



Partner in Growing



Manual

version 2010-11-1

Standard potting machine

Machine no.:



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Introduction

Thank you for buying a Javo Standard. This potting machine allows you to further automate the potting process.

This is the user manual for the Javo Standard potting machine.

This document explains the operation of the machine. This is made as clear as possible with the aid of photos and drawings. The chapter on safety and troubleshooting contains several tips and solutions for common problems.

The Javo Standard has been developed and manufactured using state of the art technology. This manual is part of the engineering file which is maintained by the machine engineering plant.

The user manual has been written with the utmost care, and is intended for anyone who uses this Javo system. Javo BV accepts no responsibility for errors in this manual or for any consequences of its use.

Read and understand this manual before using the machine.

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Introduction

Supplier information

The machine must be installed by the supplier or the manufacturer's representative.

Manufacturer:

TRÄDGÅRDSTEKNIK AB
Helsingborgsv., Varalöv
262 96 ÄNGELHOLM

Intended use and non-recommended use

The Javo Standard potting machine is intended to be used for automatically filling pots or containers with substrate. A hole is then drilled in the filled pots into which a plant can be inserted. A complete overview of the machine operation can be found on page 5 under the heading "Operating principle".

Non-recommended use

Please do not use this machine for purposes other than those described in this manual:

- Always keep hands and loose clothing away from the moving parts of the machine.
- Do not stand on the machine while it is in use.
- The machine may only be used to process pots, substrate and other materials as described in this manual.

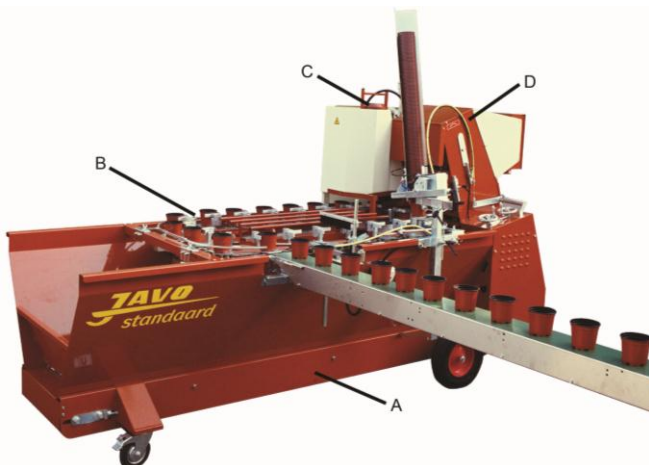
Conditions of use

The Javo Standard must only be used under supervision of a qualified individual. Anyone working with the machine should have read and understood the complete manual prior to starting work.

In addition, the conditions are to comply with the requirements that are set for a normal working area. Other circumstances may affect the functionality.

The Javo Standard can be equipped with several options, depending on the intensity of use and the customer's requirements. Please contact your sales representative for further information.

Description of the machine



- A. Soil bin
- B. Pot track
- C. Drill
- D. Elevator

Operating principle

The machine process starts at the soil bin, which is filled with potting soil. The soil moves onto the elevator via a moving belt.

The elevator takes up the soil and fills the pots which a pot dispenser has positioned in the pot holders on the pot track. The pot track moves the pots to the drill which makes the holes in the soil. The depth and diameter of the drill-holes is adjustable.

Once a hole has been drilled in the soil-filled pot, the plant can be inserted and the soil firmed-in either manually or by machine. Then the pots are moved along the pot track until they are removed by an off-take system or manually.

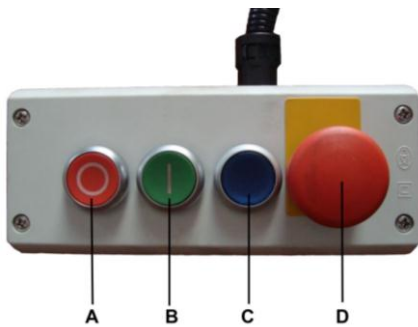
The machine is fitted with wheels making it easy to move.

