



*Partner in Growing*



## User Manual

Original document

version 2015-1



## Directomatic Pot Machine

Machine nr.: .....



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## Preface

This user manual is written for anyone working on or with the machine. Before working on or with the machine, first read this manual.

This user manual contains important instructions / information on how to use the machine in a safe, professional and economical way and must always be available where the machine is used.

In addition to this user manual, the mandatory rules and regulations for accident prevention and environmental protection in the country and place of use of the machine must also be observed.

This user manual contains information on the operation of the machine with all the possible options. Use only the information that applies to your machine. Depending on the intensity of use and customer requirements, this machine can be equipped with various options. Contact your sales consultant.

Supplier details if not directly supplied by Javo BV. Dealer stamp:



Javo BV is not responsible for any errors in this manual or the consequences thereof.

Javo BV is not liable for damage or consequential damage caused by operating errors, lack of expert maintenance and any use other than described in this manual.

The liability of Javo BV also expires once modifications or additions are made without written permission of Javo BV.

This machine is suitable for process and environmental conditions as stated in section "Specifications and Tolerances" of this manual. Any other use is not authorized by Javo BV and this allows the operator and / or its environment at risk.

## Table of contents

<b>1</b>	<b>Technical specifications and tolerances .....</b>	<b>4</b>
1.1	Type plate.....	4
<b>2</b>	<b>Safety.....</b>	<b>5</b>
2.1	Provisions .....	5
2.2	Safety devices on the machine .....	6
2.3	Explanation of icons and symbols.....	6
<b>3</b>	<b>Description of the machine .....</b>	<b>7</b>
3.1	Machine overview.....	7
3.2	Outline drawing with main dimensions .....	8
3.3	Options.....	8
3.4	Operation .....	8
3.5	Machine workstations.....	8
3.6	Controls.....	9
<b>4</b>	<b>Transport .....</b>	<b>10</b>
<b>5</b>	<b>Mounting, installation and commissioning .....</b>	<b>11</b>
5.1	Placement .....	11
5.2	Facilities to take care of by the user .....	11
5.3	Mounting / Connecting.....	11
5.4	Check substrate conveyors tension .....	12
5.5	Check pottrack chain tension.....	12
5.6	Mounting leaf brushes.....	13
<b>6</b>	<b>Operation.....</b>	<b>14</b>
6.1	Software .....	14
6.1.1	Main screen.....	14
6.1.2	Main menu .....	15
6.1.3	Recipe screen .....	15
6.1.4	History screens.....	16
6.1.5	Alarm screen .....	16
6.1.6	Users screen.....	17
6.1.7	Language screen.....	17
6.1.8	Settings screen .....	18
6.2	Start.....	18
6.3	Hooking plants .....	19
6.4	Stop .....	20
6.5	Emergency stop.....	20
<b>7</b>	<b>Maintenance .....</b>	<b>21</b>
7.1	Required tools and equipment .....	21
7.2	Preventive Maintenance.....	21

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7.3	Lubricate units.....	22
7.4	Test safety circuit .....	22
7.5	Set compressed air .....	22
7.6	Fault list .....	23
7.7	Drawings and schemes.....	24
7.8	Spare parts .....	24
7.9	JavoNet.....	24
7.10	Customer support and advice.....	24
<b>8</b>	<b>Disposal of machine or machine parts .....</b>	<b>24</b>
<b>9</b>	<b>EG-conformity statement.....</b>	<b>25</b>

## 1 Technical specifications and tolerances

This machine is designed to automatically hoarding phalaenopsis and bark. Your plants are brought carefully into the pots with patented techniques. The roots are guided to the bottom of the pot. Always the right amount of substrate with a good distribution in the pot and between the roots, will give your plants an advantage in growth and the best quality. This machine is meant for processing pots, cuttings, substrate and other materials that are described in this manual only. Detailed operation of the machine is described in section "Operation".



*This machine may be used only within the limits for specifications and tolerances of the order, on the assembly drawing and indicated in this manual. If the machine is used outside these specifications, Javo BV cannot take responsibility for this machine.*



*This machine is intended for products as agreed in the order confirmation only. To ensure the proper operation of this machine, only products with specifications and tolerances as specified in the order may be used.*



*Do not use the machine for purposes other than the intended purpose of Javo BV. This can lead to damage and danger to the operator and its environment.*



*This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Untill proper CE Marking of the line is carried out, commissioning of this machine is prohibited.*

Specifications	
Voltage	400Volt 50Hz 3~+N+ PE
Machine connection	16A 5pole
Power consumption	1,5 kW
Switched socket	1 x 16A 5 pole
Weight	±2000 kg
Height conveyor	Min. 870 mm
Length x width x height	5050 x 3250 x 2200 mm
Max. speed	±2.160 pots/h (dependent on the kind of substrate)
Min. speed	± 800 pots/h
Minimum pot diameter	10 cm
Maximum pot diameter	13 cm
Number of potholders	28
Content substrate bin	Inapplicable
Number of workplaces	1-2 or 3
Immersion height plants	Minimum 1100 mm
Pot automat	
Set of blowers at expiration - AFLA1	Electrical on / off
Pot conveyor - PO-TRB15	Incl. support, guiding one side, steering
Pneumatic pot brake - POTREM2	Pneumatic working erector
Year of construction	See type plate
Type product	As agreed in the order confirmation.

### 1.1 Type plate

The type plate is placed onto the main cabinet door.

**Website:** [www.javo.se](http://www.javo.se)

**E-Mail :** [info@tradgardsteknik.se](mailto:info@tradgardsteknik.se)

Type	
Machine nr.	
Bouwjaar	
<input type="checkbox"/> V	<input type="checkbox"/> kW
<input type="checkbox"/> A	<input type="checkbox"/> Hz



## 2 Safety



*This machine is built according the state of the art technique and the accredited safety regulations. Despite this, the body and life from the user or third parties can be in danger when using it. There could also arise damage to the machine or other goods when using it.*



*This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Untill proper CE Marking of the line is carried out, commissioning of this machine is prohibited.*

