CONDITIONS* as they read according to the most recent relevant text. The terms and conditions of delivery are available on request. The warranty given by Berg Hortimotive for all goods and materials not manufactured by Berg Hortimotive will never be more than that given by its supplier. The warranty is ex works. Faulty machines and/or parts must be sent postage paid.

When it is not possible to send out machines or systems, any travel and subsistence expenses will be payable by the client.

Sold and delivered goods with manufacturer's, importer's or wholesaler's warranties are subject only to the warranty provisions set by the suppliers.

Hydraulic pumps are subject only to the manufacturer's warranty, provided the pump comes with an undamaged safety seal from the supplier.  
Berg Hortimotive accepts responsibility for the availability of replacement parts, provided they are available from its suppliers at reasonable conditions.

## 2. Foreword

This handbook describes the additional features of the *BENOMIC* as used in combination with a *PEPPERSHUTTLE/HARVEST CONTAINER*.

This handbook provides you with additional information on safety aspects, a description of the working principle of the entire combination, as well as instructions and maintenance of the *PEPPERSHUTTLE/HARVEST CONTAINER*.

Potentially dangerous situations are indicated together with recommendations for avoiding them.

### **Attention!**



***This handbook is an attachment for the use of the BENOMIC /  
PEPPERSHUTTLE/HARVEST CONTAINER combination***

- Before use, make sure that you have read and understood the standard BENOMIC handbook!***
- Before use, make sure that you have read and understood this handbook attachment!***
- In the remainder of this handbook, the assembly BENOMIC / PEPPERSHUTTLE / HARVEST CONTAINER will be referred to as "PEPPERSHUTTLE HARVESTING SYSTEM"***

It is important that this handbook is carefully read in order to learn how the *PEPPERSHUTTLE HARVESTING SYSTEM* should be operated and maintained. By reading this handbook and then using the *PEPPERSHUTTLE HARVESTING SYSTEM*, you, or anyone else, will be assisted in using the *PEPPERSHUTTLE HARVESTING SYSTEM* in the correct manner thereby helping to avoid personal injury as well as damage to the machine.

Berg Hortimotive produces safe machines. The machines are designed to meet the latest standards and are manufactured in accordance with the latest CE approval markings. The user remains responsible for the proper operation and for carrying out maintenance on the machine.

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## **3. Introduction**

### **3.1 General**

You have made a good choice by purchasing the Berg Hortimotive *PEPPERSHUTTLE HARVESTING SYSTEM*. You are the owner of an first class piece of equipment that has been manufactured with great care. You will gain the most advantage from the equipment provided that you carefully follow the instructions given in this handbook with regard to safety, operating and maintenance.

Please study this user's handbook carefully before starting to use the *PEPPERSHUTTLE HARVESTING SYSTEM*. Always follow the safety instructions and recommendations given in this handbook.

Berg Hortimotive does not accept liability for damage or indirect damage resulting from not following the operating and safety instructions contained in this handbook.

Neither does Berg Hortimotive accept liability whenever you or a third party make modifications to the pipe rail wagon or its accessories, without receiving prior written permission from the manufacturer.

The *PEPPERSHUTTLE HARVESTING SYSTEM* is supplied in accordance with the conditions of sale of the Dutch METAALUNIE, as determined by the registrar of the law court of Rotterdam and in accordance with the most recent text contained therein. A copy of the terms and conditions of supply can be provided on request. You can also contact the Koninklijke Metaalunie, PO Box 2600, 3430 GA Nieuwegein, the Netherlands.





### **3.2 Suppliers information**

In the event of breakdowns or defects occurring on the *PEPPERSHUTTLE HARVESTING SYSTEM* please contact your Berg Hortimotive dealer.

## 4. Safety

### 4.1 Explanation of safety terminology

Safety terminology:

<b>Danger</b>		: Indicates serious or even fatal injury may occur if the instructions in the handbook are ignored.
<b>Warning</b>		: Indicates injury if the instructions described in this handbook are ignored.
<b>Caution</b>		: Indicates damage may occur to the equipment if the instructions described in this handbook are ignored.
<b>Warning</b>		: Indicates possible problems if the instructions described in this handbook are ignored.

### 4.2 Safety Instructions

Read the following safety instructions carefully.

After reading the safety instructions they should be closely followed at all times.

The dangers attached to operating the Pipe Rail Trolley will be greatly increased if the safety instructions are not closely followed at all times, thereby resulting in the possibility of injury.

#### **DANGER!**

- **Read the user's manual thoroughly. Keep to the operating and safety instructions at all times.**
- **The PEPPERSHUTTLE HARVESTING SYSTEM is suitable for operating on a pipe rail system that complies with the horticulture sector guidelines, the health and safety catalog in force in the Netherlands (see 7.2).**
- **Only operate the PEPPERSHUTTLE HARVESTING SYSTEM on the correct pipe rail system. Ensure that the centre to centre measurement of the pipe rails matches precisely with that of the pipe rail trolley - see pictogram on the platform.**
- **Never exceed the maximum loading capacity of 450kg with the heavy duty double scissor model.**
  - 1 person including load (e.g. harvest container or appliances); see pictogram on platform.
- **Before use, the harvest container should be secured to the work platform with the aid of the blocking catch.**
- **It is forbidden to carry more than one (1) person on the platform at the same time.**
- **It is forbidden to allow people to ride on the trolley chassis.**
- **Its use without a harvest container fitted with a railing is forbidden.**
- **All optional equipment, fittings and spare parts must be manufactured and/or supplied by Berg Hortimotive.**
- **Harvest containers with sliding racks must be installed in the correct position on the work platform. The container may overhang the sliding rack up to a maximum of 550mm on both the front and rear sides of the BENOMIC.**
- **Harvest containers should only be filled with lightweight produce such as peppers.**

## Warning!



- **Operating the PEPPERSHUTTLE HARVESTING SYSTEM should only take place provided that there is nobody in the vicinity (except the operator) or standing within a short distance.**
- **The PEPPERSHUTTLE HARVESTING SYSTEM may only be operated by persons of at least 18 years of age who have received adequate instructions for operating the PEPPERSHUTTLE HARVESTING SYSTEM and have thoroughly read and understood the contents of this manual and are fully aware of the associated dangers.**
- **The PEPPERSHUTTLE HARVESTING SYSTEM or separate PEPPERSHUTTLE may only be manned / operated once it has been correctly installed on the pipe rail system.**
- **Check the PEPPERSHUTTLE HARVESTING SYSTEM daily for defects and carry out maintenance on a regular basis - see chapter 9, maintenance.**
- **Keep the controls and safety symbols clean at all times.**
  - *operating controls and safety pictograms should always be visible.*
- **It is forbidden to carry out modifications/alterations to the PEPPERSHUTTLE HARVESTING SYSTEM without receiving prior written consent from Berg Hortimotive**
- **Before travelling along the pipe rail track always check that there are no persons in the immediate vicinity.**
- **Before using a track, ensure that it is clear of obstacles such as plant remains etc.**
- **Never use the PEPPERSHUTTLE HARVESTING SYSTEM on public roads or paths.**
- **Think about your feet and toes when operating the lift on the BENOMIC! The trolley is positioned a few centimetres in front when setting down!**
- **It is mandatory to wear footwear with steel toe caps (S1).**

## Attention!



- **Always keep the working area tidy.**
  - *An untidy working area can lead to dangerous situations.*
- **Always concentrate on the task in hand.**
  - *Remain alert at all times when operating the Pipe Rail Trolley. Do not use the COMBINATIE if you are unable to concentrate or are taking medicine that advises against operating machines or driving a motor vehicle.*



### 4.3 Safety symbols

A number of safety symbols are located on the *BENOMIC* for your information. See the original user manual of the *BENOMIC*!