Workstations at the machine

The workstations on the Javo Standard are in two positions: at the pot track and at the conveyor belt.

Controls

The motor is controlled by 3 control panels, which can be found on the control cabinet and on the left and right sides of the machine.



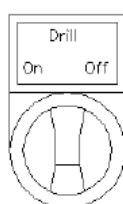
- A. Stop button
- B. Start button
- C. Reset button (optional)
- D. Emergency stop

The following user-instruction stickers are attached to the machine:

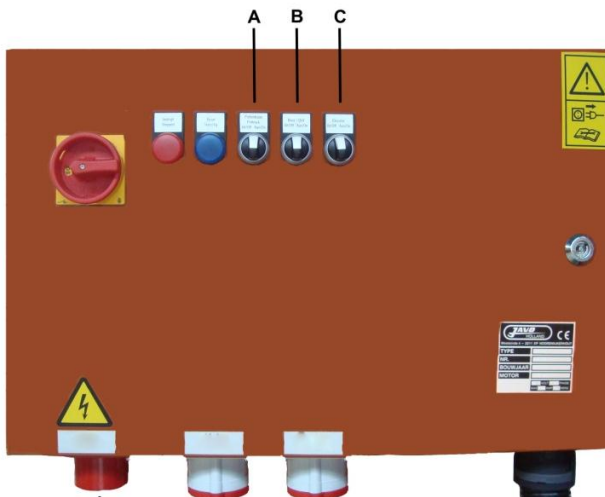
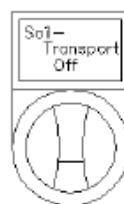
A. Pot track ON/OFF



B. Drill ON/OFF



C. Elevator ON/OFF



D. Mains power connection IN

POWER

E. Continuous current connection OUT (if fitted)

Continuous

F. Switched current connection OUT (if fitted)

Switched

Safety

Read all safety warnings and instructions. Failure to heed these warnings and instructions can result in an electric shock, fire or serious injury.

Use of personal safety equipment

- Be alert, pay attention to what you are doing and work sensibly when using the machine.
- Do not use the machine when tired, under the influence of drugs, alcohol or medicines.
- Wear suitable clothing / shoes without loose parts.
- Wear non-slip working shoes.

Important safety factors

- Always keep hands, hair, loose clothing and/or jewellery away from moving parts on the machine.
- Use of procedures and accessories, not specified in this documentation, may result in exposure to electrical shock hazards and/or mechanical hazards.
- Never move the machine while it is still plugged-in.

Safety precautions

- Keep the working environment clean and well lit. An untidy or unlit working environment can lead to accidents.
- Keep children and other (unauthorized) persons away from the machine, while working.
- Do not expose the machine to rain and excessive humidity.
- Keep the power cable away from heat, oil, sharp edges and moving parts.
- If using the machine in a humid area cannot be avoided, an earth leakage circuit breaker must be used.
- Do not allow individuals who have not read and are not familiar with these instructions to operate the machine. Electrically powered machines are dangerous when operated by inexperienced individuals.
- Maintain the parts properly. Check that moving parts function correctly and are not jammed and/or parts are not broken or damaged to an extent that they adversely affect operation of the machine. Have damaged parts repaired before use. Many accidents are caused by poorly maintained parts.
- The machine should only be repaired by qualified and competent individuals and using original replacement parts only. This guarantees the safety of the machine.

Safety features on the machine

- Covers and doors protect the moving parts. Always replace them and close the doors before starting the machine. The covers and doors should remain closed while the machine is in operation also.
- The machine's motors are protected by thermal switches. These switches are located inside the control cabinet.

Safety precautions

- Read and follow these instructions before using the machine.
- Engage the brake on the swivel wheels before starting the machine.
- Never use the thermal overload switches to turn the machine on or off.
- If you have followed all of the operating instructions in this manual but the machine does not function correctly, consult your supplier.

Explanation of the symbols on the machine

The symbols below show the emergency stops and the safety signs on the machine with references to the potential hazards.



Read and understand this manual before:

- starting the machine
- performing maintenance.