### 2.1 Provisions

1. Operation and maintenance of this machine must be performed by qualified personnel in compliance with warnings on the machine and in accordance with the user manual. Keep children and other (unauthorized) persons away while using machine.
2. This machine is suitable for process and environmental conditions as stated in section "Specifications and Tolerances" of this manual only. Any other use is not authorized by Javo BV and this allows the operator and / or the environment at risk.
3. It is prohibited to modify this machine, without prior written approval of Javo BV.
4. Thermal fuses and torque limiters may not be set different upon delivery of the new machine. The thermal circuit breakers should never be used to turn on / off the machine.
5. This machine should be installed so that there is sufficient space remaining for providing safe instructions and / or performing maintenance and / or inspections. Put the brakes on the castors before the machine is turned on.
6. Keep the work area clean and well lit. Cluttered or dark areas invite accidents.
7. This machine is not suitable to be used outside. Electrical components are only splashproof. Keep the machine away from rain and moisture. When using the machine in a humid environment is unavoidable, you should use an RCD.
8. Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.
9. As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.
10. Do not stand on the machine when it is operating.
11. Never move the machine if the power cable and / or pneumatic supply is still connected.
12. Prescribed checks and maintenance in the user manual must be observed.
13. Allow the machine to be serviced and repaired by qualified personell only with original replacement parts.
14. In addition to the user manual, generally applicable statutory and other regulations regarding accident prevention and environmental protection have to be respected. This is also referred to handling of personal protective equipment.
15. Inform operating personnel before start maintenance. Interrupt if possible the power (mains), before start machine investigation or maintenance by turning off the main switch and locking the main switch. Pull the plug from the wall socket.
  - a. As work must be done with power supply (mains) voltage on the machine, then arrange an additional person who can operate the emergency stop.
16. When a machine part is damaged or not working in the prescribed manner, the work must be interrupted immediately. Resumption allowed only when the machine part is repaired or replaced and checked. Consult your dealer if the machine is not functioning properly.
17. Machine and / or parts must be disposed in accordance with local laws and regulations.











## 2.2 Safety devices on the machine








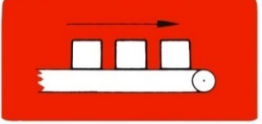
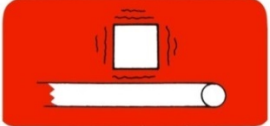


*Caps and doors are screening moving parts. Always place back caps and close doors before the machine is turned on. Caps and doors should remain closed while operating the machine.*

The motors of the machine are protected against overload by thermal switches. These switches are located in the control box.

## 2.3 Explanation of icons and symbols

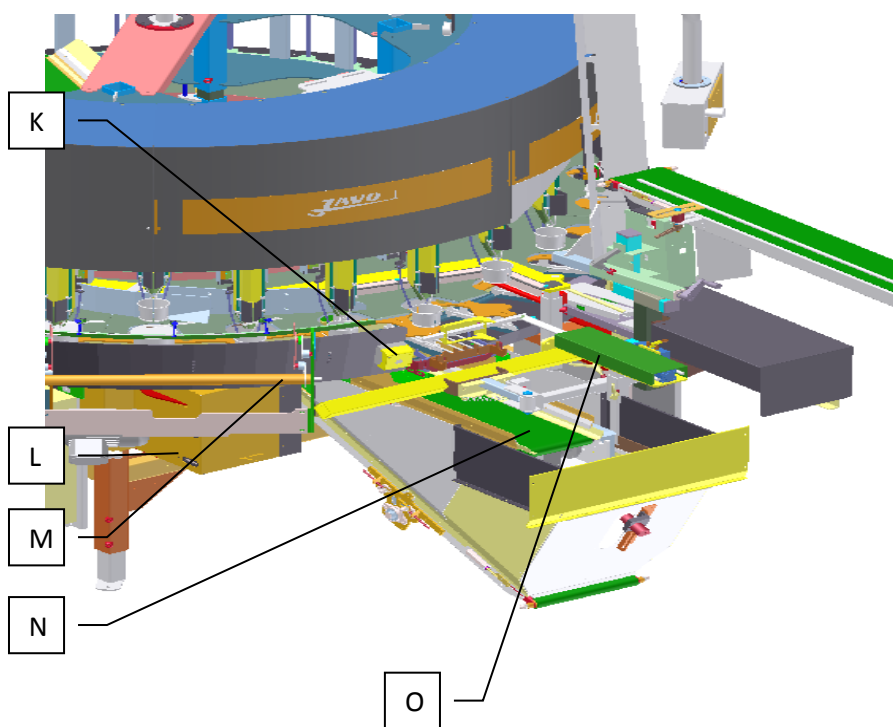
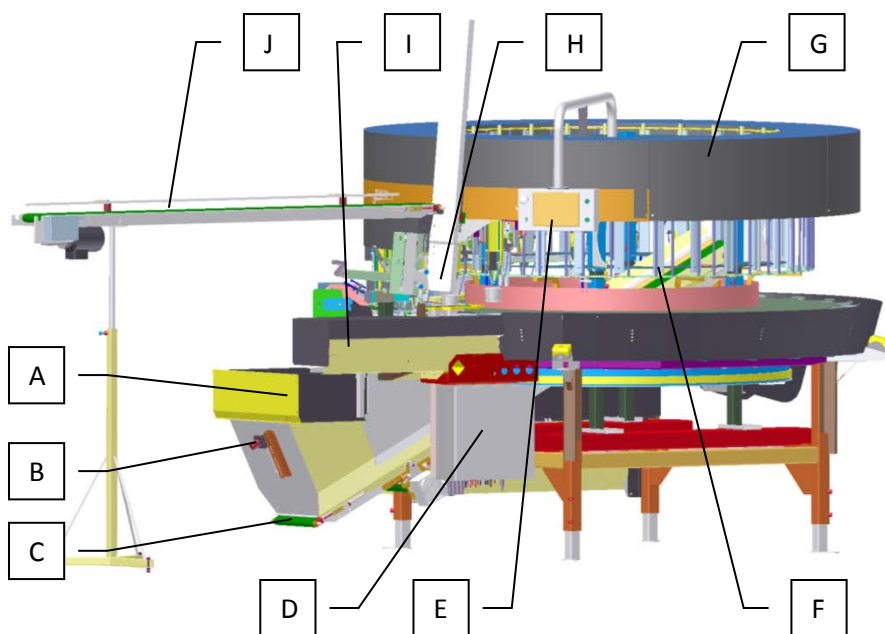
Pictogram	Meaning
	Read and understand this manual before using the machine and / or performing maintenance.
	Remove Power (mains).
	Wear during all work on or with the machine safety shoes and safety glasses.
	Wear during cleaning and maintenance work on this machine also safety gloves and protective clothing.
	Warning. Important points and / or instructions regarding safety and / or injury prevention are marked with this warning sign.
	Dangerous electrical voltage. Dangerous electrical voltage present.
	Risk of crushing. Danger of moving or rotating parts.
	It is forbidden to wear Loose clothing, long hair and / or jewelry nearby moving parts of the machine.
	Trespassing.
	Do not rinse control cabinet Danger of moisture in the cabinet when it is rinsed with water.

