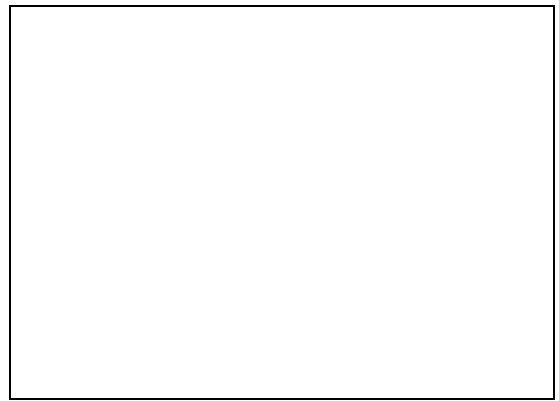


# Manual

## Hammer Mill HM 200



Translation

**Retsch**<sup>®</sup>

**Copyright**

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## 1 Notes on the manual

This manual provides technical guidelines for the safe operation of the device. Read this manual through carefully before installing, putting into service and operating the device. Reading and understanding this manual is essential for handling the device safely and as intended.

This manual does not contain any repair instructions. Please contact your supplier or contact Retsch GmbH directly if anything is unclear or you have questions about these guidelines or the device, or in the case of any faults or necessary repairs.

You can find further information about your device at <https://www.retsch.com> on the pages for the specific device concerned.

### **Amendment status:**

The document amendment 0000 of the "Hammer Mill HM 200" manual has been prepared in accordance with the Directive of Machinery 2006/42/EC.

### 1.1 Disclaimer

This manual has been prepared with great care. We reserve the right to make technical changes. We assume no liability for personal injuries resulting from the failure to follow the safety information and warnings in this manual. No liability will be assumed for damage to property resulting from the failure to follow the information in this manual.


### 1.2 Copyright

This document or parts of it or its content may not be reproduced, distributed, edited or copied in any form without prior written permission of Retsch GmbH. Damage claims shall be asserted in the case of infringements.

### 1.3 Explanation of signs and symbols


In this manual, the following signs and symbols are used:


Signs and symbols	Meaning
①	Reference to recommendation and/or important information.
<b>Bold font</b>	Labelling of an important term.
• • •	Lists
(1), (2), (...) (A), (B), (..)	The components have a fixed marking.
⇒	Action steps of instructions.
→	Result of an action step


	<b>Retsch's Hammer Mill HM 200</b> is primarily referred to as a <b>device</b> within the individual sections of these operating instructions.
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### 1.4 Explanations of the Safety Instructions

The following **warnings** in this manual warn of possible risks and damage:

 <b>DANGER</b>	D1.0000
<p><b>Risk of fatal injuries</b> Source of danger</p> <ul style="list-style-type: none"> <li>– Possible consequences if the danger is ignored.</li> <li>• <b>Instructions and information on how to avoid the risk.</b></li> </ul>	

**Fatal or serious injuries** may result if the “Danger” sign is disregarded. There is a **very high risk** of a life-threatening accident or lasting personal injury. The signal word  **DANGER** is additionally used in the running text or in instructions.

 <b>WARNING</b>	W1.0000
<p><b>Risk of life-threatening or serious injuries</b> Source of danger</p> <ul style="list-style-type: none"> <li>– Possible consequences if the danger is ignored.</li> <li>• <b>Instructions and information on how to avoid the risk.</b></li> </ul>	

**Life-threatening or serious injuries** may result if the “Warning” sign is disregarded. There is an **increased risk** of a serious accident or of a possibly fatal personal injury. The signal word  **WARNING** is additionally used in the running text or in instructions.

**⚠ CAUTION**

C1.0000

**Risk of injuries**

Source of danger

- Possible consequences if the danger is ignored.
- **Instructions and information on how to avoid the risk.**

**Average to slight injuries** may result if the “Caution” sign is disregarded. There is an average or slight risk of an accident or personal injury. The signal word **⚠ CAUTION** is additionally used in the running text or in instructions.

**NOTICE**

N1.0000

**Type of damage to property**

Source of the damage to property

- Possible consequences if the information is ignored.
- **Instructions and information on how to avoid the damage to property.**

**Damage to property** may result if the information is disregarded. The signal word **NOTICE** is additionally used in the running text or in instructions.



## 2 Safety

### CAUTION

C2.0002

#### Risk of injury

Lack of knowledge of the manual

- The manual contains all safety-related information. Disregarding the manual can therefore lead to injuries.
- **Read the manual carefully before operating the device.**



#### Target group:

The HM 200 has been designed for preparing samples in a laboratory environment. laboratory environment. This manual is therefore directed at persons who work with this device in a comparable environment and who already have experience with similar equipment.

The HM 200 is a modern, efficient, state-of-the-art product from Retsch GmbH. Its reliability is ensured when used as intended and with knowledge of this technical documentation.

### 2.1 Use of the Device for the Intended Purpose

The device HM 200 is intended for grinding medium-hard, hard, short-fibered and brittle sample material in dry and slightly moist condition up to a particle size of 100 mm. With its large grinding chamber, the device is designed for fast, loss-free, powerful grinding of ground material with large volumes or in large quantities and provides reproducible results.

As a laboratory instrument, the unit is intended exclusively for sample preparation and processing of solids and is not to be used as a production machine.

The instrument is designed for stationary operation in a dry and clean working environment.

The operator and operating personnel must have read the operating manual and be familiar with the full range of functions of the instrument.

### 2.2 Improper use

The HM 200 may only be used as intended. Any purposes used other than those described under the intended use are considered to be contrary.

The device is not suitable for processing any sample materials which are able to form explosive air mixtures.

The device is not suitable for wet grinding.

Claims for damages of any kind are excluded for material damage and personal injury resulting from improper use and/or failure to follow the safety instructions.

## 2.3 Obligations of the operating company

### 2.3.1 Provisions

The operator is responsible for ensuring that persons working with the device have taken note of and understood all relevant safety regulations.

### 2.3.2 Personnel

- Ensure that only skilled personnel are deployed who, due to their training and experience, are qualified to recognise risks and avoid potential hazards.
- Personnel should be instructed regularly on handling the device, in particular about the occurrence of sudden events.
- Trainee personnel should only be allowed to work on the device when supervised by qualified skilled personnel.
- Check the safety awareness of staff regularly.
- Define responsibilities of personnel according to qualifications and job description.
- Provide personnel with personal protective equipment (PPE).
- Ensure that the following prerequisites have been met:
  - Personnel have read and understood this Manual, and in particular the chapter on "Safety".
  - Personnel know and follow the pertinent accident prevention and safety regulations.
  - Personnel wear the designated personal protective equipment (PPE) when working with the device.

### 2.3.3 Workstation and device

- Ensure that there is sufficient lighting and ventilation at the workstation.
- Ensure that the exhaust air is properly conducted outside.
- All signs on the device must be kept in a legible condition.
- Ensure that all inspections and servicing work prescribed in this Manual are carried out.

### 2.3.4 Qualification of personnel

Work/operating phase	Qualification
Transport Installation Commissioning Operation Controlling Servicing Disposal	Qualified employee who has been trained in the safe use of the device.
Work on the electrical equipment on the device	Electrician who, on the basis of his/her training, knowledge and experience is able to evaluate the work assigned and recognise potential hazards.

