

PlastVac

vacuum forming machine

instructions manual



**PlastVac
P7 Plus**

PlastVac P7

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► INTRODUCTION ◀

Plastvac P7 Bio-Art is multi-application equipment that, due to its easiness of use, has become indispensable in laboratories and odontological offices.

► PACKAGING CONTENTS ◀

Plastvac P7 127 or 220VAC.....	(01 unit)
Power cable.....	(01 unit)
Glass Beads.....	(250g)
Allen Wrench.....	(01 unit)
Heating Unit Handle.....	(01 unit)
Double-sided Cast rack.....	(01 unit)
User Manual.....	(01 unit)
Sheets Display.....	(01 unit)
Rotary Ring Handle.....	(01 unit)
Vacuum Activation Handle.....	(01 unit)

► INSTALLATION ◀

Plastvac P7 requires simple preparation and mounting before use.

• Handles: Thread the Vacuum Drive cables (the larger ones with M10 thread) by inserting the longer cable on the right side, according to the scheme below. The other cables (the smaller ones with M6 thread) should be threaded on the lower ring and the heating unit.

Note: For fixing function of the vacuum drive unit in the column, the action on the right cable does not require much strength, tighten clockwise with a little effort, enough to keep the drive unit in the heating position. To release the drive unit so that it slides into the column, just loosen the cable by spinning it half turn counterclockwise.

• Installation: The equipment must be installed in a ventilated area, free from moisture and excessive heat and must be placed on a flat table or bench. Do not place any material between the supporting base and the bottom of the machine to not interrupt the air outlet and compromise the equipment cooling.

• Electric Cable: Always check the correct equipment voltage before switching it on. The protection grounding used must be according to standard NBR5410 (Brazil) or the current standard in the importing country. Do not use the equipment on the same outlet where other products are plugged through any connections. The voltage variation allowed for the equipment power supply is $\pm 10\%$ of the rated voltage.

► INSTRUCTIONS FOR USE ◀

Plastvac P7 enables two plasticizing processes: Conventional and Rotary.

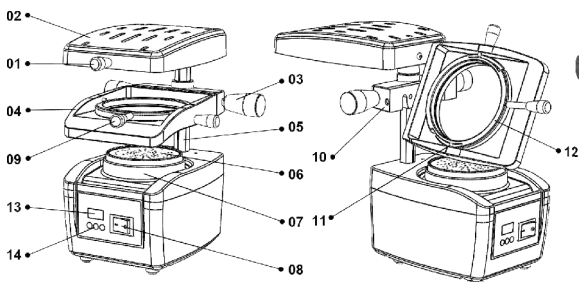
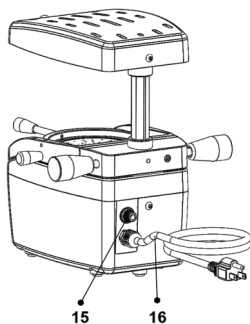


Figure 01

- 01 – Heating unit handle
- 02 – Heating unit
- 03 – Vacuum activation handles
- 04 – Sheet support (Larger ring)
- 05 – Column
- 06 – Double-sided cast rack (tray for bead and flat surface)
- 07 – Vacuum chamber
- 08 – Main switch
- 09 – Shorter ring handle
- 10 – Rotary lock screw
- 11 – Lock side pins of shorter ring
- 12 – Shorter ring
- 13* – Digital Timer display
- 14* – Control Panel (digital timer)

(* Only for PlastVac P7 PLUS model)



** Only for Certified 127V Model - Fixed cable

15 ** - Fuse holder (Fuse)

16 ** - Power cable

CONVENTIONAL PLASTICIZING PROCESS

1. To start the process, raise the sheet support up to the upper limit and turn the vacuum activation handle to the right in the clockwise direction to fasten the unit. Then turn the heating unit 180° in the clockwise direction, leaving it completely facing the posterior part of the equipment.
2. Put the cast in the double-sided cast rack and then place the set in the vacuum chamber.
3. To position the sheet, turn the shorter ring in the anticlockwise direction and remove it, position the sheet and invert the process to fasten it.
4. Return the heating unit to the initial position (aligned to the sheet support) and activate the main switch to start the heating process (the red light of the main switch will go on).
5. Plasticizing Point: Due to the existence of several types of sheets, the plasticizing point is identified by changes in the sheet, runoff or heating time. Generally the ideal point is observed by changes or sheet runoff (10 to 12 mm).

6. Upon reaching the plasticizing point, turn the vacuum activation handle (right) in the anticlockwise direction only enough to release sheet support and then lower the entire set completely through the two handles until it is inserted in the vacuum chamber and the vacuum will start automatically.

7. Turn the heating unit again in the clockwise direction to the back part of the equipment and leave the vacuum motor on until the conformation process is complete, which may take 10 to 20 seconds. Warning: Do not leave the motor on for more than 1 minute to avoid overheating.

8. Turn off the main switch and allow the model to cool down.

9. Turn the shorter ring anticlockwise to release the model and remove it.

ROTARY PLASTICIZING PROCESS

1. The equipment leaves the factory with the sheet support locked to avoid accidental rotation in the conventional process. It is necessary to loosen the screw with the 4 mm Allen wrench (item 10) provided with the equipment only enough to release the set.

Attention: In this process, just place the double-sided cast rack into the vacuum chamber after the heating process is complete.

2. After releasing the movement of the rotary system, follow the steps described in the conventional system up to step 4 to heat one side of the sheet.

3. To heat the other side, turn the heating unit clockwise to the back part of the equipment and then rotate the larger ring 180° in the anticlockwise direction until you hear a “click”, and with the other side of the sheet exposed upwards return the heating unit to the initial position and wait for the heating of this side of the sheet.

Attention: Never lower the sheet support when it is rotating.

4. Return the heating unit to the back part of the equipment and rotate the larger ring clockwise to the initial process position. Leave the first heated side of the sheet to heat a bit more.

5. After heating is complete, follow the step 6 of the conventional process to conclude.

PlastVac P7-PLUS enables two plasticizing processes, conventional and Rotary, monitored by a digital timer.

USING THE DIGITAL TIMER

1. Press the on/off button in the control panel to turn on the Digital Timer. Press set button once to modify timer setting, then press adjust button repeatedly to change first digit of display. Press set button to advance to next digit. Repeat until time is correct, then press set to confirm. A beep will signal that the timer is set and ready for operation.

2. Return the heating unit to the initial position (aligned to the sheet support) and activate the main switch to start the heating process. The red light of the main switch will go on and the timer will start to countdown.

3. Once the timer reaches zero, it will begin beeping, indicating that the sheet is ready to be thermoformed. Then, turn the vacuum activation handle (right) in the anticlockwise direction only enough to release sheet support and lower the entire set completely through the two handles until it is inserted in the vacuum chamber and the vacuum is started automatically.

4. Turn the heating unit again in the clockwise direction to the back part of the equipment and leave the vacuum motor on until the conformation process is complete, which may take 10 to 20 seconds. Warning: Do not leave the motor on for more than 1 minute to avoid overheating.

5. Turn off the main switch and allow the model to cool down.

6. The digital timer is activated (on/off) through the control panel, so when the main switch is turned off, the digital timer continues on. The time entered is always memorized.

7. Turn the shorter ring anticlockwise to release the model and remove it.

REMARKS:

- Follow the manufacturer's instructions for adequate heating times of the sheets. Attention to the sheet runoff since overheating can compromise the job and in extreme cases, the material can seep in the vacuum motor, causing damages.
- For heating both sides of the sheet using the timer, keep in mind to set enough time to heat both sides of the material according to the manufacturer's instructions.
- The sheet can be thermoformed at any time, before or after the timer reaches zero. Also, it can be operated without the timer, thereby, the plasticizing point and sheet runoff should be done visually.

Consult our website for more information on the plasticizing processes and details of the equipment:
www.bioart.com.br

► TROUBLESHOOTING ◀

PROBLEMS	LIKELY CAUSE	SOLUTION
Equipment does not start, the main switch light is off.	No power in the machine	Check the electric power line, power cable and protection fuse.
Main switch starts, but heating does not work.	Heating element is burnt.	Replace the heating element, call authorized technical service.
Heating is normal, but motor does not start.	End-of-course pin with some imperfection.	Replace or adjust the end-of-course pin.
Main switch starts, but heating and motor do not.	Internal wiring has problems.	Call authorized technical service.
Weak suction, insufficient plasticizing or without defined contour.	Check if the vacuum chamber holes are free.	Clean the holes with 1 mm Ø metallic pin.
	Check the type of plaster.	Do not use resined plaster.
	High model.	Use the double-sided cast rack on tray side or cut the model away.
	Damaged double-sided cast rack.	Replace the double-sided cast rack.
Rotary movement of sheet support is locked.	Rotary lock screw is tight.	Loosen the screw with the 4mm Allen wrench supplied with the equipment.
Rotary movement of the sheet support does not stop at the end of the course.	Misadjusted rotary pin.	Adjust the pin through the screw, according to the exploded drawing.
Vertical movement of the sheet support is very difficult.	Right cable of vacuum activation is tight.	Loosen the cable half way in the anticlockwise direction.
	Residues or dirt in the column.	Turn off the machine and clean the column with a dry cloth making vertical movements with the sheet support.
	Overheated machine causing excess expansion of the sliding elements.	Wait 30 minutes for the machine to cool down and resume work.
Motor housing is too hot	Motor housing is too hot.	Wait 30 minutes for the machine to cool down and resume work.
	Motor ventilation is blocked.	Check if the space between the support bases and cabinet bottom is not blocked.
Sheet loosens from the sheet support during plasticizing.	Insufficient tightening of the sheet through the lock ring.	Tighten a bit more and check the thickness of the sheet; the machine accepts sheets up to 6 mm thick.