Symbols that may be present on this machine			
Drill 	Direction of movement 	Speed ground feeder (curved) 	Speed ground feeder (straight) 
Speed pot belt (curved) 	Speed pot belt (straight) 	Brush disc Rotofill 	Tray belt Rotofill 
Rotor Rotofill 			

## 3 Description of the machine

### 3.1 Machine overview

- A. Substrate bin
- B. Substrate bin level sensor
- C. Substrate-supply-belt
- D. Pneumatic cabinet
- E. HMI Touch screen
- F. Hooking jaws
- G. Carousel
- H. Pot erector
- I. Pot entry system
- J. Pot conveyor
- K. Emergency stop button
- L. Drive unit pottrack
- M. Vibration unit
- N. Substrate-retour-belt
- O. Pots Expiration





### 3.2 Outline drawing with main dimensions



### 3.3 Options

Depending on the intensity of use and customer requirements, this machine can be equipped with various options. Contact your sales consultant.

Options	Code	Specifications
4 meter 5x1.5 cable incl. 16A plug	900965	
Continuous socket	900966	Non-standard.
'small substrate bin'	Ca 1200 x 1000	

### 3.4 Operation

This machine is designed to automatically hoarding phalaenopsis and bark. Your plants are brought carefully into the pots with patented techniques. The roots are guided to the bottom of the pot. Always the right amount of substrate with a good distribution in the pot and between the roots, will give your plants an advantage in growth and the best quality.

Phalaenopsis is manually hung in a vertically movable hooking jaws and automatically positioned at a uniform height in the pot. Unique is the technique which ensures that the roots are placed at the bottom of the pot. The plant height is determined mechanically. The bark is pushed into the pot during the process. Specially developed hooking jaws, provide crop protection during inflow of bark. A vibrating mechanism ensures compacting of bark in the pot. By opening the hooking jaws, the pot and plant easily exported from the machine. This machine is meant for processing pots, cuttings, substrate and other materials that are described in this manual only.

### 3.5 Machine workstations

This machine has operator places at the pottrack.

### 3.6 Controls

JavoDIS is a versatile control and information system and linked to your Javo machine. With a press of a button the correct settings can be entered using software screens.

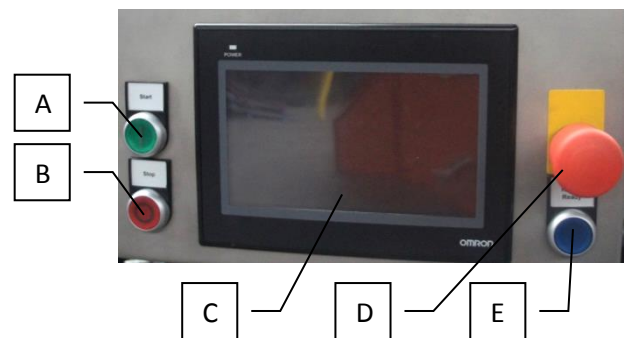
JavoDIS has the following standard options:

1. Automatic counting of day / week and average production.
2. Automatic "empty run" function to prevent dehydration.
3. Speed control in pots per hour adjustable from 800 to 2.160 pots/hour.
4. Turn on or off various functions.
5. History of error messages by date / time and description of possible causes.
6. Software language in standard 2 languages.
7. Access (via log in code) to management information (meant for service personnel only).



The control panel consists of the following buttons:

- A. Start button
- B. Stop button
- C. HMI Touch screen
- D. Emergency stop button
- E. Reset button



The main switch is placed onto the electrical cabinet.

The machine is equipped with 5 emergency stop buttons (4x around the machine and 1x at the main cabinet).



*only press emergency stop buttons in case of emergency!*

## 4 Transport



*Follow all instructions described in this manual, in particular chapter safety.*

On delivery of the machine, a Javo mechanical engineer must be present to unload the machine from the (freight) wagon.

Prior to moving the machine, the power should be disconnected. Make sure the cables are stowed sufficiently.

When moving within the company (when the machine does not need to be lifted) the state of the machine should be checked. Make sure the path to be travelled is free, so the machine can be moved to the desired position without obstacles.

If the machine is to be lifted for movement (outside the company), please contact your dealer or contact a professional shipping company.

The machine must be transported upright.

The relative humidity should not be too high so that water condenses in the machine.

Report damage during or immediately after delivery to the transport company and to Javo BV. Take all necessary steps to prevent further damage.

## 5 Mounting, installation and commissioning



*Follow all instructions described in this manual, in particular chapter safety.*



*This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Up to CE Marking of the line, commissioning of this machine is prohibited.*

### 5.1 Placement

The machine must be placed on a flat surface, with sufficient weight capacity. Install the machine so that there is enough space left for service providing, safe instructions and / or cleaning, maintenance and / or inspections. Put the brakes on the castors before the machine is turned on.

When unloading the Directomatic you must have access to a loading dock or a forklift with a lifting capacity of at least 2500 kg.



*This machine is not suitable to be used in the open air. Electrical components are only splashproof. Keep the machine away from rain and moisture. When using the machine in a humid location is unavoidable, you should use an RCD.*

### 5.2 Facilities to take care of by the user

Prior to delivery of the machine, the required materials and facilities (air, power, substrate, etc.) needs to be present within 3 meters of machine.

Required power supply: 400 Volt, 3 Phase + Neutral + Earth. (N. America: 208/220V 60Hz.).

### 5.3 Mounting / Connecting

If applicable, the components supplied are to be mounted on the machine. Make sure that the moving parts are free. If the machine is complete, it can be connected (by a competent person) to the power supply.