The following safety pictogram has been placed on the *PEPPERSHUTTLE*.

The symbols are designed to warn the operator of possible dangers and also dangerous situations. Always take heed of the warnings and if in doubt about the meaning of a particular symbol, please contact your supplier for further explanation.

Ensure that the symbols are always clearly visible and remain undamaged!

The *PEPPERSHUTTLE HARVESTING SYSTEM* operator must thoroughly read and understand the contents of these manuals. If the operator does not understand the warnings given on the equipment or in these manuals (e.g. they speak another language), then all the instructions, possible dangers, warnings and functions must be fully explained to them by a responsible person so that they are fully understood.



Beware; Danger of crushing!

Be alert with fingers on the scissor parts!

### 4.4 Other risks

Dangers can still arise despite the careful design and the use of safety devices, as well as warnings against possible dangers placed on the machine itself and printed in the manual. Pay attention to the following:

- The danger of fingers, hands, arms and head becoming wedged between the scissors!
- The danger of becoming wedged under the trolley during lowering or raising with a hoist!
- Risk of crushing when connecting and disconnecting the *PEPPERSHUTTLE* from the *BENOMIC*!
- Risk of crushing when moving the *HARVEST CONTAINER*!
- The trolley tipping over resulting from an unsuitable pipe rail system!
- The trolley tipping over resulting from exceeding the maximum load or manual force!

## 5. Application

### 5.1 Scope

The *BENOMIC* / *PEPPERSHUTTLE* / *HARVEST CONTAINER* has been designed for professional use in greenhouses in the horticultural sector.

Operation may only be carried out by one person with a minimum age of 18 years who has received adequate instruction with regard to the *PEPPERSHUTTLE HARVESTING SYSTEM* and who has received a copy of the written (safety) instructions and has read and fully understood the contents of both manuals.

The *PEPPERSHUTTLE HARVESTING SYSTEM* is a harvesting system that travels along a pipe rail system constructed in accordance with the sector guidelines, -the health and safety catalog in force in the Netherlands - it is designed as an aid for harvesting crops and tending and/or maintaining plants growing in a greenhouse. In addition, the *PEPPERSHUTTLE* / *HARVEST CONTAINER* set is used for the transport of harvested peppers from the greenhouse to the processing area. It is forbidden to use the *PEPPERSHUTTLE HARVESTING SYSTEM* for any other purposes. The loading may only consist of a maximum of one person with a

*HARVEST CONTAINER* which together weight no more than 450kg for the heavy duty 2-scissor. The trolley may only be manned once it has been correctly installed on the pipe rail system. Be fully alert when the scissor is lowering thereby ensuring that no persons or objects can become wedged under or between the scissor assembly. The platform must not be entered while on a concrete pathway. Always walk alongside the trolley and never sit or stand on the chassis when travelling on the main pathways.

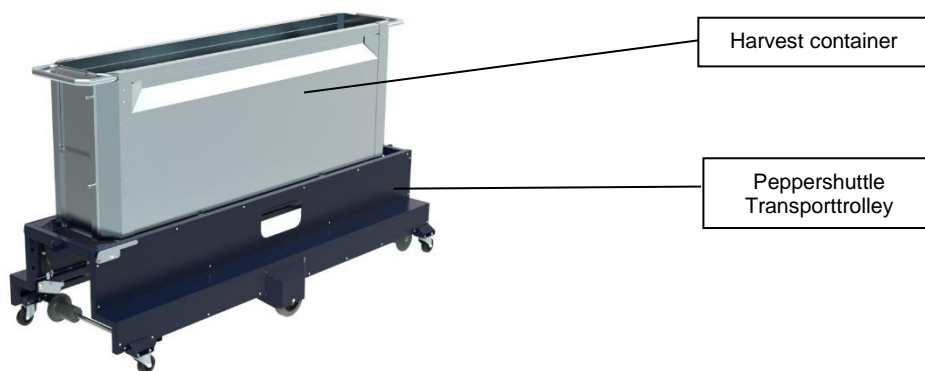
## 5.2 Description of the *PEPPERSHUTTLE HARVESTING SYSTEM*

### Usage phases:

In chapter 8.1 after the description of the operation, the different operating phases of working with the *PEPPERSHUTTLE HARVESTING SYSTEM* will be described. We follow the growth phases of the peppers during the growing season.