### 2.3.5 Personal protective equipment (PPE)

**Recommendations for personal protective equipment (PPE)**

Work/Operational phase	Personal Protective Equipment (PPE)
Transport Detailed listing	Safety shoes
Commissioning Maintenance	Safety shoes
Disposal	Safety shoes
Normal operation (Operation and Control)	Safety shoes Hearing protection Safety goggles Possibly protective gloves for the removal of sample material at extreme temperatures.

### 2.4 Structural modifications and repairs

This Manual does not contain any repair instructions. For safety reasons, repairs may only be carried out by Retsch GmbH, an authorised representative or by qualified service technicians.

**Please notify the following in the event of a repair:**

- The representative of Retsch GmbH in your country;
- Your supplier; or
- Retsch GmbH directly.

**Service address:**

### 2.5 Safety equipment

**Safety circuit door interlock**

The device is equipped with a safety circuit which allows the device to be switched on only when the door is properly closed. Opening and closing the device door is only possible when the device is switched off.

**Emergency stop switch**

The device is equipped with an emergency stop switch installed by the manufacturer. This switch is also used for switching the device on and off in normal operation.

## 2.6 Emergencies

The device can be switched off at any time by using the emergency stop switch on the front of the device.

### 2.6.1 Switching the device off in an emergency

In the event of a malfunction or unexpected interruption of operation, please perform the following steps:

- ⇒ Use the emergency stop switch on the front of the device to prevent the device from being switched on again.
- ⇒ Pull the mains plug out of the socket to disconnect the device from the mains.
- ⇒ Eliminate the fault.

### 2.6.2 Putting the device back into service following a fault or unexpected interruption

- ➔ The fault has been eliminated.
- ⇒ Insert the mains plug into the socket to reconnect the device to the mains
- ⇒ Remove the fuse of the emergency stop switch before switching it on again.

## 2.7 Preventing risks during normal operation

Failure to observe the following safety instructions is contrary to the intended use and represents a danger to personnel and a risk to operational safety.

### Transport and installation

- Use a forklift to move the device during transport and installation.
- Wear safety shoes during transport and installation.
- It is only permitted to connect the device to sockets which are equipped with a protective earth conductor (PE).
- When connecting the device, the values specified on the type plate must match with the values of the power connection.

### Operation

- Read the operating instructions carefully before operating the device.
- Operate the device only at a sufficiently large workplace with a safe stand of the device.
- Check the power cord for any damage before operation.
- Never operate the device if there is any damage visible or suspected.
- Operate the device only in accordance with the technical limits of use.
- During operation, do not wear any jewellery, do not let your hair down and do not wear a tie or similar loose clothing.
- While the device is in operation, it is required to wear protective goggles and hearing protection.
- Before operating the device, it is required to take the necessary measures, as only limited communication is possible while the device is in operation.
- Do not operate the device in explosive atmospheres.
- Observe safety data sheets of the samples and follow the instructions by taking appropriate measures in advance.

- Do not grind explosive and/or flammable substances.
- Do not grind substances that may become explosive and/or flammable during the grinding process.
- During the operation process, components carrying samples can become very hot. Therefore, wait for the sample to cool down before taking it and wear protective gloves, if necessary.
- Observe the surroundings during grinding, as it is difficult to perceive acoustic signals due to the background noise.

#### **Maintenance and repair**

- Prior to the performance of any maintenance or repair work, switch off the device with the emergency stop switch.
- Before any maintenance work is performed, secure the device against being switched on again and disconnect it from the power supply.
- Do not clean the device with running water.
- Any repairs may only be carried out by the manufacturer of the device or an authorised representative.

## **2.8 Avoiding damage to property**

- Protect the device against condensation in case of any expected strong temperature fluctuations (e.g. during airplane transport).
- Do not knock, shake or throw the device during the transport to the place of installation.
- Observe the conditions of the installation site when setting up the device.
- When inserting the sieve, please ensure that it is correctly seated.
- Do not feed the sample material to be grinded until the grinding mechanism has started up.
- Do not feed the material too quickly.
- When using the collecting vessel, do not overfill it to prevent a backflow into the grinding chamber.
- Use a damp cloth for cleaning.
- Do not use solvents or aggressive cleaning agents for cleaning.
- Only use original spare parts for maintenance.

## 2.9 Confirmation Form for the Managing Operator

This manual contains essential instructions for operating and maintaining the device which must be strictly observed. It is essential that they be read by the user and by the qualified staff responsible for the device before the device is commissioned. This 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 he has received sufficient instructions about the operation and maintenance of the system. The user has received the 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.

The managing operator should for legal protection have the user confirm the instruction about the operation of the device.

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

**User**

Surname, first name (block letters)

Position in the company

Place, date and signature

**Managing operator or service technician**

Surname, first name (block letters)

Position in the company

Place, date and signature

### 3 The Hammer Mill HM 200

The Hammer Mill HM 200 of company Retsch is a laboratory instrument and is used for sample preparation. The device enables the grinding of medium-hard, hard, short-fibred and brittle sample material in dry and slightly moist condition up to a particle size of 100 mm.

The final fineness level of the material to be grinded is essentially determined by the following:

- Sieve
- Condition (breakage behaviour) of the material to be grinded.

Due to its large grinding chamber, the device is able to grind large volumes or large quantities of sample material in a fast, loss-free and powerful manner and to provide reproducible results. In addition, the device is also suitable for deagglomeration. Among others, the following types of material can be grinded as sample material:

- Coal
- Clinker
- Gravel
- Broken glass
- Dry animal feed
- Spices/herbs
- Soil samples

The device meets high demands in terms of purity, speed, fineness, reproducibility and safety. Among others, the instrument can be used in industry and research in the following areas due to its robust design:

- Energy supply / power plants
- Building materials sector
- Food industry
- Recycling industry

**NOTICE:** This device is not designed as a production machine and for continuous operation, but as a laboratory device, intended for single-shift intermittent periodic operation of 8 hours per day.

### 3.1 Technical data

Application area	
Applications	Grinding, deagglomeration
Application area	Agriculture, biology, chemistry, plastics, building materials, engineering, electrical engineering, coal, energy sector environment, food, geology, metallurgy, glass, ceramics, medicine, pharmacy
Feed material	Hard, medium-hard, brittle, fibrous

Operating data	
Power (depending on the variant)	3~, 400 V, 50 Hz, 2000 VA, 3.2 A
Protection class	IP55
Speed	3000rpm
Throughput	Approx. 1500 kg/h (depending on the hopper)
Noise emissions	Noise measurement according to DIN 45635-31-01-KL3. The noise characteristics are influenced by the sample material to be grinded, the feed particle size and the sieve used. LpAeq = > 95 dB(A)
Electromagnetic compatibility (EMC)	EMC class A according to DIN EN 55011:2009

Values for grinding	
Maximum feed volume	30 l (large collecting vessel) 10 l (small collecting container)
Maximum grain size of the feed quantity	100 mm
Maximum hardness of the feed	5-6 Mohs
Maximum achievable final fineness level	< 800 µm, depending on material and sieve

Dimensions and weight	
Height (incl. funnel)	1570 mm
Width	670 mm
Depth	750 mm
Depth with open grinding chamber	1400 mm
Weight	Approx. 150 kg
Hammer diameter	200 mm
Hammer length	175 mm
Required footprint	600 x 700 mm

Conditions for the installation site	
Installation height	Max. 2000 m above sea level
Ambient temperature	5 °C to 40 °C
Humidity	Maximum relative humidity 80 % to 31 °C, decreasing linearly to 50 % relative humidity at 40 °C



### 3.2 Emissions

**⚠ CAUTION**

C.0020

**Risk of injury caused by not hearing acoustic signals**

Loud grinding noise

- Loud grinding noise may result in not hearing acoustic warning signals, leading to injuries.
- **Take the volume of grinding noise into consideration when designing the acoustic signals in the working environment.**
- **Where necessary, use additional visual signals.**

**⚠ CAUTION**

C3.0045

**Hearing damage**

Depending on the type of material and the sieve that is used, a high sound level may occur.

