



Vacuum pressing device *for* **2** press



REF 140 0060 0, Made in Germany

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1.3 Product description

The vacuum pressing device „for2 press“ is intended for processing the high performance polymer resin BioHPP for bridge and crown structures. It can also be used for other indications of BioHPP. In order to be able to process BioHPP in the vacuum pressing device, BioHPP must be melted in a conventional preheating furnace in the investment muffle (ring). Once BioHPP has been melted, it is placed (with the investment muffle) into the vacuum pressing device and the pressing process is fully automatic. The entire pressing process including cooling time takes approx. 40 minutes. For details about the process, please refer to the processing instructions.

1.4 Scope of delivery

- 1 „for2 press“ vacuum pressing device
- 2 Operating and maintenance instructions
- 3 Power cord
- 4 Compressed air hose
- 5 Replacement fuse
- 6 Pneumatic maintenance unit (optional)

1.5 Assemblies, functional and control elements

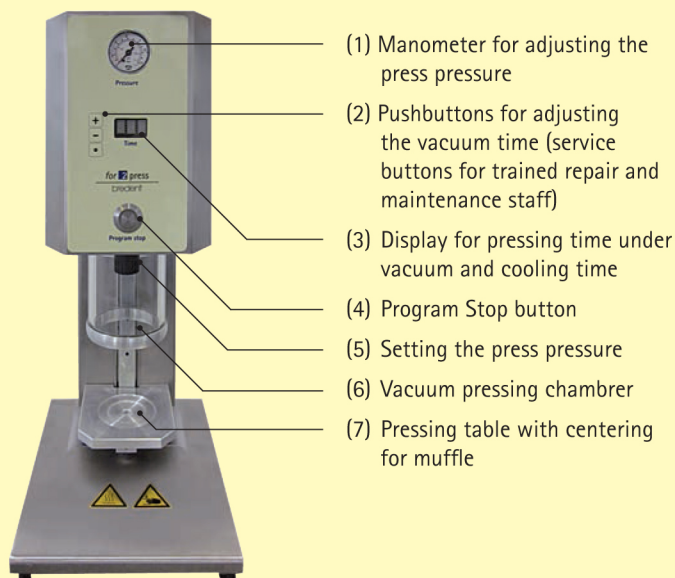


Figure 1: Front of the vacuum pressing device

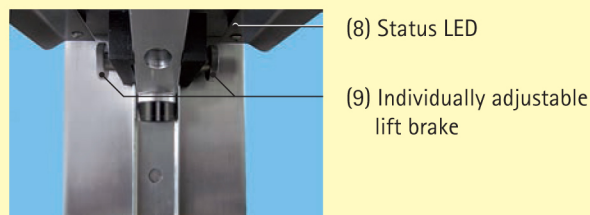


Figure 2: Motion element (pressing table)

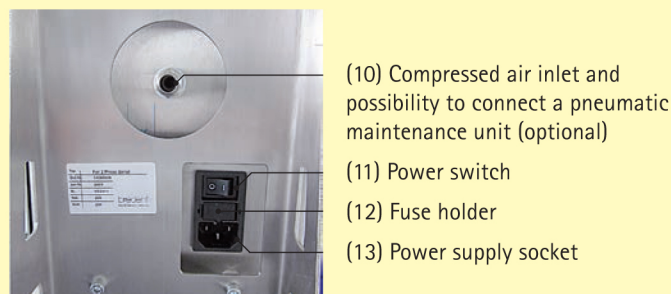


Figure 3: Rear with connections

1. Introduction

Thank you for choosing the pneumatic vacuum pressing device for processing the high-performance polymer resin BioHPP. We hope you will enjoy trouble-free and successful usage. These operating instructions include all the information required for operating the vacuum pressing device.

1.1 Information about these instructions



These operating and maintenance instructions include all the information and descriptions required for operating the vacuum pressing device. This documentation has been prepared with utmost care. If you have any suggestions, please do not hesitate to contact us.

1.2 Symbols used



Serial number



Observe accompanying documents



Temperature limits
Lower limit: 0° C
Upper limit: 40° C



Dry storage



Warning of hot surface



Warning against hand injuries



Warning against dangerous electrical voltage

2. Safety

2.1 Intended use

The vacuum pressing device is intended to be used for the operational conditions described in the section „Technical data“ in conjunction with a preheating furnace.

