

Operating Instructions

Pneumatic Ejector Device

Model PAB-P



Type:

PAB-P

ID No.:

592-820-628

Name and address of manufacturer:

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1 Introduction

Congratulations, you have just purchased an extremely reliable sand testing instrument that is backed by the professional technical support and years of proven sand technology experience of Simpson Technologies .

This laboratory equipment is constructed of quality materials and is the result of unsurpassed craftsmanship. The Pneumatic Ejector Device should be operated only when it is in perfect condition, in accordance with its designed purpose and being aware of possible hazards. Observe the safety instructions in Section 2 and operating instructions in Section 5.

1.1 Application and Designated Use

The Pneumatic Ejector Device, Model PAB-P, is intended exclusively for the ejection of compacted green and core sands. Usage of other materials may be possible upon consultation with the Service department of Simpson Technologies (service@simpsongroup.com).

Any other application outside the intended usage will be regarded as use not in accordance with its purpose, and, therefore, the manufacturer/supplier will not be held liable for any damage that might arise thereunder. The risk in this case will be exclusively that of the user.

Introduction 1

1.2 Organizational Measures

The operating instructions should be readily available at the place of operation. In addition to the operating instructions, the general legal regulations or other mandatory rules for prevention of accidents and environmental protection should be made known and be observed!

The personnel instructed to use this apparatus, before beginning work, should have studied and fully understood these Operating Instructions, in particular the “Safety” chapter.

No modifications, extensions or changes of design of the device that would impact safety requirements should be put into effect without prior consent of the supplier! Spare parts must conform to the technical specifications defined by the manufacturer. This is always guaranteed when using original spares.

2 Safety

NOTICE

Before operating and/or performing maintenance or repair on Simpson Technologies designed and/or manufactured equipment, it is required that all personnel have read and understood the entire Operation Maintenance manual. If any questions exist, you must contact your supervisor or Simpson Technologies before taking further action.

If properly operated and maintained, your Simpson Technologies supplied equipment can provide many years of dependable and safe operation. Please follow all recommended safety, operating, and maintenance instructions. Furthermore, the introduction of any non-Simpson Technologies manufactured and/or approved parts to the equipment may create a hazardous situation. Never alter the equipment without prior consultation with Simpson Technologies.



DO NOT use this machine for purposes other than that for which it is intended. Improper use could result in death or serious injury.

2.1 Safety Signs and Labels

Simpson Technologies has incorporated the ANSI Z535.6 / ISO 3864-1-2 safety symbol only label format on all of its laboratory equipment.

The harmonized ANSI Z535.6 format became an established safety label format since it not only fully meets the current ANSI Z535 standards, but also incorporates ISO 3864-2 symbols into the hazard severity panels and thus, can be used for both the U.S. and international markets.

2 Safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. OBEY all safety messages that follow this symbol to avoid possible injury or death.



DANGER! Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



The safety alert symbol used without a signal word to call attention to safety messages indicates a potentially hazardous situation which, if not avoided, could or may result in death or minor injury.

NOTICE

NOTICE indicates information used to address practices not related to personal injuries but may result in property damage.



This symbol indicates information containing important instructions concerning the use of the machine or directions for further procedures. Ignoring this information can lead to malfunction of the machine.

2.1.1 Safety Symbol Labels



HAND CRUSH / FORCE FROM ABOVE

(STC #998-4727)

This label is located on the lower front at the center of the unit above the ejection cylinder.

The compacting head moves down, driven by a pneumatic cylinder, which may **crush** or **cut** body parts. Follow **Lockout and Tagout** procedures before servicing.



EXPLOSION / RELEASE OF PRESSURE

(STC #217945)

This label is located on the back of the unit next to pneumatic tubing connections.

With pneumatic pressure present, disconnecting or cutting the pneumatic tubing will release the pressure contained within the tubing. Blown-out air with or without solid particles in the air stream may get into the eyes and may irritate or damage the eye. Follow **Lockout and Tagout** procedures before servicing.