**We recognize the following usage phases:**

#### 1. Harvesting the low hanging peppers on the go



#### 2. Harvesting while driving on the step-up platform



### 3. Harvest high on the work platform



Fig. 3.0 - Names of the main parts of the PEPPERSHUTTLE HARVESTING SYSTEM

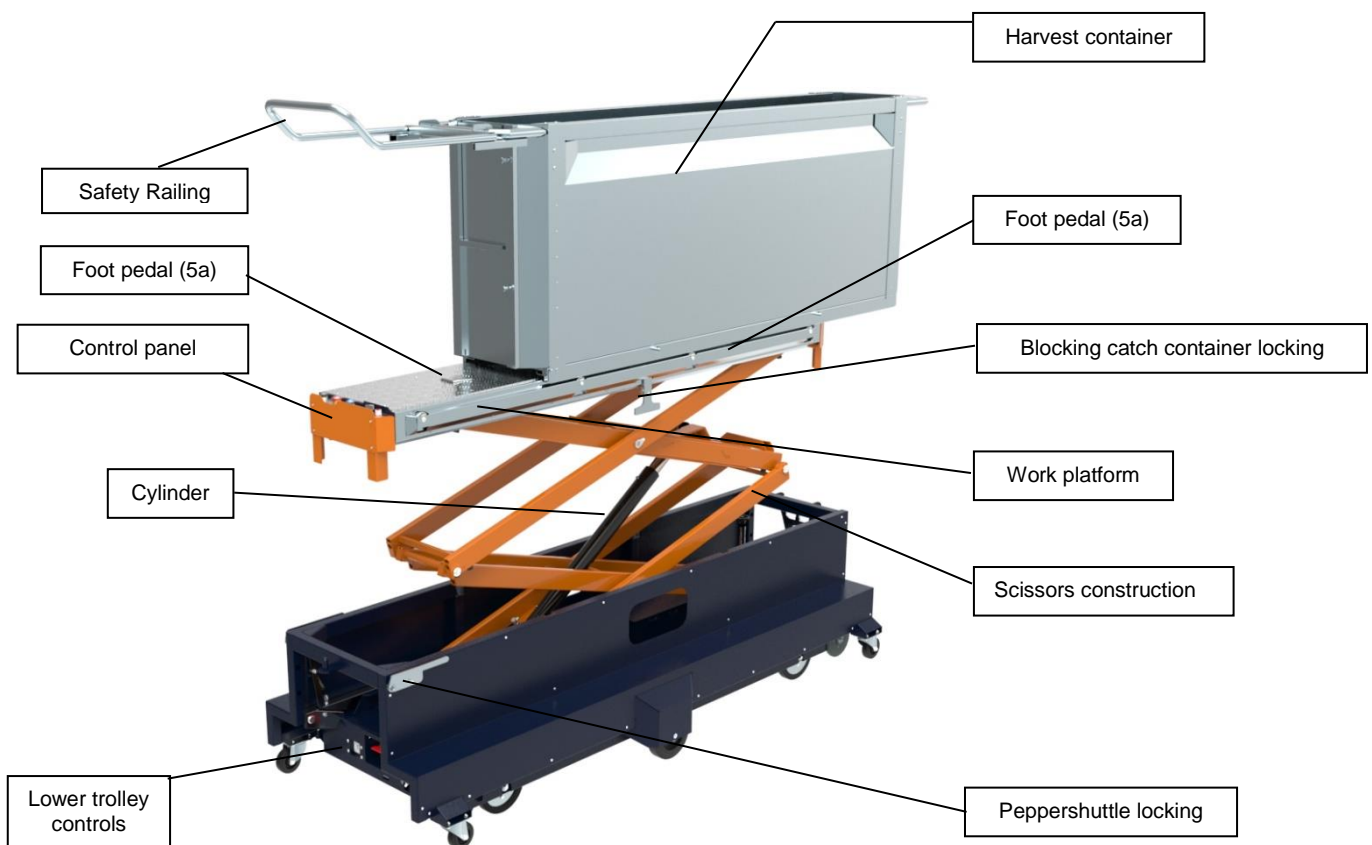
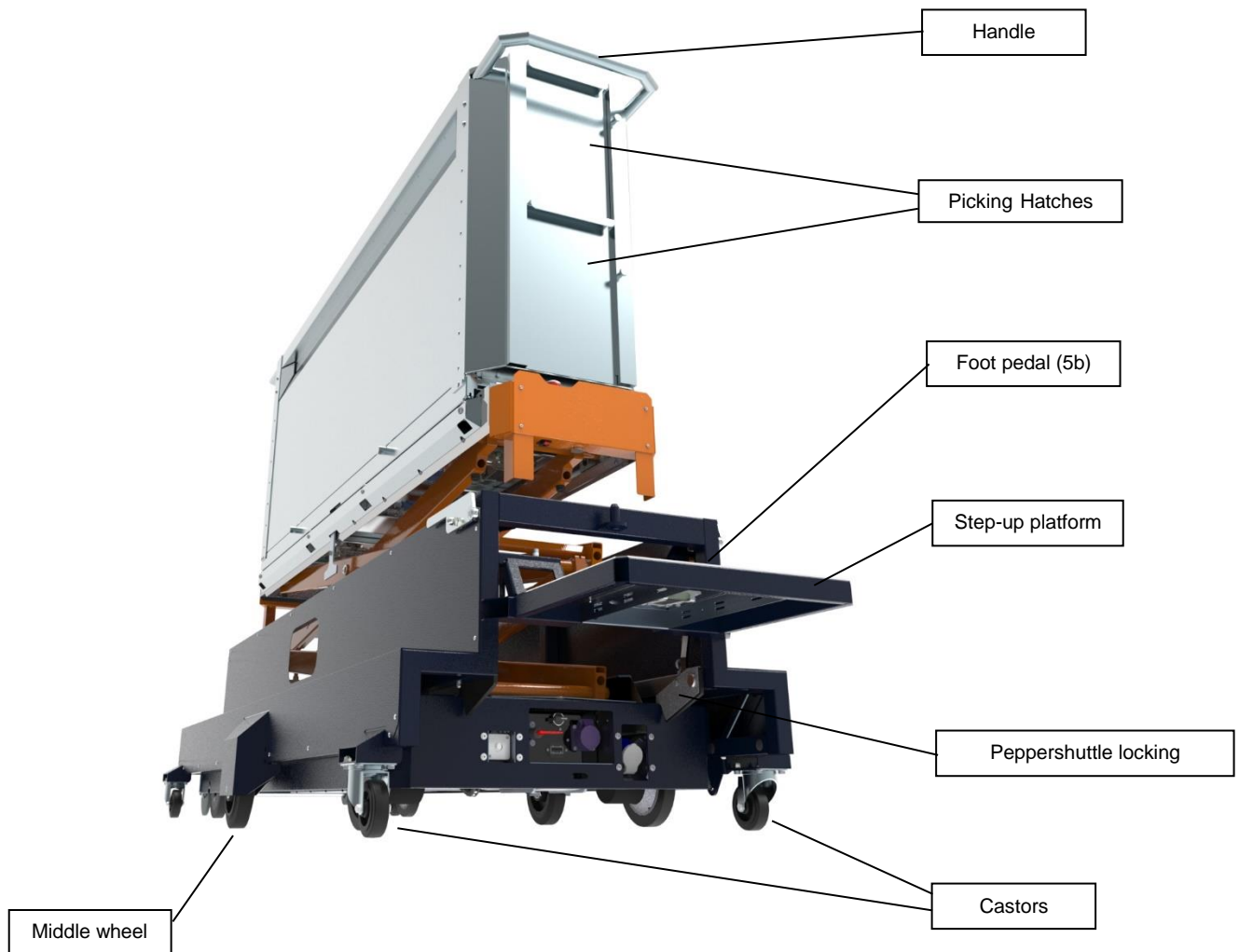


Fig. 3.1 - Names of the parts on the upper construction of the PEPPERSHUTTLE HARVESTING SYSTEM



*Fig. 3.2 - Names of the parts on the lower construction of the PEPPERSHUTTLE HARVESTING SYSTEM*

## 6. Transport

### 6.1 Internal transport

To transport the *PEPPERSHUTTLE / HARVEST CONTAINER* (without *BENOMIC*) over the concrete path, follow the instructions below. Preferably it should be driven to its location on its own wheels, but the *PEPPERSHUTTLE* can also be moved by way of forklift truck. If moving by forklift truck, please observe the following:



1. Remove the safety fencing from the *HARVEST CONTAINER*.
2. Move the forks of the forklift truck as far apart as possible and then insert them centered as far as possible under the middle section of the *PEPPERSHUTTLE*.
3. Check the opposite side to ensure that the forks have been inserted as far as possible under the middle section of the *PEPPERSHUTTLE* machine.
4. Secure the *PEPPERSHUTTLE* to the forklift forks so that it cannot shift or tip over.
5. Carefully lift the *PEPPERSHUTTLE* off the ground until it is just sufficiently clear.

#### **Attention!**

- **Never lift it higher than is necessary!**
- **Ensure that the forklift is capable of lifting at least 600kg!**
- **Remove all unattached parts and HARVEST CONTAINER from the platform before lifting!**
- **Move slowly and with great care!**



## 7. Putting into operation

The *PEPPERSHUTTLE HARVESTING SYSTEM* has been specially designed to travel on a pipe rail system and the internal transport of harvested peppers to the processing area. The *PEPPERSHUTTLE HARVESTING SYSTEM* is checked for functionality and safety before leaving the Berg Hortimotive factory. Before starting up the *PEPPERSHUTTLE HARVESTING SYSTEM*, the items described at 7.1 should first be inspected.

The pipe rail system must comply with the requirements laid down by the horticulture sector guidelines. Article 7.3 states the minimum pipe rail specifications with regard to track width, pipe diameter and distances between supports. These minimum requirements are also shown on a symbol (see 4.3) attached to the *BENOMIC* machine.

These pipe rail specifications have been taken from the horticulture sector guidelines for pipe rail systems from the health and safety catalog in force in the Netherlands. For the complete contents of the policy regulation please contact the Ministry of Social Affairs & Employment.