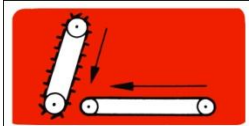


Emergency stop



No access

Elevator



Direction of movement



Hazard: injury from moving parts



Hazard: injury from pinching parts.



Hazard: injury from electric shocks

Pot track speed



Soil supply speed



Assembly, installation and commissioning

Location

The machine should be placed on a flat surface, with sufficient load-bearing capacity. A Javo engineer should be present during delivery of the machine to unload it from the truck.

Assembly / connection

Any loose components supplied together with the machine should be fitted to the machine. When doing so ensure that the moving parts are free and no pot holders have been placed in the machine.

When the machine is fully assembled, it can be connected to the power supply (by a qualified individual) by inserting the plug into the socket.

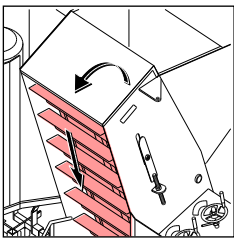
Setting-up / adjusting

The following points must be checked before starting the machine:

Covers and doors

All covers and doors must be closed and secured.

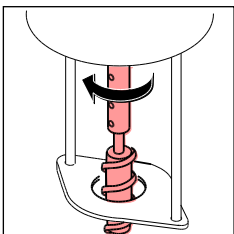
Elevator direction of movement



The direction of movement of the elevator must be from top to bottom. If it is not, have an engineer correct this.

On the SE type the elevator runs in the opposite direction, so from bottom to top.

Drill direction of movement

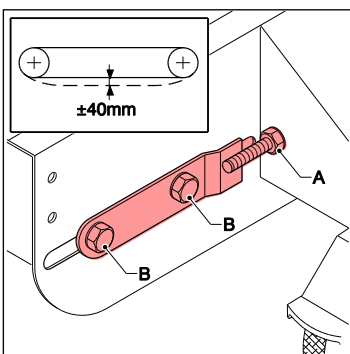


The drill direction of movement is always to the right (clockwise).

Type of soil

Depending on instructions.

Soil belt tension



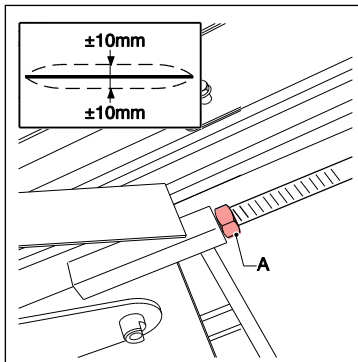
The tension is correct when the belt hangs down ± 40 mm in the centre.

The tension can be adjusted by turning the nuts (A) simultaneously.

The four bolts (B) on the block bearings must be loosened before turning these bolts.

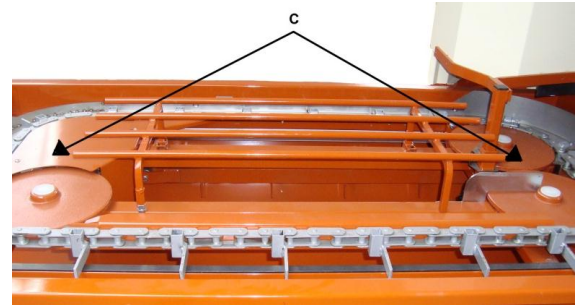
The tension is correct when the belt hangs down ± 40 mm.

Pot track chain tension



The pot track chain tension is correct when it can move ± 20 mm transversely in the middle of the disks.

There are two tensioning nuts (A) on both sides below the pot track (see C) for adjusting the tension of the pot track chain. These should be tightened evenly.

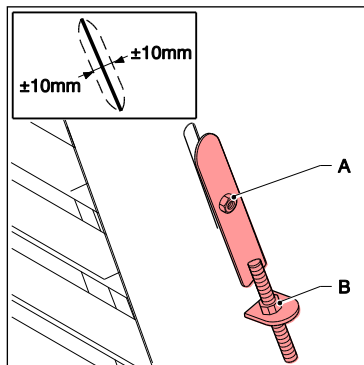


Elevator chain tension

The elevator chain tension is correct when it can move ± 20 mm in the centre.