- Excessive sound, in strength and duration, can cause impairment or permanent damage to hearing.
- Therefore, suitable noise protection measures must be provided or hearing protection must be worn.



**Noise characteristics:**

Noise measurement in accordance with DIN 45635-31-01-KL3.

The noise characteristics are mainly influenced by the properties of the material to be grinded and the sieve used.


Example 1	
Feed material	Nut shells
Feed quantity	2 kg

Under these operating conditions, the workplace-related equivalent continuous sound level is  $L_{eq} = 91.2 \text{ dB(A)}$ .

Example 2	
Feed material	Circuit board remnants
Feed quantity	2 kg

Under these operating conditions, the workplace-related equivalent continuous sound level is  $L_{eq} = 99.3 \text{ dB(A)}$ .

### 3.3 Views of the device

 The numbering of components in the following views of the device is fixed and is used in further figures of components in the Manual.

3.3.1 Front

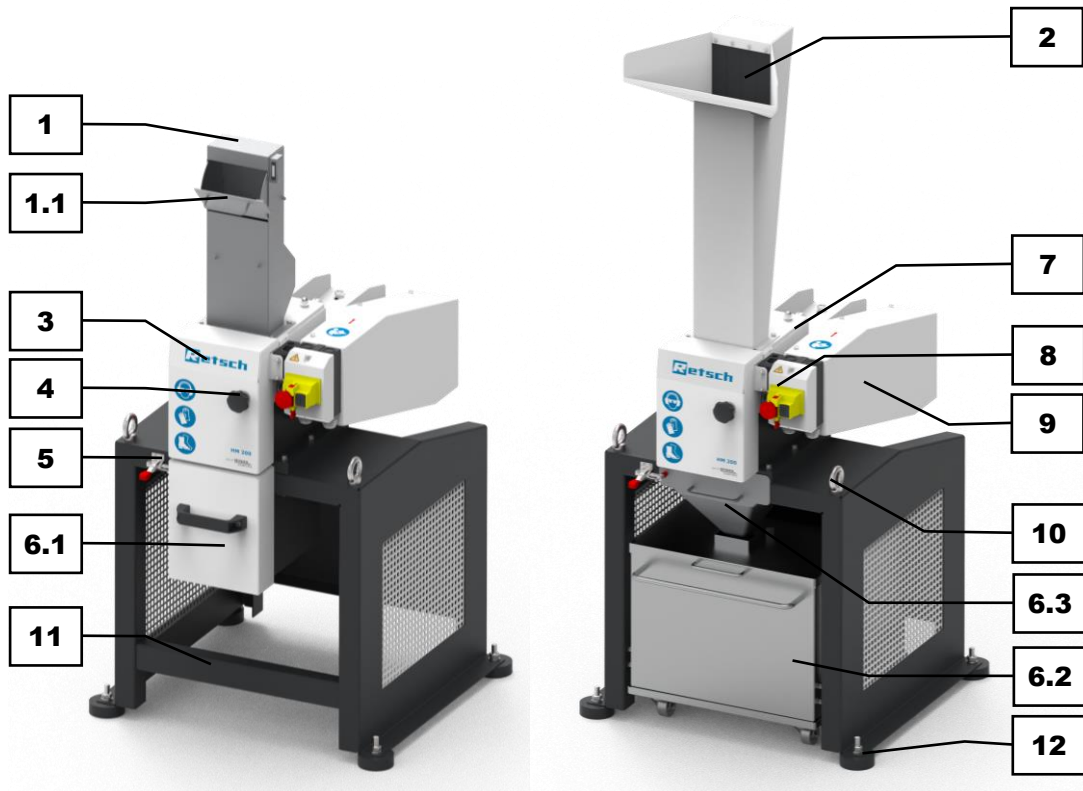
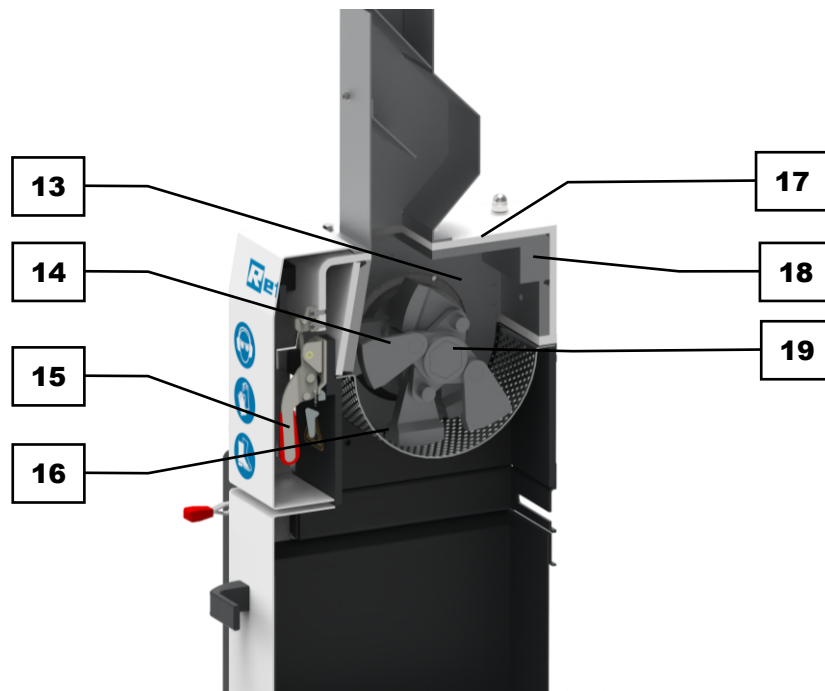


Fig. 1: Front view

No.	Component	Function
1	Batch feed hopper	For the portion-wide feeding of sample material into the grinding chamber.
1.1	Flap	Feeding area of the hopper for the portion-wide feeding of material to be grinded.
2	Feed hopper for continuous operation	For continuous feeding of material to be grinded into the grinding chamber.
3	Door, grinding chamber	Closes the grinding chamber during the grinding process.
4	Door interlock	A handle which creates a manual lock by turning.
5	Quick release for collecting hopper	Fastens the collecting receptacle and secures it against slipping.
6.1	Collecting receptacle (small)	Collects the grinded material from the grinding chamber. Suitable for sample volumes of up to 10 litres.
6.2	Collecting receptacle (large)	Collects the grinded material from the grinding chamber. Suitable for sample volumes of up to 30 litres.
6.3	Outlet for continuous operation	Feeds the grinded material continuously from the grinding chamber into the collecting receptacle.
7	Lubrication point	Access for lubricating the rotor.
8	Emergency stop switch	Switches the device either on or off.
9	Belt cover	Protective cover for the motor belt drive.
10	Ring bolt	Load lifting device for transport.
11	Reinforcing rod	Reinforcing rod to provide additional stability in order to enable the transport by means of a forklift.
12	Foot	In order to bolt the device to the floor.