### 7.1 *Inspection prior to putting into operation*

The following additional items should be checked before commissioning the *PEPPERSHUTTLE HARVESTING SYSTEM*:

- Loose electrical connections (proper functioning of all buttons and knobs).
- Middle wheels and castor wheels of the *PEPPERSHUTTLE* are not damaged and run freely.
- General mechanical damage.
- Damage to the controls from the *PEPPERSHUTTLE* and the *HARVEST CONTAINER*.
- All protective covers and caps are in place.
- Correct functioning of the locking system of the *PEPPERSHUTTLE* on the *BENOMIC*.
- Proper functioning of the locking system for sliding the *HARVEST CONTAINER*.
- Proper functioning and instruction of employees for the use of the safety fencing on the *HARVEST CONTAINER*. (see 8.5)

### 7.2 *Horticulture sector guidelines for pipe rail systems*

The *PEPPERSHUTTLE HARVESTING SYSTEM* has been specially designed to travel on a pipe rail system. This means that a set of rails is located in every pathway between the plants which consist of two pipes of the same diameter and having a fixed width between the pipes (centre to centre measurement). The pipes often act as heating pipes and lie on supports having a fixed distance between each other. The pipe rail system must satisfy the most recent requirements of the horticultural sector guidelines for pipe rail systems. Article 7.3 also provides the minimum requirements for pipe rail systems taken from the sector guidelines for pipe rail systems. The pipe rail system on which the *PEPPERSHUTTLE HARVESTING SYSTEM* is intended to be used, must also comply with these requirements. All the above-mentioned items should also be checked periodically according to the health and safety catalog in force in the Netherlands. It is absolutely forbidden to use a pipe rail system that does not comply with the sector guidelines/policy regulations. Furthermore, various tests are described in the policy regulation for testing whether it is safe to use a pipe rail trolley on a particular pipe rail system. These tests should be carried out prior to working with the pipe rail trolley on the available pipe rail system.

### 7.3 *Minimum requirements for a pipe rail system*

See the original user manual of the *BENOMIC*!



## 8. Usage

Make sure that you are familiar with the *BENOMIC* and its controls. Ensure that those using the *PEPPERSHUTTLE HARVESTING SYSTEM* have received instructions regarding the *BENOMIC* and the *PEPPERSHUTTLE* with *HARVEST CONTAINER* and have thoroughly read and understood the safety instructions and have also read and understood this user's manual.

- The *PEPPERSHUTTLE HARVESTING SYSTEM* should only be put into operation when the operator is certain that there is nobody in the immediate vicinity of the Pipe Rail Trolley.
- Always remove plant remains etc and any other obstacles from the pipe rail system.
- Keep the *PEPPERSHUTTLE HARVESTING SYSTEM* clean and regularly remove any accumulated waste materials. Remove the key from the main switch before carrying out cleaning activities.
- After using the *BENOMIC* always remove the key from the main switch.
- Service the *PEPPERSHUTTLE HARVESTING SYSTEM* regularly and store it in a dry and frost-free environment if it is out of use over long periods.

## 8.1 Operation (supplements for use with PEPPERSHUTTLE)

### 8.1.1 Controls located on the lower trolley

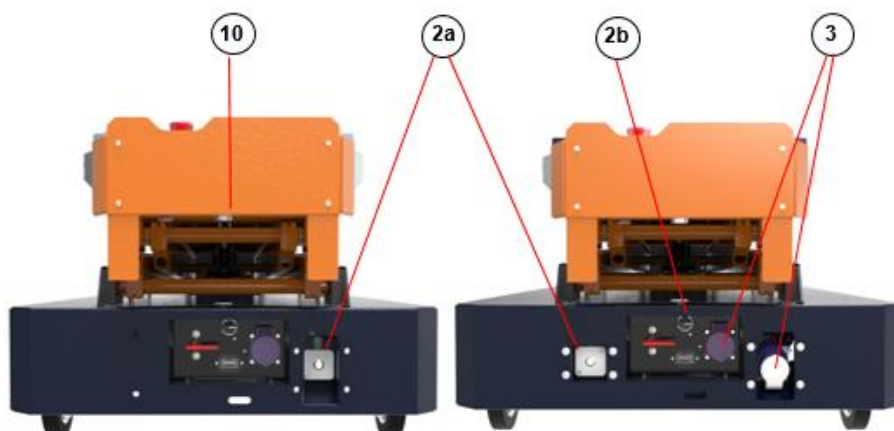


Fig. 8.1 - Controls on the lower trolley of the BENOMIC

Fig. 8.2 - Internal battery charger!

#### 2a. SCISSORS CONTROL RELEASE BUTTON

The release button (2a) releases the service button (2b) for use, this button must be pressed continuously during the upward or downward movement.

#### 2b. SCISSORS CONTROL SERVICE BUTTON

The scissors control selector switch allows the platform to be raised or lowered without standing on the platform. The *BENOMIC* should not be on the pipes for this operation! Keep the release button (2a) pressed and turn the service button (2b) clockwise (white stripe up) and the platform will rise as long as the buttons are operated. Keep the release button (2a) pressed and turn the service button (2b) anticlockwise (white stripe down) and the platform will drop as long as the button is operated.

#### Attention!

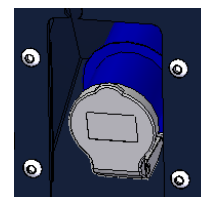
- **Ensure that no person or object can come either under or between the scissor construction while it is being lowered!**
- **Ensure that there is sufficient space above the BENOMIC to allow the scissor to rise up!**
- **Do not use this button if there is anybody on the platform!**



### 3. SOCKET FOR THE CHARGER PLUG

The batteries are charged via this socket. With normal use, charge the batteries three times every week - preferably Tuesday, Thursday and Friday or Saturday evenings - and at least once every week regardless of the level of usage. Make sure that the charger plug has been disconnected before the *BENOMIC* is going to be used! *Always remove the charger plug when carrying out maintenance.* Only use the correct type of charger - see the charger specifications.

If the *BENOMIC* is fitted with an internal battery charger (stated on the socket - see fig. 8.2) then only an extension cable is required.





### 5a. FOOT PEDALS

The 2 foot pedals (5a) are mounted in the platform (page 10), the *BENOMIC* will drive in the desired direction as long as a foot pedal is actuated.

### 5b. FOOT PEDALS & CONNECTOR

A foot pedal (5b) is mounted in the step-up platform (page 11), the *BENOMIC* will start driving in the desired direction as long as a foot pedal is operated.

A coiled cable with a jack plug is mounted on the foot switch of the step-up platform, which can be plugged in at the indicated location. (see 8.7.2.3 Connecting the step-up platform)

### 5c. FOOT PEDAL PUSH BUTTONS

A foot pedal push button (5c) is mounted in the operating consoles of the platform), the *BENOMIC* will start driving in the desired direction as long as this push button is operated. Use this button for driving on the concrete path.

## 8.1.2 Controls located on the platform



Fig. 8.3 - Control panel platform front and rear

### 6. DIRECTION OF TRAVEL / REVERSE DIRECTION SWITCH

The direction of travel can be chosen by setting the selector switch in the desired position. The neutral position on the switch is at the centre (0). When leaving the *BENOMIC* always put the switch in neutral!

### 7. SPEED REGULATING SWITCH

0 = stop 10 = maximum speed

### 8. EMERGENCY STOP BUTTON

Only to be used in the case of emergency! Disconnect normally using the main switch (1).

- Press = stop and switch off
- Turn-pull out = release

Only unlock the emergency stop with the direction switches (6) in neutral and the speed control knob (7) on 0.

### 9a and 9b. LOWERING RAISING PUSH BUTTONS

The work platform can be lowered with the black push button (9a). The platform will lower as long as the button is operated.

**Watch out for persons or objects in the vicinity of the scissor assembly while lowering!**



The scissors will rise to a maximum platform height as long as the blue push button (9b) is operated. Release this button when the maximum height is reached

### 10 RAISING THE TROLLEY HYDRAULICALLY

By pressing (1x) this button (front or rear) the *BENOMIC* rises to the fully extended position, thereafter it can be manually rotated and put into position.

#### Attention!

- **Only raise the equipment when it is on a flat surface (concrete path or main pathway)**
- **Never raise it while on the pipes or on a sloping path!**
- **Lower the platform completely before raising the *BENOMIC*!**
- **Think about toes and feet when lowering the *BENOMIC*!**



## 8.2 Moving the *BENOMIC* on the main pathway

There are two methods for moving the *BENOMIC* on the main pathway. Always walk beside the trolley - never in front! The first method is to move it on the flanged wheels. Set the direction of travel and the speed (maximum position 4). Press the foot switch (5a, b or 5c) and the *BENOMIC* will travel in the desired direction.