READ AND UNDERSTAND ALL SERVICE MANUAL INSTRUCTIONS

(STC #998-4731)

This label is located on the front of the unit at lower right hand corner.

Before operating and/or performing any maintenance or repair on Simpson Technologies designed and/or manufactured equipment, it is required that all personnel read and understand the entire Operating Instructions manual. All protective guards and covers shall be installed, and all doors closed before operating the equipment. If any questions exist, you must contact your Supervisor or Simpson Technologies before taking further action. Follow Lockout and Tagout procedures before servicing.

2 Safety

2.2 Lockout and Tagout System Procedure

NOTICE

*Whenever performing any type of maintenance or repair, whether in the form of cleaning, inspection, adjustment, mechanical or electrical maintenance, the equipment must be rendered into **Zero Mechanical State (ZMS)**.*

Prior to any maintenance (routine or otherwise) or repair of equipment, a safety procedure should be established and maintained. This procedure should include training of personnel, identification and labeling of all equipment which is interlocked mechanically, electrically, through hydraulics, pneumatics, levers, gravity or otherwise, and a listing of the established lockout procedures posted on each piece of equipment.

"Lockout and Tagout" refers to specific practices and procedures to safeguard personnel from the unexpected energizing of machinery and equipment, or the release of hazardous energy during service or maintenance activities. This requires, in part, that a designated individual turns off and disconnects the machinery or equipment from its energy source(s) before performing service or maintenance, and that the authorized employee(s) lock or tag the energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify that the energy has been isolated effectively.

2.2.1 Lockout and Tagout Devices

When attached to an energy-isolating device, both lockout and tagout devices are tools used to help protect personnel from hazardous energy. The lockout device provides protection by holding the energy- isolating device in the safe position, thus preventing the machine or equipment from becoming energized. The tagout device does so by identifying the energy-isolating device as a source of potential danger; it indicates that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

2.2.2 Glossary:

Authorized Person(s) - Personnel who have been designated by his/her department to perform maintenance or service on a piece(s) of equipment, machinery or system, and are qualified to perform the work through proper training on the Lockout/Tagout procedures for the equipment, machinery or system.

Lockout - The placement of a lockout device on an energy isolating device, in accordance with an established procedure, to ensure that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device - Any device that uses positive methods, such as a lock (either key or combination type), to hold an energy isolating device in a safe position, thereby preventing the energizing of machinery or equipment. When professionally installed, a blank flange or bolted slip blind are considered equivalent to lockout devices.

Tagout - The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that

2 Safety

the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout Device - Any prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure. The tag indicates that the machine or equipment to which it is attached is not to be operated until the tagout device is removed in accordance with the energy control procedure.

Zero Mechanical State - The mechanical potential energy of all portions of the equipment or machine is set so that the opening of pipes, tubes or hoses, and the actuation of any valve, lever or button, will not produce a movement which could cause injury.

3 Short Description and Specifications

3.1 Description

The Pneumatic Ejector Device PAB-P is designed exclusively for the ejection of compacted green and core sands. It permits a test specimen, which has been manufactured in accordance with VDG (Verein Deutscher Gießerei Fachleute) standards, to be ejected without any further compaction.

Tests have shown that, depending on how the test specimen is ejected, it can experience further compaction. This additional compaction falsifies the results of later measurements, e.g., the compressive strength.

In contrast to manual ejection, which is subjected to a certain “personal factor,” the PAB-P eliminates this human influence.

With the PAB-P, the test specimen is pushed out pneumatically by the extending cylinder and simultaneously the test specimen tube is cleaned. Core sand specimens, without a split test specimen tube, can also be safely ejected.

3.2 Specifications, Dimensions and Weights (Approximate)

Specifications	Pneumatic Ejector (Model PAB-P)
Height	710 mm (28.0 in.)
Length	180 mm (7.0 in.)
Width	255 mm (10.0 in.)
Weight	29 Kg (64 Lbs.)
Power	None

4 Unpacking and Installation

4 Unpacking and Installation

4.1 Unpacking

NOTICE

Your new equipment has been closely inspected before being shipped to your plant. However, damage can occur en route, so it is wise to inspect all equipment on arrival. Notify both the carrier and Simpson Technologies of any damage at once. Damage should be noted on the shipper's receipt before signing for receipt of the shipment.