### 3.3.2 A view on the grinding chamber



**Fig. 2:** Front view of the grinding chamber

No.	Component	Function
13	Grinding chamber	Place for grinding the sample material in the grinding chamber.
14	Hammer	Tool for grinding the sample material in the grinding chamber.
15	Clamping lock	Serves to secure all components in the grinding chamber. It is used to securely close the unit.
16	Sieve	Influences the final fineness of the sample material by size and type of perforation.
17	Wearing plate	To protect the grinding chamber from abrasion.
18	Baffle plates	Counterpart to the grinding unit.
19	Rotor	To accommodate the hammers.

3.3.3 Back

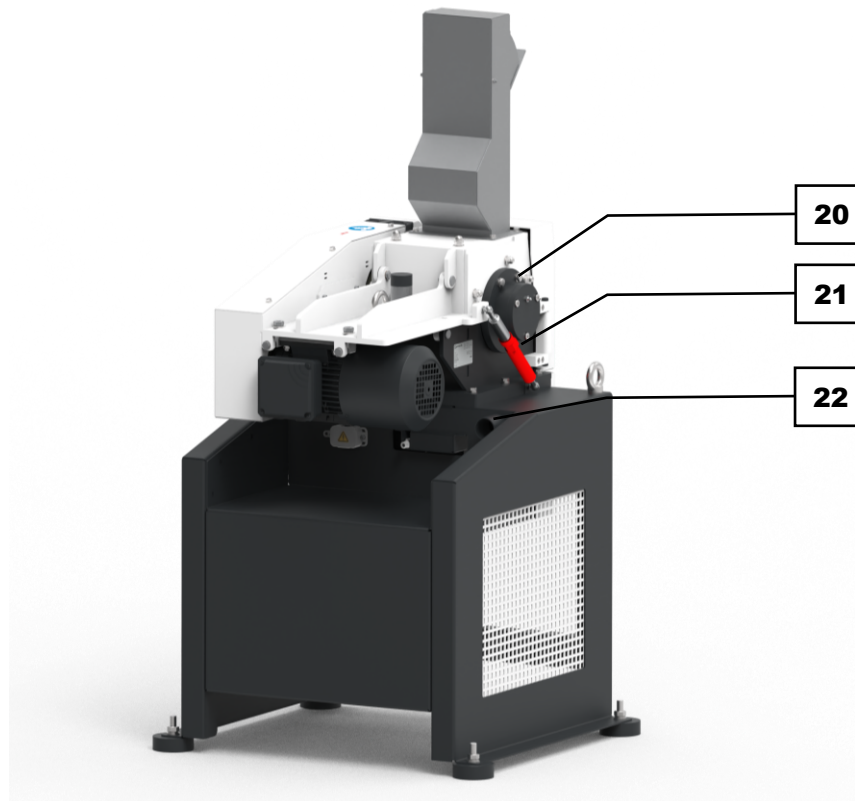


Fig. 3: Rear view

No.	Component	Function
20	Lubrication point	Access to the lubrication of the rotor.
21	Damper	Securing the folding mechanism to ensure that the device does not collapse.
22	Suction connection	Enables the connection of an exhaust system or a vacuum cleaner.

### 3.4 Instructions on the device

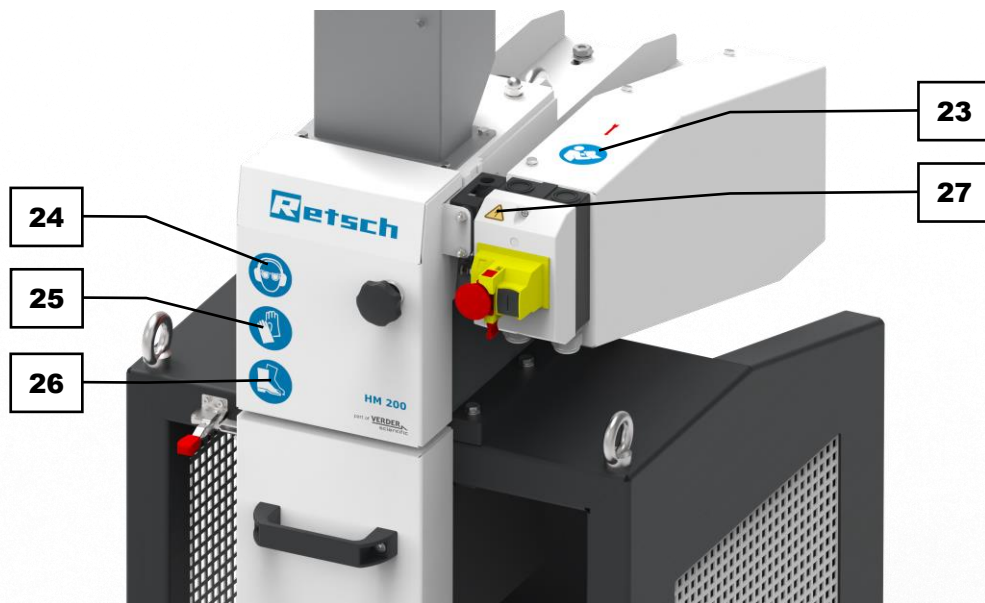


Fig. 4: Front view: Safety notes are clearly marked on the device.

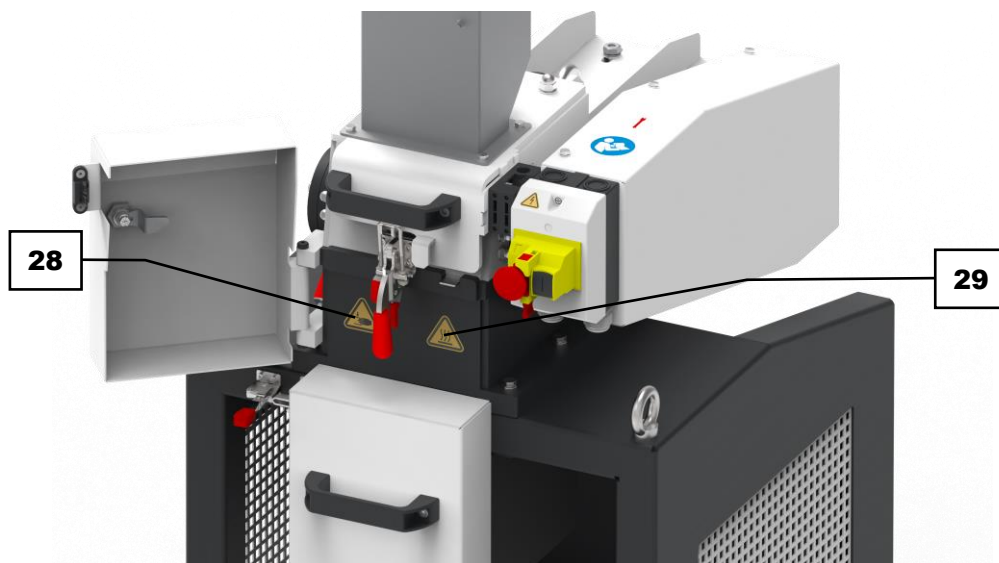


Fig. 5: Front view with the door opened: Safety notes are clearly marked on the device

