

Operating Manual

Translation of the original



FRITSCH PELLETT PRESS

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Fritsch GmbH, has been certified by the
TÜV-Zertifizierungsgemeinschaft e.V.
Certificate registration number 71 100 J 596.



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It was verified through an audit
that Fritsch GmbH satisfies the requirements of
DIN EN ISO 9001:2008.

The enclosed conformity statement states the directives
satisfied by the Pellet Press in order to bear the CE mark.



Instrument number 09.9500.00
Applies as of serial number 00100

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1 Safety Instructions and Proper Use

1.1 Requirements on the Operator

This operating manual is intended for persons who are assigned the operation and supervision of the Pellet Press.

Persons under the influence of health impairments, medications, drugs, alcohol or excessive fatigue may not operate the instrument.

The instrument may only be operated by authorised persons and may only be maintained and repaired by trained experts. All commissioning, maintenance and repair work may only be performed by qualified personnel!

The instructions of this manual must be heeded in order to avoid danger to the user.

This operating manual is not a complete technical description. Only the details required for operation and preserving the operability of the instrument are described here.

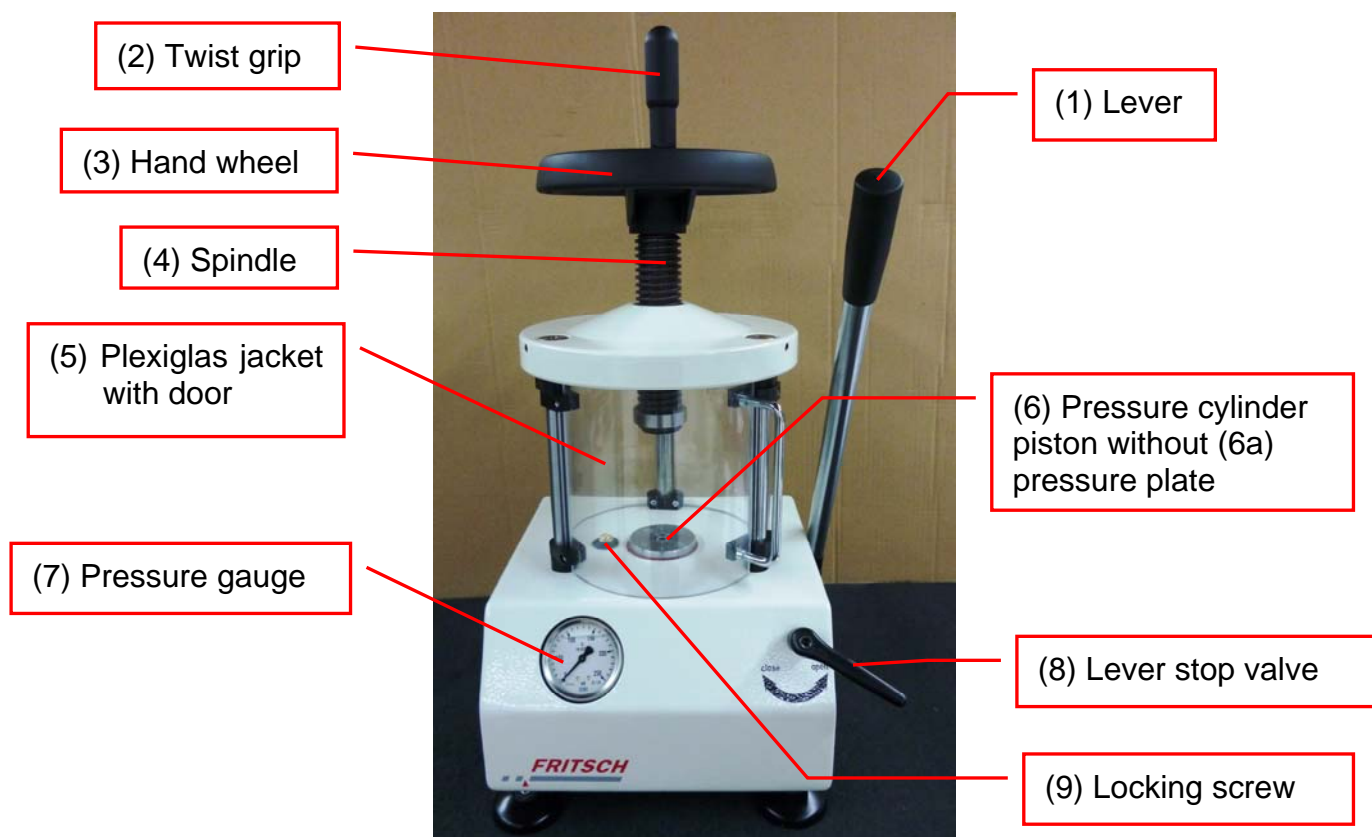
Fritsch created and checked this operating manual with great care. However, no guarantee can be provided with regard to completeness and the absence of errors.

