



Partner in Growing



User Manual

Original document

Version 2015-1

Substrate mixer

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.

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1 Technical specifications and tolerances

This machine is intended to be used for automatically mixing substrate only. This machine is meant for processing 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. Until 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	3 kW
Weight	± 750 kg
Height exit conveyor	915 mm
Length x width x height	3100 x 1400 x 2150 mm
Maximum filling of substrate in bin	1,5 m ²
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.




Partner in Growing

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Type	
Machine nr.	
Bouwjaar	
<input type="text"/> V	<input type="text"/> kW
<input type="text"/> A	<input type="text"/> 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. Until 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 jewellery 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 personnel 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

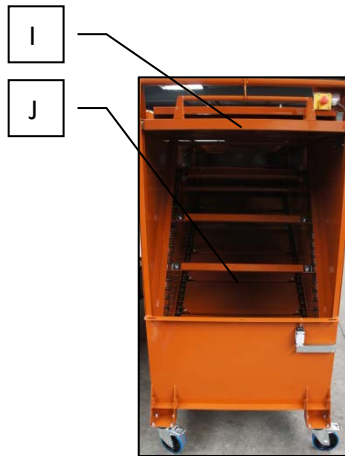
Pictogram	Meaning
	Read and understand this manual before using the machine and / or performing maintenance.
	Remove Power (mains).
	Wear during all work on or with the machine safety shoes and safety glasses.
	Wear during cleaning and maintenance work on this machine also safety gloves and protective 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. Electrical cabinet
- C. Drive
- D. HMI
- E. Emission funnel
- F. Substrate level sensors (optional)
- G. Lever
- H. Watering system (optional)
- I. Substrate entrance door
- J. Entrance opening



3.2 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	
Watering system	GDUG	Spray pipe
Substrate level sensor	NIV1	

3.3 Operation

The process of the machine starts with the substrate bin, which is filled with substrate. The entrance door of the bin is opened and the types of substrate deposited herein. The entrance door of the bin and the emission funnel is closed.

Start the machine. Because the substrate chain in the bin rotates, the different types of substrate will be mixed. Once the various substrates are mixed sufficiently, the emission funnel can be opened.

The machine is equipped with wheels, which makes the machine easy to move.

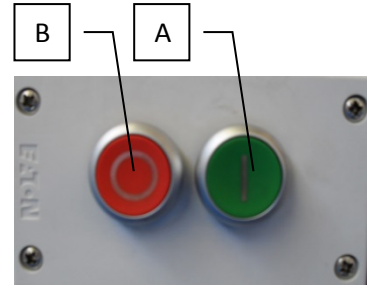
3.4 Machine workstations

There are no workplaces at this machine.

3.5 Controls

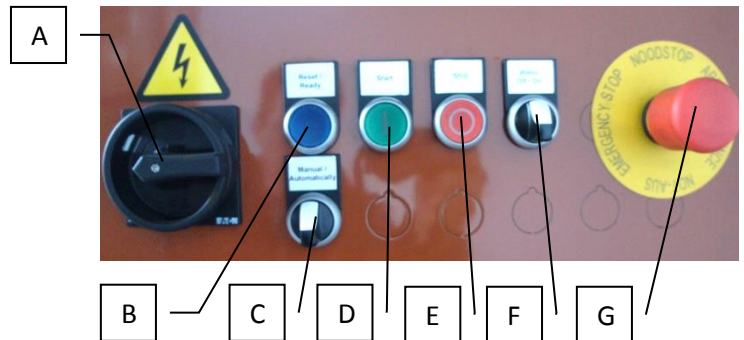
The motor is controlled with the control panel. The control panel consists of the following buttons;

- A. Start button
- B. Stop button

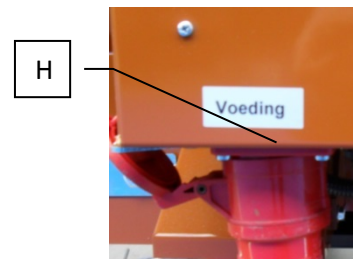


At the electrical cabinet of the machine, these buttons and connectors are placed:

- A. Main switch
- B. Reset button
- C. Manual / Automatic
- D. Start button
- E. Stop button
- F. Watering system(optional) Off / On
- G. Emergency stop button



- H. Mains power IN

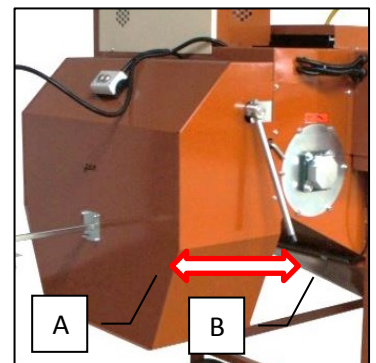


The machine is equipped with 2 emergency stop buttons (on the control box and at the entrance of the mixer).



The emission funnel must be closed during mixing of the different substrates.

- A Closed.
- B Open.



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 traveled 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.



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 (power, 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 chain rotation direction



Check the rotation direction of the substrate chain before you start working with the machine.

Procedure:

1. Connect the power cable.
2. Start the substrate chain.
 - a. Turn on the main switch.
 - b. Press the reset button emergency stop circuit.
 - c. Start the substrate chain with the elevator button.
3. Check the direction of rotation of the substrate chain.
 - a. The desired direction of rotation shown in the picture.
4. Stop the substrate chain by pushing the stop button.
5. Turn the main switch off.
6. When rotation direction is incorrect:
 - a. Remove the plug from the socket.
 - b. Open the plug and switch 2 of the 3 phases in the plug. This should only be carried out by suitably qualified personnel.



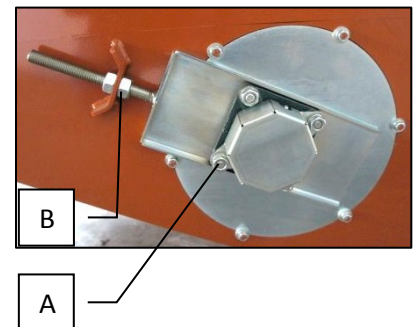
5.5 Check substrate chain tension



Check the substrate chain tension before you start working with the machine.

Procedure:

1. Check the substrate chain tension. The correct tension is obtained when the belt in the middle deflects $\pm 30\text{mm}$.
2. Adjust the chain tension if necessary .
 - a. The tension can be adjusted using the two clamping nuts, located on both sides of the machine.
 - b. Loosen the screws (A).
 - c. The tension can be adjusted by simultaneously turning both sides of the chain (B).
 - d. Tighten the screws (A).



The tension of the chain should not be too tight.

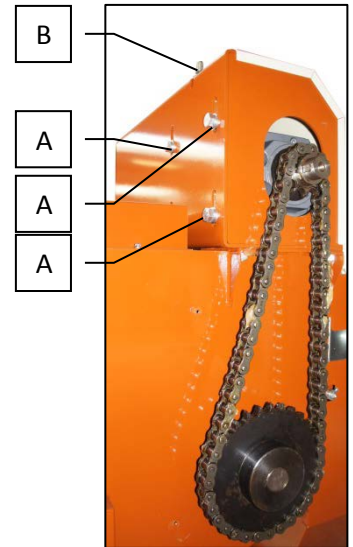
5.6 Check drive chain tension



Check the drive chain tension before you start working with the machine.

Procedure:

3. Check the drive chain tension. The correct tension is obtained when the belt in the middle deflects $\pm 15\text{mm}$.
4. Adjust the chain tension if necessary .
 - a. Remove the cover.
 - b. The tension can be adjusted by loosening the motor plate with 4 screws (A) and moving the motor plate with screw (B).
 - c. Tighten the 4 screws (A).
 - d. Replace and tighten the cover.



The tension of the chain should not be too tight.

5.7 Set the substrate level sensors (optional)

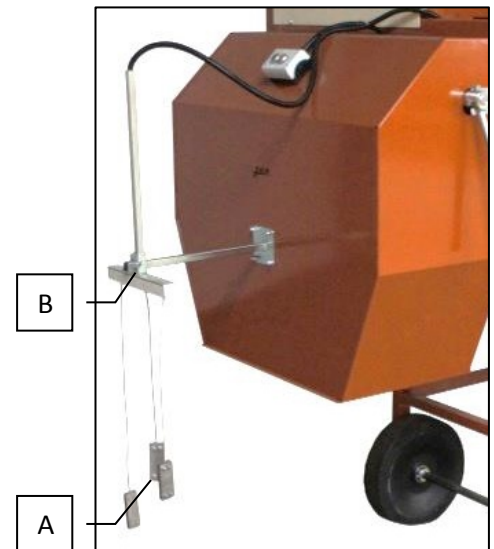


Set the substrate level sensors before you start working with the machine.

The substrate level sensors (A) hang in the substrate bin of the coupled machine. These ensure that if the substrate level is too low, substrate to replenishment. The substrate level sensors are adjustable in height and depth.

procedure:

1. Loosen the cross piece M8 bolts (B).
 - a. The level sensors can now be adjusted in height and depth.
2. Tighten the cross piece M8 bolts (B).



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.



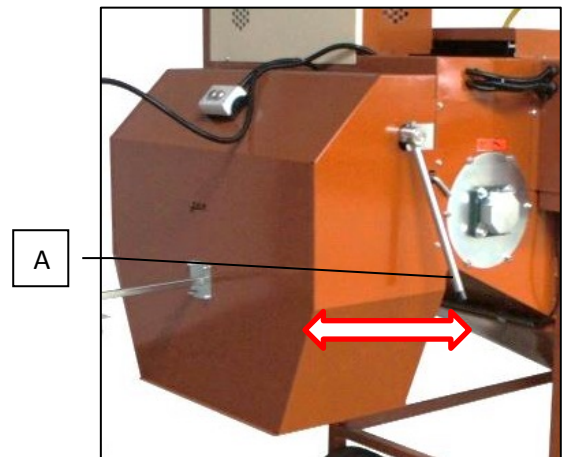
As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.



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.

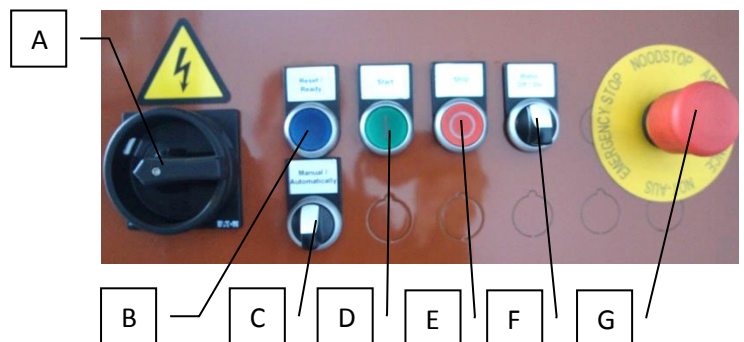
6.1 Emission funnel lever

Lever (A) shall be closed when mixing different substrates. The illustration shows the emission funnel lever closed. When the lever is closed, the last bit of closing will be rough. This is the mechanical safety device for closing.



6.2 Start

The machine can be started in different ways, depending on the manner in which the machine is turned off in advance. The various options are explained below.

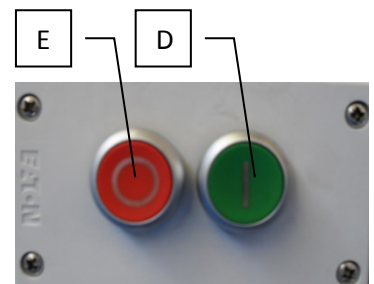


Start procedure:

1. Switch on main switch (A) at the electrical cabinet.
2. Push the blue reset button (B).
3. Push the green start button (D) to start the machine.

Automatic operation

By switching switch (C) to AUTO, the machine responds to the substrate level sensors. The machine will automatically take effect and decide when substrate is emitted through the funnel.



manual operation

By switching and holding switch (C) to manual substrate is emitted through the funnel. The switch automatically turns off when it's not held so that the machine cannot continuously run. The machine operator will have to remain at the switch to operate it.