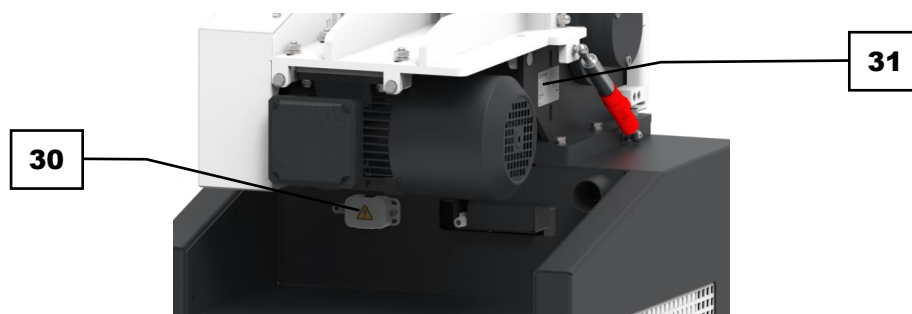


Fig. 6: Rear view: Safety notes are clearly marked on the device.

No.	Component	Function
23	Operating instructions	The operating instructions must be read and observed before the device is put into operation.
24	Wearing hearing protection and safety goggles	Safety goggles and hearing protection must be worn when operating the device. This PPE prevents eye injuries in case that sample material is ejected during the grinding process and acoustic stresses that may be caused by the grinding noise of the device.
25	Wearing protective gloves	Protective gloves must be worn when removing sample materials with high temperatures from the collecting receptacle of the device.
26	Wearing safety shoes	Safety shoes must be worn when operating the device.
27	Electrical voltage	Warning of a danger zone in which electrically live parts are located.
28	Danger of crushing	Warning – Crush injury risk within the danger area of the drawer.
29	Hot surfaces	Warning of drawer or grinding materials with high temperatures, which can cause burns if touched.
30	Electrical voltage	Warning of a danger area in which there are parts under electrical voltage.
31	Type plate	Information on the device

### 3.5 Installation drawing

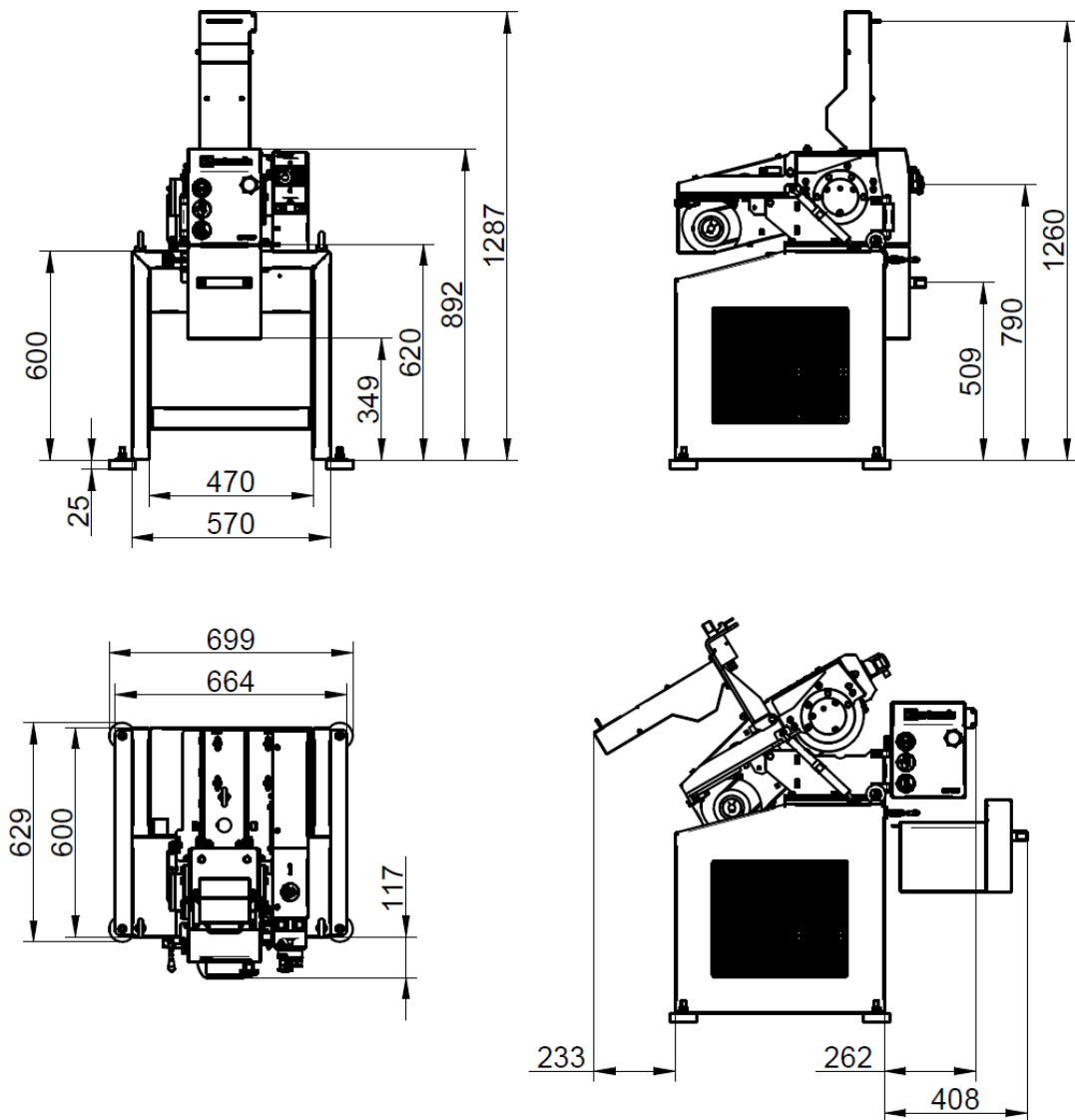
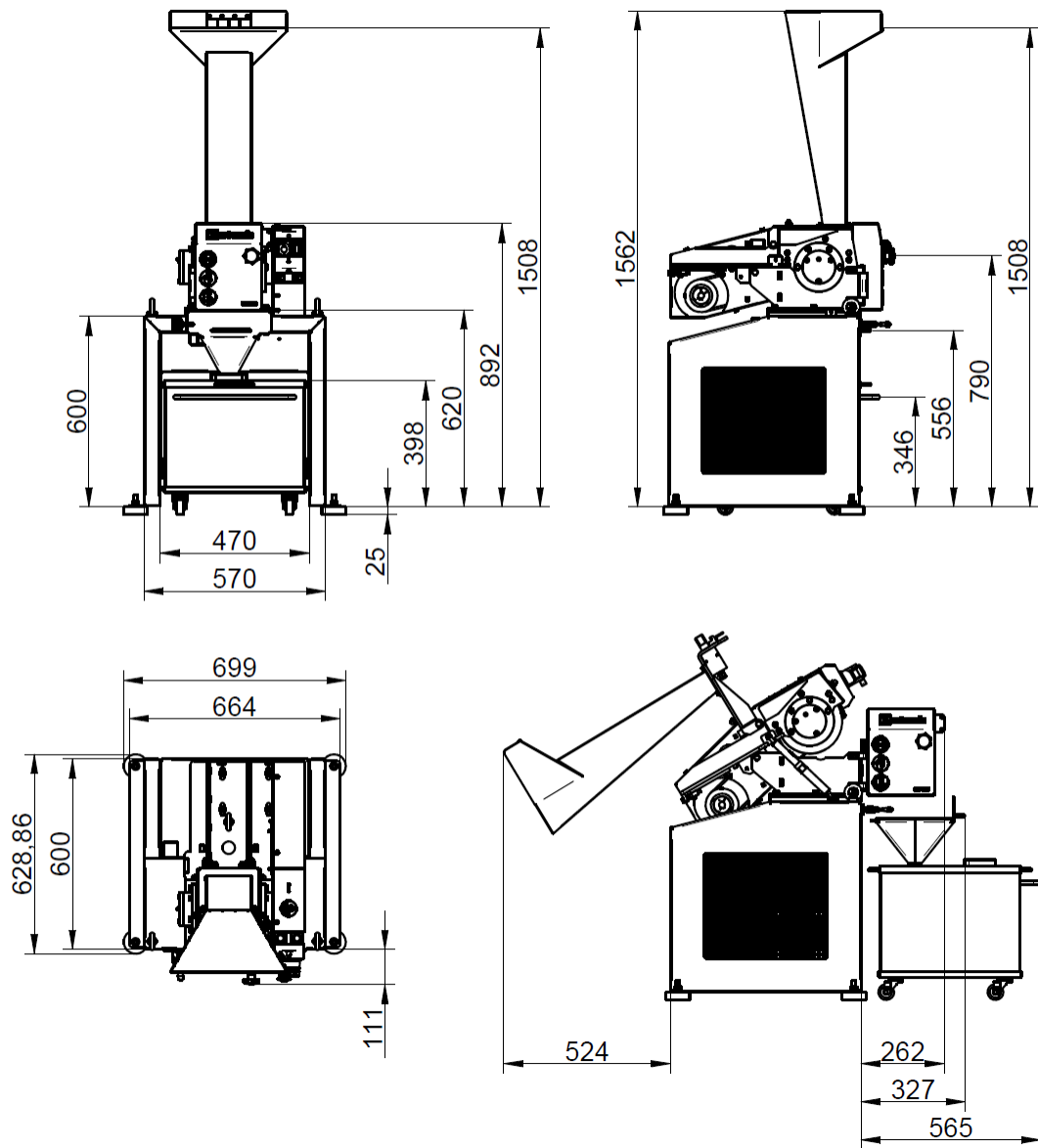