Subject to technical changes.

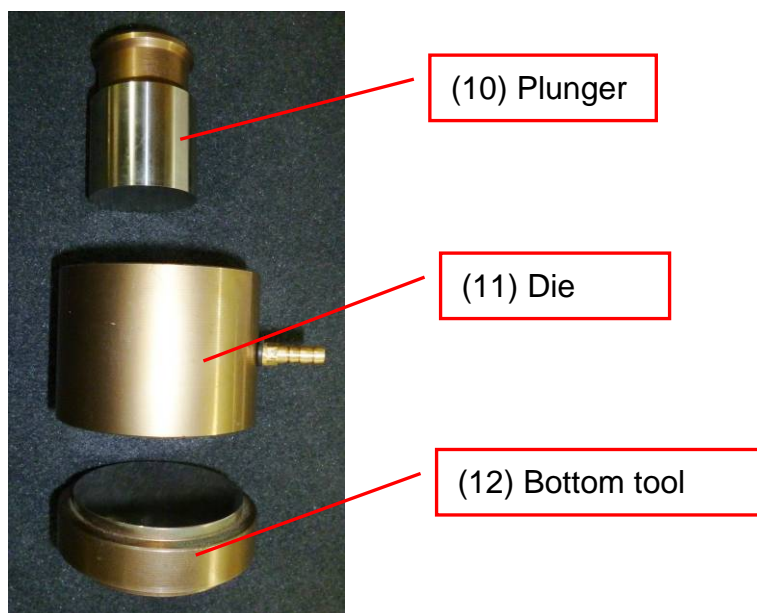
1.2 Proper Use

1.2.1 Press setup

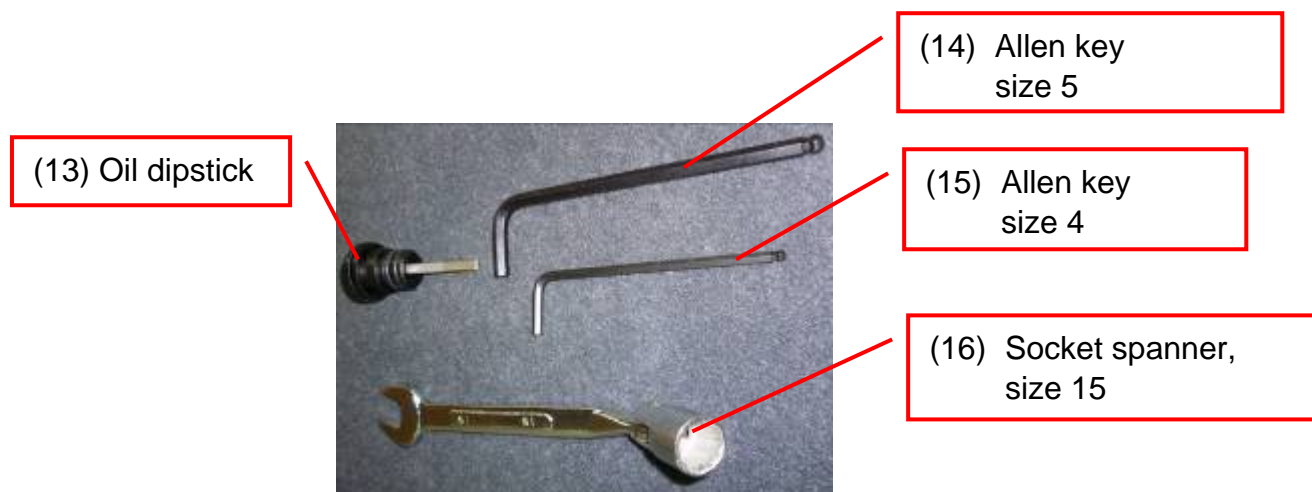
The designations stated below with related numbering are used throughout the following operating manual.



