



*Partner in Growing*



## User Manual

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## Tray washer

Machine nr.: .....



Javo BV  
PO Box 21  
2210 AA Noordwijkerhout  
Holland  
T: +31 (0)252 343121  
F: +31 (0)252 377423  
info@javo.eu  
www.javo.eu

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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 washing trays with clean water only. This machine is meant for processing trays, 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 ca not 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	3 meter cable with 16A 5pole socket
Power consumption	0,2 kW
Weight	±100 kg
Height conveyor	750 mm
Length x width x height	2700 x 500 x 1150 mm
Max. speed	2.400 trays /h (40 trays /min)
Min. speed	480 trays /h (40 trays /min)
Drillbush (motor shaft size 19 mm)	Drill shaft 14 mm (upto drill 15 cm)
Pot automat	1x mechanical PO
Completion	1x mechanical (non movable)
expiration side	Left, right and frontside possible (incl. support)
expiration conveyor	1x 3m 150mm vario smooth surface (excl. TRB-WCD)
conveyor support	TRBS
Gearbox drive	1:13 deceleration
Input / output trays	180 x 430mm (width x Height)
Space between the blades conveyor belt	630mm
Conduction set adjustable	2x 3 side guiding tray 1x top guide
High pressure water connection	3/8bSP* externally, with (brass) resizer to M22x1,5 externally. (karcher connection)
drain Water	2x 50mm pipe 450mm
rinse arms	2x Kareger pivots equipped with two nozzles per arm
Required water pressure main connection	Min 150 Max 180 bar
Rinse section	2 nozzles per side
Low-pressure connection	½BSP* with Brass connector (GK)
Watering	1.500 Litre per hour (25 Litre per min)
Maximum water temperature	60°C
Pressure pump	Not in the scope of supply
Maintenance set	No maintenance set supplied
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.

<b>JAVO</b> Partner in Growing		<b>CE</b>
Westende 4 www.javo.eu	2211 XP Noorwijkerhout	Nederland info@javo.eu
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 suitable to be used outside. Electrical components are only splash proof. 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.









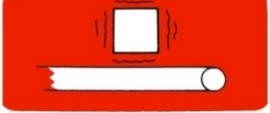
## 2.2 Safety devices on the machine



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.

## 2.3 Explanation of icons and symbols

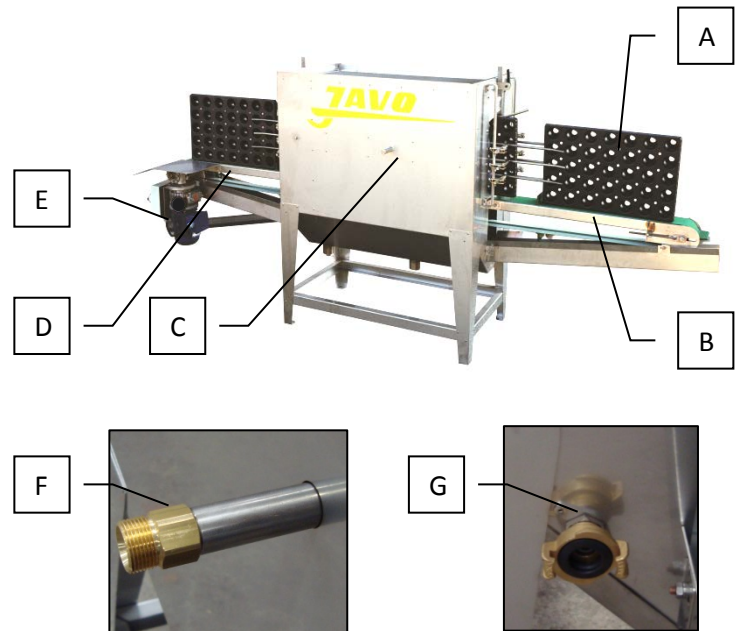
Pictogram	Meaning
	Read and understand this manual before using the machine and / or performing maintenance.
	Remove Power (mains).
	Wear during all work on or with the machine safety shoes and safety glasses.
	Wear during cleaning and maintenance work on this machine also safety gloves and protective 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. Tray
- B. Tray entrance side
- C. Wash section
- D. Tray exit side
- E. Conveyor motor
- F. High pressure water IN
- G. Low pressure water IN



#### 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
Stüropor nozzels per piece	329141	Suitable for washing with Stüropor.
Tread with cleats at 720mm	222-110-SP	Suitable for tray up to 700mm

### 3.4 Operation

This machine is intended to be used for washing trays with clean water only. This machine is meant for processing trays and other materials that are described in this manual only.

The process of the machine begins with providing a tray. The tray is slid forwards on the conveyor by the studs that have been placed on the conveyor belt, and so fed through the machine.

In the first section, the tray is cleaned with high-pressure water jets. Next the tray is rinsed with fresh water in the 2nd section.

The tray should be taken out manually at the output side, of the machine.

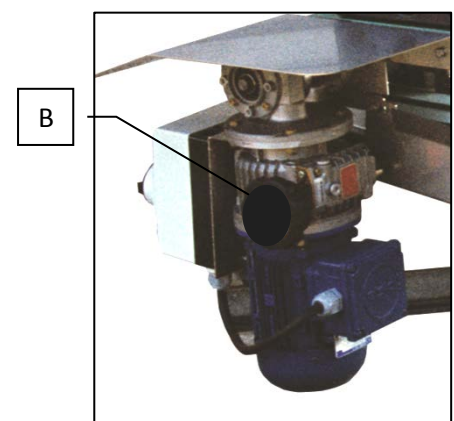
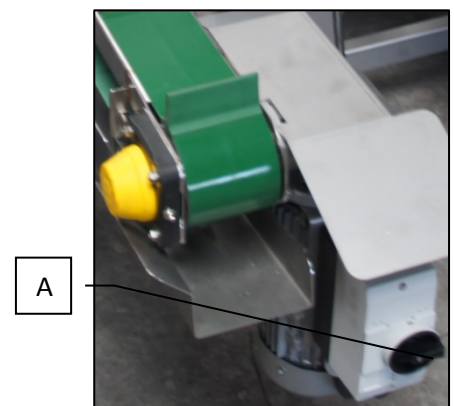
The rinse water runs away from the machine.

### 3.5 Machine workstations

This machine has to be operated by 2 operators at the same time at the conveyor belt IN and OUT.

### 3.6 Controls

The motor is controlled by switch (A). The speed of the conveyor belt is controlled with a delay button (B)





## 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.

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.*



*Close the hood before providing water to this machine.*

### 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 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, water at correct pressure) needs to be present at the machine. The supplied water should be filtered to 25µ. Preventing clogging of the 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 motor direction



*Check the rotation direction of the motor before you start working with the machine.*

Procedure:

1. Connect the power cable.
2. Start the conveyor.
  - a. Turn off the main switch.
3. Check the direction of rotation of the conveyor.
4. Stop the conveyor by turning the main switch off.
5. 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.

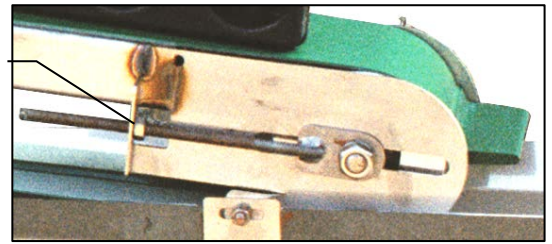


## 5.5 Check conveyor tension



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

A



Procedure:

1. Check the conveyor belt tension. The correct tension is obtained when the belt in the middle deflects a little bit.
2. Adjust the belt tension if necessary .
  - a. Tighten the 2 screws (A) and make sure the belt stays straight.

## 5.6 Set conveyor speed



*Set the conveyor speed before you start working with the machine.*

Procedure:

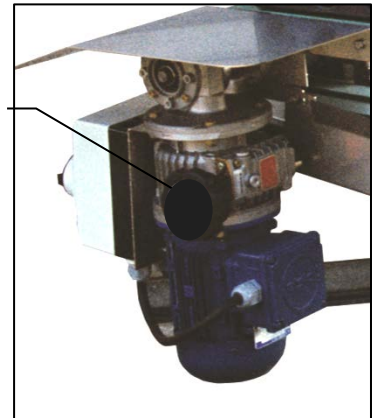
1. Check the conveyor speed.



*Adjust the speed of the conveyor belt only when engines are running.*

2. When the speed needs to be adjusted:
  - a. Turn wheel (A):

A

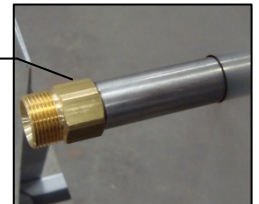


## 5.7 High pressure water connection



*Connect the high pressure water connection before working with the machine.*

A



Procedure:

1. Connect the high-pressure water supply to (A).

The supplied water should be filtered to 25μ. Preventing clogging of the machine.

## 5.8 Low pressure water connection

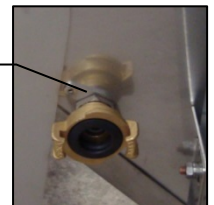


*Connect the low pressure water connection before working with the machine.*

Procedure:

1. Connect the low-pressure water supply to (A).

A



## 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 Start



*Close the hood before starting the water supply.*

This machine is intended to be used for washing trays with clean water only. This machine is meant for processing trays and other materials that are described in this manual only.

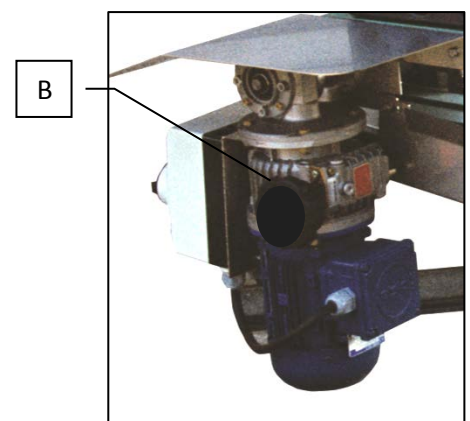
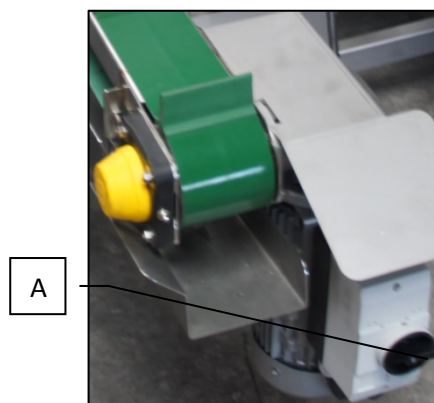
The process of the machine begins with providing a tray. The tray is slid forwards on the conveyor by the studs that have been placed on the conveyor belt, and so fed through the machine.

In the first section, the tray is cleaned with high-pressure water jets. Next the tray is rinsed with fresh water in the 2nd section.

The tray should be taken out manually at the output side, of the machine.

The rinse water runs away from the machine.

The motor is controlled by main switch (A). The speed of the conveyor belt is controlled with delay button (B).



### 6.2 Stop

Stop the machine by turning the main switch off and shutting water supply down.

This machine is not equipped with an emergency stop button. Stop the conveyor by turning the main switch off.

## 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 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.*



*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 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.
Conveyor	Day	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.
Pictograms	Week	Check readability and replace if necessary.
High pressure bearing block	Week	Check water resistance. See section "bearing block maintenance".
Electrical installation	Year	Check for damage.
Electric motors	Year	Remove dust.
Electric motor	5000 hours	Oil level check and oil change. Oil level should be at the center of the sight glass. Use only VARIOTRAC SANTOTRAC 68 or 50 oil.
Gearbox		Change oil according to the gearbox manual.

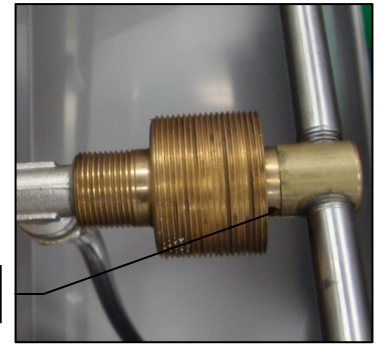
## 7.2 Bearing block maintenance

Check the water bearing block for leaks. If a leakage in the bearing block is present, the nozzle will not spin so rapidly and water leaks from the opening (A).

Procedure for replacing leaking seal bearing block:

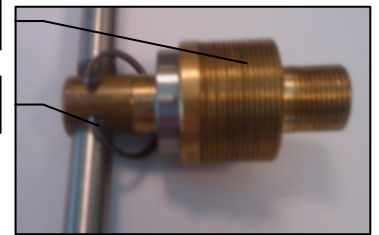
1. Turn off the machine and remove plug from the socket.
2. Remove the water pressure of the machine.
3. Disassemble nozzle (B).
4. Remove ring (C) and pull the bearings from the bearing block.
5. Replace gasket (D).
6. Fit the nozzle.

A

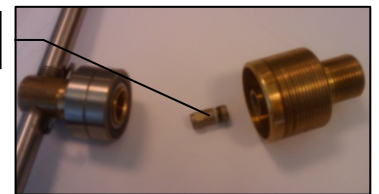


B

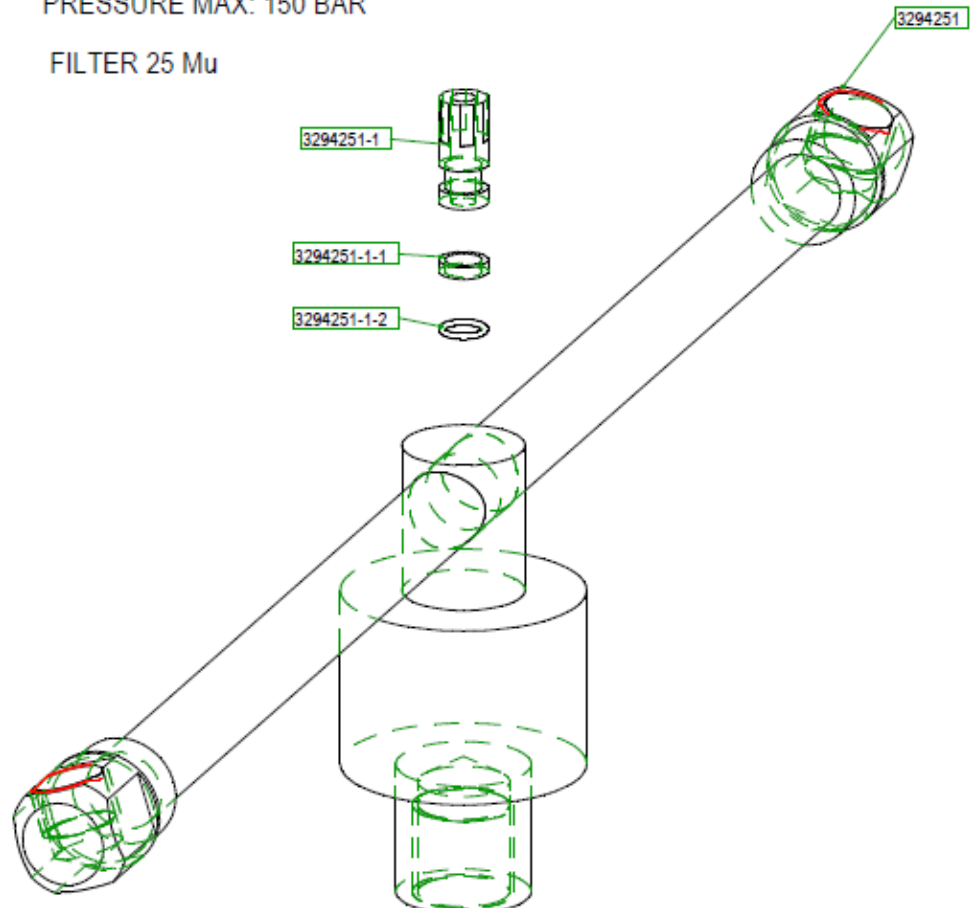
C



D



TEMPERATUR MAX: 60° C  
PRESSURE MAX: 150 BAR  
FILTER 25 Mu



### 7.3 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
	Loose wire	Lock wire
Trays are not cleaned well	Too big or too stubborn pollution	Wash trays again.
	High pressure pump is not working or pressure is not set correctly.	Check the high-pressure pump.
	Nozzle position is not OK.	Check the position of the nozzles. The nozzles should be placed at an angle of 15 °.
	Resistance on rotating nozzles.	Make sure the nozzles rotate without resistance.
	Nozzles are clogged.	Remove nozzle and clean it. Provide good filtration of the water supplied to 25µ.

### 7.4 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.

### 7.5 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.

### 7.6 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](http://www.javo.eu)) for more information and to request an account.



### 7.7 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  
Westeinde 4  
2211XP Noordwijkerhout  
The Netherlands

Declares that:

**Machine:**                    **Tray Washer**  
**Type:**                     **Tray automation**

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,  
September 2014

Cees Bouwmeester  
Director