Fig. 7: Set-up drawing –Batch operation



**Fig. 8:** Set-up drawing –Continuous operation



### 3.6 Type Plate Description

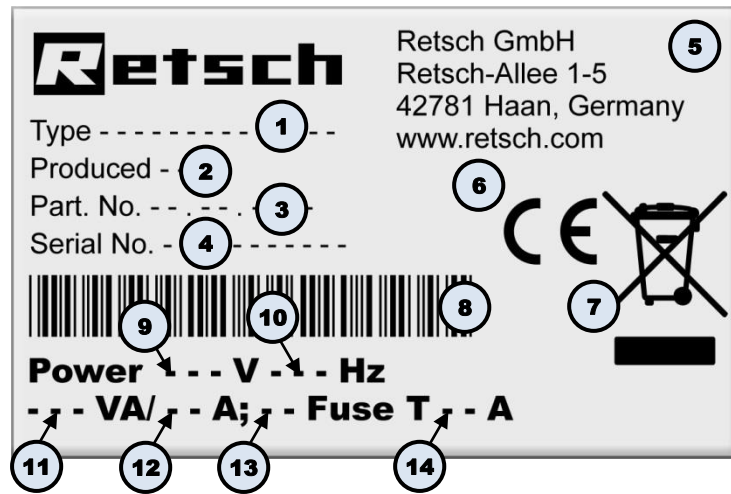


Fig. 9: Type plate

- 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

① In the case of queries please provide the device designation (1) or part number (3), as well as the serial number (4) of the device.

## 4 Packaging, Transport and Installation

### 4.1 Accessories included with delivery

Grease cartridge (Item #: 05.185.0019)

Grease gun (Item #: 05.664.0002)

### 4.2 Packaging

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

#### NOTICE

N2.0001

##### Complaint or return

Keeping the packaging

- Inadequate packaging and insufficient securing of the device can jeopardise the warranty claim in the event of a complaint or return.
- **Keep the packaging for the duration of the warranty period.**

### 4.3 Transport

#### ⚠ WARNING

W2.0005

##### Risk of injury from the device falling down

Lifting the device above head height

- When lifting the device, it may fall down and cause serious injuries.
- **Transport the device as close as possible above the floor. In particular, avoid lifting the device above head height.**
- **Make sure that the reinforcing rod is screwed tight.**



#### NOTICE

N3.0017

##### Damage to components

Transport

- Mechanical or electronic components may be damaged during transport. The device must not be knocked, shaken or thrown during transport.
- **Move the device gently during transport.**

#### NOTICE

N4.0014

##### Complaints

Incomplete delivery or transport damage

- The forwarding agent and Retsch GmbH must be notified immediately in the event of transport damage. It is otherwise possible that subsequent complaints will not be recognised.
- **Please check the delivery on receipt of the device for its completeness and intactness.**
- **Notify your forwarding agent and Retsch GmbH within 24 hours.**

## 4.4 Temperature Fluctuations and Condensation

### NOTICE

N5.0016

#### Damaged components due to condensation

Temperature fluctuations

- The device may be exposed to substantial fluctuations in temperature during transport. The ensuing condensation can damage electronic components.
- **Wait until the device has acclimatised before putting it into service.**

#### Temporary storage:

Also in case of an interim storage the device must be stored dry and within the specified ambient temperature range.