The second method is to put the trolley onto its lift wheels. Press button 10 on the right hand side and the *BENOMIC* is raised on its lift wheels. The *BENOMIC* can now be easily rotated and travel along. **Never leave the *BENOMIC* on the lift unattended and always walk at its side!**

### 8.3 *Harvest container*

As an optional extra for the *BENOMIC* model with the heavy duty double scissor, a harvest container is available that can be put onto the platform in combination with top end controls and a sliding rack. The harvest container along with its accessories (fencing/sliding rack, etc) must only be supplied by Berg Hortimotive. The harvest container serves as a buffer for harvesting peppers. The maximum load capacity of the platform should be reduced by the weight of the container and the sliding rack. The maximum loading capacity of 450kg must never be exceeded!



The harvest container has height adjustable picking hatches and pepper fall protection. The fall protection tilts upwards when unloading the container, greatly reducing the chance of peppers being left behind. For this operating principle, it is important that the *HARVEST CONTAINER* is placed on the *PEPPERSHUTTLE* according to the following marking.

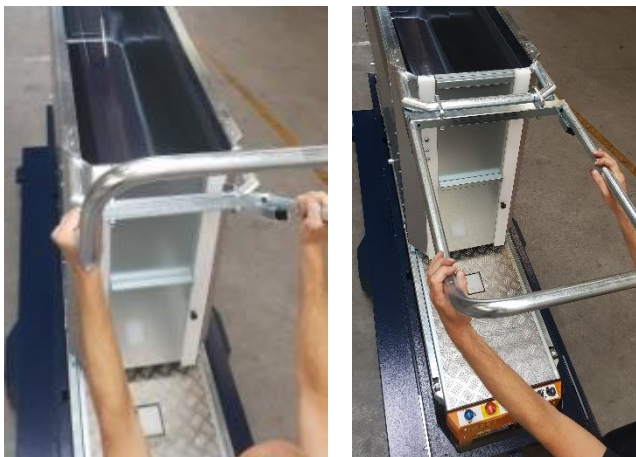


**Attention! Place the *HARVEST CONTAINER* according to the arrow marking on the *PEPPERSHUTTLE*!**



#### 8.4 Use of the safety railing on the HARVEST CONTAINER.

The safety railing must always be used when working on the work platform. Mount and step between the safety railing as shown below:



Connecting or disconnecting the safety railing to/from the container's handle.



View of stepping on or off.

**Attention! Always place the safety railing on the HARVEST CONTAINER when working on the work platform!**  
**Never work without a HARVEST CONTAINER and safety railing on the work platform!**



#### 8.5 Cleaning

Remove any plant remains, leaves etc and brush off any sand and dust, on a regular basis. Clean the Pipe Rail Trolley with a dry/damp cloth or soft brush. Provided it is completely dry, the *BENOMIC* can be cleaned using compressed air. Never pour water over the *BENOMIC* or clean it using a steam or high-pressure water cleaner which can lead to serious damage to the electrical circuits!

*Every week sand and dirt should be removed from the chassis for the scissor sliding block. See also Appendix 3: Cleaning the powder coating*



## 8.6 Use phases

We follow the growth phases of the peppers during the growing season. We recognise the following phases of use:

### 8.6.1 Walking while harvesting low hanging peppers

With the first pick, you can walk while harvesting with the *PEPPERSHUTTLE* and *HARVEST CONTAINER*.

Make sure that there are two flange roller wheels sets mounted in the *PEPPERSHUTTLE*!



Use with two wheel sets!



Push the *PEPPERSHUTTLE* through the harvesting paths.

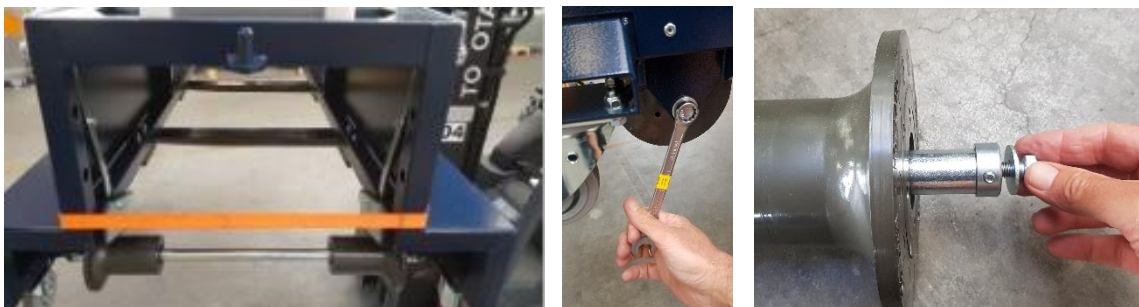
## 8.6.2 Driving while harvesting on the step-on platform

If the peppers are hanging higher later in the season, you can harvest with the complete *PEPPERSHUTTLE HARVESTING SYSTEM*.

### 8.6.2.1 (De)mount the wheel set

The wheel set on the tow bar side of the *PEPPERSHUTTLE* must be demounted according to the following images:

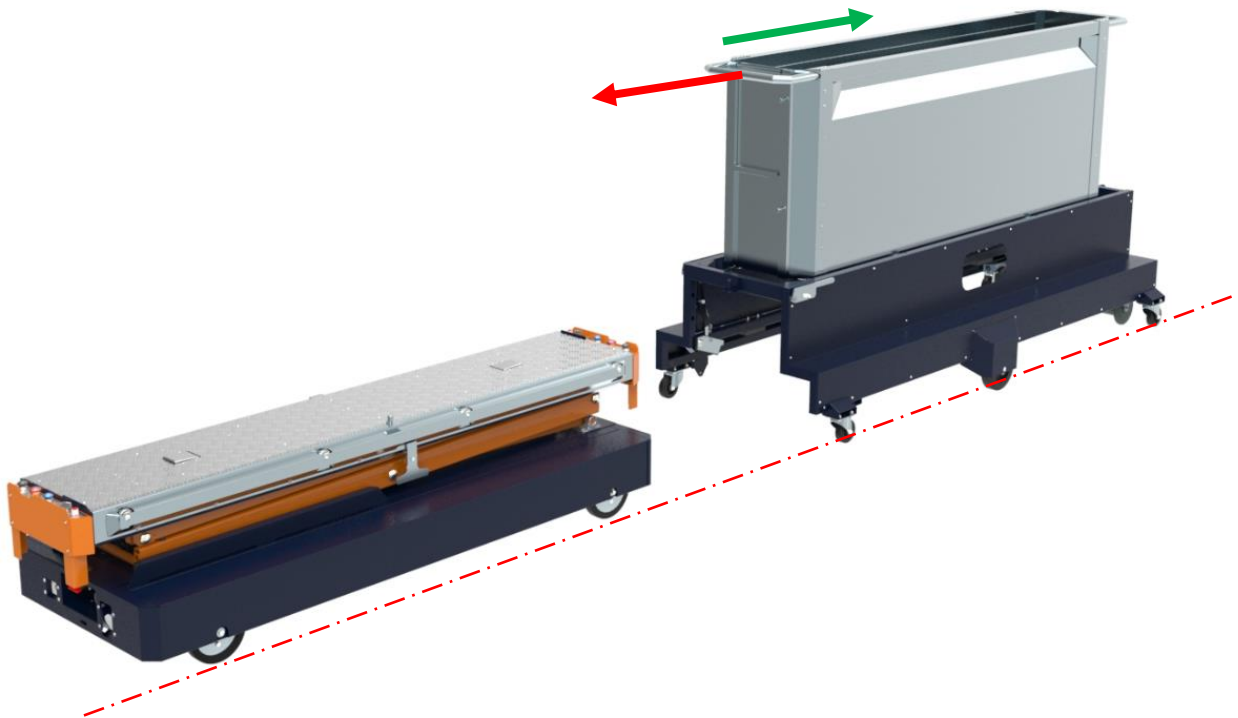
Lift the *PEPPERSHUTTLE* with a forklift truck (see 6.2)



Use a 17 mm spanner and remount the bolts and washers into the wheel set to keep the wheel set complete!