1.2.2 Pressing tool set up



1.2.3 Toolkit



1.2.4 Fields of application

Manual hydraulic Pellet Press for the preparation of solid samples for X-ray fluorescence analysis or infrared spectroscopy for the manufacture of pellets of high permeability.

The device may only be used for this purpose.

1.2.5 Method of operation

The pellet press is a manually-operated hydraulic press. The device is fitted with a piston pump. This has a suction and pressure valve, a pressure limiting and stop valve. The pressure limiting valve is set for a maximum oil pressure of 350 bar, and may not be adjusted. The stop valve must be closed before the pressing process. The hydraulic oil is kept in an oil reservoir. This is closed off using a locking screw (9) with an integrated vent screw. The screw is used for filling and automatic venting of the oil reservoir. It prevents a vacuum being created inside. The locking screw (9) is protected by a plastic ring. The workspace is surrounded by a Plexiglas jacket. There is a door with handle at the front of the jacket. The pressure cylinder piston (6) is located in the centre of the workspace. It is protected by a pressure plate (6a). A spindle (4) with hand wheel (3) is used to create the counterpressure and to clamp the pressing tool. A pressure gauge (7), which displays the pressure during the pressing process, is located at the front of the housing.

1.3 Obligations of the Operator

This manual must be carefully read and understood before using the product. Use of the product requires specialised knowledge and may only be undertaken by commercial users.

The operating personnel must be familiar with the contents of the operating manual. It is therefore very important that this operating manual is actually made available to these persons. It must be ensured that this operating manual always remains alongside the instrument.

The product may only be used within the scope of possible uses described in this manual and within the framework of the rules and regulations defined in this manual. In the event that these principles are violated or in event of improper use, the customer shall bear the full liability for the functionality of the product or for damages or injuries resulting from failure to heed this obligation.

By using this product, the customer agrees to this and recognises that defects, faults or errors cannot be completely excluded. In order to avoid the risk of damage to property or personnel injuries arising from this or any other circumstance or the risk of other indirect or direct damages, the customer must take sufficient and full safety precautions while working with the products.

Fritsch GmbH is unable to monitor compliance with this manual or the conditions and methods employed during installation, operation, use and maintenance of the product. Improper completion of the installation can result in material damage and subsequently endanger human beings. For this reason, we accept no responsibility or liability whatsoever for losses, damages or costs resulting from or in any way associated with faulty installation, improper operation or incorrect use and maintenance.

The applicable accident prevention regulations must be complied with.

1.4 Warnings Used

The following symbols are used in this description to indicate important information and possible dangers.

DANGER



Indicates a direct danger with high risk that will lead to death or severe physical injury if not avoided.

WARNING



Indicates a possible danger with moderate risk that could lead to death or (severe) physical injury if not avoided.

CAUTION



Indicates a danger with low risk that could result in slight or moderate physical injuries or material damages if not avoided.

1.5 Warning symbols on the instrument and in the manual

There is safety information on the device and in the operating manual which is explained below

Caution!

Danger of crushing or pinching



1.6 Instrument Safety Notices

- Only use original accessories and original spare parts. Failure to adhere to this may jeopardise the protection of the machine.
- Care must be taken during all work to prevent accidents.

DANGER



- The machine should be operated indoors only. The ambient air should not contain any electrically conductive dust particles.
- When pressing pressure-sensitive substances, there is a danger of spontaneous combustion. If you are pressing this type of substance, you must therefore take special safety precautions and work must be supervised by a specialised person.
- The instrument is not explosion-proof and is not suitable for pressing of explosive substances.

CAUTION



- Do not continue using damaged accessories.
- If the Pellet Press or parts of it are damaged or its functioning does not correspond to the descriptions in the operating manual, the device may not be put into operation. In this case, contact Fritsch GmbH, the representative office that covers your region or dealer who sold you the instrument.

WARNING



- The maximum admissible concentrations values (MAC Values) given in the valid safety instructions must be observed and, if necessary, ventilation should be provided or the machine should be operated under a hood.

- Do not remove the instruction labels.
- Independent alterations to the device negate the conformity with European directives declared by Fritsch and void the warranty.
- If questions and problems arise after reading the operation manual please contact our specialised personnel.