*Keep hands, hair, loose clothing and / or jewellery away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.*

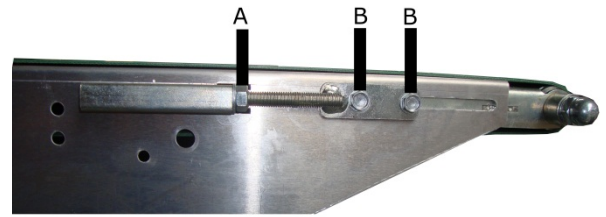


*As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.*

## 5.4 Check substrate conveyors tension



*Check the substrate conveyors belt tension before you start working with the machine.*



Procedure:

1. Check the substrate conveyors belt tension. The correct tension is obtained when the belt in the middle deflects  $\pm 40\text{mm}$ .
2. Adjust the belt tension if necessary .
  - a. Loosen the four screws (B).
  - b. The tension can be adjusted by simultaneously turning both sides of the belt (A).
  - c. Tighten the four screws (B).



*The tension of the belts should not be too tight.*

## 5.5 Check pottrack chain tension



*Check the pottrack chain tension before you start working with the machine.*

Procedure:

1. The drive of the pottrack is placed at the bottom of the pottrack. The actuator is placed at the left side of the expiration.
2. To adjust the chain the drive cover must be removed.
3. Loosen the four M6 bolts (A) of the clamping plate one stroke.
4. Stretch the tensioner a fraction (millimeters) and then tighten the four bolts.



*It is prohibited to lubricate the chain.*

## 5.6 Mounting leaf brushes



*When installation of the leaf brushes is incorrect, it can seriously damage the entire plant unit. Leaf brushes may be installed only by a service technician.*

Procedure:

1. Remove the old brush by loosening the bolts in the clamp ring.
2. Install new leaf brushes, the height is determined by the marking well in the Hooking jaw.



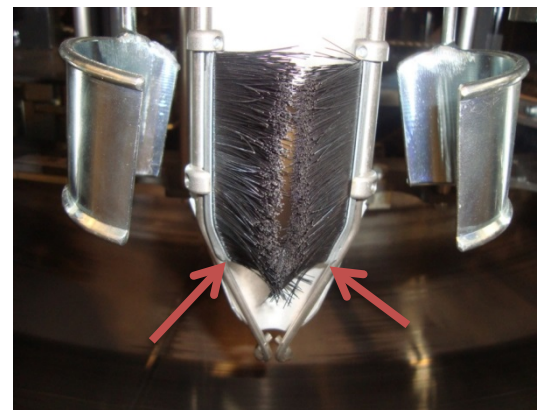
*The bolts should be tightened firmly to prevent twisting.*



3. Make sure the tip of the leaf brushes are located within the hooking jaws. If this is not the case, then, the bottom side of the brush needs to be bent further inwardly.



*If the leaf brushes are not within the hooking jaws, it can reach the root clamps, causing big damage.*



4. Check whether the bolts are tightened well (after bending the bolts may be a bit loose).

## 6 Operation



Follow all instructions described in this manual, in particular chapter safety.



Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.



As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.



If a machine part is damaged or not working in the prescribed manner, work must be interrupted immediately. Resumption allowed only when the machine part is repaired or replaced and checked. Consult your dealer if the machine is not functioning properly.

This machine is self-regulating. When speed changes all arrangements are adjusted automatically in steps.

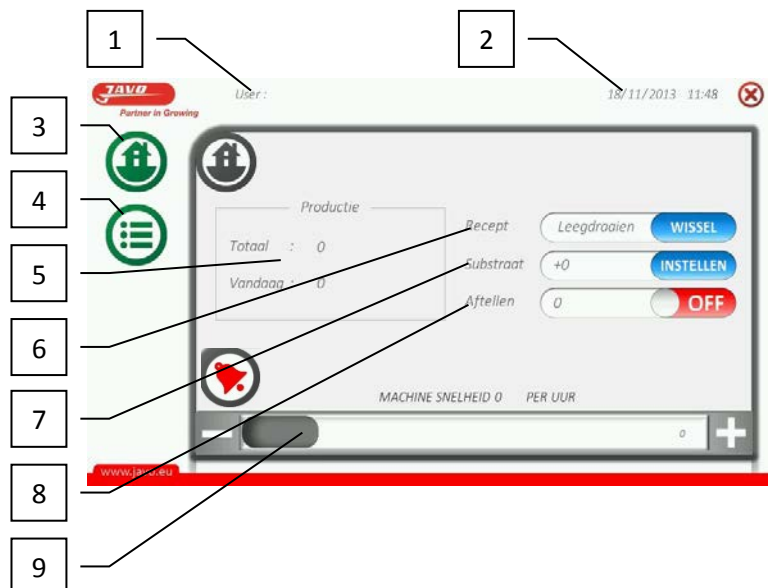
### 6.1 Software

#### 6.1.1 Main screen

After starting the machine, this screen appears on the HMI.

In this screen you are able to:

1. See the current user.
2. Read the current date and time.
3. Return to the main screen.
4. Navigate to the main menu.
5. See production numbers of these days and see total production number.
6. See the current recipe and exchange the recipe. By pressing this button, you enter the recipe screen.
7. Change substrate supply independently of the selected preset in the recipe menu.
8. Adjust.
9. Set up the production machine speed (stepless, free of presets in recipes screen).



When a current alarm, an alarm bell is displayed.

After a set number of machine strokes, a service alarm message appears in the display. This can only be reset by Javo service technicians.

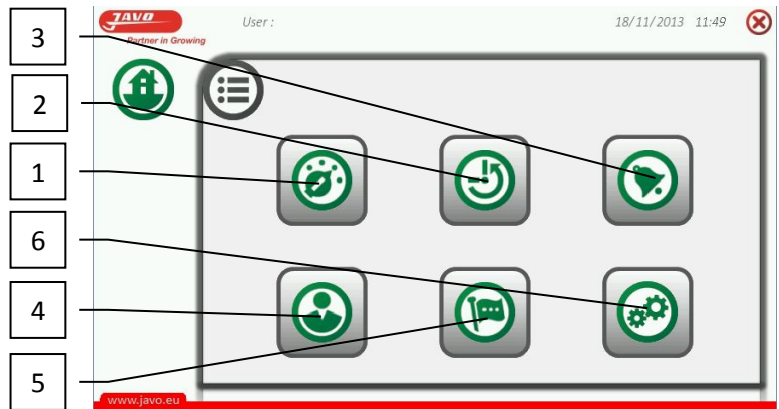


### 6.1.2 Main menu

After selecting the main menu button in the main screen, this screen appears on the HMI.