## 4.5 Conditions for the Installation Site

### WARNING

W3.0001

#### Serious injury

Machine is in an unsteady position

- The machine can tip over if set up on an unstable surface or not positioned vertically, resulting in bruising or broken bones.
- **Set the machine up vertically on a level, stable base.**

### NOTICE:

N6.0021

#### Ambient temperature

Temperatures outside the permissible range

- Electrical and mechanical components may become damaged.
- The performance data may change to an unknown extent.
- **The temperature range (+ 5°C - 40 °C ambient temperature) of the device should not be exceeded or fallen short of.**

### NOTICE:

N7.0002

#### Installation of the device

Disconnecting the device from the mains

- It must be possible to disconnect the device from the mains at any time.
- **The device must be plugged into an easily accessible power outlet so that the power plug can be pulled out quickly in case of any danger.**
- Installation height: max. 2 000 m above sea level
- Ambient temperature: 5 °C – 40 °C
- Maximum relative humidity < 80 % (at ambient temperatures ≤ 31 °C)

For ambient temperatures  $U_T$  between 31 °C and 40 °C, the maximum relative humidity value  $L_F$  linearly decreases according to  $L_F = -(U_T - 55) / 0.3$ :

Ambient temperature	Max. rel. humidity
≤ 31 °C	80 %
33 °C	73.3 %
35 °C	66.7 %
37 °C	60 %
39 °C	53.3 %
40 °C	50 %

**⚠ CAUTION** The device can generate considerable noise emissions during the grinding process. If necessary, a structural noise protection must be built.

**NOTICE:** Please ensure that the base is resistant to the sample material that needs to be grinded. It may happen that sample material gets onto the base when filling or emptying the grinding chamber and thereby causes damage.

**NOTICE:**

N8.0015

**Property damage**

High relative humidity

- Electrical and mechanical components may become damaged.
- The performance data change to an unknown extent.
- **The relative humidity in the vicinity of the device should be kept as low as possible.**

## 4.6 Removing the Transportation Lock

**NOTICE**

N9.0018

**Transportation lock**

Transport without transportation lock, or operation with transportation lock

- Mechanical components may be damaged.
- **Only transport the device with mounted transportation lock.**
- **Do not operate the device with built-in transportation lock.**

The device is secured to the transport pallet on its feet by a transport lock (12).

Before setting up the device, remove the transportation lock as follows:

⇒ Carefully remove the packaging of the device and check the device in terms of any transport damages.

⇒ Loosen the transportation lock, which consists of four nuts, by using a 17 mm wrench.

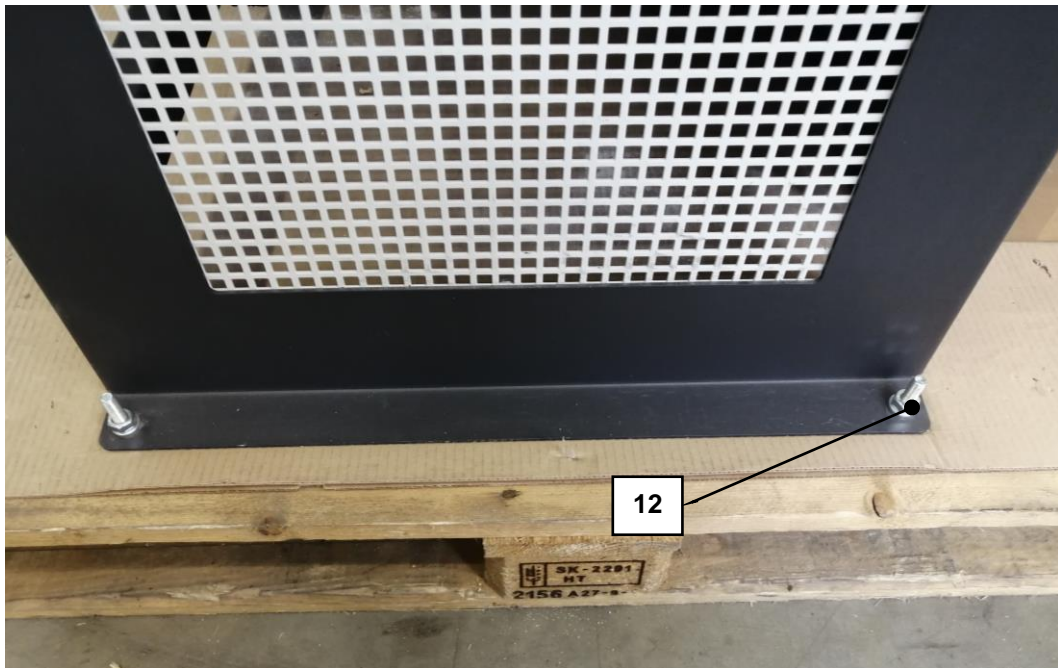


Fig. 10: Loosening the transportation lock from the transport pallet

## 4.7 Installation of the Device

### **WARNING**

W4.0001

#### **Serious injury**

Machine tipping over

- Bruises and broken bones may result if the machine tips over.
- **Screw the machine firmly to the base!**

The device can be transported and set up using either a forklift or a crane.

Set up the device with a forklift as follows:

The device has a reinforcing rod (11) on the front side which allows the device to be transported and set up by using a forklift.

⇒ **NOTICE** The device is secured to the pallet with a transport lock. Remove the transport lock before moving the device.

⇒ Carefully drive the forks of the forklift right underneath of the device.

⇒ Carefully lift the device and move it slowly to its installation site.

⇒ Carefully place the device on a level and solid surface.

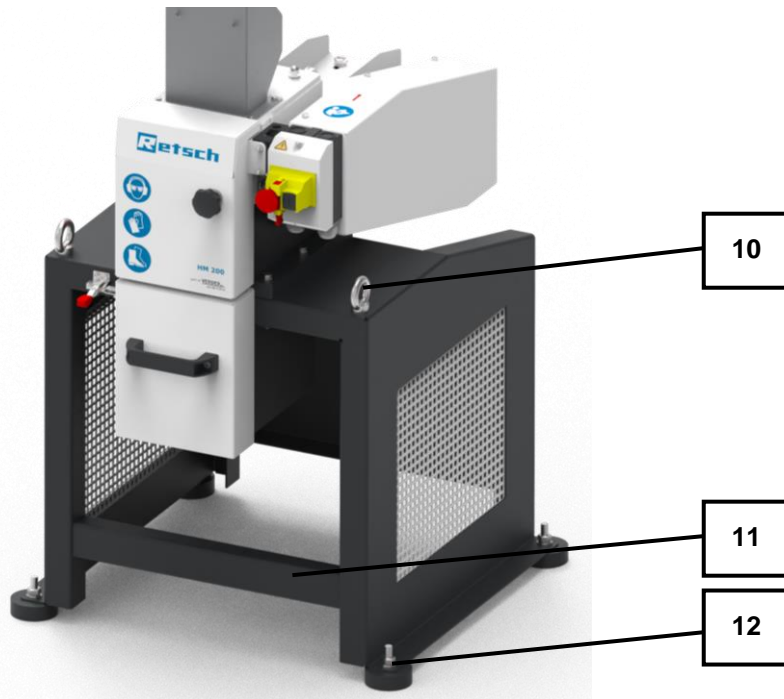
Set up the device with a crane as follows:

The unit is equipped for transport and installation with a crane w eyebolts (10), which serve as the load lifting devices.

⇒ Guide the lifting straps through the three eyebolts.

⇒ Lift the unit carefully. Observe the regulations for using a crane.

⇒ Carefully set the unit down on a level and firm surface.



**Fig. 11:** Base frame with reinforcing rod and mounted rubber feet

⇒ The device must be anchored to the ground at its place of installation. Use dowels, 10 mm screws and washers depending on the type and firmness of the ground. If anchoring to the floor is not possible, mount the rubber feet (**12**) supplied as an alternative.


