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<td>10</td>
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1 Notes on the Operating Manual

This operating manual is a technical guide on how to operate the device safely and it contains all the information required for the areas specified in the table of contents. This technical documentation is a reference and instruction manual. The individual chapters are complete in themselves.

Familiarity (of the respective target groups defined according to area) with the relevant chapters is a precondition for the safe and appropriate use of the device.

This operating manual does not contain any repair instructions. If faults arise or repairs are necessary, please contact your supplier or get in touch with Retsch GmbH directly.

Application technology information relating to samples to be processed is not included but can be read on the Internet on the respective device’s page at www.retsch.com.

Changes
Subject to technical changes.

Copyright
Disclosure or reproduction of this documentation, use and disclosure of its contents are only permitted with the express permission of Retsch GmbH.
Infringements will result in damage compensation liability.
1.1 Explanations of the safety warnings

In this Operating Manual we give you the following safety warnings:

**WARNING**

Type of danger / personal injury
Source of danger
– Possible consequences if the dangers are not observed.
• Instructions on how the dangers are to be avoided.

We also use the following signal word box in the text or in the instructions on action to be taken:

**WARNING**

**CAUTION**

Type of danger / personal injury
Source of danger
– Possible consequences if the dangers are not observed.
• Instructions on how the dangers are to be avoided.

We also use the following signal word box in the text or in the instructions on action to be taken:

**CAUTION**

In the event of possible property damage we inform you with the word “Instructions” and the corresponding content:

**NOTICE**

Nature of the property damage
Source of property damage
– Possible consequences if the instructions are not observed.
• Instructions on how the dangers are to be avoided.

We also use the following signal word in the text or in the instructions on action to be taken:

**NOTICE**
1.2 General safety instructions

**CAUTION**

Read the Operating Manual
Non-observance of these operating instructions

- The non-observance of these operating instructions can result in personal injuries.
- Read the operating manual before using the device.
- We use the adjacent symbol to draw attention to the necessity of knowing the contents of this operating manual.

**Target group:** All persons concerned with the machine in any form

This machine is a modern, high performance product from Retsch GmbH and complies with the state of the art. Operational safety is given if the machine is handled for the intended purpose and attention is given to this technical documentation.

You, as the owner/managing operator of the machine, must ensure that the people entrusted with working on the machine:

- have noted and understood all the regulations regarding safety,
- are familiar before starting work with all the operating instructions and specifications for the target group relevant for them,
- have easy access always to the technical documentation for this machine,
- and that new personnel before starting work on the machine are familiarised with the safe handling of the machine and its use for its intended purpose, either by verbal instructions from a competent person and/or by means of this technical documentation.

Improper operation can result in personal injuries and material damage. You are responsible for your own safety and that of your employees. Make sure that no unauthorised person has access to the machine.

**CAUTION**

Changes to the machine

- Changes to the machine may lead to personal injury.
- **Do not make any change to the machine and use spare parts and accessories that have been approved by Retsch exclusively.**

**NOTICE**

Changes to the machine

- The conformity declared by Retsch with the European Directives will lose its validity.
- You lose all warranty claims.
- **Do not make any change to the machine and use spare parts and accessories that have been approved by Retsch exclusively.**
1.3 Repairs

This operating manual does not contain any repair instructions. For your own safety, repairs may only be carried out by Retsch GmbH or an authorized representative or by Retsch service engineers.

In that case please inform:

<table>
<thead>
<tr>
<th>The Retsch representative in your country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your supplier</td>
</tr>
<tr>
<td>Retsch GmbH directly</td>
</tr>
</tbody>
</table>

Your Service Address:
2 Confirmation

This operating manual contains essential instructions for operating and maintaining the device which must be strictly observed. It is essential that they be read by the operator and by the qualified staff responsible for the device before the device is commissioned. This operating manual must be available and accessible at the place of use at all times.

The user of the device herewith confirms to the managing operator (owner) that (s)he has received sufficient instructions about the operation and maintenance of the system. The user has received the operating manual, has read and taken note of its contents and consequently has all the information required for safe operation and is sufficiently familiar with the device.

As the owner/managing operator you should for your own protection have your employees confirm that they have received the instructions about the operation of the machine.

I have read and taken note of the contents of all chapters in this operating manual as well as all safety instructions and warnings.

<table>
<thead>
<tr>
<th>User</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surname, first name (block letters)</td>
</tr>
<tr>
<td>Position in the company</td>
</tr>
<tr>
<td>Signature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service technician or operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surname, first name (block letters)</td>
</tr>
<tr>
<td>Position in the company</td>
</tr>
<tr>
<td>Place, date and signature</td>
</tr>
</tbody>
</table>
3 Transport, scope of delivery, installation

3.1 Packaging

The packaging has been adapted to the mode of transport. It complies with the generally applicable packaging guidelines.

3.2 Transport

**NOTICE**

Transport

– Mechanical or electronic components may be damaged.
• The machine may not be knocked, shaken or thrown during transport.

3.3 Temperature fluctuations and condensed water

**NOTICE**

Temperature fluctuations

The machine may be subject to strong temperature fluctuations during transport (e.g. aircraft transport)

– The resultant condensed water may damage electronic components.
• Protect the machine from condensed water.

3.4 Conditions for the place of installation

**NOTICE**

Ambient temperature

– Electronic and mechanical components may be damaged and the performance data alter to an unknown extent.
• Do not exceed or fall below the permitted temperature range of the machine (5°C to 40°C / ambient temperature).

3.5 Installation of the machine

Installation height: maximum 2000 m above sea level

3.6 Type plate description
Fig. 1: Type plate lettering
1 Device designation
2 Year of production
3 Part number
4 Serial number
5 Manufacturer’s address
6 CE marking
7 Disposal label
8 Bar code
9 Power version
10 Mains frequency
11 Capacity
12 Amperage
13 Number of fuses
14 Fuse type and fuse strength

In the case of questions please provide the device designation (1) or the part number (3) and the serial number (4) of the device.

3.7 Electrical connection

**WARNING**

When connecting the power cable to the mains supply, use an external fuse that complies with the regulations applicable to the place of installation.

- Please check the type plate for details on the necessary voltage and frequency for the device.
- Make sure the levels agree with the existing mains power supply.
- Use the supplied connection cable to connect the device to the mains power supply.

4 Technical data
### 4.1 Use of the machine for the intended purpose

This device is suitable for the representative division and sampling of pourable, disperse products with a feed size up to a max. 10mm.

With a maximum feed size of 26 litres, a minimum fraction of 100ml should be observed.

In view of its mode of function this device is also suitable for installation in continuously operating preparation systems.

### 4.2 Emissions

#### Noise details

Noise measurement to DIN 45635-31-01-KL3

The noise values are also influenced by the properties of the sample material.

Example 1:

- Sound power level $SWL = 69\,\text{dB(A)}$
- Emission value with regard to workplace $L_{p\text{eq}} = 63\,\text{dB(A)}$

Operating conditions:

- Receptacle: glass bottle 500ml and collecting receptacle 26 litres
- Feed material: quartz approx. 0.1 – 3.0mm

### 4.3 Degree of protection

IP40

### 4.4 Drive output

Stepping motor

### 4.5 Rotation speed

50 revolutions per minute

### 4.6 Rated power
50 watt

4.7 Feed size

max. 10mm

4.8 Receptacle volume

- Glass bottles 250ml
- Glass bottles 500ml
- Collecting receptacle 26l

4.9 Dimensions and weight

Fig. 2: Dimensions PT200 incl. sample divider

Dimensions without vibratory feeder

Height: 1060mm
Width: 520mm
Depth: 551mm

**Dimensions with vibratory feeder**

Height: 1307mm
Width: 572mm
Depth: 551mm

4.10 **Required floor space**

Width: 520mm
Depth: 551mm

5 **Operating the machine**

5.1 **Views of the Instrument**
Fig. 3: General view of the device and the individual parts
Operating the machine

5.2 Overview table of the parts of the device

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Housing</td>
<td>Drive and control unit</td>
</tr>
<tr>
<td>B</td>
<td>Top cone</td>
<td>Cover on the tube divider</td>
</tr>
<tr>
<td>C</td>
<td>Bottom cone</td>
<td>For fastening the sample container in place and adjusting the sample slot</td>
</tr>
<tr>
<td>D</td>
<td>Sample container</td>
<td>Collecting receptacle for the sub-samples</td>
</tr>
<tr>
<td>E</td>
<td>Lid for the reject collector</td>
<td>Cover and collecting hopper for the reject collector</td>
</tr>
<tr>
<td>F</td>
<td>Reject collector</td>
<td>Collecting receptacle for non-divided residual sample</td>
</tr>
<tr>
<td>G</td>
<td>Stand</td>
<td>Holder for the sample divider</td>
</tr>
<tr>
<td>H</td>
<td>Switch</td>
<td>On/off switch</td>
</tr>
<tr>
<td>K</td>
<td>Control panel</td>
<td>START, STOP buttons, time setting and display</td>
</tr>
<tr>
<td>L</td>
<td>Fuse tray</td>
<td>Contains two glass fuses</td>
</tr>
<tr>
<td>M</td>
<td>Interface to the vibratory feeder</td>
<td>Connection for the cable to the vibratory feeder</td>
</tr>
<tr>
<td>N</td>
<td>Plug connection</td>
<td>Connection for the mains power cable</td>
</tr>
</tbody>
</table>
Operating the machine

5.3 Operating elements and displays

Fig. 5: Operating panel

5.4 Overview Table of the Operating Elements and the Display

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>Display</td>
<td>Display for set dividing time and error messages</td>
</tr>
<tr>
<td>K2</td>
<td>- button</td>
<td>Reduces dividing time</td>
</tr>
<tr>
<td>K3</td>
<td>+ button</td>
<td>Increases dividing time</td>
</tr>
<tr>
<td>K4</td>
<td>LED green</td>
<td>Display for device switched on / running</td>
</tr>
<tr>
<td>K5</td>
<td>LED red</td>
<td>Device stopped</td>
</tr>
<tr>
<td>K6</td>
<td>STOP key</td>
<td>Stops the device</td>
</tr>
<tr>
<td>K7</td>
<td>START key</td>
<td>Starts the device</td>
</tr>
</tbody>
</table>

5.5 Frame assembly
After unpacking set down the device on its side only and on a soft and clean surface (S).

Place the rear assembly area (A) of the bottom plate on the frame (F).
Tighten the two screws (S) by hand.

5.6 Switching On and Off
WARNING
Risk of a fatal electric shock
- An electric shock can cause injuries in the form of burns and cardiac arrhythmia, respiratory arrest or cardiac arrest.

• Do not clean the blender under running water. Use only a cloth dampened with water.
• Disconnect the power supply plug before cleaning the blender.

Fig. 8: On/off switch
The on/off switch (O) is located on the left side of the device below the operating element.
• Press the on/off switch (O).

5.7 Inserting bottom cone

Fig. 9: Inserting the bottom cone
• Hold the two latch pins (LP) to insert the bottom cone (C).
• Pull out the two latch pins (LP) and insert the bottom cone into the holder of the top cone (TC).
• Turn the bottom cone in a clockwise direction until the two latch pins lock in.
• It may be necessary to move the bottom cone (C) a little after insertion so that the two latch pins can lock in.

5.8 Inserting sample vessel
CAUTION

Injuries from cuts and other injuries
Hazard from splintered glass
- Sample beakers may fall down during use. Injuries from cuts may occur from splintered glass.
- Ensure that the sample receptacles are correctly positioned in the holders.
- Replace any damaged sample beakers
- Do not touch splintered glass with hands.

NOTICE

Material loss
- Sample material can be scattered in the surrounding area in the absence of sample receptacles.
- Ensure that all dividing tubes are equipped with sample receptacles.

5.8.1 Inserting the sample container into the quick-release sample outlet

Fig. 4:
Fig. 5: Inserting the sample container (quick-release sample outlet)
- Position the sample container (H) in relation to the compression disk (J [shaded]).
- Press the compression disk (J) along with the sample container (H) upwards.
- Push the sample container backwards into the support (P) and lower it until it locks into place.

CAUTION

Danger of personal injury
Dangerous nature of the sample
- Depending on the dangerous nature of your sample, take the necessary measures to rule out any danger to persons.
- Observe the safety guidelines and datasheets of your
5.9 Starting, Interrupting, Stopping

Fig. 10: Starting the device

- Press the START button (K7).
- The green LED (K4) above the START button (K7) lights up.
- The pre-set dividing time can be seen in the display.
- The dividing tube starts to turn.
- The remaining minutes of the division are shown in the display.
- At the end of the dividing time the remaining seconds are shown.

5.10 Process Run Duration

Fig. 11: Setting the throughput duration

- Set the duration of the sample throughput by pressing the buttons "time min."

You can choose the following time intervals:

<table>
<thead>
<tr>
<th>(in minutes)</th>
<th>(in minutes)</th>
</tr>
</thead>
</table>

5.11 Attaching vibratory feeder
For sample division of larger volumes and as a condition for higher division accuracy, it is generally advisable to evenly feed in the sample material using a vibratory feeder. The Retsch vibratory feeder DR100 is a suitable accessory for this purpose.

- Position the vibratory feeder on the device.

A device socket is located on the back of the device.

- Insert the mains cable of the DR100 into device socket on the back of the device (DS).

**5.12 Creating interface connection**

Before setting up the DR100, read the DR100 operating manual.
For the connection between the DR100 and the PT200, use the interface cable, which is included in the retrofit kit’s scope of supply.

- Insert the connection cable (VK) into the interface (DF) on the back of the DR100.

Fig. 2: DR100 – Insert the connection cable.

Insert the connection cable (VK) into the interface (PF) on the back of the PT200.

Fig. 3: PT200– Insert the connection cable

5.13 Starting device and vibratory device simultaneously

- Put sample vessels onto all sample outlets on the device.
PT 100 and DR100 must be suitable for the same electrical mains supply, (see type plate).

Failure to comply with the ratings on the type plate on the PT 100 and DR100 can cause damage to electronic and mechanical components.

- Connect the DR100 to the mains power supply using the C13 panel-mounted male connector (inlet) (DZ).
- Set the switch (DS) on the back of the DR100 to “Standard”.

- Set the feeding speed regulator (DK) on the DR100 to the required position (depending on the material to be divided).
- Fill the DR100 feed hopper.
- Adjust the slot width between the feed hopper outlet and the push-fit chute base (feed level).

The setting of the gap between the push-fit chute and the feed hopper depends on the maximum particle size of the feed material. It should be about 3 times as large as the max. particle size.

- Press the ON/OFF switch (DN) on the DR100.
- Turn on the sample divider and start it.

The DR100 does not start until the sample divider has reached the nominal speed. The DR100 switches off automatically when the nominal speed of the sample divider varies too much or drops. If this fluctuation lasts only for a short time (<5s), the DR100 switches on again once the nominal speed has been reached again and the feeding process is continued. As soon as you stop the sample divider, the DR100 stops too and the sample is not fed.

5.14 Setting the sample slot width
Fig. 6: Setting the opening width

The sub-sample is determined by the opening width of the sampling nozzle (PS). The maximum opening width (PS) in the standard bottom cone is 70 mm.

- Loosen the two knurled screws (SW).
- Set the opening width (X) by moving the slide (PW).

The scale on the bottom cone serves merely as an adjustment aid and does not indicate the actual opening width (X). The actual opening width (X) is measured in the centre of the slot.

- Once you have set the opening width, tighten the knurled screws again.

5.15 Calculating the slot width

5.15.1 Sample nozzle – Opening width

The calculation of the opening width (x) depends on the feed quantity (QA) and the required fraction (QT) at a fixed pitch circumference (UK) of 795 mm.

Key to symbols

UK = fixed pitch circumference
QA = Initial quantity
QT = Fraction
X = Slot width

Example:

QA = 0.200 kg
QT = 0.010 kg
UK = 795 mm

Formula:

\[ X = \frac{UK \times QT}{QA} \]
Operating the machine

\[ X = \frac{795 \times 10}{200} \]

\( X = 39.75 \) mm opening width

The accuracy of this calculation depends on the maximum particle size. The finer the feed quantity, the more precise the calculation.

Determine the minimum opening width.

The minimum opening width must correspond to at least three times the maximum particle size.

Example:

Particle size = 8 mm

Minimum opening width = 3 x 8 = 24 mm

Formula:

\( X_{\text{min}} = 3 \times d_{\text{max}} \)

If the opening width is narrower, a distortion of the sub-sample can be expected.

5.15.2 Determining the minimum opening width

The minimum opening width must correspond to at least three times the maximum particle size.

Example:

Particle size = 8 mm

Minimum opening width = 3 x 8 = 24 mm

Formula:

\( X_{\text{min}} = 3 \times d_{\text{max}} \)

If the opening width is narrower, a distortion of the sub-sample can be expected in this case.

5.16 Replacing the machine fuses

Fig. 16: Fuse holder

Fuses required:

2 glass fuses T 0.315 A (5x20mm)

- Pull the mains plug.
- Pull out the fuse holder (B).
- Replace the fuses.
- Insert the fuse holder.
6 Cleaning and service

**WARNING**

Risk of a fatal electric shock
- An electric shock can cause injuries in the form of burns and cardiac arrhythmia, respiratory arrest or cardiac arrest.
- Do not clean the blender under running water. Use only a cloth dampened with water.
- Disconnect the power supply plug before cleaning the blender.

**NOTICE**

Defective components due to liquids
Penetration of liquids into the inside of the device
- Components are damaged and the function of the device is no longer ensured.
- Clean the device under running water. Only use a moist cloth

**NOTICE**

Damage to the machine through solvents
- Solvents may damage plastic parts and the paint finish.
- It is not allowed to use solvents.

This device is designed such that all parts coming into contact with material may be removed easily and without tools.
These parts taken from the device can therefore also be cleaned in a water bath, under running water and in a dishwasher.

7 Fault messages

<table>
<thead>
<tr>
<th>Error code</th>
<th>Error</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Motor doesn’t start or is not running</td>
<td>Press the STOP button; if the error persists, after-sales service must be consulted</td>
</tr>
<tr>
<td>F3</td>
<td>Speed is too high or too low</td>
<td>Press the STOP button; after-sales service must be consulted if the error persists.</td>
</tr>
<tr>
<td>F5</td>
<td>Keypad defective</td>
<td>Service necessary</td>
</tr>
</tbody>
</table>
8 Disposal

Please observe the respective statutory requirements with respect to disposal.

Information on disposal of electrical and electronic machines in the European Community.

Within the European Community the disposal of electrically operated devices is regulated by national provisions that are based on the EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Accordingly, all machines supplied after 13.08.2005 in the business-to-business area to which this product is classified, may no longer be disposed of with municipal or household waste. To document this they have the following label:

![Disposal label](image)

Fig. 17: Disposal label

Since the disposal regulations within the EU may differ from country to country we would request you to consult your supplier.
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LABORATORY SAMPLE DIVIDER
PT200 40.412.xxxx

Certificate of CE-Conformity according to:

EC Mechanical Engineering Directive 2006/42/EC

Applied harmonized standards, in particular:
DIN EN ISO 12100 Security of machines

EC Directive Electromagnetic Compatibility 2014/30/EU

Applied standards, in particular:
DIN EN 55011 Emission
DIN EN 61000-3-2 DIN EN 61000-3-3 Emission
DIN EN 61326-1 DIN EN 61000-6-2 Immunity

Additional applied standards, in particular
DIN EN 61010-1 Safety prescriptions concerning measuring-, operating-, controlling- and laboratory equipment
DIN EN 60950-1 Information technology equipment – Safety

Approved regulations for preparation of user information data.

The CE-conformity of the Retsch Laboratory Sample Divider PT200 is assured herewith.

In case of a modification to the machine not previously agreed with us as well as the use of not licensed spare parts and accessories this certificate will lose its validity.

Retsch GmbH

Haan, April 2016

Dr.-Ing. Frank Janetta
Manager Development

CE