Any other use is considered as improper use. Any alteration or extension carried out without the explicit written approval of the manufacturer, use of non-OEM spare parts and repair performed by organizations or persons not authorized by the manufacturer may invalidate the warranty.

2.2 Selection of staff and qualification

Persons who work with the vacuum pressing device must

- be at least 18 years old.
- be adequately trained to perform the respective activities.
- know and observe the relevant technical regulations and safety requirements.

The user decides on the required qualifications for the

- operators
- maintenance staff

The user has to ensure that only authorized staff work with the vacuum pressing device.

Staff to be trained or guided, including vocational trainees, may work with the unit only if continuously supervised by an experienced operator! Any work or repair of the vacuum pressing device may only be carried out by trained staff and only if all provisions regarding accident prevention are adhered to.

The user has to ensure that persons responsible for assembling, operating and maintaining the vacuum pressing device have always immediate access to these operating and maintenance instructions.

2.3 Dangers when using the vacuum pressing device

The use of this vacuum pressing device entails possible dangers listed below. Thorough instructions and training of the operators help to minimize dangers for persons and facilities. Regular tests of the level of know-how and compliance with safety requirements contribute significantly to safe and successful long-term operation.

2.4 Safety information

The relevant safety and hazard information can be read on the base plate of the device. The user has to ensure that this information is always updated and can be clearly read.

2.5 Danger due to hot surfaces



The vacuum chamber and the pressing table of the device may become very hot when the device is operated. There is a risk of burns when touching the vacuum chamber and the pressing table. It is mandatory to wear personal protective equipment.

2.6 Warning against hand injuries



The table is lowered automatically during the pressing process. Please make sure that there are no objects or limbs below the pressing table to avoid malfunctions and injuries.

3. Initial start-up

3.1 Transporting the vacuum pressing device.

Use the original packaging for transport purposes.

3.2 Unpacking and setting up the vacuum pressing device

- Remove the transport safety device (polystyrene block between pressing table and upper part of housing)
- Place the vacuum pressing device on a flat, non-flammable and sufficiently stable surface.
- Connect power cord to power supply and compressed air line to the compressed air connection (socket).

3.3 Basic settings

3.3.1 Dynamic input air pressure

The input air pressure must be between 4.5 bar and must not exceed 6 bar. If the dynamic input air pressure of the compressed air line exceeds 6 bar, a pneumatic maintenance unit (available as an option) needs to be connected to the compressed air connection of the vacuum pressing device to be able to reduce and adjust the excessive pressure of the compressor to the values required.



Note: Prior to and during the pressing process the input air pressure must not drop below the adjusted press pressure to avoid the risk that the mould is not completely filled. If the press pressure is below 4.5 bar, the display of the device shows an error message (see section 6.2 Eliminating malfunctions).

The vacuum pressing device has been set by default in a way to avoid the necessity of additional settings for initial start-up. Depending on the muffle (ring) size (size 3 or size 9) that is used, the press pressure needs only to be adjusted in accordance with the instructions for use of the high-performance polymer resin „BioHPP“.

3.3.2 The lift brake of the pressing table

The lift brake of the pressing table slows down the lift in a way to ensure that sufficient press pressure is exerted on the investment press plunger when the table is automatically lowered, which contributes significantly to achieving reproducible pressing results. The lift brake can be individually adjusted by turning the knurled screws located on both sides.

3.3.3 The press pressure

The individual press pressure must be adjusted in accordance with the muffle size and the diameter of the investment press plunger.

Counter-clockwise turn = Press pressure is increased

Clockwise turn = Press pressure is reduced

4. Workplace and visual check

4.1 Workplace

The user must provide a workplace in accordance with applicable regulations. The workplace must have adequate illumination.

The vacuum pressing device should be set up very close to the preheating furnace since „BioHPP“ is melted in the preheating furnace and then immediately (max. 10 sec.) placed into the vacuum pressing device and the pressing process is started.

Note: To avoid excessive cooling of the investment muffle, it is recommended to place the vacuum pressing device directly next to the preheating furnace.

4.2 Visual check



Warning: Should components be missing or loose, persons may be injured. Check whether all mechanical components are secured. If defective components or loose fastening parts are found, the device may only be operated after professional repair of the pressing device.