1.7 Protective devices

NOTE



- Protective devices should be used for the intended purpose and must not be made unserviceable or removed.
- All protective devices must be regularly inspected for completeness and proper function.

An overpressure valve is used to prevent the pressure from becoming too high. It opens when the pressure exceeds 350 bar.

1.8 Danger points

CAUTION



Crushing Danger!

- During pressing procedure. Do not put your hands between the pressing tool and spindle.
- When putting together the pressing tool
- When disassembling the pressing tool

2 Technical data

Pressure range

0-250 Kilonewtons

Oil pressure

0-350 bar

Oil quantity

0,3 litres

Stroke

Standard commercial hydraulic oil, e.g. Hipol 15 to PN Standard or Shell Tellus 37

Hub

Max 25 mm

Dimensions

Height: to approx. 600 mm

Width: to approx. 300 mm

Depth: to approx. 325 mm

Weight

Approx. 50 kg

3 Installation

3.1 Transport

The Pellet Press will be delivered on a transportable pallet with a wooden hood. For the transport of the still boxed instrument we recommend a fork lift or a hand pallet truck.

3.2 Unpacking

- Open the packaging bandages.
- Remove the cover from the box.
- Remove the accessories.
- You can now lift the device off the pallet.
- The device must be transported in a standing position. It may not be tilted, impacted or thrown.

CAUTION



Crushing Danger!

The machine must always be lifted by 2 people.

Grip under the edge of the housing to lift the machine. .

- Compare the contents of the delivery with your order.

3.3 Setting up

- Place the Pellet Press in an indoor room on a level, stable surface.
- Check the device footing position and adjust it using the adjustable device feet if necessary.
- Screw the twist grip (2) into the drillhole in the hand wheel (3) and then counter this using a size 5 Allen key (14).



- Now place the lever (1) onto the pump axle and fix using an Allen key size 4 (15).



- The position of the lever (1) can be adjusted as required. It can be adapted to suit the operator.



- Remove the plastic ring from the locking screw (9) and turn the integrated vendor screw through 1.5 revolutions by hand. This allows air to enter the oil reservoir, which prevents a vacuum being created inside.



- Place the pressure plate (6a) into the centre of the press on the pressure cylinder piston (6).



- The lever (8) on the stop valve can be adjusted in its position as required. To do this, simply pull it forwards and rotate it into the required position.



- Please retain the transport packaging so that you can use it if you ever need to return the device. Fritsch GmbH is not liable for any damages caused by incorrect packaging (non-original packaging).

3.4 Ambient conditions

- The machine should be operated indoors only.
- Maximum relative humidity 80% for temperatures up to 31°C, linearly decreasing to 50% relative humidity at 40°C.
- The ambient temperature must range from 5 - 40°C.
- Height up to 2000 m above sea level.
- Pollution level 2 as per IEC 664.

3.5 First function test

CAUTION



Never use the the pressing tool without sample material. This will result in damage to the pressing tool. No guarantee claims will be accepted in this case.

1. Before carrying out the first pressing attempt, the lever (8) on the stop valve must be rotated in a clockwise direction to "close" so that pressure can be built up.
2. Put the pressing tool together with a suitable test material as described in Chapter 4.2.
3. Rotate the spindle (4) upwards using the hand wheel (3).
4. Open the door (5) to the workspace.
5. Place the pressing tool together with the bottom tool (12) in the centre of the press on the pressure cylinder piston (6) pressure plate (6a).
6. Clamp the pressing tool by screwing the spindle (4) down.

CAUTION

Crushing Danger!



Do not place your fingers between the threaded spindle and the pressing tool.

7. Close the door (5).
8. Move the lever (1) backwards and forwards → the pressure cylinder piston (6) will be "pumped" upwards. After around 20 strokes, a pressure buildup will be visible on the pressure gauge (7). Continue pumping until the pressure gauge (7) reads 250 bar.
9. After this, open the stop valve using the lever (8). Turn it to "open" → the pressure cylinder piston (6) will now move slowly downwards.
10. Unscrew the spindle (4)
11. The pressing tool can now be removed and the sample pellet pushed out as described in Chapter 4.3.
12. The Pellet Press is now ready for operation.
13. If the functions provided by the Pellet press do not correspond to those described above, the device may not be operated. In this case, please contact Fritsch GmbH or the representative or distributor responsible for your company.