### 8.6.2.2 Couple/Uncouple the PEPPERSHUTTLE to/from the BENOMIC

Couple the *PEPPERSHUTTLE* to the *BENOMIC* according to the images below.

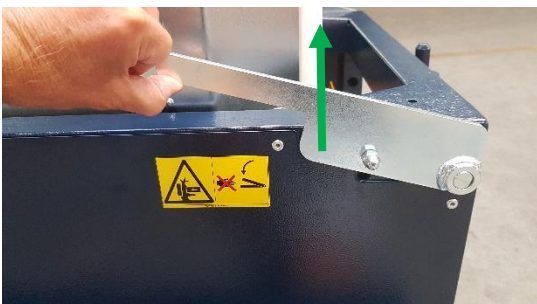


Put the *BENOMIC* and *PEPPERSHUTTLE* on the main path straight in line with each other and pull the *PEPPERSHUTTLE* by the container's handle over the *BENOMIC*.



Check that the lock is clicked down!

Uncoupling the *PEPPERSHUTTLE* from the *BENOMIC* is done in the reverse order.



Unlock the lock by turning the above lever upwards and pull the *PEPPERSHUTTLE* from the *BENOMIC* in the direction of the green arrow.

### 8.6.2.3 Coupling the step-on platform

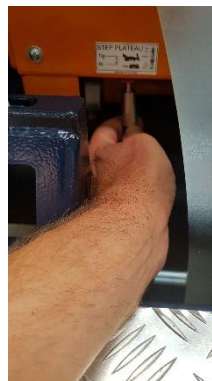
Couple the step-on platform to the *PEPPERSHUTTLE* and the *BENOMIC* according to the images below. The step-on platform can be mounted at two heights, choose an ergonomic height!



Push one pin in a hole, and then press the other pin in as shown in the image, centre the pin in front of the hole and release the unlocked pin.



Check whether a secure lock has been achieved!  
Insert the foot pedal (5b) jack plug into the socket until a click is felt.  
Unlock the foot pedal (5b) jack plug as follows:



Press the red catch upwards in the direction of the arrow and carefully pull the jack plug, by its metal housing, out of the connector.

**Attention! Never pull by the curly cord!**



Then drive the *PEPPERSHUTTLE HARVESTING SYSTEM* into a harvesting path and use the controls as explained at 8.1 Operation.

Adjust the running speed to the working speed and the amount of peppers being harvested!



**Attention! Do not bump against the back wall, keep an eye on the end of the harvesting path during the activities!**



At the end of the harvesting path, uncouple the step-up platform and couple it to the other side.

### **8.6.3 Harvesting at a height on the work platform**

In the final phase of the season, stand on the work platform of the *PEPPERSHUTTLE HARVESTING SYSTEM* while harvesting. Do this as follows:

See 8.6.2.2 Couple the *PEPPERSHUTTLE* to the *BENOMIC*

See 8.5 Use of the safety railing on the HARVEST CONTAINER.

#### **8.6.3.1 Raising the work platform**

In order to avoid getting trapped, the work platform must initially be operated with the Release button (2A) and the Service button (2b), see chapter 8.1 Operation.



Operate the work platform to about the height as shown in the image below, from this height, the blue Up buttons (9b) are released for use.



### **8.6.3.2 Fully lowering the work platform**

In order to avoid getting trapped, the work platform must finally be operated with the Release button (2A) and the Service button (2b), see chapter 8.1 Operation.



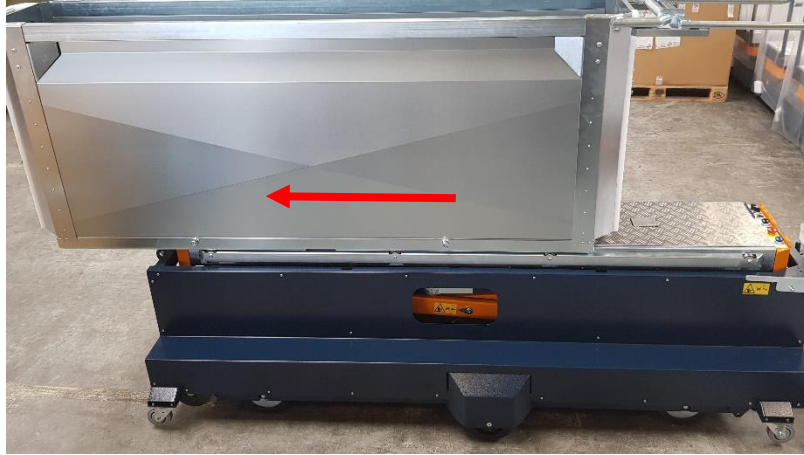
**Attention! First make sure that the HARVEST CONTAINER is centred on the work platform before the work platform is placed in the lowest position!**



### 8.6.3.3 Sliding the HARVEST CONTAINER

Once the *HARVEST CONTAINER* has been raised above the *PEPPERSHUTTLE* frame, the container can be unlocked and displaced.

The locking catch can be reached through the hole on the side of the *PEPPERSHUTTLE*.



Unlock the catch by pulling it down and slide the container to the front towards the harvesting path. Make sure the container is locked again in this position, a click is heard and the locking catch jumps into the lock.

**Attention! Check that the container is properly secured before driving with the *PEPPERSHUTTLE HARVESTING SYSTEM*!**



Then drive the *PEPPERSHUTTLE HARVESTING SYSTEM* into a harvesting path and use the controls as explained at 8.1 Operation.

Adjust the running speed to the working speed and the amount of peppers being harvested!

**Attention! Do not bump against the back wall, keep an eye on the end of the harvesting path during the activities!**



At the end of the harvesting path, disconnect the safety railing and connect it to the other side. Also slide the container completely to the other side.

Be careful when driving onto the main path!

#### 8.6.4 Transport to and from the processing area

Uncouple the *PEPPERSHUTTLE* from the *BENOMIC* (see 8.6.2.2)

The *PEPPERSHUTTLES* can be coupled to each other “like a train” using the triangles and tow bars. With a towing vehicle, the *PEPPERSHUTTLES* can be taken to and from the processing area.

