

SIMPSON

A Norican Technology

Operating Instructions

Mold Strength Tester

Model PFP



Type:

Mold Strength Tester

Model:

PFP

Part No.:

592-801-102

Serial No.:

Name and address of manufacturer:

Simpson Technologies GmbH
Roizheimer Strasse 180
53879 Euskirchen,
Germany

For other Simpson Technologies offices around the world and for our contact information please visit us on the internet at [simpsongroup.com](https://www.simpsongroup.com) on the Contacts page.

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Table of Contents

1	Introduction	1
1.1	Application and Designated Use	1
1.2	Organizational Measures	2
2	Safety	3
2.1	Safety Alert Symbols	4
3	Short Description & Specifications	5
3.1	Application	5
3.2	Description	5
3.3	Specifications, Dimensions and Weights (Approximate)	6
4	Unpacking and Installation	7
4.1	Unpacking	7
4.2	Components	7
4.3	Airborne Noise Emission.....	8
5	Operating Instructions	9
5.1	Zeroing Digital Display	9
5.2	Adjusting the Unit of Measure	9
5.3	Performing a Mold Strength Test	9
6	Maintenance and Calibration.....	11
6.1	Daily Maintenance	11
6.2	When Required.....	11
6.3	Calibration	12

Table of Contents

7 Apparatus Layout 13

8 Parts List / Ordering Parts / Returns 15

8.1 Spare Parts List 15

8.2 Ordering Replacement / Spare Parts 15

8.3 Return Goods Policy 16

9 Decommissioning 18

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 Mold Strength Tester 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 Mold Strength Tester, Model PFP, is intended exclusively for measuring the strength of foundry sands mixed with clay binders. Usage of other materials may be possible upon consultation with the Technical 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 hereunder. The risk in this case will be exclusively that of the user.

1 Introduction

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 Safety

2.1 Safety Alert Symbols



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.

3 Short Description & Specifications

3.1 Application

The Mold Strength Tester, Model PFP, is used to determine strength properties of clay bonded foundry sand. The strengths of test specimens in a laboratory can vary widely due to a lack of uniformity between the compression of laboratory rammers and molding machines. Therefore, to obtain a hardness or strength value of the molding machine that may be used in comparison with the laboratory values, the Mold Strength Tester is utilized. In the past, mold hardness testers have utilized a spring load or pin that judges the depth of the mold penetration. The Mold Strength Tester, Model PFP, eliminates traditional sources of error such as non-linearity of springs and “spring-back” of highly compacted sands by utilizing a crystal oscillator sensing element. This allows the measured force to correspond to actual mold penetration resistance.

3.2 Description

The Mold Strength Tester, Model PFP, is simply placed at various critical locations on the mold sand and maximum strength values are recorded. This allows the founder to obtain a relationship between the laboratory strength readings and the actual mold strength at critical locations of the mold.

3 Short Description & Specifications

3.3 Specifications, Dimensions and Weights (Approximate)

Specifications	Mold Strength Tester (Model PFP)
Length	130 mm (5.1 in.)
Width	30 mm (1.2 in.)
Height	22 mm (0.9 in.)
Weight	125 g (0.28 lbs.)
Power	Two Standard AAA Batteries

Load Capacity	
Test	Force Range
Mold Strength	0,2 – 34,5 N/cm^2 (0,2 – 50 psi)

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 Mold Strength Tester, Model PFP, 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 Mold Strength Tester weighs only 125 g (0.28 lbs.).

4.2 Components

Included in your new Mold Hardness Tester are the following:

- Mold Strength Tester Body
- Protective Cover
- Two standard AAA batteries
- Operating Instructions Manual

If any of the above components are missing, contact your local Simpson Technologies office. See Section 7 for apparatus layout and components.

NOTICE

Do not store the device in the open and unprotected from atmospheric conditions. If this instruction is not followed, claims under guarantee will no longer be considered.

4 Unpacking and Installation

4.3 Airborne Noise Emission

Regarding airborne noise emission by the Mold Strength Tester, Model PFP, 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 Zeroing Digital Display

The device should be calibrated to a zero reading before each test. With the device already on, press the Side Button (Item 8, Side View, Figure 7.1) once without loading the pin. The strength reading from the previous test will change to “CAL” for about 1 second. The display should then read “0.00.” The device now recognizes that the pin is not loaded. An accurate test can now be executed.

5.2 Adjusting the Unit of Measure

The unit of measure is displayed to the right of the measured value on the digital display. If the unit of measure is in N/cm^2 , it will be displayed in the lower right corner of the display. PSI will be displayed in upper right corner if being utilized. To toggle between these two units of measure, hold the side button for 6 seconds. The current unit of measure will flash on the display before it is changed.

5.3 Performing a Mold Strength Test

1. Ensure that the device display is “zeroed” out.
2. Place the Measuring Pin (Item 3, Front View, Figure 7.1) perpendicular to the sand mold surface being tested.
3. Press device into the sand mold with a constant pressure until it reaches the Positive Stop (Item 4, Front View, Figure 7.1). See Figure 5.3.1 for test procedure.

5 Operating Instructions

4. As soon as the Stop reaches the surface of the mold, remove the instrument straight out of the mold.
5. The maximum strength value will be displayed with the desired pressure unit.
6. Press the Side Button once to zero out the digital display (see Section 5.1). The device will be ready to perform another test.