In this screen you are able to navigate to all sub screens:

1. Recipe.
2. History.
3. Alarms.
4. Users.
5. Languages.
6. Settings (only accessible for Javo service technicians).



### 6.1.3 Recipe screen

After selecting the Recipe button in the main menu, this screen appears on the HMI.

This screen allows you to select and set four different recipes.

1. When choosing the run empty recipe, the pot erector stops after a few strokes. Then all existing pots are turned processed through the machine. Finally, the machine runs a few revolutions to return all the substrate through the ground retour belt back to the bin.
2. Speed ~1200 pots / hour.
3. Speed ~1700 pots / hour.
4. Speed ~2160 pots / hour.



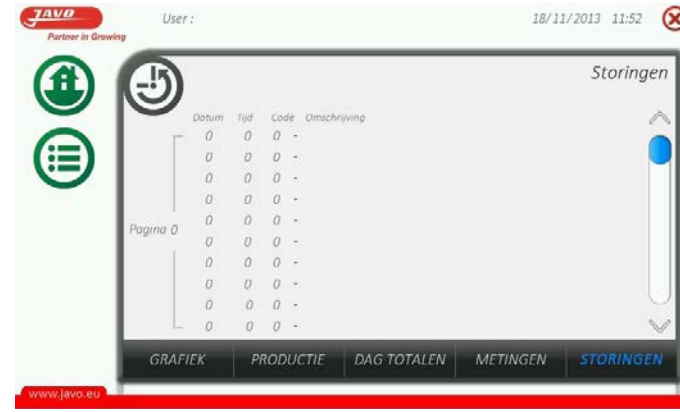
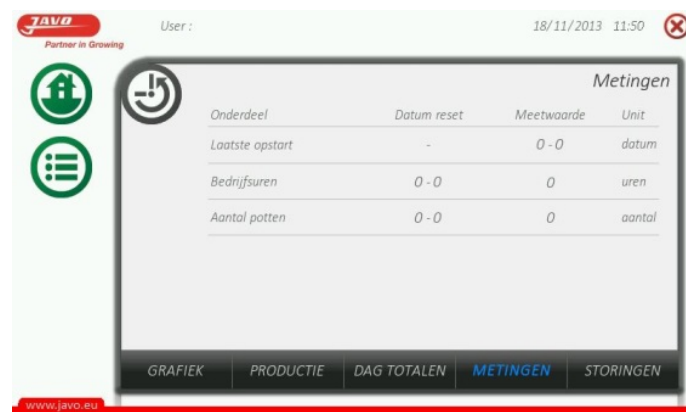
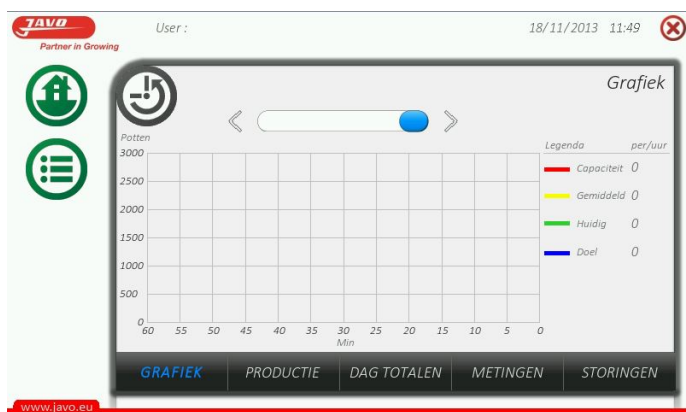
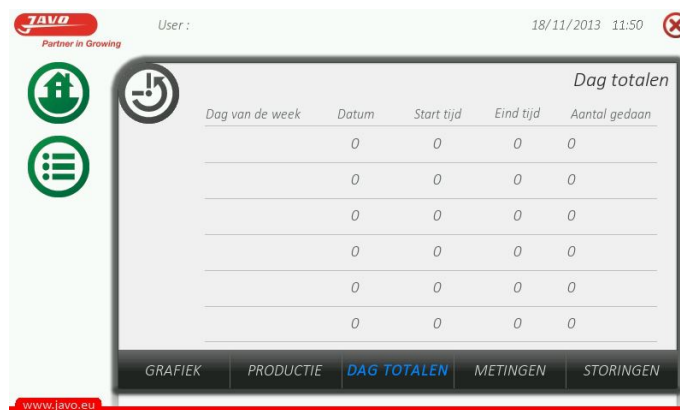
When setting a different recipe all speeds are automatically adjusted. There are a number of revolutions needed to set the substrate level to a correct height.



### 6.1.4 History screens

After selecting the History button in the main menu, this screen appears on the HMI.

In this screen you can see production numbers and times and navigate to display numbers in a graph, display production numbers, display totals, display measurement and display malfunctions.

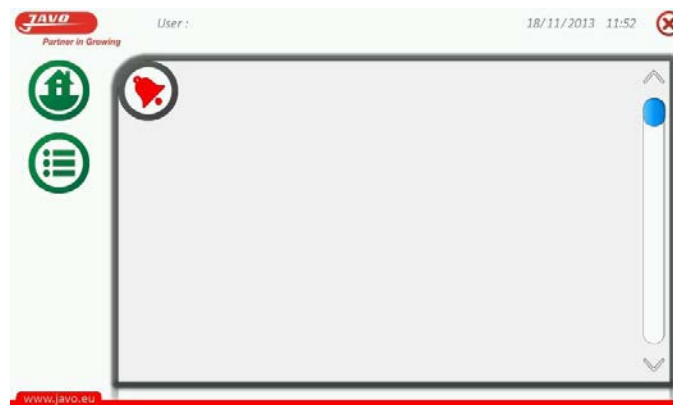


### 6.1.5 Alarm screen

After selecting the Alarm button in the main menu, this screen appears on the HMI.

In this screen you are able to see all alarms.

The alarm button flashes at a current alarm.



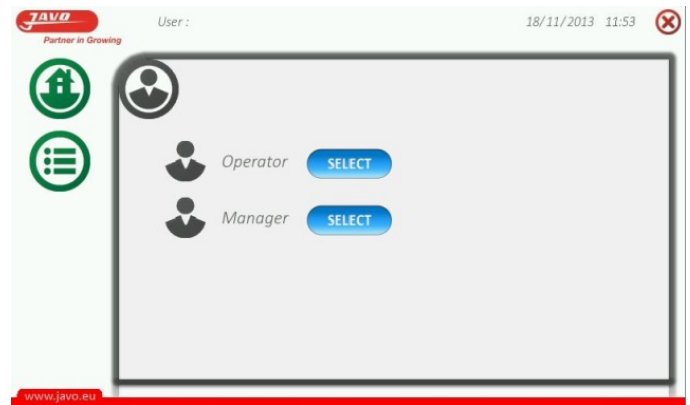
### 6.1.6 Users screen

After selecting the Users button in the main menu, this screen appears on the HMI.