6.3 Door

When opening the door, the machine stops by interruption of the door switch.

Startup after opening the door:

1. Close the substrate door.
2. Press the blue reset button (B).
3. Press the green start button (D) to start the machine.



6.4 Stop

Stop procedure:

1. Press the red stop button on the control panel.

6.5 Emergency stop

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. Pull the red emergency stop button to reset.
4. Press the reset button.
5. Press the green button on the control panel to start the machine.

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).

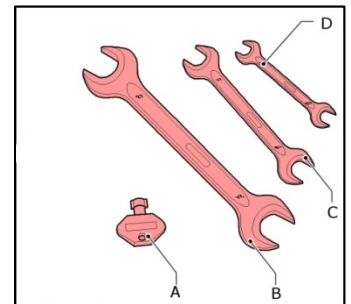


Inform operating personnel before start maintenance. Interrupt if possible the power (mains), before the machine is investigated or maintained by turning off the main switch and locking it and pull the plug from the socket. If work must be done with power supply (mains) voltage on the machine, work with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

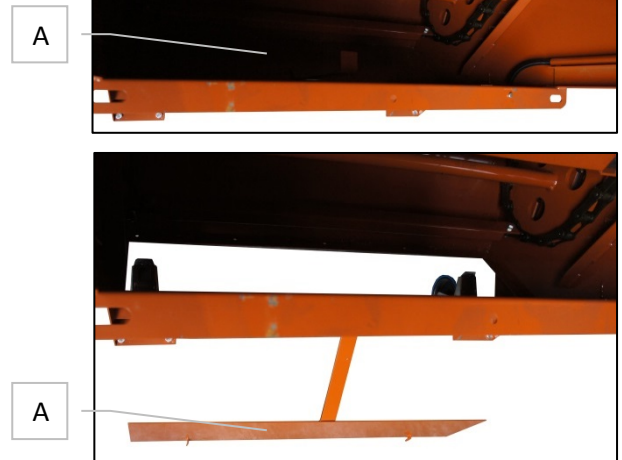
For the following maintenance instructions normal use is considered. With heavy use, or use under extreme conditions, maintenance should be performed at shorter intervals.

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.
Chain	Day	Check tension. See section "Mounting, installation and commissioning".
Machine	Day	Cleaning. Spray with compressed air; Never clean with water. Spray the machine thoroughly so that excess substrate cannot stick.
Machine	Day	Remove residual substrate. See section 7.3.
Elevator	Month	Cleaning. See section "Elevator cleaning".
Safety components	Week	Test the safety circuit. See section "Test safety circuit".
Pictograms	Week	Check readability and replace if necessary.
Bearings	320 hours	Grease with a grease gun 1 to 2 strokes of grease to each grease fitting.
Electrical installation	Year	Check for damage.
Electric motors	Year	Remove dust.

7.3 Remove residual substrate

Procedure:

1. Turn off the machine.
2. Open the door.
3. Remove cover (A).
4. Remove remaining substrate from the machine.
5. Replace cover (A) back into the machine.
6. Close the door.



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 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
Thermal fuses are falling out	Motor defect	Call a mechanic
	Mechanical blockage of elevator	Remove blockages
	Motor is connected incorrectly	Connect the motor correct
The elevator chain does not move	Obstacles in chain	Remove obstacles
	Door open	Close the door and reset the emergency stop circuit
Machine does not start	Door with safety switch is open	Close the door and reset the emergency stop circuit by pushing the reset button
	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.
	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
	A second in-line machine is not ready so that the emission is not released	Clear the emission in second machine in line.
No soil provided from the emission funnel	Funnel is closed	Open the funnel using the lever

7.6 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.

7.7 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.

7.8 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.eu) for more information and to request an account.



7.9 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.)



Javo BV
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 The Netherlands

Declares that:

Machine: **Substrate mixer**
Type: **Substrate system**

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-IEC 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements		

The Netherlands, Noordwijkerhout,
 March 2015

Cees Bouwmeester
 Director