The Pneumatic Ejector Device, Model PAB-P, is shipped in one piece and is intended to be used as received; no further assembly/disassembly is required. No lifting equipment is required for handling. The Pneumatic Ejector Device weighs only **29 Kg (64 lbs.)**.

4.2 Transportation

Check the complete delivery for transport damages upon receipt and completeness of the order in accordance with the Packing List.

Any transport damage or missing parts should be reported immediately to the both the carrier and equipment supplier.

The packaging remains the property of the customer and can be used for any eventual return transport for repairs.

The device must not be stored outdoors or subjected to adverse weather conditions. If this is ignored, any guarantee demands will no longer be considered

4.3 Supporting Surface

The PAB-P must be installed on a solid, horizontal base.

4.4 Compressed Air Pressure

The PAB-P should be connected to the factory compressed air line. The connection for this is located on the rear of the device.

If the compressed air is contaminated with oil, water, etc., the customer must install a conditioning unit (FRL).

4.5 Settings

Install the PAB-P (Section 4.3).

Compressed Air

Set the compressed air supply to 4min. – 8max. bar. Open the supply from the factory airline.

4.6 Airborne Noise Emission

Regarding airborne noise emission by the Pneumatic Ejector Model PAB-P-BA, there is no motor or other noise emitted by this equipment. As such, the equivalent continuous A-weighted sound pressure level at the workstation does not exceed 70dB(A).

5 Operating Instructions



For more information on how to use and care for your Simpson Analytics equipment and accessories visit our Simpson Technologies channel on YouTube and search our library of videos. Subscribe to our channel to keep updated on new releases.

5.1 Operating Components and Functions

The push button activates a valve, and the piston extends downwards. When the button is released, the piston retracts to the basic position.

5.2 Test Specimen Ejection

Procedure:

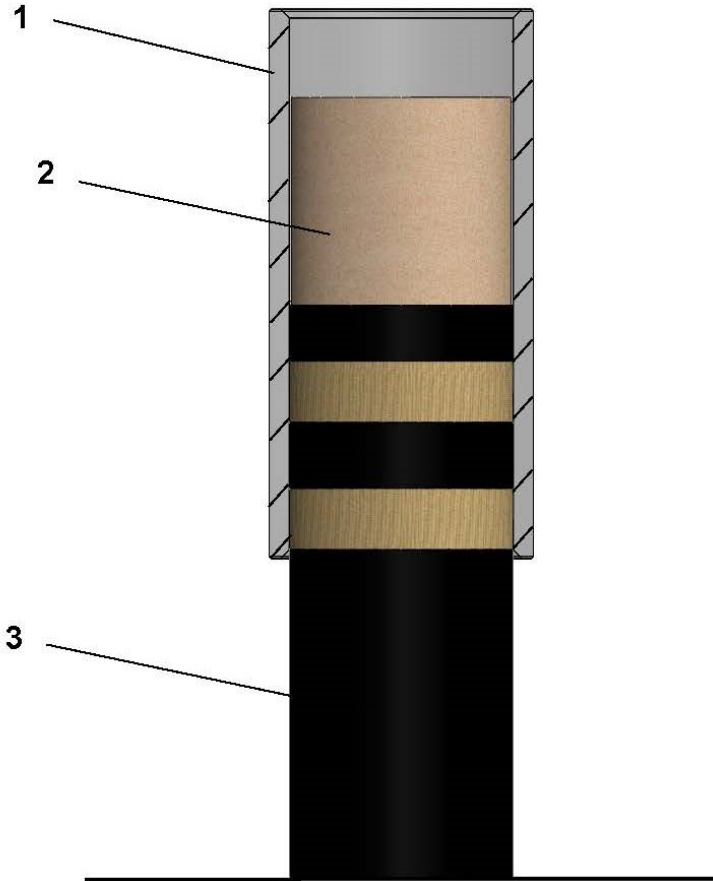


The button activates the valve. The piston extends downwards and pushes the test specimen tube, which is positioned on the ejector pin, over and off the test specimen.