In this screen you can select the current user.



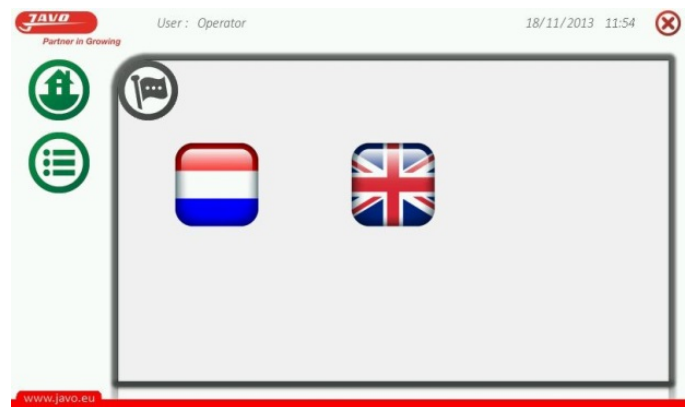
*Only accessible for Javo service technicians.*



### 6.1.7 Language screen

After selecting the Language button in the main menu, this screen appears on the HMI.

In this screen you can change the software language.



### 6.1.8 Settings screen

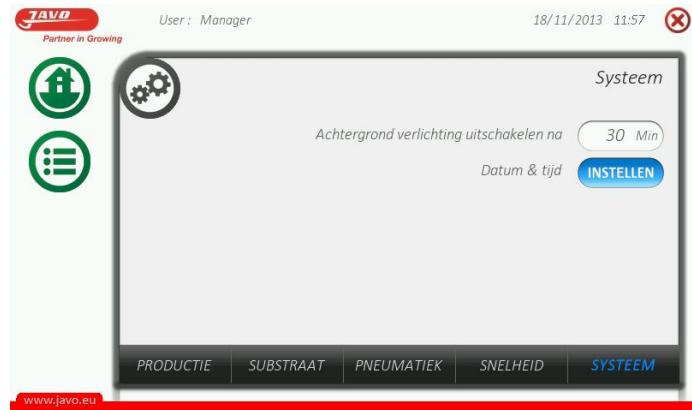
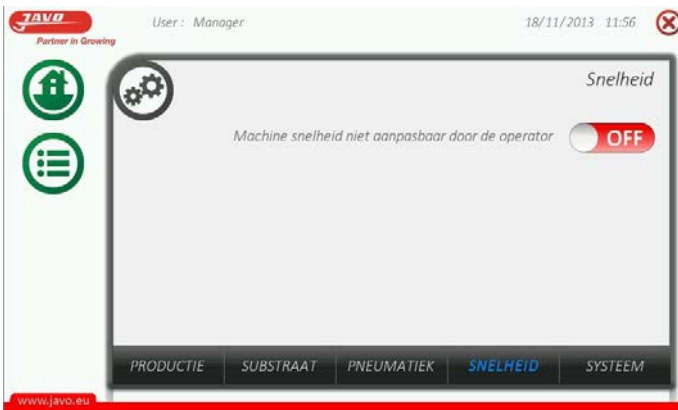
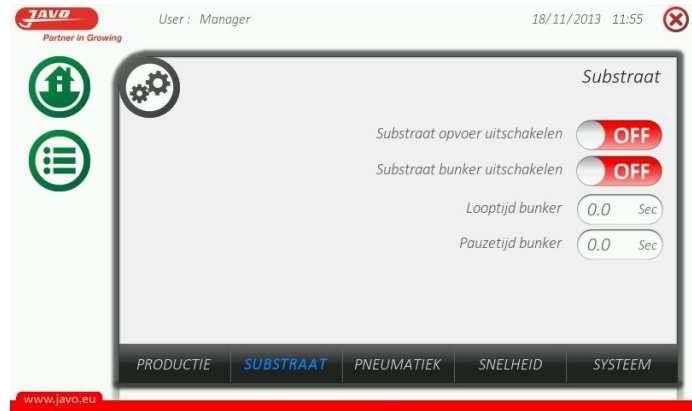
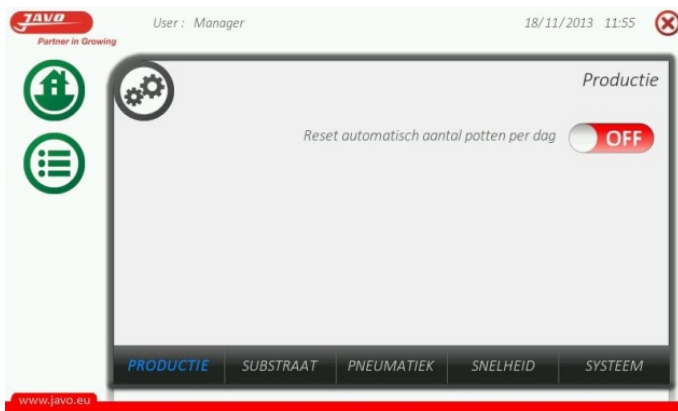
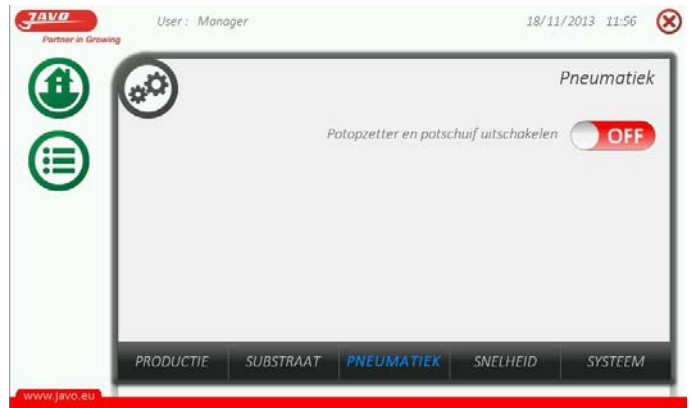
After selecting the Settings button in the main menu, this screen appears on the HMI.