The tension can be adjusted using the two tensioning nuts on either side of the elevator housing.

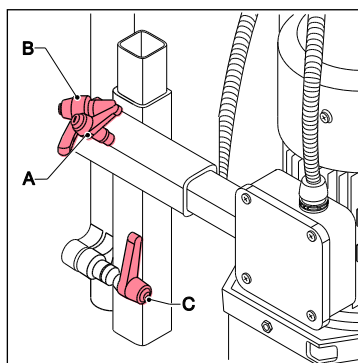
Loosen nut (A) and tighten nuts (B) equally on both sides.



Note:

1. The chain tension must not be too tight.
2. The paddles must protrude ± 20 mm outside the housing.

Centring the drill



Centre the drill such that the hole is made in the correct position in the pot.

- **Longitudinal adjustment**
Loosen the clamping bolt (A) and slide the drill motor in the correct direction.
- **Diagonal adjustment**
Loosen the clamping bolt (C) and turn the drill motor into the correct position.
- **Depth adjustment**

Loosen the clamping bolt (B) and slide the drill motor up / down.

Facilities to be provided by the user

Before the machine is delivered, the necessary materials and facilities (compressed air, power supply, potting material, etc.) need to be easily available within 3 metres of the machine.

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

Operation

Setting-up and adjustments

The following points must be checked before starting the machine:

Covers and doors

Elevator direction of movement

Drill direction of movement

Soil belt tension

Type of soil

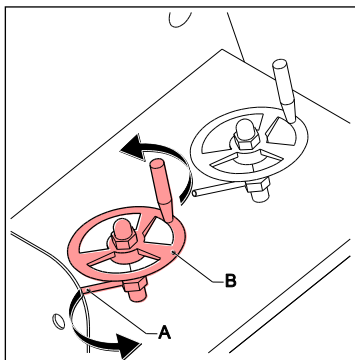
Pot track chain tension

Elevator chain tension

Centring the drill

The above mentioned settings are described in detail on pages 8 and 9. (*Setting-up / adjustments", under the heading "Assembly, installation and commissioning"*)

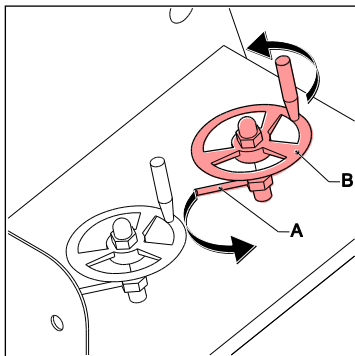
Soil belt speed adjustment



Adjust the soil supply such that the pots are sufficiently filled before reaching the leveller.

1. Unlock using handle (A)
2. Adjust the speed using the hand wheel (B) on the side of the machine
3. Lock the hand wheel using handle (A)

Controlling the pot track speed



1. Unlock using handle (A)
2. Adjust the speed using the hand wheel (B) on the side of the machine
3. Lock the hand wheel using handle (A)



Note:

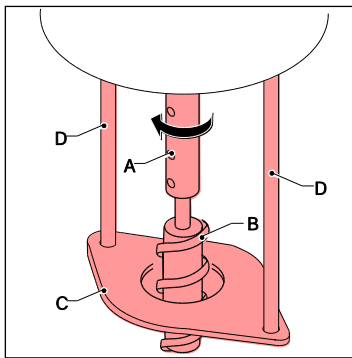
The speeds of the pot track and soil transport can only be adjusted while the motors are running.

Pot size



The pot holder is placed at right angles to the pot track chain. If a different pot size is inserted, the pot holders should be changed or adjusted.

Drill size



The drill size depends on the size of the plug of the material to be planted.

The drill (B) is fixed in the drill chuck on the drill motor by 2 screws (A). These screws must be tightened onto the flat side of the drill sleeve

The drill plate (C) for the drill has a drill hole with a diameter that is approximately 10 mm larger than the drill. This drill plate must be fixed to the underside of the drill rods (D) with 2 lock nuts.