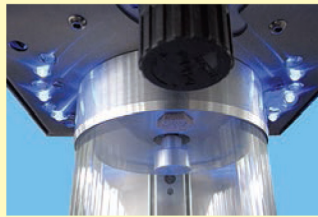
5. Operation

5.1 Operation modes (status LED – display and lift positions)

Stand-by mode:



Ring light is not lit.



Status LED is lit blue.



Pressing table in lowest position.

Pressing process:



Ring light is lit red.



Status LED is lit red.



Pressing table in uppermost position.

Cooling process:



Ring light is lit red.



Status LED is lit red.



Pressing table in lowest position.

Error prior to the pressing process (dynamic input air pressure too low):

Status LED flashes.

5.2 Preparing for melting in the preheating furnace

The wax model is attached to the muffle former in accordance with the processing instructions „for 2 press“. Then the silicone ring is attached and the investment material „brevest for 2 press“ is stirred using a vacuum mixing unit and then filled into the muffle. The investment material needs to set for 20 minutes before it is placed into the preheating furnace.

5.3 Melting process in the preheating furnace

The investment press plunger „for 2 press filler“ must be preheated together with the investment muffle. After the maximum preheating temperature of *850°C is reached (when pressing on) and after a holding time specified in the processing instructions, the mold and the press plunger need to cool down to the melting temperature of 400°C at a maximum cooling rate of 5°C/min. After a waiting period of 20 min. at 400°C, BioHPP is filled into the melt reservoir of the investment muffle. The quantity of BioHPP depends on the wax weight of the model (see wax conversion table in the processing instructions „for 2 press“). After a melting period of 20 minutes, the preheated plunger is inserted into the melt reservoir of the muffle and slightly pressed down using muffle tongs. The marking on the plunger must be visible. Then the muffle with the attached plunger and the molten BioHPP can be placed onto the pressing table of the „for 2 press“ pressing device.

5.4 Pressing process

As soon as the preheated muffle (with the press plunger being placed on) is placed on the pressing table, the pressing table needs to be moved upward manually.

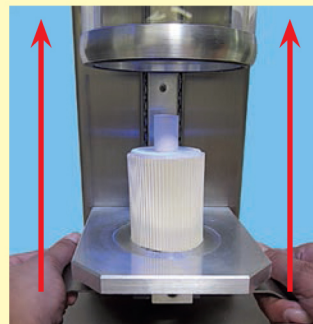


Figure 4: The pressing process is started automatically by moving the pressing table upward.

The vacuum is built up automatically and the status LED changes from blue to red when the required vacuum has been built up.

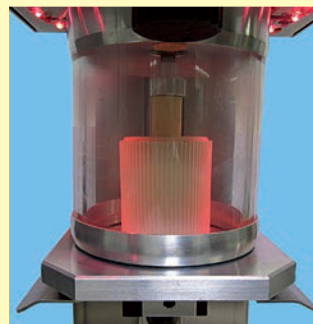


Figure 5: As soon as the required vacuum is built up in the vacuum chamber, the status LED changes from blue to red.



Note: Unless sufficient pressure is exerted on the silicone seal (with the pressing table) or the silicone seal is contaminated, a vacuum can not be built up inside the vacuum chamber, which is indicated by an acoustic signal; in this case the status LED flashes. Then the Press-Stop button needs to be pushed and the pressing process can be started again by raising the pressing table.

* When pressing BioHPP over titanium abutments or titanium prosthetic caps an end temperature of 630° C should not be exceeded!!!



Figure 6: If an acoustic signal is heard immediately after activating the pressing process and the status LED flashes, the Program Stop button must be pressed immediately and the pressing process can be started again.



Note: The investment muffle must not cool down excessively and it is recommended to repeat the pressing process not more than once.

As soon as the vacuum for the pressing process has been built up in the vacuum chamber, the pneumatic cylinder is pressed on the disposable plunger and BioHPP is pressed into the cavity of the muffle. At the end of the vacuum time, the vacuum in the vacuum chamber is released and the pressing table moves automatically to the lowest position. Then the cooling process (35 minutes) starts while the required press pressure is maintained. At the end of the pressing process an acoustic signal can be heard and the muffle can be taken out and devested using a pneumatic deflasking chisel.

6. Maintenance

6.1 Maintenance intervals

Interval	Where	What to do
Regular, depending on the use	Pressing table	Clean the pressing table. Remove dust, investment particles and other particles/substances.
Regular, depending on the use	Silicone seal of the vacuum chamber	Clean the silicone seal. Remove dust, investment particles and other particles/substances.