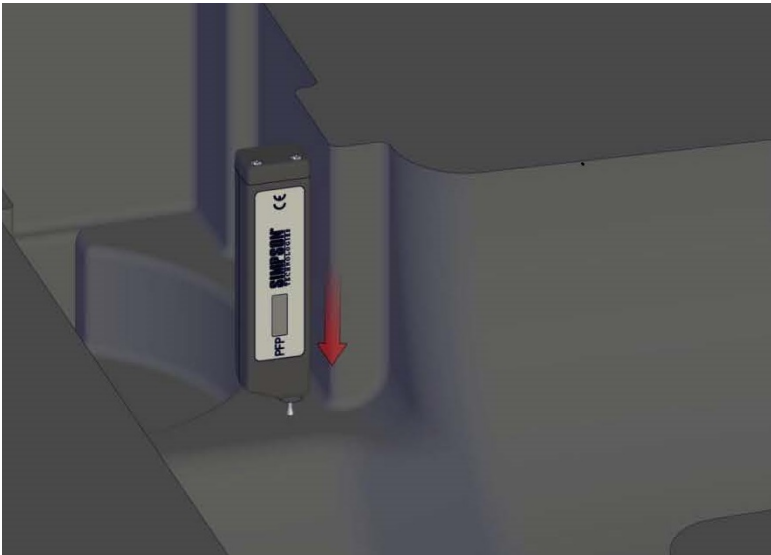


Figure 5.3.1

6 Maintenance and Calibration



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.

Despite its robust construction, the Mold Strength Tester, Model PFP, is a precise mechanical/electronic measurement device and needs appropriate care.

6.1 Daily Maintenance

- Keep the Mold Strength Tester surface clean so that buildup of sand does not occur.

6.2 When Required

- When the battery voltage is low, the entire digital display will flash. The device will be able to perform about 200 additional tests at this point. To change batteries, remove two screws (Item 6, Bottom View, Figure 7.1) on the Bottom Cover (Item 7, Bottom View, Figure 7.1) of the device.



Use only the battery specified for the tester in this manual. Ensure that the positive (+) and negative (-) ends of the battery are facing correctly when loading battery into the tester.

Always safely dispose of the battery according to local regulations.



Never expose battery to direct heat or dispose of it by incineration!

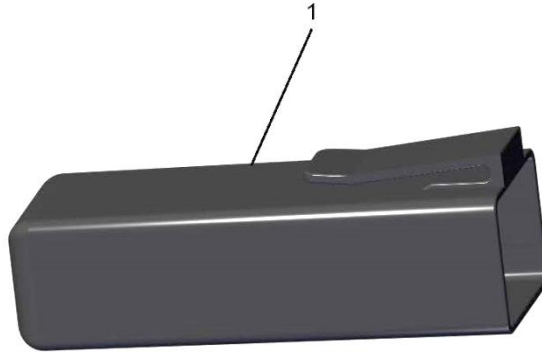
Improperly using the battery can cause it to leak and damage nearby items and may cause the risk of fire or personal injury.

6.3 Calibration

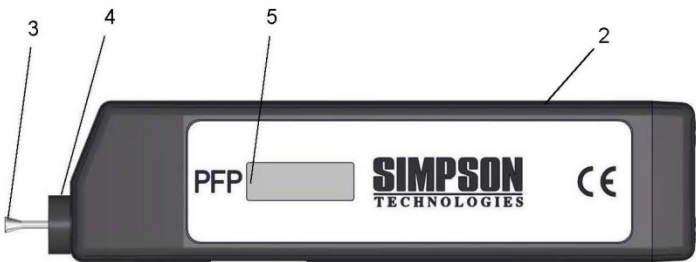
Prior to shipment each Mold Strength Tester, Model PFP, is individually factory calibrated.

To check the device calibration, the user may press downward on a standard laboratory scale. The Mold Strength Tester is calibrated so that pressing with a force of 3 kg on the scale will result in a PFP reading of 11.5 N/cm². If device loses calibration, contact Simpson Technologies for maintenance or repair.

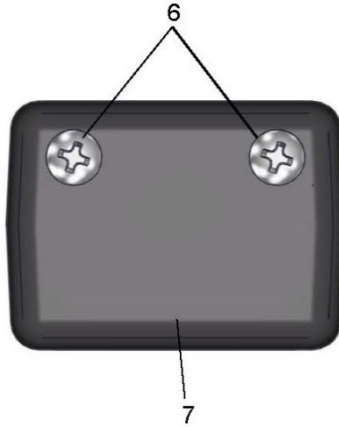
7 Apparatus Layout



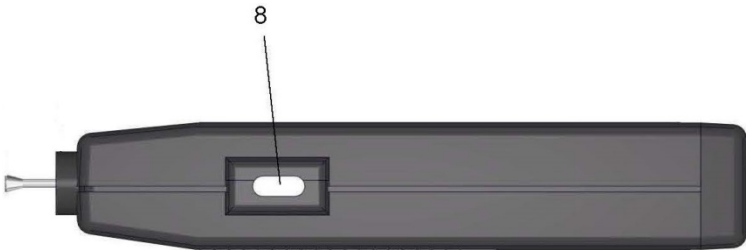
Protective Cover



Front View



Bottom View



Side View

Item	Description
1	Protective Cover
2	Mold Strength Tester Body
3	Measuring Pin
4	Positive Stop
5	Digital Display
6	Cover Screws
7	Battery Cover
8	Side Button

Figure 7-1

8 Parts List / Ordering Parts / Returns

8.1 Spare Parts List

There are no spare parts associated with this device.

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 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, 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.

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 Mold Strength Tester.

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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