



*Partner in Growing*



Manual

version 2011-06-01

Soil bunker

Machine no.: .....



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## Introduction

Thank you for buying a belt type Javo Soil Bunker. This Soil Bunker allows you to further automate the process of transporting substrate.

This is the user manual for the Javo Soil Bunker.

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 Soil Bunker 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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## General information

### 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

The Javo Soil Bunker is to be used for the automatic onward transportation of substrate. A complete overview of the machine operation can be found on page 6 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 substrate as described in this manual.

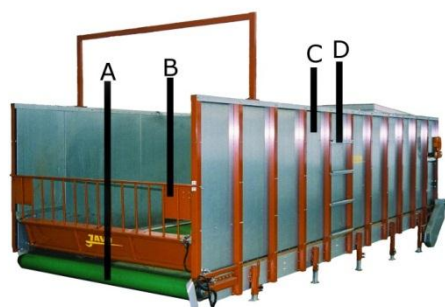
### Conditions of use

The Javo Soil Bunker 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.

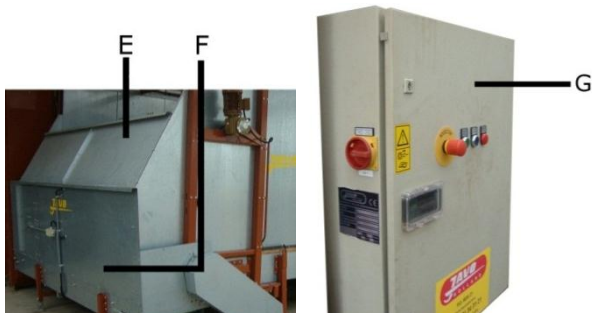
In addition, the conditions are to comply with the requirements that are set for a normal working area. Other circumstances may affect the functionality.

The Javo Soil Bunker 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. Bunker belt\*
- B. Safety gate
- C. Side wall
- D. Ladder



- E. Fluffers\*
- F. Transverse belt\*
- G. Electrical cabinet

*\* On delivery, the moving parts of the machine are fitted with covers and doors.*

## Operating principle

The machine process starts at the bunker belt, which a truck fills with potting soil. The bunker belt is set to manual control so that all of the substrate that is still on the bunker belt is first moved to the feed side. Then the truck can unload the substrate and run the bunker belt forwards until the truck is empty or the bunker belt is full.

The driver can stand on the ladder at the side of the soil bunker to gain a clear overview. Should the driver want to climb inside, a sensor is activated so that the soil bunker activates the emergency stop system. Further operation is dealt with later in this document (page 9 "Operation").

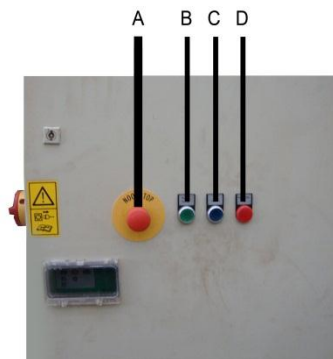
The bunker belt transports the substrate forwards. Once the substrate arrives at the head of the bunker belt then the substrate is loosened by two fluffers and then falls onto the transverse belt. The transverse belt transports the substrate to another (Javo) machine.

## Workstations at the machine

There are no workstations on the Javo Soil Bunker.

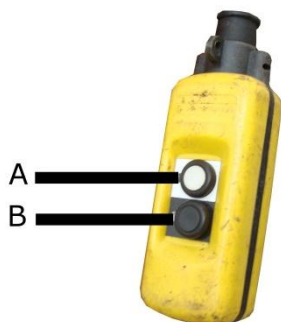
## Controls

The electrical cabinet has the following buttons and switches:



- a) Emergency stop
- b) Start / running
- c) Reset ready
- d) Thermal fault

Manual operation is controlled by the manual control panel which has the following buttons:



- a) Soil belt towards fluffers
- b) Soil belt towards gate

## 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



Hazard: injury from moving parts



Hazard: injury from pinching parts.



Hazard: injury from electric shocks



## 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 moving parts are not obstructed.

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:

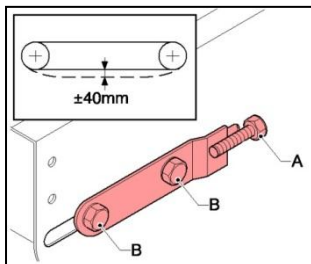
#### Covers and doors

All covers and doors must be closed and secured.

#### Type of soil

Depending on instructions.

#### Transverse belt tension



The tension is correct when the belt hangs down  $\pm 40\text{mm}$  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  $\pm 40\text{ mm}$ .

### Facilities to be provided by the user

Before the machine is delivered, the necessary materials and facilities (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: 208/220 V. 60 Hz).

## Operation

### Setting-up and adjustments

The following points must be checked before starting the machine:

Covers and doors

Bunker belt tension

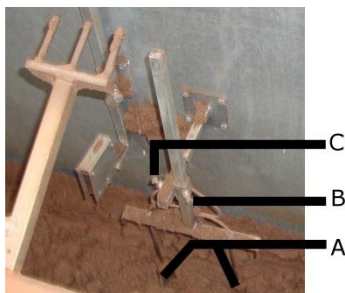
Close safety gate

Drill direction of movement

Transverse belt tension

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

### Machine soil level sensors

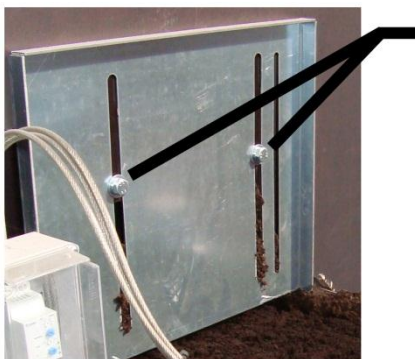


There are two soil level sensors (A) behind the fluffers in the bunker belt.