Danger! Always wear protective spectacles when working with the PAB-P.

To eject the test specimen proceed as follows:

1. The PAB-P must be in the basic position, i.e., the piston is retracted.
2. Using the handle, pull the slide with the ejector pin outwards until the test specimen tube can be placed in position.
3. Place the test specimen tube with the test specimen, with the filling side downwards, on the ejector pin (see Fig. 5-1).
4. Using the handle, push back the ejector pin with the test specimen tube against the end stop.
5. Press the push button "Eject" until the piston has extended to the end position. The test specimen tube has now been completely removed from the test specimen.
6. Release the push button. The piston returns to the original position (basic position).
7. Using the handle, pull the slide with the ejector pin outwards.
8. Lift the ejected test specimen from the ejector pin.
9. Pull the test specimen tube over the ejector pin. Simultaneously, the test specimen tube is cleaned by the cleaning skin on the ejector pin.
10. Repeat the process with further test specimen tubes with test specimens or push back the handle and finish work.
11. On completion of the work, clean the device to remove any sand deposits, preferably with a soft brush or cloth. In order to clean the device, the slide with the ejector pin can be completely removed from the guides.



Test Specimen Ejection - Figure 5-1

Item	Description
1	Specimen Tube
2	Specimen Sample
3	Ejector Pin

5.3 Hot or Coldbox Test Specimen Ejection

The procedure is similar to that described above (Section 5.2) However, before the test specimen tube is placed on the ejector pin, a dry plate (see Spare Parts for Order No.) is first placed on the ejector pin. This serves to stabilize the ejected test specimen during the curing phase.

5.4 Shutdown

Prior to a long interruption in operations, clean the apparatus and slightly oil its blackened parts. Store in a place protected from environmental influences.

Before disposing of the apparatus, respect the national regulations in force regarding the disposal of scrap iron, electronic components and plastics.

5.5 Fault Finding

Fault elimination requires a knowledge of technical issues and a corresponding apprenticeship. For these reasons, the following points may only be carried out by suitable trained personnel.

	Fault	Cause	Solution
1.	Piston does not move	Problem with air connection	Check air connection (Chapter "4.4")
2.		Pneumatic valve defective	Check valve and replace when necessary
3.		Pneumatic hoses defective or incorrectly connected	Replace or connect correctly
4.		Piston defective	Free piston movement or replace piston

6 Daily Maintenance

6 Daily Maintenance



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Despite its robust construction, the Pneumatic Ejector Device, Model PAB-P, is a precise Pneumatic measurement device and needs appropriate care.

6.1 Daily Maintenance

- Keep the Pneumatic Ejector surface clean so that buildup of sand does not occur, use a soft brush or cloth to remove any sand deposit on the device.

No.	Check	Activity / Relative values	Frequency				
			◆	d	w	m	A
1.	Sand deposits on device	Remove with brush or cloth		?			

- Frequency: d = Daily
w = Weekly
m = Monthly
3m = Every 3 months (Quarterly)
A = Yearly
◆ See supplier information
* Not illustrated

Otherwise, no further maintenance is required.