**Attention! Reduce the speed of the towing vehicle if the “train” starts swaying!**



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## 8.7 Problems, causes and solutions (supplements for use with PEPPERSHUTTLE)

### Problem A : The BENOMIC does not move

**Cause :** *The locking of the HARVEST CONTAINER is not locked*

**Solution :** *Check the locking position of the locking catch*

**Other causes.**

*See the original user manual of the BENOMIC!*

*Consult your dealer*

### Problem B: The platform will not go up or down

**Cause :** *The platform limit switch release is not activated/faulty.*

**Solution :** *First operate the work platform with the service buttons on the chassis or check the limit switch*

**Overload**

*Reduce load - maximum 450kg*

**Other causes.**

*See the original user manual of the BENOMIC!*

*Consult your dealer*

### Problem C: PEPPERSHUTTLE HARVESTING SYSTEM has fallen over

**Cause C :**

- *Wrongly lifted with forklift truck*
- *Unstable pipe rail system*
- *Too much manual pressure*
- *Overloaded*
- *Alignment indicator ignored*
- *Run into the path next to the pipes*
- *Lifting on the pipes or ground surface not level*

**Solution :**

1. *Switch off the trolley*
2. *Lift the trolley back into position*
3. *Remove caps and covers*
4. *Disconnect batteries*
5. *Clean the trolley*
6. *Assess the damage*
7. *Identify cause and find solution (remove)*
8. *Carry out checks according to table in chapter 7*
9. *Carry out checks according to 7.1*

**!!!Beware of fluids - battery acid is extremely corrosive!!!**

## 9. Repairs & maintenance (supplements for use with *PEPPERSHUTTLE*)

The *PEPPERSHUTTLE HARVESTING SYSTEM* is a very high quality product. In order to guarantee that the high level of quality remains, it is vital that the maintenance scheme given below is strictly adhered to. Repairs and maintenance activities should be recorded in the maintenance log book (see appendix 1). The employer is also responsible for periodically checking tools and equipment according to the current national regulations covering this subject.

Disconnect the *BENOMIC* by the main switch before starting maintenance:

Maintenance - Check	Tools	Day	Week	Month	Year
Damage to the control equipment	Visual	X			
Damage to and visibility of the symbols and stickers	Visual	X			
Foot pedal + platform cleaning	Brush / Damp cloth		X		
Clean control panel	Brush / Damp cloth		X		
<i>PEPPERSHUTTLE</i> sliding locking blocks cleaning	Brush / Damp cloth		X		
Check for waste material or string etc twisted around wheels	Visual		X		
General mechanical damage	Visual		X		
Check the blocking catch of the <i>BENOMIC</i> container lock and lubricate if required (see 9.1)	Spray grease / or other universal lubricant		X		
<i>PEPPERSHUTTLE</i> sliding locking blocks axels greasing (see 9.2)	Grease for ball bearings and chains or a universal lubricating grease			X	
Grease ball bearings from container sliding system (see 9.3)	Grease for ball bearings and chains or a universal lubricating grease			X	
Check pipe rail wheel wear (see 9.4)	Visual			X	
Check the welds on the <i>PEPPERSHUTTLE</i> construction for cracks (hair cracks) and rust.	Visual				X

If it appears from the above checks that there is a fault with the *PEPPERSHUTTLE HARVESTING SYSTEM*, please contact your *PEPPERSHUTTLE HARVESTING SYSTEM* dealer immediately. Continuing to use the *PEPPERSHUTTLE HARVESTING SYSTEM* with the identified defects can be very dangerous and is therefore forbidden!



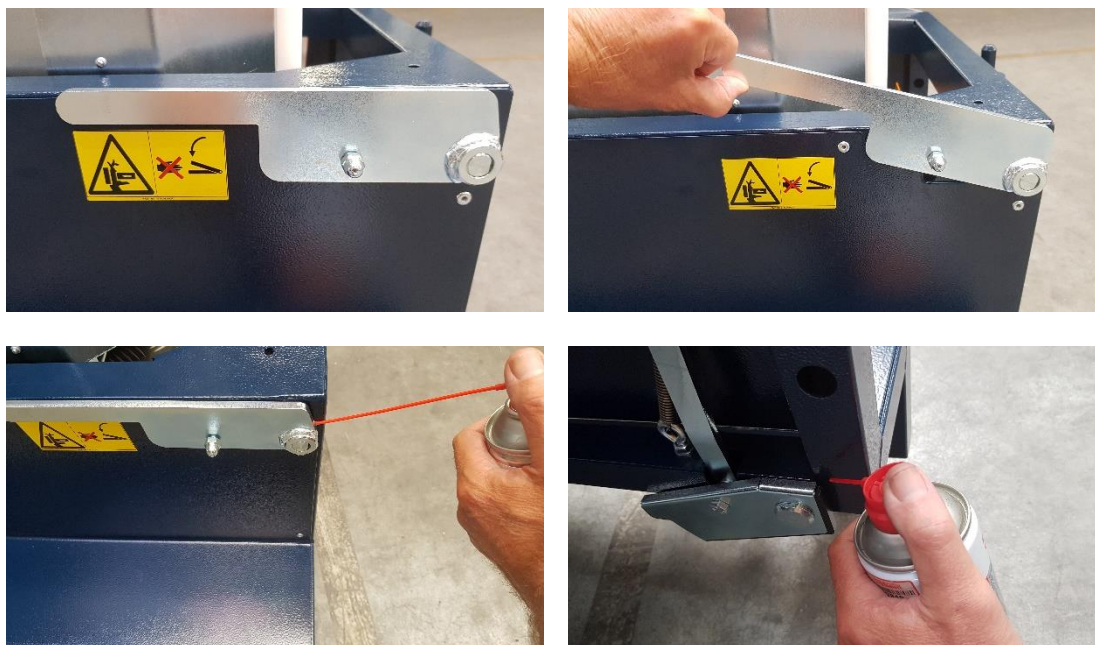
## 9.1 **Checking the blocking catch of the container lock**

On a weekly basis, check the operation of the container lock, you should be able to operate it smoothly and the catch must automatically jump upwards when the control lever is released. If the catch does not come up, or scrapes/squeaks, it must be lubricated with thin oil or a spray grease.



## 9.2 **Lubricating the PEPPERSHUTTLE sliding blocks locking shafts**

On a monthly basis, check the operation of the *PEPPERSHUTTLE* lock, you should be able to operate it smoothly and the catches must automatically jump downwards when the control lever is released. If the catches do not go down, or scrape/squeak, the pivot points must be lubricated with thin oil or a spray grease.



### **9.3      *Sliding platform, greasing the ball bearings***

On a monthly basis, check the operation of the sliding platform and ball bearings, these must roll smoothly and be clean. If the ball bearings do not roll smoothly or squeak, they must be lubricated with thin oil or a spray grease.





#### 9.4 Check pipe rail wheel wear *BENOMIC and PEPPERSHUTTLE*

Every running surface of any material is subject to wear.

The material of the flange rollers has the following favourable characteristics:

- Flange rollers are silent
- Rolling resistance is low
- Lower load for the heating pipes
- Acceptable durability

With this information we want to indicate when it is time to proceed with replacing the flange rollers.



Wear is approx. 1 mm, the rollers have been in use for some time.

Normal maintenance, inspection for run-in string.



Wear is 2-3 mm, the rollers are still fine.

Normal maintenance, inspection for run-in string.  
Roller replacement not yet necessary.



Wear is 5 mm or more.



The roller has flat sides and has been blocked.

Replacement is now necessary!  
Consult your dealer.

## 10. Technical specifications (Additionally)

### PEPPERSHUTTLE HARVESTING SYSTEM (P.H.S.)

<b>Type:</b>	<i>P.H.S.</i>
<b>Dimensions[mm]:</b>	
<b>centre to centre dimension</b>	420-800
<b>Length P.H.S.</b>	2600
<b>Width P.H.S.</b>	h.o.h. + 410
<b>PEPPERSHUTTLE step height from concrete</b>	340
<b>Step height to step- up platform</b>	425 & 525
<b>Work platform length</b>	580
<b>Work platform width</b>	450
<b>Maximum work platform height</b>	3500
<b>Maximum Load capacity [kg]</b>	450
<b>Maximum lateral force [N]</b>	110
<b>Internal dimensions</b>	
<b>Length HARVEST CONTAINER</b>	2290
<b>Width HARVEST CONTAINER</b>	380
<b>Height HARVEST CONTAINER</b>	850
<b>PEPPERSHUTTLE weight [kg]</b>	135
<b>HARVEST CONTAINER weight [kg]</b>	110

#### **Physical operating conditions:**

Ambient temperature,  
 Transport & Storage : 5 to +40 degrees Celsius  
 Working : 5 to +40 degrees Celsius  
 Rel. Humidity (RH) : 0% to 90%, not condensing  
 Lighting : Normal ambient lighting.