*Only accessible for Javo service technicians.*

In this screen you are able to:

- Reset the amount of pots per day automatically.
- Change Substrate settings.
- Activate or deactivate the poterector and pot slide.
- Change system settings.



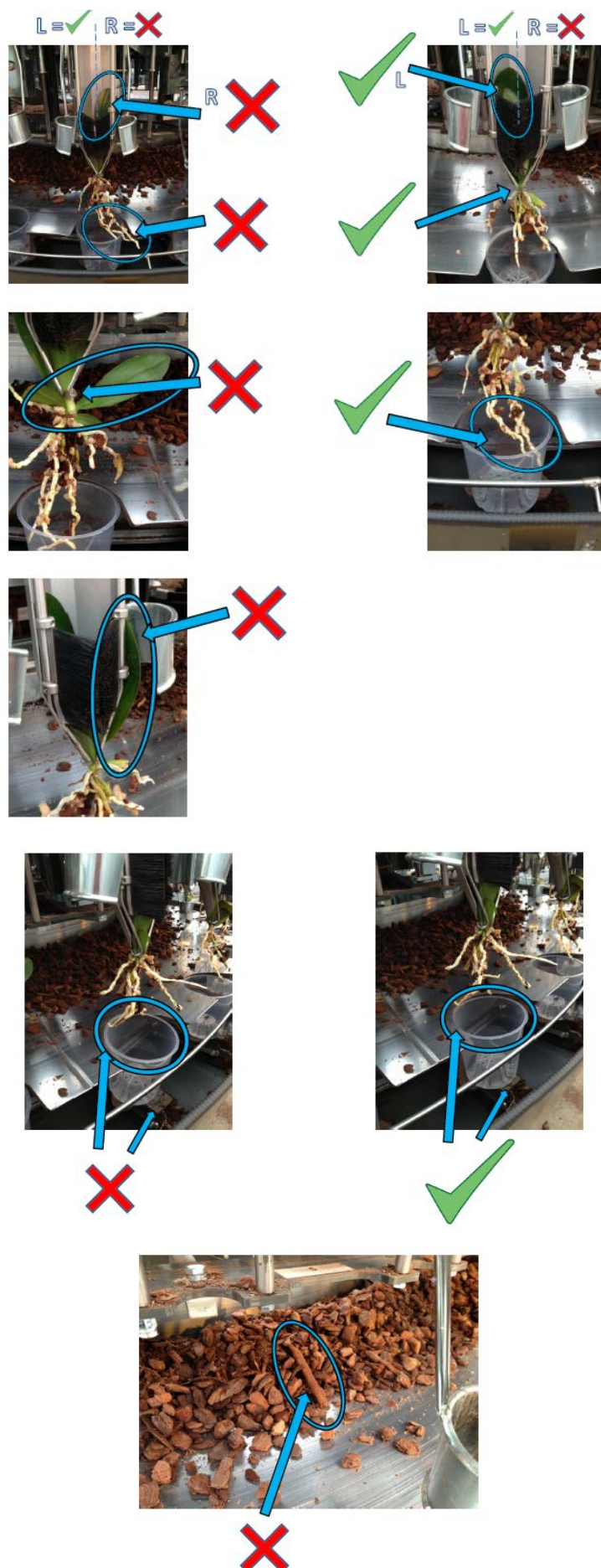
## 6.2 Start

Start procedure:

1. Turn on the main power at the electrical cabinet.
2. Turn on the table and potttrack with the software functions and set all parameters.
3. Press the blue reset button.
4. Press (for at least 1 second) the green start button at the HMI to start the machine.



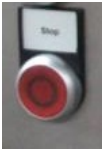
## 6.3 Hooking plants



## 6.4 Stop

Stop procedure:

1. Press the red stop button (for at least 1 second) on the HMI.



## 6.5 Emergency stop



*only press emergency stop buttons in case of emergency!*

Emergency stop procedure:

1. Press the red emergency stop button on the machine to activate the emergency stop.

Restart after emergency stop procedure:

1. Ensure that the cause of the emergency is resolved.
2. Close all doors and covers.
3. Take away all pots at the pot expiration and potdisk.
4. Pull the red emergency stop button to reset.
5. Press the reset button.
6. Press the green button on the control panel (for at least 1 second) to start the machine.
  - a. The machine must be re-initialized after an emergency stop.



## 7 Maintenance



*Follow all instructions described in this manual, in particular chapter safety.*



*Maintenance of this machine must be performed in compliance with warnings on the machine and in accordance with the user manual by qualified personnel.*



*Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.*



*As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.*



*Always unplug the plug from the socket before starting maintenance. Wear personal protective equipment (see section 2.3).*

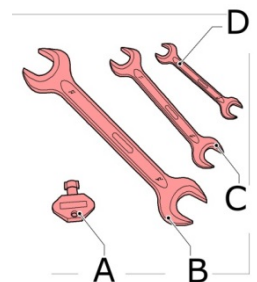


*Inform operating personnel before start maintenance. Interrupt if possible the power (mains), before the machine is investigated or maintained by turning off the main switch and locking it and pull the plug from the socket. If work must be done with power supply (mains) voltage on the machine, work with an additional person who can operate the emergency stop.*

### 7.1 Required tools and equipment

A set of keys is included with the machine, consisting of:

- A. Door key
- B. Spanner 24-27mm
- C. Spanner 17-19mm
- D. Spanner 10-13mm



### 7.2 Preventive Maintenance

For the following maintenance instructions normal use is considered. With heavy use, or use under extreme conditions, maintenance should be performed at shorter intervals.

Item	1x per...	Comments
Machine	Day	Check if moving parts are functioning correctly and not clamping and / or parts are broken or damaged in such a way that the operation is adversely affected. Have damaged parts repaired before use.
Conveyorbelts	Month	Check tension. See section "Mounting, installation and commissioning".
Materials in the machine	Day	Remove trays or other material that has fallen into the machine before starting the machine.
Scrapers	Day	Scrapers for filling pots should remain flat on the base plate. When dirty, clean the scrapers.
Machine	Week	Clean pottrack, substrate conveyors and drive chain with compressed air.
Compressed air reducer	Week	Drain condensate. Note: Do not change the settings of regulator and valves (see section 7.5).
Safety components	Week	Test the safety circuit. See section "Test safety circuit".
Pictograms	Week	Check readability and replace if necessary.
28 plant units	6-8 weeks	Lubricate with a minimum of PTFE spray (see section "Lubricate units").
Electrical installation	Year	Check for damage.
Electric motors	Year	Remove dust.