► MAINTENANCE AND CLEANING ◀

Always keep the equipment clean and free from moisture, especially the heating element located in the heating unit. The heating element must not be touched by metallic tools or objects.

In case the heating element has to be replaced, it must be performed preferably by an authorized technical service.

In case the power cable is damaged, it must be replaced by another with the same characteristics and certifications.

The equipment column does not require lubrication; only keep it clean and free from dust and residues.

To order spare parts, consult the exploded drawing and inform the code and nomenclature of the desired part.

Fuse Replacement: Disconnect the power cable from the outlet before replacing the fuse.

It is highly recommended to purchase a similar fuse for replacement: Delayed actuation 5x20mm (12A/250V for 110 and 127V machines, 7A/250V for 220V machines and 10A/250V for 240V machines).

** Only for Certified 127V Model - Fixed cable

Remove the power cable from the mains to replace the fuse. It is recommended to use a similar fuse: QUICKACTION FUSE Ø6.3 X 32MM 15A/ 250V

► TECHNICAL SPECIFICATIONS ◀

Voltages: Unique voltage 110 or 127 or 220 or 240V~ 50/60 Hz

Consumption Power: ~925W

Heating Power: 450 W

Motor Power: 1400 W

Sheet Dimensions: Up to 6 mm thick

Round sheet: Ø134mm / Square sheet: From 120x120mm to 130x130mm

Dimensions: (WxDxH): 275 x 260 x 310 mm (without packaging) / 197 x 267 x 337 mm (with packaging)

Weight: 4.600 kg (without packaging)/5.700 kg (with packaging)

Pollution Degree: 2

Protection Degree: IPX1 (Protected against splatter)

Noise Level: Motor ~90 dB to 0.50M

► WARRANTY AND TECHNICAL ASSISTANCE ◀

Bio-Art Equipamentos Odontológicos Ltda., gives one (1) year warranty as from the date of purchase of the product (purchase invoice). The warranty is granted exclusively by the authorized distributor and includes any manufacturing defect, provided through repairing of the unit and limited to the following requirements:

- The product was used correctly, according to the instructions provided in the present manual;
- The complaint is provided with the purchase invoice and registered within the warranty period, followed by a report with description of the defect and serial number of the product;
- The equipment is carefully handled, transported and stored;
- The cost of transportation (to and from) is paid by the customer.

The warranty excludes defects caused by:

- Natural wear of the parts;
- Misuse, hits and accidental falls;
- Inappropriate Transport;
- Repair by unauthorized personnel;
- Use not in compliance with the characteristics and purposes of the product;
- Wear by exposure to adverse conditions (moisture, intense cold or heat);
- Damages due to lack of cleaning or maintenance with unsuitable products.

In case of doubts, please consult the manufacturer:

► EUROPEAN AUTHORIZED REPRESENTATIVE ◀

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► DECLARATION OF CONFORMITY ◀

This machinery fulfills all the relevant provisions of the European Council Directive 2006/42/EC (Machinery); of the Directive 2014/30/EU of 26 February 2014 (Electromagnetic compatibility) and of the Directive 2014/35/EU of 26 February 2014 (Low voltage).

European Harmonized Standards to which Conformity is Declared:

ISO 12100:2010 - Safety of Machinery - General principles for design - Risk assessment and risk reduction;

IEC/CISPR 14-1 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission;

IEC/CISPR 14-2 IEC/CISPR 14-2 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity – Product standart;

EN 61000-4-2 Electrostatic discharge;

EN 61000-4-4 Electrical Fast transient and burst;

EN 61000-4-6 Conducted disturbance induced by RF fields;

EN 61000-4-5 Surges test;

EN 61000-4-11 Electromagnetic compatibility (EMC) Testing and measurement techniques;

IEC 61010-1:2010 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements;

► **INSTRUCTION FOR STORAGE AND TRANSPORTATION OF THE PRODUCT**

During transport, ensure that the machine is properly packaged to avoid damage caused by the machine possibly falling during transport.

Rev: CMA/25-49 / - Nov/2023



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