

English

# OWNER'S MANUAL

## SV4 VACUUM PUMP



## PRESENTATION OF MANUAL

### INSTRUCTIONS FOR USE

**Technical Name:** Vacuum Pump for Dental Set

**Trade Name:** Vacuum Pump

**Model:** SV4

**Brand:** Saevo

**Manufacturer / Distributor:**

Alliage S/A Indústrias Médico Odontológica

C.N.P.J. 55.979.736/0001-45 - Insc. Est. 582.002.897.114

Rod. Abrão Assed, Km 53+450m - Cx. Postal 782 CEP 14097-500

Ribeirão Preto - S.P. - Brasil

Telefone +55 (16) 3512-1212

**Technical Duties:** Daniel R. de Camargo

CREA-SP: 5062199650

### CAUTION

For improved safety:

Read and understand all the instructions contained in the Instructions for Use before installation or operation of this equipment.

Note: The Instructions for Use must be read by all persons that operate this equipment.

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## IDENTIFICATION OF EQUIPMENT

### Dear Customer

Congratulations. You have made a good choice when you decided to buy a SAEVO QUALITY product comparable to the best products available in the World. This manual is a general presentation of your product and it will give you important details to help you to solve possible problems. Please, read it and keep this with you.

## IDENTIFICATION OF PRODUCT

**Technical Name:** Vacuum Pump for Dental Set

**Trade Name:** Vacuum Pump

**Model:** SV4

**Brand:** Saevo



### Indication of Equipment

This equipment is for dental use only. It must be operated and utilized by specialized professional (certified professional, according to the legislation of the country) and following the instructions of the manual. The operation of the equipment required, for the professional, the utilization of correct instruments and it should be in perfect conditions of the use, and to protect the professional, the patients and others, in the eventual danger situation.

### Purpose of the equipment

The SV4 Vacuum Pump is indispensable equipment for dental procedures, besides sucking blood, saliva and residues suction, this machine has a high power suction, which effectively reduces bacterial aerosols, helping in biosafety practices dentistry.

## IDENTIFICATION OF EQUIPMENT

### Description of Equipment

Was designed to supply bio-safety needs on the dental activity. Equipment with high suction power, that absorbs with more efficiency the saliva and residues.

Built in bronze-aluminum alloy, high resistant to corrosion, which allows years of use on a daily basis. 1 HP power, allowing to operate until 4 dental office simultaneous.

DEBRIS FILTERING SYSTEM.

Located on the suction inlet of the pump. This system guarantees greater safety, avoiding jams and wears, increasing the life span of the equipment.

The contamination of the environment is avoided, thanks to the direct sewer discharge system.

EXCLUSIVE SYSTEM OF WATER RECYCLING.

Through an internal chamber the water is recirculated providing lower consumption and increasing the suction performance.

### Kit SV2\* and Kit SV4\*

The kit has automatic activating ejector, and easy handling adjustment, which allows the user to adjust the suction flow, reducing the risk of contamination by the aerosol, bringing a better view of the operation field, and better comfort for the patient.

Can be coupled to the dental light's column, or cabinet sides.

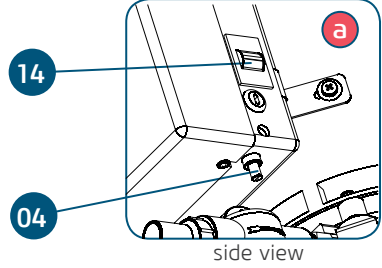
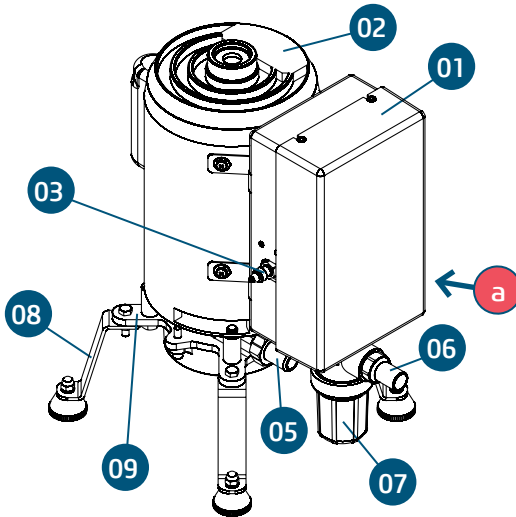
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\* Optional

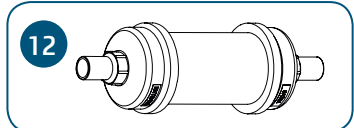
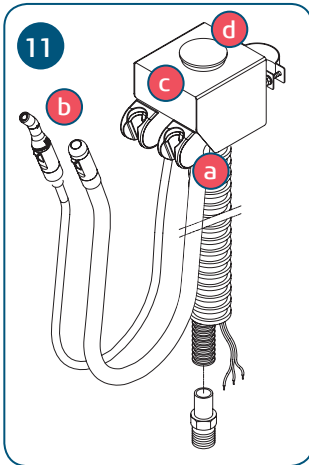
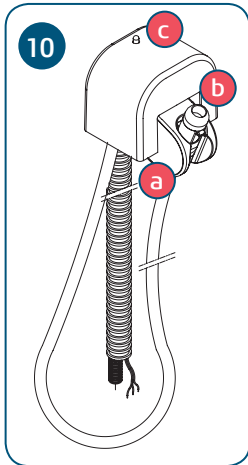
## MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION



The contents of this page are of an informative nature, the equipment being able to differ from that illustrated. So, upon acquiring the product check the technical compatibility between equipment, coupling and accessories.



- 01 - Box of the Electric Command
- 02 - Engine with Thermal Protection
- 03 - Niple entrada água
- 04 - Water flow regulator
- 05 - Outlet (to drain)
- 06 - Suction inlet
- 07 - Pump residues filter
- 08 - Base of the Pump
- 09 - Body of the Pump
- \*10 - Kit SV2
- \*11 - Kit SV4
- \*12 - Kit Damper
- \*13 - Kit Finishing Cover
- 14 - Voltage selector switch



- a. Ejectors holder
- b. High-power suction terminal
- c. Light indication - equipment in operation
- d. Filter of debris

\* Optional



### Attention

- The use of any part, accessory or material not specified or provided in these instructions is of entire responsibility of the user.

## TECHNICAL SPECIFICATIONS

### General features

**Model**

SV4

**Power supply voltage**

110-127 / 220V~ (Bivolt - Selector Switch)

**Frequency**

50/60 Hz

**Nominal Power (Maximum)**

1690 VA

**Nominal Current**

110V/50Hz - 14,1 A  
220V/50Hz - 7,0 A  
127V/60Hz - 12,6 A  
220V/60Hz - 6,2 A

**Tension of the Command**

24Vdc

**Thermal protection**

Safety device for protection against engine temperature rise

**Motor**

1 HP

**RPM**

110/220V/50Hz - 2930  
127V/60Hz - 3540  
220V/60Hz - 3510

**Electric shock protection type**

Class one equipment - Applied Part Type B

**Protection against harmful water penetration or particulate material**

IPX0

**Maximun Vacuum**

550 mm/Hg

**Consumption of Water**

0,400 l/min

**Net weight (Vacuum Pump)**

26,8 Kg

## TECHNICAL SPECIFICATIONS

### Gross weight (Vacuum Pump)

33,43 Kg

### Net weight (Kit Vacuum Pump)

Kit SV2 = 0,9 Kg / Kit SV4 = 2 Kg

### Gross weight (Kit Vacuum Pump)

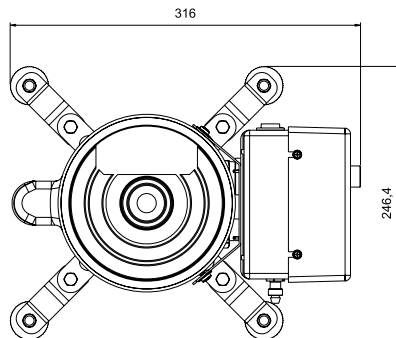
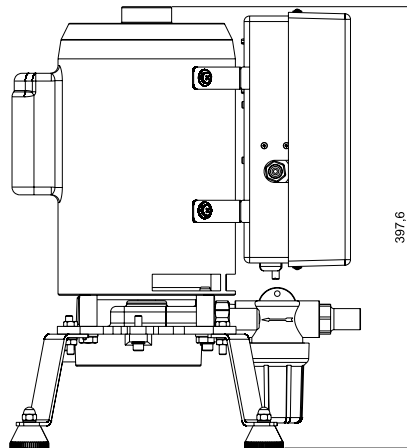
Kit SV2 = 1,4 Kg / Kit SV4 = 2,67 Kg



### Warning

Pay attention while using this equipment together with other movable equipment, in order to avoid collisions.

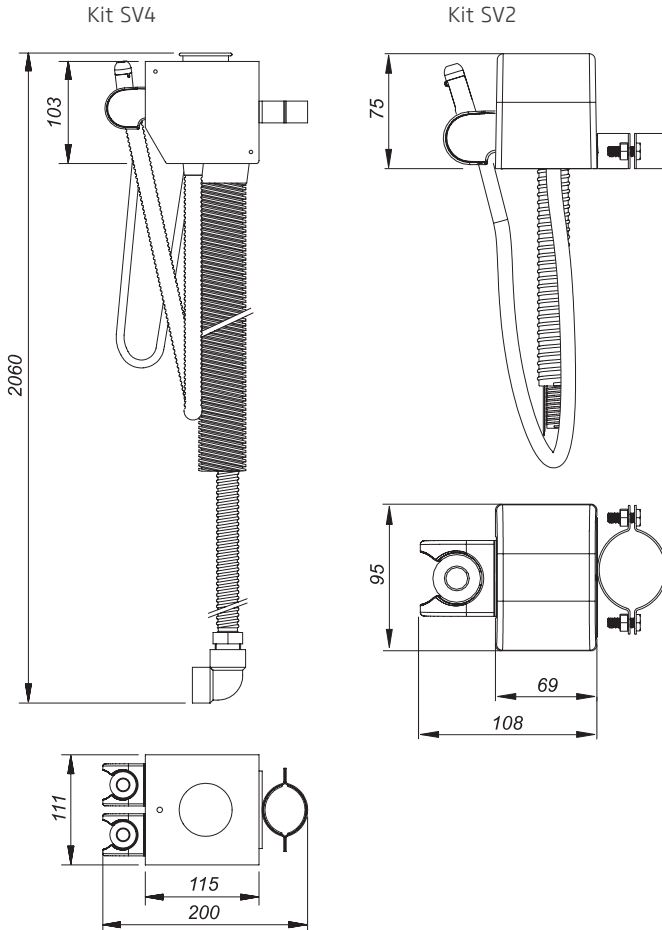
### Dimensions (mm)





## TECHNICAL SPECIFICATIONS

### Dimensions (mm)



## TECHNICAL SPECIFICATIONS

### Packing symbols



It determines the maximum quantity of boxes which can be stacked during transportation and storage "as per packaging"



Packing to be transported and / or stored avoiding humidity, rains and wet floor



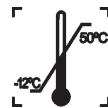
Packing to be transported and / or stored with the harrows up



The packing must be stored and transported away from direct sun light exposure



Packing to be transported and / or stored with care (should not suffer drop and neither receive impact)



Temperature limit for the packing to be stored or transported.

### Product symbols



Applied part type B



Grounding (at several points of the equipment) indicates the condition of being grounded



General warning:  
If the instructions are not properly followed, the use can lead to damage to the product, user or patient



Note:  
It indicates useful information for operation of the product



Refer to the instruction manual.



General sign for mandatory action

## INFRA-STRUCTURE SPECIFICATION

The perfect functioning and the durability of the Saevo dental office are directly linked to the preinstallation, which must be carried out by duly trained professionals according to the instructions contained in the "Pre installation plan" which is found with the Saevo authorized technical representative.

## INSTALLATION OF EQUIPMENT



The installation of this equipment requires the necessity of specialized technical assistance (Saevo). Ask for the presence of a Saevo representative technician at the nearest seller, or through the Saevo Service Center: + 55 (16) 3512-1212.



### Note

For this model of equipment we recommend the installation outside the Dental Set, in a room next to or in an engine room. It is important that the chosen location is protected from moisture, sun rays and good ventilation.

Additional information on hydraulics and electric is given in the Pre-Installation Manual.



### Warning

The equipment leaves the factory positioned at 220V~, so ensure that your network is compatible before turning it on. If it is 127V~, request the presence of an authorized Saevo technician.

## INSTALLATION OF EQUIPMENT

To install the vacuum pump, consider the following points.

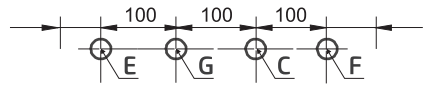
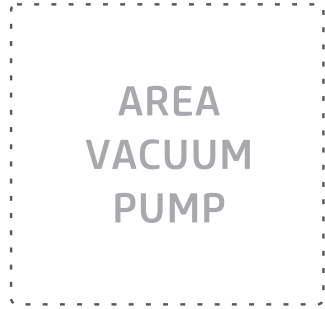
**C. WATER:** PVC tube welding acceptable  $\varnothing$  20 mm, glove at the tip with tin plug of  $\varnothing$  20 X 1/2 " in contact with the floor connected to the water supply.

**F. SUCTION:** PVC tube welding acceptable  $\varnothing$  25 mm, glove at the tip with tin plug of  $\varnothing$  25 x 3/4" in contact with the floor connected to the point "F" of the connection box.

**E. DRAINING:** PVC tube welding acceptable  $\varnothing$  40 mm, glove at the tip with tin plug of  $\varnothing$  25 x 3/4" in contact with the floor connected to the inspection box (with a minimum decline of 2%).

This model of Vacuum Pump requires the use of independent sewage.

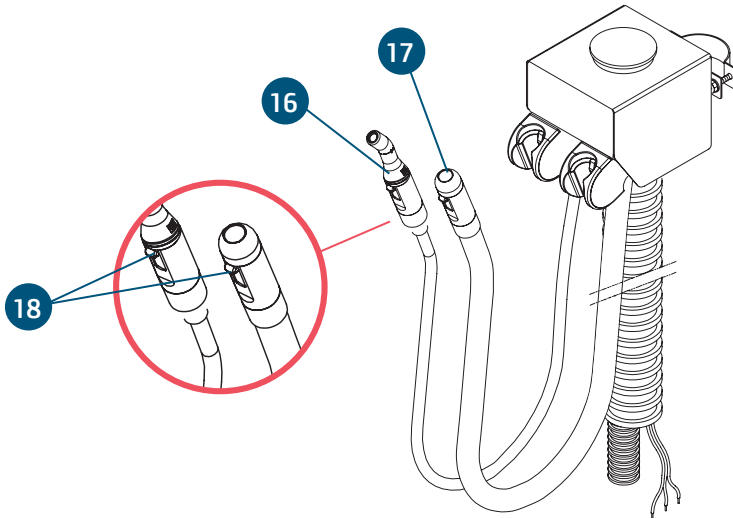
**G. SUCTION CONTROLS:** Flexible electro duct of  $\varnothing$  20 mm ending at 50 mm above the floor with wires of 3 x 0,75 mm<sup>2</sup> (different colors), 200 mm above the electro duct connected to the point "G" of the connection box.



## EQUIPMENT OPERATION

For Vacuum Pump operation, remove one of the ejectors hve (17) or saliva (16), and the pump will work automatically.

Adjust the aspiration emptying according to the need, by the lever (18) coupled in the suckers, moving upward or down. Putting back the suckers in the initial position, the Vacuum Pump will turn off automatically.



Kit SV4\*

\* Optional

## PRECAUTIONS, RESTRICTIONS AND WARNINGS

### Recommendations for preserving the equipment

Your Saevo equipment has been designed and developed according to the standards of modern technology. Similarly to other kinds of equipment, it requires special care, which is many times neglected due to several reasons and circumstances. Therefore, here are some important reminders for your daily routine. Try to follow these simple rules, which will save you a lot of time and will avoid unnecessary expenses once they start making part of your working procedure.

### Transportation, storage and operation

This equipment must be transported and stored observing the following directions:

- Avoid falls and impacts;
- Keep it dry, do not expose it to rain, water drops or wet floor;
- Keep it away from water and direct sunlight, and in its original wrapping;
- Don't move it over irregular surfaces, protect it from rain and observe the maximum stack quantity specified in the packaging;

Environmental condition for transportation or storage:

- Room temperature range for transportation or storage -29°C to +60°C.
- Relative humidity range for transportation or storage 20% to 90%.
- Atmospheric pressure range 500hPa to 1060 hPa (375 mmHg to 795 mmHg).

Environmental operation condition:

- Room temperature range for functioning +10°C to +40°C.
- Recommended room temperature range +21°C to +26°C.
- Relative humidity range for functioning 30% to 75%.
- Atmospheric pressure range 700 hPa to 1060 hPa (525 mmHg to 795 mmHg).
- Operation altitude: ≤2000m.

### Attention

The Equipment maintains its condition of safety and efficacy, provided that it is maintained (stored) as mentioned in this instruction of use. Thus, the equipment will not lose or alter its physical and dimensional features.

### Sensitivity to predictable environmental conditions in ordinary situations of use

- The equipment has been designed not to be sensible to interferences as magnetic fields, external electrical influences, electrostatic discharges, the pressure or the variation of pressure, since the equipment is installed and kept clean, conserved, transported and operated conforming this operation instruction.

### Precaution and warnings “during the installation” of the equipment

- This equipment can only be unpacked and installed by an Saevo authorized technician, under the penalty of losing the warranty, as only they possess the information, the proper tools and the required training for carrying out this task.
- Saevo does not take this responsibility for damage or accidents caused due to a bad installation performed by a technician non-authorized by Saevo.
- Only after the equipment is installed and properly tested by the Saevo authorized technician, it will be ready to start the working operations.
- Install the equipment in a place where it will not be damaged by the pressure, temperature, humidity, direct sunlight, dust, salts.

## PRECAUTIONS, RESTRICTIONS AND WARNINGS

- The equipment should not be submitted to inclination, excessive vibrations, or blows (including during transportation and handling).
- This equipment was not planned for use in an environment where vapors, anesthetic mixtures inflammable with air, or oxygen and nitrous oxide can be detected.
- Check the voltage of the equipment at the moment of executing the electrical installation.
- Check that the socket in which the device will be connected has a ground connection. According to the ABNT standard, this is essential for the safe operation of the system.
- The equipment must be grounded correctly.
- Before the first use and/or after long interruptions from work such as vacations, clean and disinfect the equipment.

### Precautions and warnings “during the use” of equipment

- The equipment should only be operated by duly enabled and trained technicians (Dental Surgeons, Capacitated Professionals).
- If any maintenance should be required, only use services of the Saevo Authorized Technical Assistance.
- Although this equipment has been planned in accordance with the standards of electromagnetic compatibility, it can, in very extreme conditions, cause interference with other equipment. Do not use this equipment together with other devices very sensitive to interference or with devices which create high electromagnetic disturbance.
- Do not expose the plastic parts to contact with chemical substances, use in the routines of dental treatment, such as: acids, mercury, acrylic liquids, amalgams, etc.
- Avoid spilling water or other liquids inside the equipment, which could cause short circuits.
- Before beginning the operation of starting of the Vacuum Pump, be certified that the plug of the cable of tension entrance is connected in the electric net, and that the registration of feeding of water is open.



### WARNINGS

- The lack of water will cause damages in the mechanical stamp and the Vacuum Pump won't make aspiration.
- Never use detergent or any foaming product to make the internal cleaning of the tubes of suction of Kit Vacuum Pump and of the Vacuum Pump.

Saevo shall not be responsible for:

- Use of the equipment differing from that for which it is intended.
- Damages caused to the equipment, the professional and/or the patient by the incorrect installation and erroneous procedures of maintenance, differing from those described in these Instructions for use which come with the equipment or by the incorrect operation of it.

### Precautions and warnings “after” the use of equipment

- In the end of the file, close the registration of water that feeds the Vacuum Pump and turn off the general key of the clinic.
- Always maintain the equipment clean for the next operation.
- Do not modify any part of the equipment. Do not disconnect the cable or other connections without need.

### Precautions and warnings during the “cleaning and disinfection” of equipment

- Before cleaning the equipment, turn off the main switch.
- Avoid spilling water or other liquids inside the equipment, which could cause short circuits.
- Do not use microabrasive material or steel wool when cleaning, or employ organic solvents or detergents which contain solvents such as ether, stain remover, etc.
- Always use protection gloves when manipulating filters and drainages. Throw the residues away and the contagious products as per law in your country.

## PRECAUTIONS, RESTRICTIONS AND WARNINGS

### Precautions in case of alteration in the functioning of equipment

- If the equipment has any abnormality, check if the problem is related to any item listed in the topic of unforeseen events (failures, causes and solutions). If it is not possible to resolve the problem, turn off the equipment, remove the power supply cable from the socket and contact your representative (Saevo).

### Precautions to be adopted against foreseeable or uncommon risks, related to the deactivation and abandoning of equipment

In order to avoid environmental contamination or undue use of the Equipment after it has become useless, it should be discarded in the suitable place (as per the local legislation of the country).

- Pay attention to the local legislation of the country for the conditions of installation and disposal of residue.

## CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

### Additional procedures for reuse

The equipment can be reused in undetermined, i.e. unlimited, quantities, only needing to be cleaned and disinfected.

### Cleaning

Important: In order to execute cleaning or any type of maintenance, ensure that the equipment is disconnected from the electrical network.



#### Attention

- In order to prevent risks and damages to equipment, make sure that the liquid does not enter into the equipment.
- To cleaning the equipment, using the damp cloth with a mild soap. The application of other solvent-based cleaning products or sodium hypochloride isn't recommended, because they may damage the equipment.

### Disinfection

- Use clean and soft cloth dampened in alcohol 70% to disinfection of the equipment.
- Never use corrosive disinfectants or solvents.



#### WARNING

For preventing contamination, use gloves and other protection systems during disinfection. Even that, during the procedures, gloves are used, after removing gloves the hands must be washed out.

## CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

### Clearing the suction system



#### Warnings

- Never use foamy products in the suction (deep cleaner, detergents, floaters, etc), this procedure may damage the internal parts of the dry vacuum pump's engine;
- Never use the bleach solution for external cleaning of any equipment, because this mixture is highly corrosive and may damage metal parts.

Saevo suggests performing a daily suction of the clearance and disinfectant solution, avoiding the risk of cross contamination and increasing equipment service life. To perform the disinfection of your equipment we recommend the use of the "Sugclean" (MS Reg. No.: 31.080.003-2) product.

- Indication: It is indicated for clearance of sucker and hose suction system. It is important to perform the suction solution in all suction terminals, which it is also important to be open. Then, remove suckers from hose for asepsis (Fig.a).

Preparing the Solution: Add "Sugclean" 30mL in 1 liter of water. Aspirate the solution with maximum power of the suckers, and also put the liquid in the water unit bowl.

In the first use of "Sugclean" product, we suggest adding 60mL of concentrated product in 1 liter of water during the first 5 days in order to remove accumulated residues.

- Composition:
- Active Drug: Phosphoric Acid 13.6%
- Excipients: Isopropyl Alcohol, Acidulant, Dye and Thickener.



Fig.A



#### NOTE

The registration at the Ministry of Health of the "Sugclean" is executed separately from the product described in this manual, as the "Sugclean" is not manufactured by Saevo.



## CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

### Cleaning of Kit Vacuum Pump filter

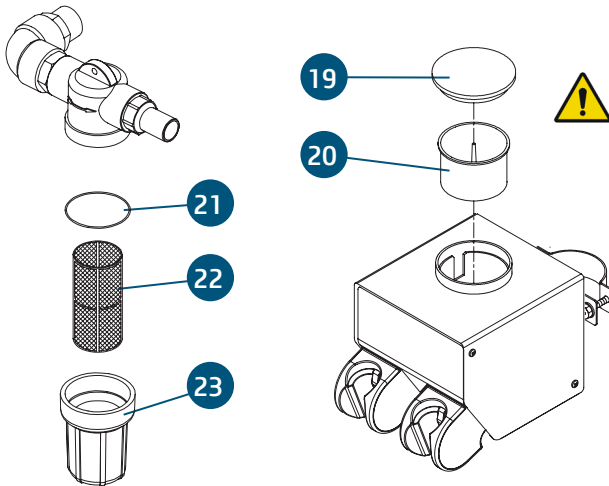
The filter of Vacuum Pump should be daily clean. Before doing the cleaning of the filters it should be made the suction of the solution. (see the preparation of the solution in the previous item).

- After the suction of the solution through the suctor, take the lid (19) and the filter (20) and wash them in running water.

### Cleaning of Vacuum Pump filter

- Uncoil the glass (23), remove the filter (22), and wash them.

- When putting back the filter (22) and the glass (23), certify that the obstruction ring (21) is in the place. After it, make the suction of approximately 250ml of water in the glass (23) to avoid encrustation of residues in the filter (22).



### Warning

Always use protection gloves when manipulating filters and drainages. throw the residues away and the contagious products as per law in your country.

### Preventive Maintenance

The equipment must suffer routinely measurements, following the current legislation of the country. But, never with a period superior to 3 years.

For protecting your equipment, look for a Saevo' technical assistance for periodic reviews as preventive maintenances.

### Corrective Maintenance

Saevo states that the supplying of the circuits' diagram, Part lists or any other information that permits the technical assistance by the user, can be requested, since previously agreed between the buyer and Saevo.




### Attention

In case of the equipment presents any abnormality; check if the problem is related to some of the listed items under the item Unpredictable (situation, cause and solution).

If it's not possible to solve the problem, shutdown the equipment and demand the presence of a Saevo' technician from the nearest resale, or ask through the Attendance Service Saevo: + 55 (16) 3512-1212.

## UNFORESEEN EVENTS – SOLUTION OF PROBLEMS

 Upon coming across any problem in operation, follow the instructions below to check and repair the problem, and/or get in touch with your representative.

Problem	Probable cause	Solution
- Adjustment of emptying of the body sucker at the most with insufficient aspiration.	- Filter of kit Vacuum Pump obstructed.	- Proceed the cleaning of the filter.
- There is no suction, when the ejector is taken from the holder.	- Lever of adjustment of emptying of the sucker is shut.  - Registration of feeding of water of the Pump is closed. - Circuit breaker in the "off" position. - Unplugged cable.	- Proceed the adjustment of the emptying through the lever according to need. - Open the registration of feeding of water of Pump. - Turn on the circuit breaker.  - Plug the cable.

## EQUIPMENT'S WARRANTY

This equipment is covered by the warranty terms and norms contained in the Warranty Certificate that accompany the product.

## FINAL CONSIDERATIONS

Among the care you have to take with your equipment, the most important is regarding of the spare parts replacement.

To ensure the lifetime of your device, only replace original spare parts from Saevo. They have the assurance of the standards and technical specifications required by the Saevo representative.

We call your attention to our authorized resellers' chain. Only this chain will keep your equipment constantly new, because it has trained technical assistant and specific tools for the correct maintenance of your device.

Whenever you need, demand the presence of a Saevo' technician from the nearest resale, or ask through the Attendance Service Saevo: + 55 (16) 3512-1212.



**SAEVO** 