4 Working with the Pellet Press

Only start to operate the device once all work described in Chapter 3 has been carried out!

4.1 Sample preparation

The sample must have a fineness suitable for the material. If necessary, you should carry out test pressings. In the case of some materials, especially very hard materials, the sample must be mixed with "washing powder" as a binder before pressing. The mixing ratio is 1 part washing powder to 4 parts sample material.

You can find recommended binders for reinforcing pellets at: http://www.rschramm.de/de/binder_de.html

4.2 Preparing and filling the pressing tool

1. The pressing tool must be clean and dry.
2. Place the bottom tool (12) on a smooth surface as shown in the figure.



3. After this, place the die (11) on the bottom tool (12).



4. Now fill the prepared sample into the die (11). The sample quantity is dependent on the required Pellet thickness.



5. Push the pressure plunger (10) into the die (11).

CAUTION**Crushing Danger!**

Due to the extremely tight tolerances the parts can cant in this situation.



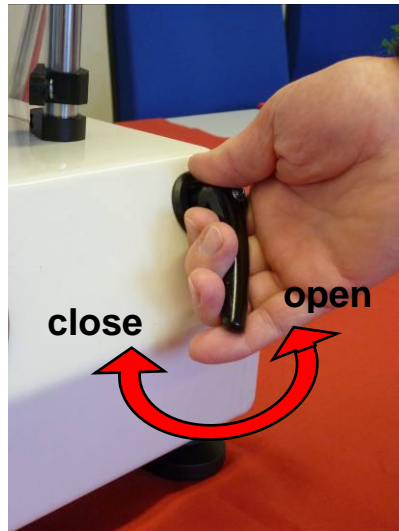
6. Now compress the sample by hand by pushing the pressure plunger (10) in the die (11) downwards towards the bottom tool (12). The air contained inside will escape out of the venting hole provided in the die (11).



7. The pressure tool with sample is now ready to be placed in the press.

4.3 Pressing procedure

1. Turn the stop valve lever (8) in a clockwise direction to "close".



2. Rotate the spindle (4) upwards using the hand wheel (3).
3. Open the door (5) to the workspace.
4. Place the ready-filled pressing tool together with the bottom tool (12) in the centre of the press on the pressure cylinder piston (6) pressure plate (6a).



CAUTION



Injury hazard!! **Danger of crushing!!**

When raising the 3-part pressing tool, ensure that the parts are not displaced or even fall apart.

5. Clamp the pressing tool by screwing the spindle (4) down. The threaded spindle (4) presses onto the pressing tool plunger (10).

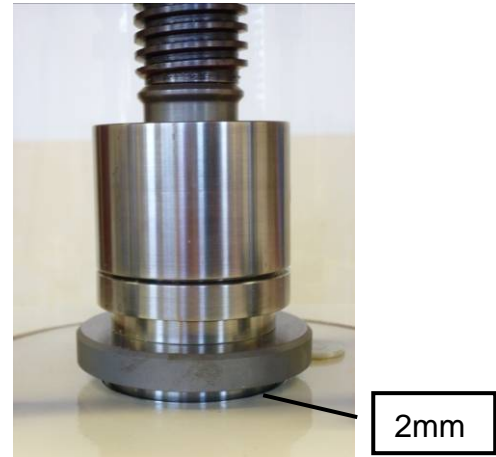
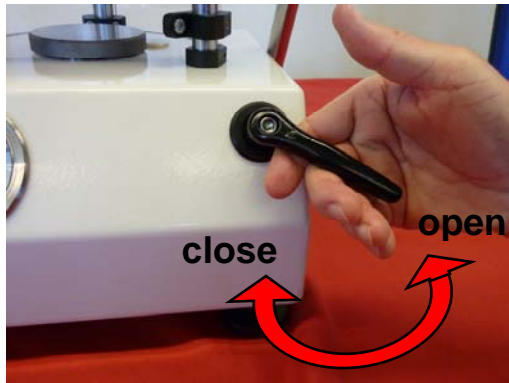
**CAUTION****Crushing Danger!**

Do not place your finger between the threaded spindle and the pressing tool.

6. Close the door.
7. Move the lever (1) backwards and forwards → the pressure cylinder piston (6) will be "pumped" upwards. After around 20 strokes, a pressure buildup will be visible on the pressure gauge (7). Continue pumping until the necessary pressure has been built up. The pressure level is dependent on the material and must be determined during trials. The standard pressure is around 250 bar.



After this, open the stop valve using the lever (8). Turn it to "open" → the pressure cylinder piston (6) will now move slowly downwards. Stop lowering the pressure plunger approximately 2 mm before bottom dead centre . This saves part of the pumping process during the next working cycle.



9. Unscrew the spindle (4)
10. Remove the pressing tool.
11. Raise the bottom tool (12) off the die (11).



12. Rotate the bottom tool (12) and then place it so that the recess for accepting the Pellet pellet is facing inwards.



13. Place the closed pressure tool on the pressure cylinder piston (6) pressure plate (6a) again.
14. Press it onto the pressing tool plunger (10) using the spindle (4). Press the Pellet pellet out of the die (11) into the bottom tool receptacle (12) provided for this purpose.

CAUTION**Crushing Danger!**

Do not place your finger between the threaded spindle and the pressing tool.

15. Rotate the spindle (4) upwards.
16. Remove the pressing tool, pull the plunger (10) out and raise the die (11) . The Pellet pellet will be located in the bottom tool receptacle (12). It can now be simply removed.



17. The new working cycle can begin.

5 Accessories

Pressing tool for pellets of 32 mm diameter.

6 Cleaning

Use a moist cloth to rub the device clean. If necessary, the pressing tool may be placed under running water and brushed clean with standard detergents. After this process it must be dried thoroughly so that the press material does not adhere.

7 Maintenance

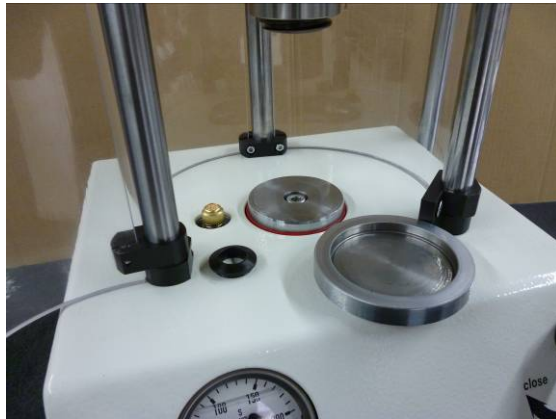
CAUTION Signalize maintenance work with a warning sign.



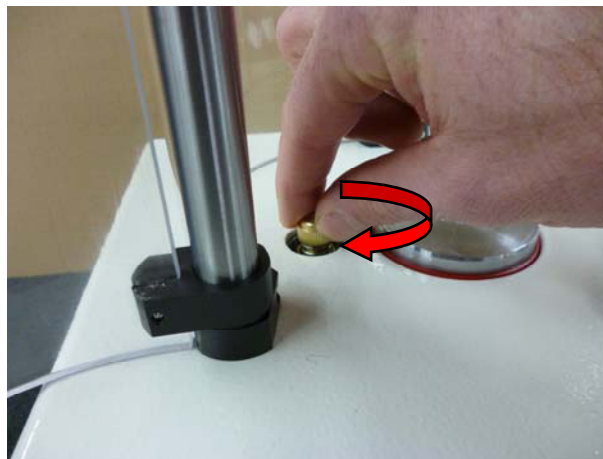
- The Pellet Press has been vented at the works. If additional venting of the oil pressure circuit is necessary, please contact a Fritsch GmbH service technician.
- If the spindle (4) stops running smoothly it can be lubricated using a standard lubricant.
- Check the oil level in the hydraulic pump once a year. The oil tank locking screw (9) is located to the left of the pressure plate (6a).



1. To check the oil level, lift the pressure plate (6a) off the pressure cylinder piston (6) and then remove the plastic ring which protects the locking screw (9). The locking screw (9) is then accessible.



2. Close the locking screw (9) venting knob off by hand.



3. After this unscrew the locking screw (9) with the socket spanner supplied (16) and screw it out.



4. Insert the oil dipstick (13) into the opening and press it into the drillhole with a little pressure. It must be positioned correctly.



5. Pull the oil dipstick (13) out. Now check the oil level against the marking located on the middle of the dipstick.



6. If the oil level does not come up to the top of the area marked on the dipstick, standard hydraulic oil (for example Hipol 15 to PN Standard or Shell Tellus 37) must be refilled.
7. After this, screw the locking screw (9) back in using the socket spanner (16), open the vent head and replace the plastic ring and pressure plate.