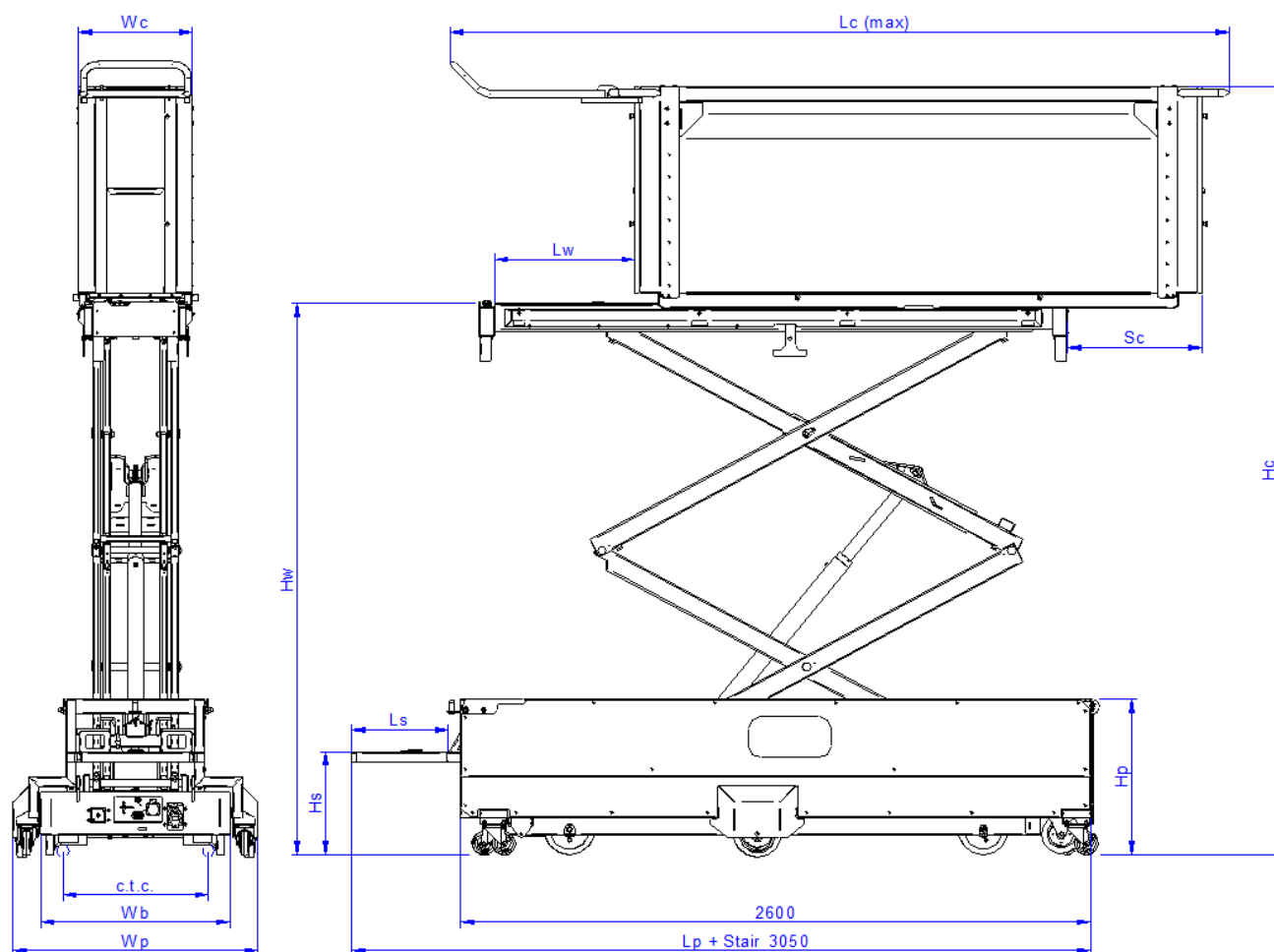
The machine is not designed to be used outdoors.

The machine is not suitable for operating in explosive atmospheres.



## Appendix 2: Technical drawings

Sizes in mm



c.t.c	Center to center	
Wb	Width Benomic	c.t.c + 180
Wp	Width Peppershuttle	c.t.c + 410
Wc	Width Container	470
Lw	Lenght workplace	580
Sc	Shift Container	-550 /0/ +550
Ls	Lenght Stair	395
Hs	Hight Stair	325 & 425
Hc	Hight Container	1470 – 4400
Hp	Hight Peppershuttle	660
Hw	Hight workplace	465 – 3500
Lc(max)	Lenght Container	3220

## Appendix 3: Cleaning the powder coating

### The importance of cleaning and maintenance:

- It retains the appearance and image of the product over a longer period.
- It extends the life-span.
- It prevents corrosion.
- It helps prevent the spread of plant diseases.
- It stimulates employees to operate the machines with care.

Removing contamination periodically prevents any chemical substances that may be present from affecting the powder coating. The protective layers are vulnerable to acids, salts and corrosive substances which cause premature aging. Moreover, thick layers of dirt and contamination absorb more moisture which increases the effects of corrosion on the protective layers.

### The cleaning frequency depends on the following factors:

- The level of contamination depends on what is being grown.
- Type of product, or usage between the crops or, e.g. usage only on concrete tracks.
- Exposure to chemical fluids (spraying equipment).
- Exposure to chemical vapours or mists (treating the air space in the greenhouses).
- Exposure to sunlight and UV rays.
- Humidity in the air and condensation.

The above results in a load factor that depends on the type of usage, and where applicable, the following cleaning schedule should be followed.

### When to clean:

- |  |                              |
|--|------------------------------|
| • Plant and product residues.                              | daily                        |
| • Earth and sand   | 2x weekly                    |
| • Glass, string, plastic, elastic, clips, wire hooks, etc. | 2x weekly                    |
| • Exposure to chemicals                                    | immediately after use        |
| • Dullness or contamination on the top layer               | periodically after detection |

### How to clean:

- Remove dirt or contamination on the top layer using a soft brush or cloth, or a compressed air line (<6 bar).
- Chemical contamination should be removed using a coarse sponge or soft cloth drenched in tap water.
- Clean a dull or contaminated top layer using a neutral cleaning agent with a pH value between 5 and 8 (check the label on the packaging) and a sponge or soft cloth.
- **Tip**, when a cleaning agent is used for the first time it is recommended to initially test the agent on a small section of the top layer before continuing.

### What you must not do:



- Never clean the powder coating using an abrasive or burnishing cleaning agent.
- Never use cleaning equipment with an abrasive surface (steel wool, pot scourer, etc).
- Pressing down, polishing or scrubbing, etc, is not permitted.
- Never use organic cleaning solutions for cleaning or maintaining the powder coating.
- Pouring over water, using a water hose or high pressure cleaner can cause damage.

### After cleaning:

- Ensure that the cleaned surfaces are properly dry and temporarily remove overlapping protective covers and screens.
- All pivots and hinges, etc, that have been in contact with cleaning agents should be lubricated according to the recommendations given in the maintenance schedule in the user manual.
- Treat any damaged areas on the powder coating layer with lacquer or paint.

### Please note:

The above are only **recommendations** and therefore responsibility for the proper cleaning remains with the person carrying it out. Please contact the manufacturer if you have any queries regarding the appropriate cleaning products to be used.