7 Apparatus Layout

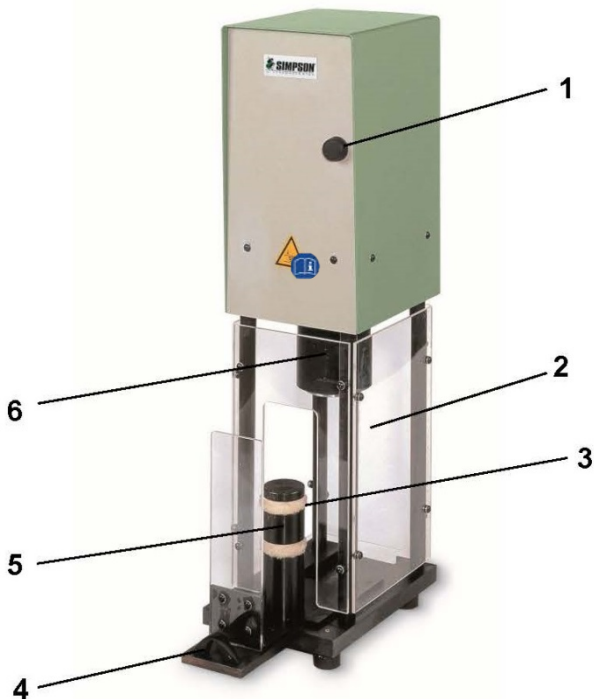


Figure 7-1

Item	Description
1	Push button "Eject"
2	Protection cover
3	Cleaning skin
4	Handle
5	Ejector pin
6	Ejection cylinder

8 Parts List / Ordering Parts / Returns

8 Parts List / Ordering Parts / Returns

8.1 Spare Parts List PAB-P

(See Apparatus Layout page)

Item	Part Number	Description
*	596-441-539	Pneumatic cylinder
*	596-063-237	5/2 Directional control valve
*	596-417-029	Silencer
*	596-440-079	Throttle valve B
*	596-440-078	Throttle valve A
3	-	Cleaning skin
1	-	Push button
*	9277-4070	Dry plate

* Not illustrated.

8.2 Ordering Replacement / Spare Parts

The source of replacement parts for your Simpson Analytics equipment is just as important as the make of the equipment you purchase. ALWAYS order parts for your Simpson Analytics equipment directly from Simpson Technologies. To find the Simpson office closest to you please visit us on the internet at www.simpsongroup.com on the "Contact" page.

Contact our sales department to obtain a quotation on replacement parts or service please always include the equipment serial number, the description of the part and the part number. Your Simpson Technologies sales team representative will provide you with a quote on the items with current price and delivery times. When ordering, please always refer to the quote number on your order.

To arrange for calibration support or repair assistance please contact our customer service department at service@simpsongroup.com:

8.3 Return Goods Policy

Simpson Technologies strives to provide their customers with maximum follow up support and, in order to offer the most practical flexibility, the following conditions apply to returned goods. Adherence to these procedures will assure the most prompt and efficient service.

RETURNS WILL BE CONSIDERED IN THE FOLLOWING SITUATIONS:

- Products ordered in error by customer (subject to a restocking charge).
- Incorrect or defective products shipped to customer.
- The return of existing products for factory repair or upgrade.
- Products ordered correctly but which are unwanted or unsuitable (subject to a restocking charge).
- A Safety Data Sheet (SDS) must accompany material that is sent to Simpson Technologies for testing purposes. Simpson Technologies will NOT authorize the return of hazardous materials.

RETURN PROCEDURE:

- **The customer must obtain a Return Material Authorization Number (RMA#) from Simpson Technologies prior to returning the goods.**
- To obtain an RMA#, the customer should contact the Customer Service department by phone, fax, e-mail to service@simpsongroup.com. The material being returned must be identified and the reason for its return clearly specified. Once approved for return, Simpson Technologies will issue the customer an RMA form to be included with the shipment and with instructions on where and how to ship the goods.
- All returned goods are to be shipped with transportation charges PREPAID, unless otherwise agreed when the RMA# is assigned. If it has been predetermined that return goods are to be shipped COLLECT, Simpson Technologies will specify the desired routing.
- All returned shipments will be subject to inspection upon arrival at Simpson Technologies.
- Material returned without an RMA# may be refused and returned at customer's expense.

9 Decommissioning



*Before doing any work, review the Safety Procedures in Section 2 and **Lockout/Tagout** all the power sources to the machine and peripheral equipment.*

Failure to follow safety procedures could result in serious injury.

Use qualified personnel and follow safety procedures, applicable local policies and regulations in decommissioning the Pneumatic Ejection Device.

WASTE DISPOSAL

The Machinery and Controls Consists of:

- Aluminum
- Copper
- Plastic
- Electronic Components and Circuit Boards

Dispose of the parts in accordance with the applicable regulations.



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