8 Warranty

The warranty card enclosed with the machine upon delivery must be completely filled out and returned to the delivering factory so that the warranty can enter into effect.

Online registration is also possible. More information can be found on your warranty card or on our website <http://www.fritsch.de>

The company Fritsch GmbH in Idar-Oberstein and your "Technical Application Laboratory" or the corresponding national representatives would be happy to provide you with advice and assistance.

Please include the serial number given on the type plate along with any questions.

NOTE



Please note that the original Fritsch packaging must be used in the event that the machine is returned. Fritsch GmbH is not responsible for damages resulting from improper packaging (non-Fritsch packaging).

9 Disclaimer

Before using this product, these operating instructions are to be carefully read and be understood. Use of the product requires expertise and it is to be carried out only by commercial users. The product may be used exclusively for the applications outlined in these instructions and within the scope of the regulations set out in these operating instructions, and it shall be subject to regular maintenance. In the event of infringements of these instructions and/or improper use or maintenance, the customer assumes full liability for the functionality of the product and for such damage or injury as may occur as a result of breaching these obligations.

The content of these operating instructions is subject as a whole to copyright protection. This operating manual and its content may not, in any form, in whole or in part, be reproduced, further distributed or saved without the prior written consent of Fritsch GmbH

These operating instructions have been compiled to the best of our knowledge and belief and checked for relevance at the time of printing. FRITSCH GMBH does not accept any warranty or guarantee for the accuracy or completeness of the content in these operating instructions, including, but not limited to, the tacit warranties of merchantability and suitability for a particular purpose, unless applicable laws or adjudications prescribe a liability.

FRITSCH GMBH expressly reserves the right to amend and/or to update these operating instructions without prior notice. The same applies to changes and improvements to the products described in these operating instructions. The onus for obtaining information about the current status of these operating instructions lies with the individual user. In this regard, please contact the FRITSCH GMBH distributor in your area or apply directly to Fritsch GmbH, Industriestrasse 8 D-55473 Idar-Oberstein, Germany.

Not all parts illustrated must be built into the product. A right to delivery of these parts does not exist. If interested in them, please contact the FRITSCH GMBH distributor in your locality or Fritsch GmbH, Industriestrasse 8, D-55743 Idar-Oberstein directly.

FRITSCH GMBH endeavours, with the greatest of care, to continually improve the quality, reliability and safety of their products and to conform with the state of the art. The products supplied, as well as these operating instructions, correspond with, at the time of transfer from the influence area of FRITSCH GMBH, the respective state of the art.

Customers agree and acknowledge that, through usage of the product, defects, faults or errors cannot be ruled out entirely. To avoid the risks thereof, of damage to persons or property being incurred, or of any other direct or indirect damages, customers must provide for adequate and comprehensive safety measures whilst working with the product.

Fritsch GmbH expressly disclaims every explicit or implied, contractual or arising from improper handling or a fixed contractual, statutory or other liability, warranty or other obligation in respect of compensation obligations. Under no circumstances shall Fritsch GmbH accept liability, resp., are you entitled to compensation, for any special, direct, indirect, incidental, or consequential damages, including but not limited to lost profits, lost savings, lost revenues or economic losses of any kind, or for compensation obligations towards third parties for downtime, goodwill, damage to or replacement of equipment and property, for the costs or restoration of materials or goods in connection with the product or the utilisation of our products, for other damage or personal injury (including death) or the like. In so far as the law or adjudications require a mandatory liability, the above disclaimer is to be considered as limited. A liability for negligence is excluded in every case.

No explicit, implied or other rights of usage are granted for patents, trademarks or other intellectual property rights. Likewise, we assume no responsibility for patent infringements or violations of the rights of third parties arising from the use of this product.

Both adherence with these operating instructions and the conditions and methods of installation, operation, usage and maintenance of the product cannot be monitored by Fritsch GmbH. Improper execution of the installation can lead to property damage and, as a result, also place people at risk. Accordingly, we accept no responsibility or liability for losses, damages or expenses resulting from, or in any way connected with, defective installation and improper operation, as well as from incorrect utilisation and maintenance.

FRITSCH