The depth of the plant hole depends on the position of the drill which is adjustable. Adjust the depth by moving the drill (B) in the drill chuck (A).



Note:

The recommended depth of the drill point below the drill plate is 1-2 cm.

Height of the leveller

The leveller controls the amount of soil in the pot. The height is adjusted by loosening the screw (A) and then moving the leveller (B) up or down.

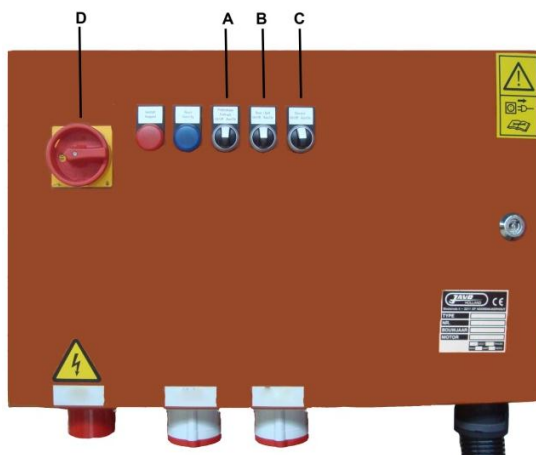
Leveller up → potting soil more compact in the pot

Leveller down → potting soil looser in the pot

Starting, normal operation, stopping, emergency stop

The machine can be started in various ways, depending on how the machine was switched off earlier. The various options are explained below.

There are 3 control panels on the machine; on the left, on the right and on the switch panel.



Ensure that the machine is in the correct mode (see page 5 "Before starting")

Turn the main switch (D) ON on the front of the panel.

Switch the drill, elevator and pot track ON using switches (A, B & C) on the front of the panel.

Push the green push-button on the control panel (left or right) to start the machine .

Normal stop

Push the red stop button on the left or right of the machine.

Emergency stop

Push the red emergency stop button on the left or right of the machine or on the lid of the control cabinet to activate the Emergency Stop.

Restart after an emergency stop

1. Make sure the cause of the emergency stop has been resolved
2. Close all covers and doors
3. Pull out the red button on the emergency stop to reset it.
4. Push the blue reset button on the control cabinet
5. Push the green push-button on the control panel (left or right) to start the machine

Unplug the machine:

- When it is not in use
- Before moving the machine
- Before cleaning the machine
- Before maintenance

Troubleshooting

Problem	Possible cause	Action/solution
The soil belt is not moving.	The motor or drive mechanism is not functioning.	Check the motor and drive mechanism.
	Pre-tensioning of the soil belt is too low (belt is slipping).	Adjust the soil belt tension.
Thermal cut-offs operate repeatedly.	Motor fault.	Call an engineer.
	Mechanical blockage in the pot track, elevator or drill.	Remove blockages.
The pot track is not moving.	V belt is slipping	Reduce speed slightly. Replace V belt
		Align pulleys.
	Pot track pawl slipping.	Ensure that the pawl can move freely and remove obstructions. <i>(see page 11)</i>
The drill motor stops drilling.	Electrical problem with motor or cable.	Call an engineer.
Drilled hole is not deep enough.	Incorrect setting.	Set correctly <i>(see page 8)</i>
	Insufficient tension on drill rod springs	Replace springs.
	Drill column does not slide well	Apply thin coating of grease <i>(see page 10)</i>
The elevator chain is not moving.	Obstacles in the chain.	Remove obstacles
	Soil sticking in the elevator	Remove the front cover and remove excess soil from the elevator paddles.

Maintenance and cleaning

Always remove the plug from the socket before carrying out work. A number of items of personal safety equipment (PSE) must be worn before starting maintenance work:

- Safety glasses
- Safety gloves
- Safety clothing

Daily cleaning, maintenance and inspection

Check the tension of the chains and belts is still correct daily. (For specifications see pages 8 and 9).

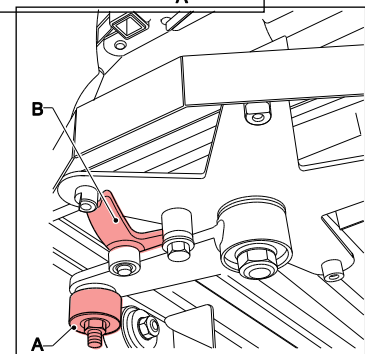
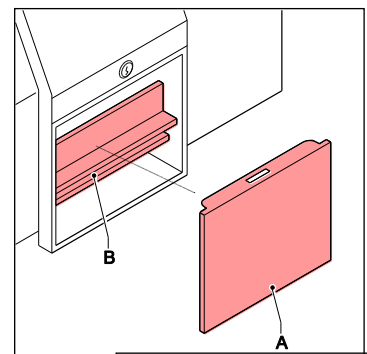
In addition, you should check that no pots or other materials have fallen into the machine. If they have, they should be removed before the machine is restarted.

Emptying the soil bin

1. Remove cover (A).
2. Switch on the elevator until the bin is empty.
3. Switch the machine off and remove the plug from the socket.
4. Clean the paddles (B).

Note:

- Do not clean using water. Use compressed air and/or a brush.
- Do not use sharp tools to prevent damage to the belt.
- Clean the machine daily when using clay or aggressive/sticky soil types
- Take care near moving parts



Pot track pawl

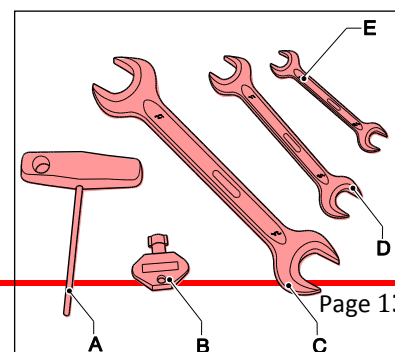
Adjust eccentric bolt (A) to increase the stroke of the pawl (B). The closer the bolt is to the pivot point the longer the stroke.

Nature and frequency of maintenance and cleaning

Part	Action	Frequency
Drill arm on drill unit	Apply a thin coating of grease	After every 40 operating hours
Pot track drive (bolt on rod)	Apply a thin coating of grease	After every 40 operating hours
Pot track chain	Spray with light oil	After every 320 operating hours
Drill rods	Spray with light oil	After every 320 operating hours
Adjustable drill spindle	Spray with light oil	After every 320 operating hours
Water separators	Drain water	After every 16 operating hours

Tools and equipment required

The standard maintenance set supplied with the machine contains the following:



- A. Allen key 4 mm
- B. Door key
- C. Open ended spanner 24-27 mm
- D. Open ended spanner 17-19 mm
- E. Open ended spanner 10-13 mm

Safety precautions

Unplug the machine:

- When it is not in use
- Before moving the machine
- Before cleaning the machine
- Before maintenance

The remaining safety precautions can be found on page 6 ("Safety")

Conditions for repositioning

Disconnect energy supplies

Power, pneumatics and hydraulics should be disconnected before repositioning the machine. Make sure cables and hoses are stored properly.

Disconnecting

Before the machine can be repositioned, the conveyor belt (off-take belt) must be disconnected.

Transport

When repositioning the machine within the same location (machine does not have to be lifted) energy sources must be disconnected and disassembly work must have been carried out properly. Check the condition of the machine (wheels) before moving it. Make sure the route is clear so that the machine can be moved to its new location without running into any obstacles.

When the machine needs to be lifted (moving to a different location) contact your supplier or enlist the aid of a professional company.

Waste disposal

Machines, accessories and packaging must be recycled in an environmentally responsible way.

Only for countries within the EU

Electrical components

Do not dispose of electrical components in the household waste. In accordance with the European directive on waste electrical equipment and the translation of the directive into national legislation electrical equipment that is no longer usable must be collected separately and recycled in an environmentally responsible manner.

Waste oil

Waste oil, such as oil from a reduction gear unit, classifies as household hazardous waste (HHW). A duty of collection applies for HHW. This means that waste oil cannot be disposed of in household waste. Waste oil has to be collected by/delivered to a company which is certified to collect these oils.

Attachments

Name and address of the manufacturer and/or dealer

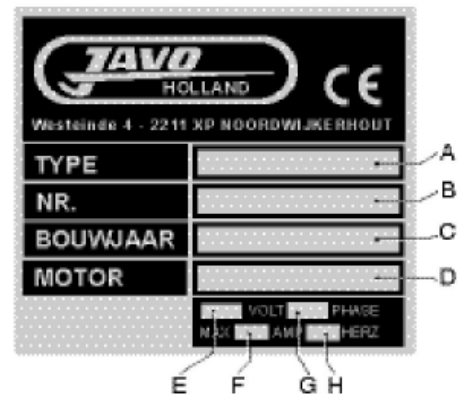
<p>Manufacturer:</p> <p>Javo BV Westeinde 4, 2211 XP PO Box 21, 2210 AA Noordwijkerhout The Netherlands</p>	<p>Dealer:</p>
-----------------------------------------------------------------------------------------------------------------------------	----------------

Symbols and information on the machine

Type plate

The CE-mark is shown on the type plate attached to the control cabinet door. This plate contains the following information:

- A. Machine type
- B. Unique machine serial number (CE number)
- C. Year of manufacture
- D. Motor
- E. Voltage
- F. Maximum power consumption
- G. Number of phases
- H. Cycles / Hertz



Safety symbols

The symbols below show the emergency stops and the safety signs on the machine with references to the potential hazards.



Read and understand this manual before:

- starting the machine
- performing maintenance.



Hazard: injury from moving parts



Hazard: injury from pinching parts.



Hazard: injury from electric shocks



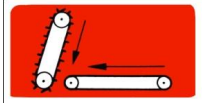
3 emergency stops:
on the switch panels on either side of the machine and on the cover of the control cabinet on the front.



No access

Other markings

Elevator



Direction of movement



Pot track speed



Soil supply speed



Personal safety equipment (PSE)

Safety glasses



Safety gloves



Safety clothing



Machine specifications

Length:	3,250mm
Length, Extended type:	4,250mm
Width:	1,200mm
Height:	1,730mm
Height, SE type:	1,980mm
Weight:	± 800kg
Pot holders:	20 (<i>this number can differ optionally</i>)
Voltage:	3 electric motors 400 Volt / 50 Hz
Phases:	3
Amperage:	16 Amp
Power:	2.5 kW

List of spare parts

- 16 A plug
- 3 x open ended spanners
- 1 x door key
- 1 x Allen key
- 2 x M10 locking nut
- 2 x M8 socket screw
- 2 x drill impact rubber.

Drawings and diagrams

The drawings for this machine have been combined in a separate file. This is also supplied with the machine.

Please use the “exploded view drawings” of this machine to order spare parts. These can be found on JavoNet.

JavoNet

We recommend that you register your machine on JavoNet. This way you will have online access to the technical drawings and documents for your own machine.

Visit our website (www.javo.se) for more information and to request an account.



Customer service and support

Our technical department will answer any other questions you may have regarding repair and maintenance of your machine and about spare parts.

We will be happy to provide advice on purchasing, using and setting-up products and accessories.

EC Declaration of Conformity

EC declaration of conformity for machinery
(Directive J 2006/42/EC, Appendix II, under A.)

TRÄDGÅRDSTEKNIK AB
Helsingborgsv., Varalöv
262 96 ÄNGELHOLM

Declares that:

Machine: Standard
Make: Javo
Type: potting machine

Serial Number: ...

Is in conformity with:

- Machinery directive (2006/42/EC)
- National and International Technical norms (NEN) 60204-1
- International Organization for Standardization (ISO) 13857
- International Organization for Standardization (ISO) 12100-1
- National and International Technical norms (NEN) 1010

The Netherlands, Noordwijkerhout,

Sjaak Bakker
Director