The height of the sensors can be adjusted by loosening the M8 bolt (B). Then the height of the sensors can be adjusted.

The depth of the sensors can be adjusted by loosening the M8 bolt (C). The depth can now be adjusted.

### Soil slide on the transverse belt



The soil slide controls the amount of soil on the subsequent conveyor belts.

The height of the soil slide can be adjusted by loosening the two M12 bolts.

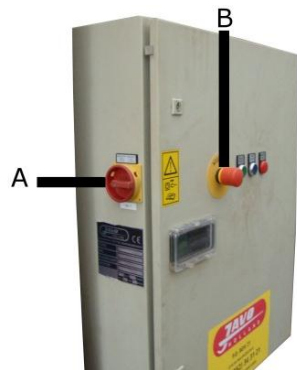
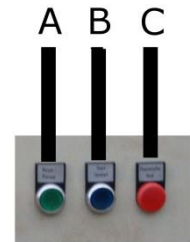
## Starting, normal operation, stopping, emergency stop

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

Switch the main switch (large red or black switch on the left) on the electrical cabinet ON (A).

Push the blue push-button on the electrical cabinet (B on the right) to reset the machine.

Push the green push-button on the electrical cabinet (A on the right) to start the machine.



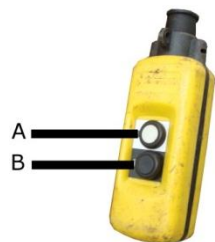
### Emergency stop

Push the red emergency stop button (B on the left) on the machine 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 electrical cabinet
5. Push the green push-button on the control panel to start the machine

### Manual control



Manual control is activated when the gate for loading the bunker belt is opened or when button A or B on the manual control is held down. Follow the steps below to reset the soil bunker:

1. Close the gate or stop operating the manual control.
2. Push the blue reset button on the electrical cabinet
3. Push the green button on the electrical cabinet.

### 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
Fault in the electric motor	the mains voltage differs from the nominal motor voltage by more than 10%	Ensure that the correct mains voltage is available
	Cooling air temperature too high	Supply cool air
	Poor cable connection	Check and repair the cable connection if necessary.
	Blown fuse	Replace the fuse
	Insufficient cool air due to a blocked cooling air vent	Ensure the adequate supply and discharge of cooling air
The motor hums and consumes too much power	Defective winding	Repair or replace the motor
The transverse belt has stopped supplying substrate	Dirty feelers	Clean the level sensors
	Dirty sensor	Clean the sensor
Fuses keep blowing	Short circuit in the wiring or in the motor	Repair the short circuit
	The motor is shorting on the housing or there is a short circuit in the windings	Call-in a repair company to repair the short circuit
	The motor is connected incorrectly	Connect the motor correctly

## Maintenance and cleaning

Ensure that the main switch is off before starting 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 belts is still correct daily. (For specifications see page 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.

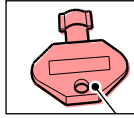
## Nature and frequency of maintenance and cleaning

Part	Action	Frequency
Belt in the bunker	Clean using a brush and inspect the level sensors and the sensor for cleanliness.	After every 320 operating hours
Entire soil bunker	Clean using compressed air	After every 320 operating hours

## Tools and equipment required

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

A. Door key



## 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 7 ("*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.

## 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

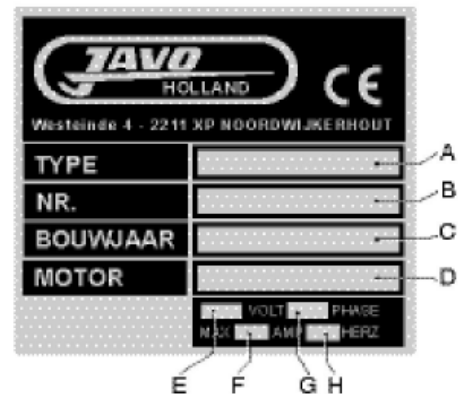
<p>Manufacturer:</p> <p><b>TRÄDGÅRDSTEKNIK AB</b> <b>Helsingborgsv., Varalöv</b> <b>262 96 ÄNGELHOLM</b></p>	<p>Dealer:</p>
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## Symbols and information on the machine

### 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.



Emergency stop:



No access

## Personal safety equipment (PSE)

Safety glasses



Safety gloves



Safety clothing



## Machine specifications

Length:	Variable mm
Width:	3,200mm
Height:	3,000mm
Weight:	Variable (depending on length)
Voltage:	3 electric motors 400 Volt / 50 Hz
Phases:	3
Amperage:	16 Amp
Power:	3 kW

## Drawings and diagrams

The drawings for this machine have been combined in a separate file. The electrical diagrams are supplied in the machine's electrical cabinet.

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 Javo Infonet. This way you will have online access to the technical drawings and documents for your own machine.

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



**Javo InfoNet**

## 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: Soil bunker  
Make: Javo  
Type: Belt type soil bunker

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