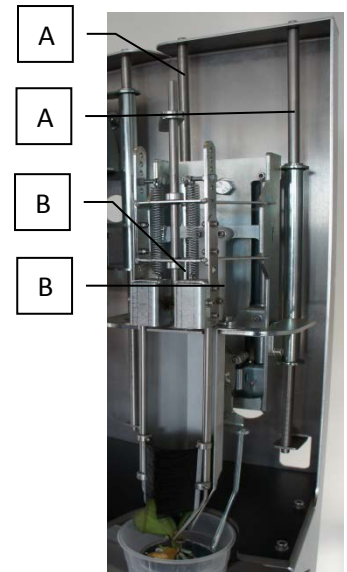
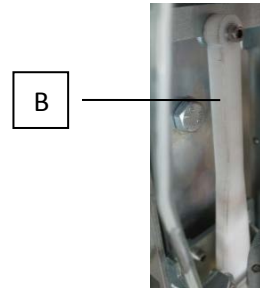


### 7.3 Lubricate units

All 28 plant units have to be lubricated periodically. It is important to lubricate with just a minimum of spray.

Procedure:

1. Stop the machine.
2. Lubricate sliding rods (A) and en surfaces (B) with just a little PTFE spray.
3. Lubricate all 28 units.



### 7.4 Test safety circuit

Procedure:

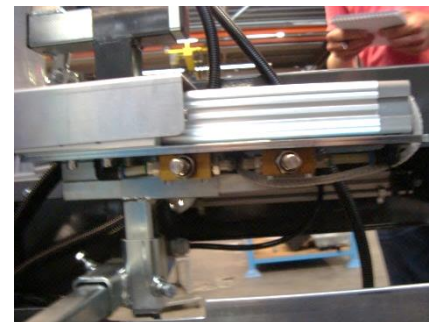
1. Start the machine.
2. Press the emergency stop button. The machine is now disabled.
3. Pull the Emergency Stop button. The machine remains off.
4. Press the reset button emergency stop circuit. All possibly connected conveyors start moving.
5. Start the machine



*The machine must not be used when going through the above process, the machine responds differently than described above. Warn directly Javo BV.*

### 7.5 Set compressed air

Reducer and valves settings may never be changed. The pressure is about 5 bar.



## 7.6 Fault list

Problem	Possible cause	Action / Solution
Motor fault	mains voltage deviates more than 10% of the rated motor voltage	Provide the correct voltage
	Too high cooling air temperature	Provide cool air
	Poor cable connection	check the cable connection and repair if necessary
	Blown fuse	Replace fuse
	Too little cooling air caused by a clogged cooling air passage	Ensure proper inlet and outlet of the cooling air
The motor hums and takes too much power	Defect winding	Repair or replace the motor winding
Fuses are blown	Short circuit in wiring or motor	Rectify the short circuit
	Mechanical blockage of pottrack, elevator or boron	Remove blockages
	Motor is connected incorrectly	Connect the motor correct
Pottrack is not moving	Chain is slipping	Tension the chain
		Check all units
Timing of completion or pots slide deviates	Chain is slipping	Tension the chain
	Sensor timing is not OK	Clean U-sensor and strips
Machine does not start	Emergency stop button is not pulled	Pull Emergency Stop button and reset the safety circuit by pressing the reset button
	Emergency stop button not reset	Reset the safety circuit by pressing the reset button
	Breaker tripped in main cabinet	See why circuit breaker has tripped. Remove obstacles to conveyors. Switch on the machine after solving the problem.
	PLC crashes	Reset machine by power reset
	Cable length too large causing voltage loss	Reduce cable length
	Voltage fluctuations caused by other devices on the same group	Ensure the correct voltage. Turn off other devices
Irregular and less filling of the pot	Substrate is too dry	For optimum operation of the Direct, the substrate has to meet a certain humidity.
Unit does not work properly	Exchange unit	Contact Javo



## 7.7 Drawings and schemes

The drawings accompanying this machine are supplied in a separate file. The wiring diagrams are included in the electrical cabinet of the machine.

## 7.8 Spare parts

Only original spare parts and accessories of Javo BV may be used on the machine.

Javo BV advises you to take certain parts in stock because of wear sensitivity and / or any expected downtime for re-ordering of the parts.

The spare parts list can be found on the assembly drawings. These can be found on JavoNet.

When ordering (spare) parts at Javo BV, the following information must be included: drawing number, item number, desired length (if applicable) and the desired number of pieces.

## 7.9 JavoNet

We recommend you to register your machine on JavoNet. This way you get online access to all technical drawings and documents pertaining to your machine.

Visit our website ([www.javo.se](http://www.javo.se)) for more information and to request an account.



## 7.10 Customer support and advice

Our technical department will answer your other questions about repair and maintenance of your machine and spare parts. We can help you with any questions regarding the purchase, use and settings of products and accessories.

## 8 Disposal of machine or machine parts



*Follow all instructions described in this manual, in particular chapter safety.*

Perform the following steps when disposing the machine:

1. Decommission the machine and remove electric and pneumatic power.
2. Drain and remove all consumables.
3. Scrap the machine according to the local legislation.

## 9 EG-conformity statement

EG-conformity statement for machines (directive 2006/42/EG, annex II, under A.)

**Trädgårdsteknik AB**  
**Helsingborgsv., Varalöv**  
**262 96 ÄNGELHOLM**

Declares that:

**Machine:** *Directomatic*  
**Type:** *Pot Machine*

is in accordance with the **Machine directive 2006/42/EG** and complies with the provisions of the **EMC-directive 2004/108/EEG**

Complies with the harmonized European Standards:

Harmonized European standard	definition	Harmonized European standard	definition
NEN-EN-ISO 12100:2010	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology	NPR-ISO/TR 14121-2:2010	Safety of machinery - Risk assessment - Part 2: Practical guidance and examples of methods
NEN-EN-ISO 13857	Safety of machinery - Safety distances to prevent hazard zones being reached by the upper and lower limbs	NEN-EN 13850	Safety of machinery - Emergency stop - Principles for design
NEN-EN-ISO 13849-1	Safety of machinery - Parts of Control Systems with a safety function - Part 1: General principles for design	NEN-EN-IEC 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements