



## Simplymatic



# USER MANUAL

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## Important safety instructions

### General safety precautions

- Keep this instruction manual always at hand. It should remain with the unit if moved to a different place or operated by another user.
- This device is designed to package biological doses and only for professional use in laboratories. It should only be operated following these instructions and never have its design adapted or transformed for any other application as packaging dangerous or flammable fluids.
- Repairs to this device should be performed by personnel authorized by the manufacturer. Any part or accessory occasionally supplied by the manufacturer should only be used for repairs. Otherwise, the equipment may be damaged or cause other damages or injuries.
- The unit lacks electric input only when disconnected from the socket. Unplug the equipment before any cleaning or maintenance work (never pull on the cord to unplug it). If access to the plug is difficult, disconnect electrical power from the control panel.
- Make sure the cord is not trapped, crushed or damaged by the back of the device, there is danger of electrocution. A damaged power cord should be immediately replaced by a new one, always by a qualified technician.
- The unit lacks pressure only when disconnected from the safety valve or the compressor itself. Remove pressure input before any cleaning or maintenance work.
- Make sure the pressure hose is not trapped, crushed or damaged by the back of the device; it may cause projections of compressed air, unpleasant noises or reduce the performance of the unit. A damaged pressure hose should be immediately replaced by a new one, always by a qualified technician.
- Heavy equipment. The equipment should be handled by two people.

- Keep the equipment away from possible splashing of fluids and in a well-aired place.
- Make sure the unit is perfectly leveled and there is no risk of turning over or falling.

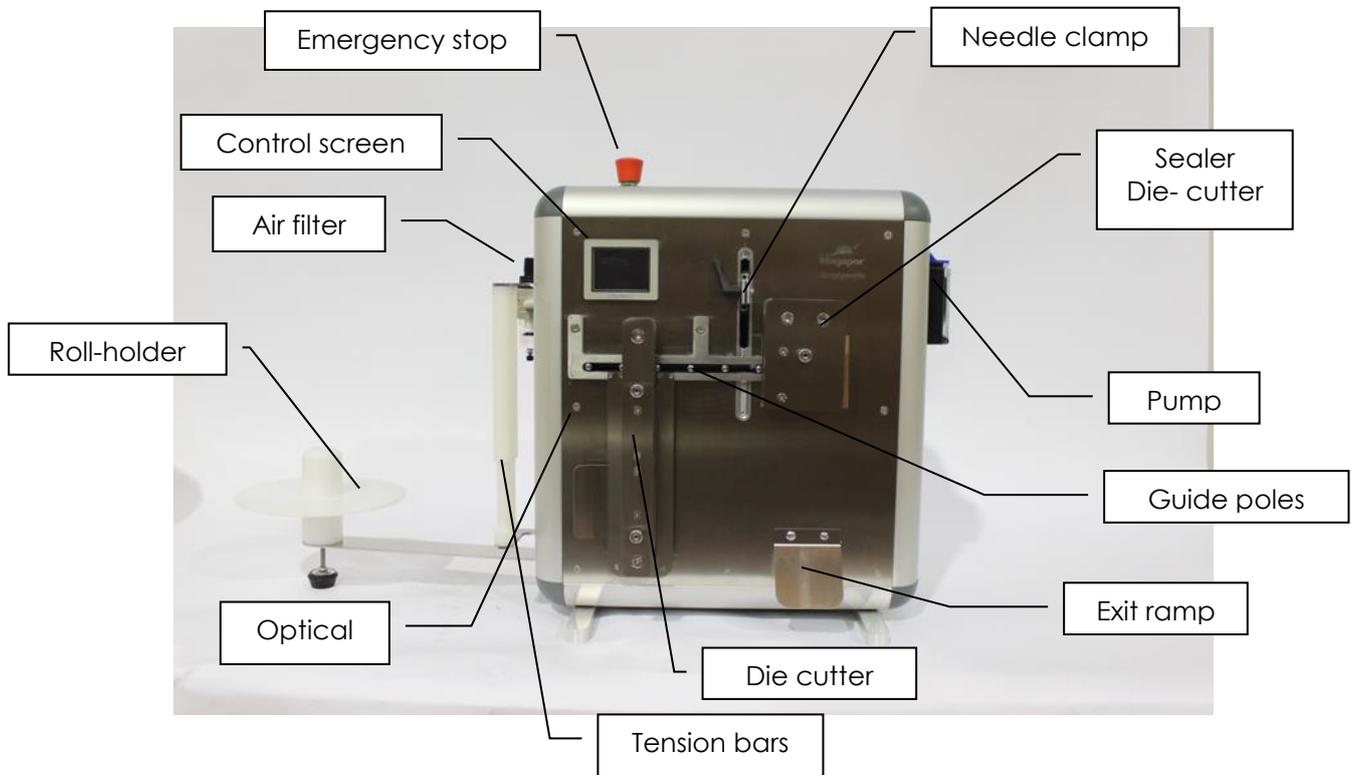
## General Information

MAGAPOR offers SIMPLYMATIQ packaging system, designed for automating semen packaging in medium capacity production centers, where automatic identification of the semen dose processed is not necessary.

### Your choice

- The equipment you just chose has been conceived for packaging doses automatically in centers with medium productive necessities which do not require labeling.
- Thanks to its compact design and low consumption, it is suitable for any installation.
- Its strong and hygienic built in stainless steel satisfies the highest requirements in terms of cleaning
- The unit includes industrial control and drive devices, which guarantee highly available and reliable functioning.
- Its easy operation makes it suitable for any user. It does not require special knowledge about equipment.
- The use of mechanisms and devices that do not need maintenance or lubrication reduces preservation of this equipment to a simple cleaning routine.

## Description of main parts of the equipment



## Installation and operation

### Controllers and display

The control and monitoring screen is located on the front panel of the equipment.

From such color touch screen, you can thread the roll, run and stop the packaging, adjust the volume of the dose and enter the quantity of doses to be prepared:



The use of this interface will be further explained in another section of this manual.

Above the screen lies the emergency stop button, which enables the user to interrupt the operation of the machine in case of emergency. Press the button to activate the emergency stop. To restart the equipment, turn the knob a quarter to release it and restart the machine from the control screen.

The left part of the unit holds the regulator-filter of compressed air. Such device limits the pressure entering the machine, preventing inner pressure to reach values over 6 bar. Current work pressure can be checked through the in-built manometer.

The felt ring-shaped filter located in the transparent cup shows air quality.

The regulating filter is configured by default and it is not advisable to modify it.

### Location

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Place the equipment on a robust work table, checking it supports approx. 50 Kg of weight. The location chosen should be large enough for, on the one hand, dissipating the heat produced by the machine correctly and, on the other, working freely and comfortably. Consider the room intended for the blister roll and the space needed to place the jug or container for semen beside the peristaltic pump.

To prevent vibrations and unpleasant noises, make sure the whole set is perfectly even on its support legs.

It is recommended to provide the work setting with enough light, approx. 300 to 500 lux.

The packaged dose is expelled frontally and falls on the exit ramp by gravity. It is important to save enough space for a collection basket or box.

**Attention:** Heavy equipment, handle with care.



### **Electrical connection**

The equipment has on the lower part of the left closure, a base for the power connection, to this plate base it needs to combine with an appropriate cable according with the type of power plug. The base has a protection fuse against short-circuit, located just below the metal terminals, inside of a little removable tray. Next to the fuses there is a replacement (the replacement part occupies a more external position )



The equipment can be powered with 110V/60Hz or 230V/50Hz without further adjustment. The power source itself detects work tension, so the equipment can be directly connected by the user.

The main switch is located in the top part of the same enclosure. To turn on the equipment, place the switch in the "I" position. The switch will light red.

**Important:** *The equipment has been designed to operate in countries with 110V/60 or 230V/50Hz voltage. It is important, for the safety of users and the device itself, to have an efficient ground wire according to Low Voltage Electro Technical Regulations and a protection device such as a residual-current circuit breaker*



**The manufacturer declines all responsibility in the event that such security measures are not respected.**

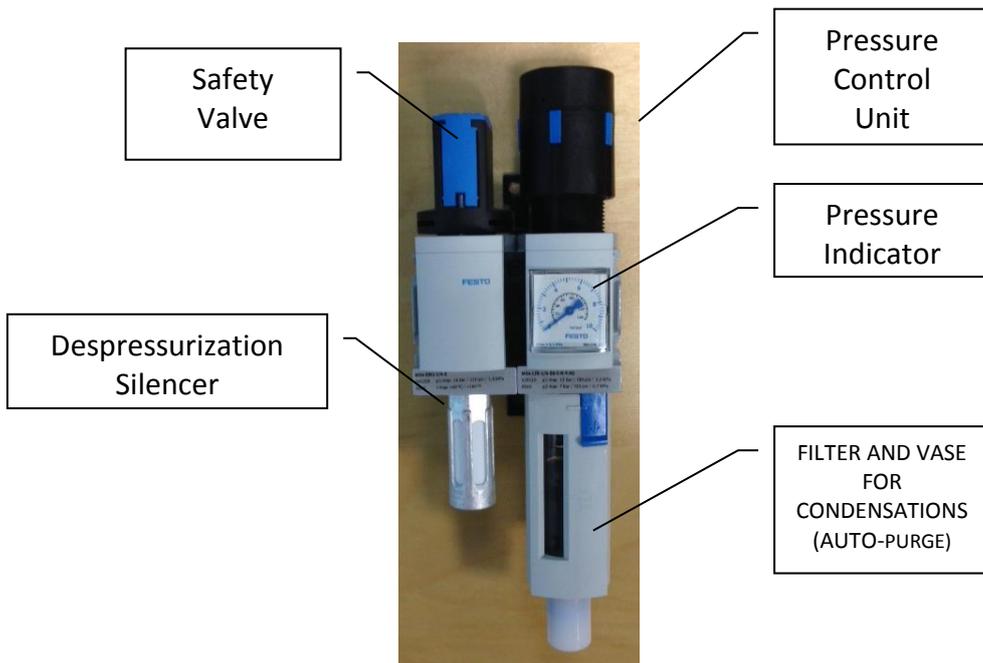
### **Pneumatic connection**

The equipment features a quick release coupling at the entry of the regulating filter for attaching an 8mm hose of compressed air.

Connect the hose to the pressurized air point of your centre or directly to the output of a compressor. Check in both cases available air flow rate (20 l/min) and work pressure (6-8 bar) for correct operation.

The characteristics of the compressor or pressure group must be:

- Minimum pressure at the entrance of the machine: 6 bars
- Maximum pressure at the entrance of the machine: 8 bars
- Caudal available: 20 L / min
- Air tank minimum capacity: 25 L
- Minimum compressor power: 1.5 HP



The filter-regulator is equipped with a valve for the automatic purge of the condensed water. However, the compressor must be purged periodically, or a humidity separator or dryer must be installed at the outlet of the compressor. Too much moisture in the compressed air can damage the pneumatic circuit of the machine.

**Important:** The equipment has been designed to work in a pressure range from 6 to 8 bars. A pressure value over 8 bars may damage the unit.



It is advisable to supply the machine with an 8 mm hose suitable for compressed air and a compressor of at least 50 L of capacity, or a pressure point of at least 20l/min.

The equipment features an in-built regulator-filter that limits work pressure to 5 bars. Such value should always appear on the manometer located on its top. The equipment will not work correctly at lower values.

For safety reasons, the unit features a valve to disconnect the equipment from pressure to be used in case of emergency or whenever the user must remove pressure.

**The manufacturer declines all responsibility in the event that such security measures are not respected.**

## Set up

Once the equipment is correctly connected to the power supply and the compressed air point, press the general switch located at the left.

The screen lights and, after initialization and the welcome message, reaches the main menu:



If the pressure input is insufficient for correct operation, the message "LOW PRESSURE!" appears. Check pressure and the position of the safety valve.

Wait 15 minutes for the sealing clamp to reach 165°C of temperature before starting to work. The message "CHECK TEMPERATURE" reminds of the preparation time required before running the equipment. You can check current temperature on the gauge located on the top left corner. The needle should reach and stay on the middle of the scale.

### **Threading the blisters**

To begin with, place a blister roll on the roll-holder. Install the cardboard plate that is included in the blister box, inserting the cardboard tube in the rod of the roll-holder with the tips of the blisters pointing down:



Unwind some blisters from the roll and check there is no cellophane adhered.



Press  on the main menu to open the die cutters and retract the guide poles, preparing thus the threading. The screen shows the message "MACHINE OPEN".

Pull the blisters behind the guide till the first one lies just under the filling station. Check the six upper holes of the first three blisters match exactly the six round poles on the guide:



Once verified, press again  on the main menu to close the die cutters and move the poles forwards. The equipment is threaded. You can release the blisters now.

If the poles do not enter the holes correctly, open the equipment and thread it again.

**Important:** When opening and closing the equipment and during operation, do not place your fingers or any other body part in the area limited by the guides and safety plates. There is risk of cuts and crushing.

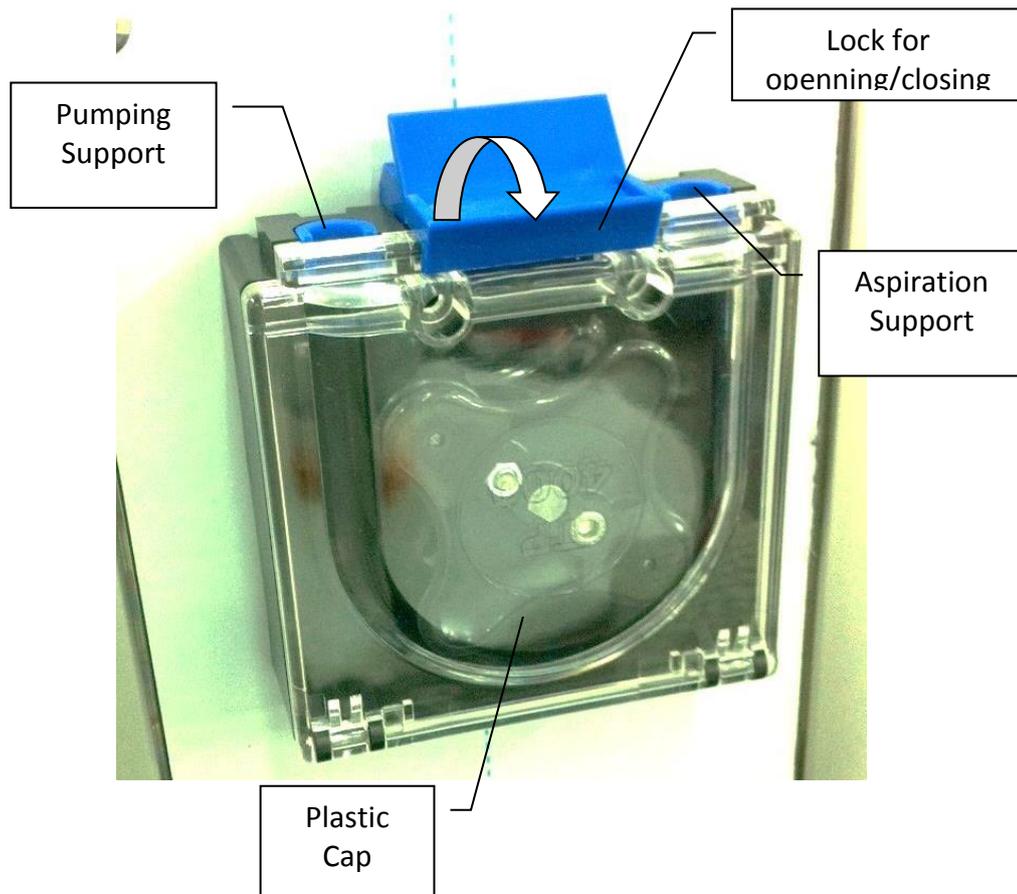


### Placing the filling tube-needle

The equipment uses a special tube to pump the semen to be packaged. Such process does not harm or alter semen because it does not enter into contact with any mechanical part.

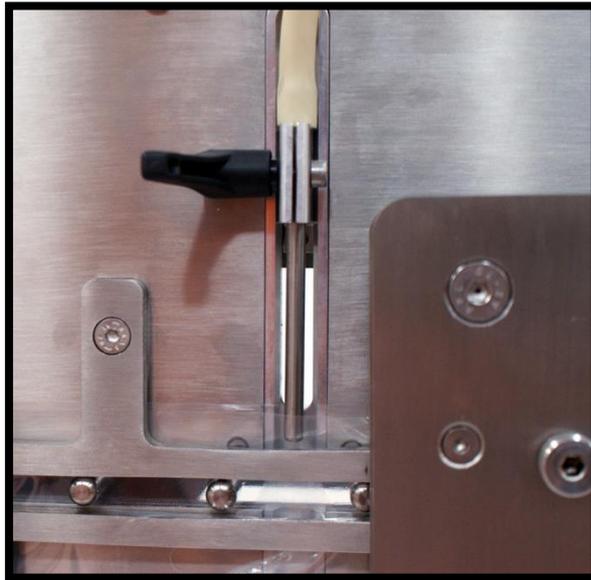
To install the tube, open the head of the peristaltic pump by removing the blue tab that closes the lid.

Insert the tube in the interior of the flow area of the pump in the pumping support. Turn with your hand the impeller while the tube it's fitting on the same impeller. Insert the tube en flow area throw the interior of de aspiration support. Close the plastic cap and make sure the blue lock it's closed.



Extend the suction tube to the container with the fluid to be packaged and attach the weight to the end so it lies on the bottom of the container.

Take the pumping end with the needle to the clamp and insert it into the hole of the holder (loosen the butterfly screw) till the needle top touches the holder itself.



To finish this installation, you should insert manually the end of the needle between the two top lapels of the blister, that way it will insert the needle automatically in each blister to fill them up. Tight up the lock handle to set the position.

## Starting to package

Finally, once thread the blisters, set the filling needle and reached the sealing temperature, you can run the packaging process.

1. First, adjust volume to the format in use (SemenBag 90ml or SmallBag 45 ml):

Press the number key on the right and enter the corresponding value. Such value is directly related to volume, but should not be understood as a direct measure of the milliliters dosed. We recommend selecting a value between 250 and 300 for packaging 90-ml doses and one between 100 and 150 for 45-ml blisters:



The keys over and below the number button   increase and reduce this parameter step by step, which is specially useful for adjusting volume accurately during the run.

After setting the volume, you can run a packaging test with water to record the correct values before starting to package semen. We recommend to perform a daily trial at the beginning of each workday and compulsorily in the first setup run.

2. Second, press the central number display to access a keypad and enter the number of doses to be packaged. This value can be modified during the run:



The equipment counts down in real time as doses are packaged.



3. Press  to run the packaging. The filling needle will enter the first blister and the machine will wait for the user to fill the first dose manually, because the tube is usually empty and needs to be purged first.



For that purpose, a new key  appears which activates manual pumping. Hold the key to action the pump. The message "FILL FIRST BLISTER" is shown onscreen.

The user has two options: filling the first blister approximately or adding an extra dose to the total number to be prepared and easily purge the tube in the first blister to dose it more accurately.



Once performed this task, press  to run the machine completely automatically. The equipment will package the total number of blisters selected. The message "IN PROCESS" appears on the screen and is replaced by "READY"., once finished the batch to be packaged.



To stop the packaging, press . The equipment will fill the current blister and then stop.

**Important:** During the run, some parts of the equipment (as the needle holder, the drive poles and the die cutters) perform cyclic movements. Even though the device features regulated safety measures and protectors, we recommend users to identify such elements and avoid contact with body parts as fingers and hands while they are moving.



### Failures and anomalies during operation

The following anomalies may occur during operation:

- Blister shortage.
- Blocked mechanism.
- Request for emergency stop.
- Pressure failure.
- Power failure.

- When the optical sensor detects the equipment has run out of blisters, it activates a



programmed stop, similar to that which is activated by the  command and shows the message "NO BLISTER!" on a red screen for some seconds. Remove the spare blisters and install a new roll.

- During the run, some of the mechanisms may get blocked, e.g., the needle does not enter a blister correctly interrupting the process; a blister gets hooked when entering the equipment, or there is a sudden pressure drop etc. In all these cases, the system stops automatically in a safe position and shows a message onscreen describing the failure:

- BLOCKED PIN           --> Blocked filling needle.
- BLOCKED TROLLEY   --> Blocked blister trolley.
- BLOCKED CUTTER     --> Blocked cutter.



To solve the problem, check air pressure and press . In normal conditions, the equipment will make the necessary movements to return to its initial position.



If necessary, press  to release blocked or incorrectly thread blisters and place them correctly.

NEVER FORCE THE EQUIPMENT TO UNBLOCK IT. YOU MAY OVERSTRAIN A MECHANISM AND DAMAGE IT PERMANENTLY.

-If you press the emergency knob, the equipment pauses the packaging process, interrupting pumping immediately and driving the mechanism to a safe position. The message "EMERGENCY STOP!" appears.

Once solved the problem that caused the emergency stop, turn the knob a quarter to release it and prepare it for a new action. For safety reasons, it is not possible to resume



the run automatically after releasing the knob. You must press  to restart the equipment and resume the run manually:

- A pressure failure leads to a situation similar to the blockage of a mechanism. If it occurs when the equipment is starting, a specific message "LOW PRESSURE!" warns the user to check the pressure value.

-A power failure disconnects the equipment immediately. Such situation entails no risk for the user but may damage the package being processed at that moment. Power failures can be easily prevented installing an uninterruptible power supply system that provides the equipment with power in case of a long outage.

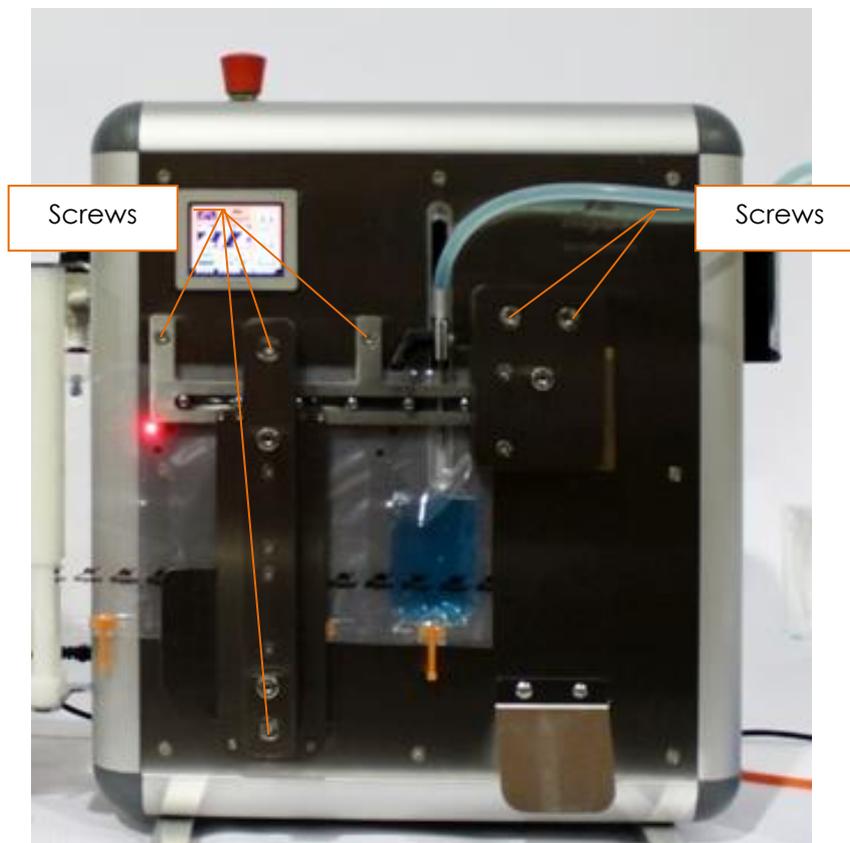
## Preservation and Maintenance

### Cleaning Advice

Do not use strong detergents to clean the equipment. We recommend the use of a soft scouring pad and dishwasher. For total disinfection, apply ethyl alcohol 70°, not rubbing stickers too hard. If cleaning the optical detector is necessary, use alcohol and cotton.

**Metallic pieces cannot be sterilized in an oven because they include plastic or rubber parts that cannot be exposed to high temperature.**

Internal and external mobile parts are already lubricated so they do not require any further maintenance or lubrication. However, it is **recommended to clean the die cutters and front panel weekly** to improve functioning. Access to these pieces is easy: remove the screws that attach the mobile axis to the die cutters and take away the three screws that fix the guides to the front panel.



The blades included in the equipment wear out with use and it is recommended to change them every 200,000 blisters, or when they start cutting incorrectly. Get in contact with the Technical Support Service.

**Danger:** Manipulate blades with care, both when cleaning and replacing them. Blades are highly harmful.



We recommend replacing the non-adhesive teflon coating that covers the base of the right die cutter and the sealing clamp yearly, always using material of the same quality and installing them in the same position as the original pieces

Check cellophane does not accumulate on the left die cutter, hindering operation.

The head of the peristaltic pump should be cleaned and lubricated with Vaseline at least once a month. The head can be detached using the tab included in the head pump itself.

If the equipment is not to be used for a long period of time, keep clean and dry and disconnect it from power and the pressure input.

Do not hit, drop or spill fluids on the equipment

**Danger:** Before performing any authorized maintenance task, check the area or elements to be manipulated lack power. Check electrical parts, as resistances, are not warm.



**Danger:** Before performing any authorized maintenance task, check the area or elements to be manipulated lack pneumatic pressure.



## Technical Specifications

**Voltage and frequency:** \_\_\_\_\_ 110 - 230 V / 50 - 60 Hz

**Maximum nominal power:** \_\_\_\_\_ 180 W

**Pressure input:** \_\_\_\_\_ 6 – 8 bar

**Air consumption:** \_\_\_\_\_ 20 l/min

**Rate:** \_\_\_\_\_ 650 blister per hour

**Sealing temperature:** \_\_\_\_\_ 165 °C +/- 5 °C

**External dimensions:** \_\_\_\_\_ 110 x 55 x 56 cm

**Approx. empty weight:** \_\_\_\_\_ 50 Kg

### Work conditions:

- Indoor use in laboratories
- Room temperature 5-40°C
- Maximum altitude 2000m
- Relative humidity from 80% at 31°C to 50% at 40°C
- Maximum power fluctuations +/- 10%
- Transient overpower category II.

## Troubleshooting

Problem	Possible causes	Solutions
The equipment does not start (the screen does not lit up)	<ul style="list-style-type: none"> <li>A. Wrong voltage.</li> <li>B. Blown fuse.</li> <li>C. Defective cord.</li> <li>D. Inner failure.</li> </ul>	<ul style="list-style-type: none"> <li>A. Select correct voltage in the switch.</li> <li>B. Change fuse.</li> <li>C. Change cord.</li> <li>D. Call the Technical Support Service.</li> </ul>
The equipment does not work when commanded	<ul style="list-style-type: none"> <li>A. Low pressure.</li> <li>B. Wrong start.</li> <li>C. Inner failure.</li> </ul>	<ul style="list-style-type: none"> <li>A. Check pressure value on the filter gauge (5-6 bar).</li> <li>B. Check all the elements are in the correct position.</li> <li>C. Call the Technical Support Service.</li> </ul>
Defective cut	<ul style="list-style-type: none"> <li>A. Low pressure</li> <li>B. Blades are worn out or wrongly placed.</li> <li>C. The rubber pieces of the die cutters are worn out or old.</li> </ul>	<ul style="list-style-type: none"> <li>A. Check pressure on the filter gauge (5-6 bar).</li> <li>B. Check blades.</li> <li>C. Check the state of the rubber pieces.</li> </ul>

<p>None or defective sealing.</p>	<p>A. Worn out silicon/ teflon on clamp. B. Blown cartridge heater. C. Broken thermostat</p>	<p>A. Check teflon and silicon. B. Change cartridge. C. Call the Technical Support Service.</p>
<p>The peristaltic pump is not working.</p>	<p>A. The tube is too hard. B. Failure of activation relay.</p>	<p>A. Use a tube made of silicon or a material recommended by the manufacturer (please consult). B. Call the Technical Support Service.</p>
<p>Water/ oil condenses in the bottle of the air filter.</p>	<p>The tank of the compressor accumulates excessive water.</p>	<p>A. Purge the compressor periodically. B. Install a dehydrating filter.</p>
<p>Blisters block after the first cut (left die cutter).</p>	<p>A. Accumulated cellophane on the pressure area of the die cutter. B. Worn out or wrongly placed blade. C. Blocked or broken expeller.</p>	<p>A. Disassemble the die cutter and the guides and clean. B-C. Call the Technical Support Service.</p>
<p>Blisters block after the second cut (right die cutter).</p>	<p>A. Accumulated dirt. B. Worn out or wrongly placed teflon. C. Worn out or wrongly placed blade</p>	<p>A. Disassemble the die cutter and the guides and clean. B. Replace the teflon piece for a new one and place correctly. C. Call the Technical Support Service.</p>

## Additional information and useful advice

For correct functioning of the equipment, consider the following:

- Disassemble and assemble the components that get dirty more often, as die cutters, safety cases-guide and the head of the peristaltic pump.

Cleaning is essential for a device that packages biological products and guarantees a smooth run without obstructions.

-Normally dosing precision is under +/-5 ml. We recommend checking and adjusting it at the beginning of each workday, as well as when replacing a used tube for a new one or any other material different from silicon but compatible with this type of pumps.

-We recommend to periodically clean and lubricate with Vaseline the head of the pump. A lubricated head pump reduces the wearing of the silicon tube.

-Blades should be substituted when they wear out or cuts are not correct. A blade that cuts incorrectly causes frequent blockages and stops.

-We recommend changing yearly the Teflon and rubber parts adhered to the front panel of the machine, the die cutters and the clamp. Such materials wear out with use and lose their initial properties. Always substitute these pieces for materials of the same quality and install them in the same position and place as the original parts.

-Check the quality of compressed air and power stability for operation of higher quality and extending the service life of the equipment.



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