6.2 Eliminating malfunctions

The fully automatic vacuum pressing device „for 2 press“ continuously monitors the operating conditions (pressure and vacuum) required to achieve a perfect pressing result. If the display shows an error (error code), the following measures can be used to eliminate the error.

Error/Info	Cause	Message	Remedy
E0 „Program Stop“ button was pressed.	Active program aborted manually.	- red LEDs off - blue LEDs off - „Program Stop“ button is lit red - Display: E0 - Acoustic signal: duration: 5 sec.	Press „Program Stop“ button.
E1 Not ready for operation.	Pressing table in uppermost position when device is switched on.	- blue LEDs flash - Display: E1 - Acoustic signal: duration: 5 sec.	Move pressing table to lowest position. Press „Program Stop“ button.
E2 Not ready for operation.	Dynamic input pressure of compressed air line below 4.5 bar.	- blue LEDs flash - Display: E2 - Acoustic signal: duration: 5 sec.	Adjust input pressure Press „Program Stop“ button.
E3 Negative system pressure - Insufficient vacuum after vacuum has been built up or vacuum not built up within 2 to 3 sec.	Pressing chamber not tight due to contamination.	- red LEDs flash - Display: E3 - Acoustic signal: duration: 5 sec.	Clean pressing table and rubber seal below the glass cylinder. Press „Program Stop“ button.

Error/Info	Cause	Message	Remedy
E4 Input air pressure drops below 4.5 bar during the pressing process. Pressing process is not aborted! User can decide whether to abort the program.	Owing to the use of other devices, the dynamic input pressure of the compressed air line has decreased during the pressing process.	- red LEDs flash - Display: E4 - acoustic signal: duration: 5 sec.	Switch of other devices that reduce the pressure. Press „Program Stop“ button.
E5 Vacuum drops below the limit during the pressing process. Pressing process is not aborted! User can decide whether to abort the program.	Pressing chamber not tight due to contamination. Owing to the use of other devices, the dynamic input pressure of the compressed air line has decreased during the pressing process.	- red LEDs flash - Display: E5 - acoustic signal: duration: 5 sec.	Clean pressing table and rubber seal below the glass cylinder. Switch of other devices that reduce the pressure. Press „Program Stop“ button.
E6 Process aborted. Pressing process aborted. Insufficient vacuum. Pressing table is moved to the lowest position.	Sudden drop of dynamic input pressure of the compressed air line caused by the use of other devices. Pressing chamber not tight due to contamination.	- red LEDs off - blue LEDs off - Display: E6 - acoustic signal: duration: 5 sec	Clean pressing table and rubber seal below the glass cylinder. Switch of other devices that reduce the pressure. Press „Program Stop“ button.

7. Technical data

Voltage	90 - 250 Volt, 50 - 60 Hz
Power consumption	15 Watt
Vacuum capacity Venturi nozzle	approx. 760 mbar
Weight	13 kg
Dimensions (W x H x D)	250 x 600 x 290 mm
Protection class	IP 34
Noise level	< 70 dB
Input air pressure	at least 4.5 to max. 6 bar
Device fuse	T 2.5 A

8. Exclusion of liability

breident GmbH & Co. KG does not accept any claims for damages or warranty:

- if the product is used for any purposes other than those specified in the operating instructions.
- if the product is altered in any way other than those alterations described in the operating instructions.
- if the product is repaired by other than an authorized dealer or if any but breident OEM parts are used.
- if the product continues to be used/operated despite apparent safety shortcomings or damage.
- in the case of mechanical impact or if the device is dropped.

9. Warranty

If the unit is used properly, breident GmbH & Co. KG warrants all parts of the vacuum pressing device for a period of 1 year. In case of any claims for warranty the original dealer's invoice is required. Parts which are subject to natural wear and tear and consumer products (such as the silicone seal, etc.) are excluded from the guarantee.

The guarantee is voided in case of improper use, failure to observe the operating, cleaning, maintenance and connection instructions; in case of independent repair or repair by inadequately trained staff; if spare parts from other manufacturers are used and in case of unusual influences or influences not in compliance with the instructions for use. Warranty service shall not extend the original warranty.

10. Disposal



The vacuum pressing device must be disassembled by authorized and trained staff. The vacuum pressing device must be disposed of in an environmentally safe way. Electrical parts must not be disposed of with household waste 2002/96/EG (WEEE).