## 5 First Commissioning

### 5.1 Electrical Connection

**⚠ WARNING** W5.0015

**Risk to life caused by an electric shock**  
 Connection to socket without a protective earth conductor


- Connecting the device to sockets without a protective earth conductor can lead to life-threatening injuries caused by an electric shock.
- **Always operate the device using sockets with a protective earth conductor (PE).**



**⚠ WARNING** W6.0002

**Danger to life through electric shock**  
 Damaged power cable


- Operating the device with a damaged power cable or plug can lead to life-threatening injuries caused by an electric shock.
- **Before operating the device, check the power cable and plug for damage.**
- **Never operate the device with damaged power cable or plug!**



**⚠ WARNING** W7.0005

**Danger to life due to electric shock or fire**  
 Incorrect connection to the power supply may result in parts of the housing or cables being live and in fires starting.

- Serious injuries or death due to an electric shock.
- Serious injuries or death due to fires.
- **The device may only be connected by a qualified electrician.**



**NOTICE** N10.0022

**Electrical connection**  
 Failure to observe the values on the type plate

- Electronic and mechanical components may be damaged.
- **Connect the device only to a mains supply matching the values on the type plate.**

**⚠ 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.

- Information about the required voltage and frequency of the device can be found on the type plate.
- The listed values must agree with the existing mains supply.
- The device may only be connected to the power supply using the connection cable supplied.
- The circuit breaker for connecting the power cable to the power supply at the installation site should be suitable for higher start-up current and correspond to a type C characteristic (slow blow fuse).

The HM 200 must be connected to the power supply on site for initial commissioning.

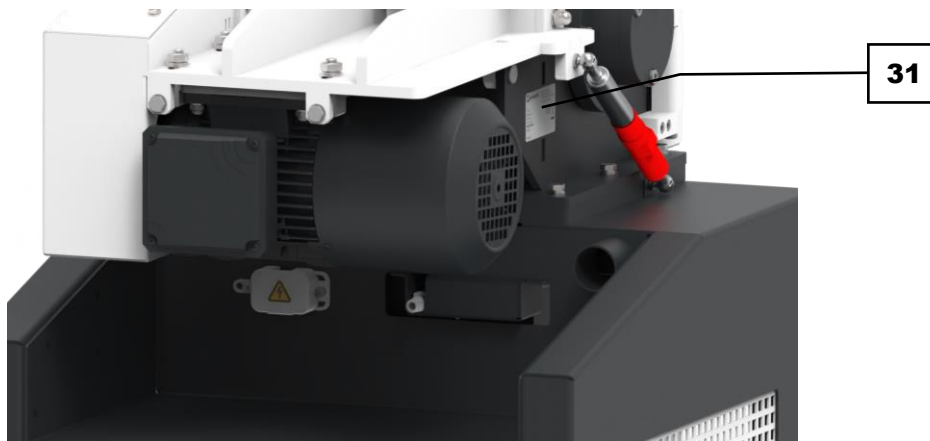
Ensure the following before connecting the device to the power supply:

- The application site complies with the installation requirements;
- The device is securely and firmly in place;
- The power values for the device (type plate) correspond to the values of the power supply at the site.

## 5.2 Establishing the electrical connection

In order to connect the device to the power supply, please proceed as follows:

- ⇒ Reconcile the information on the type plate (31) of the device with the values of the mains connection on site.
- ⇒ Plug the power cord of the device into a socket at the installation site.



**Fig. 12:** Type plate



### 5.3 Lubricating the device when putting it into service for the first time

**NOTICE:** During the initial start-up, the device must be lubricated after eight hours of operation. There are two lubrication points on the device. Please use the supplied grease gun for lubrication.

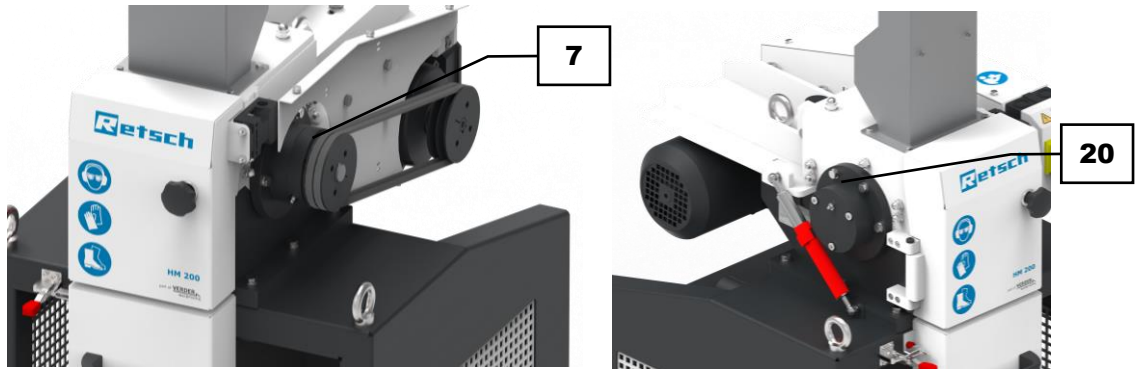


Fig. 13: Lubrication points

The following quantities of grease are required after a certain interval:

Lubrication point	Quantity [grams]	Interval [Operating hours]	Operating status
7	7	60	Downtime
20	7	60	Downtime

**NOTICE:** Use natural-coloured, lithium saponified grease (graphite-free). Shell Gadus S2 V220 2 is supplied along with the delivery of the device.

Lubricate the lubrication points as follows:

- ⇒ Switch off the device.
- ⇒ Disconnect the power plug.
- ⇒ Dismantle the belt cover to expose the lubrication point (7) by loosening the screws.
- ⇒ Apply the grease gun to the lubrication points (7, 20) one after the other and press the appropriate amount of grease into the respective lubrication point.
- ⇒ Mount the belt cover.

## 6 Operating the device

**⚠ DANGER**

**Danger to life**  
Rotating parts

- Intervention during operation may lead to strangulation and bone fractures caused by rotating parts.
- **Wear work clothes (e.g. no scarves, ties, chains) when operating the device). Secure long hair with a hair net, for example.**

**⚠ WARNING** WB.0001


**Serious injury**  
Thermal energy in the grinding chamber

- The thermal energy in the grinding chamber may result in injuries depending on the sample material.
- **Comply with the instructions in the safety datasheets for the sample material and take appropriate measures.**

**⚠ WARNING**

**Serious injury**  
Volume of the machine

- Depending on the sample material the machine can get very loud, which can result in physiological impairments (e.g. hearing loss, tinnitus, loss of balance, reduced alertness).
- **Wear hearing protection when operating the machine.**



**⚠ WARNING** W9.0001

**Serious injury, damage to property**  
Chemical changes to substances

- During processing, certain substances may reach a flammable state that can result in injuries and damage to property.
- **Do not process any substances that can become explosive as a result of processing.**

**⚠ WARNING** W10.0001

**Serious injury**  
Ignition sparks

- Ignition sparks on electrics can lead to burns and poisoning.
- **Ensure that the machine is not operated in a potentially explosive atmosphere.**
- **Use V0 materials in the area of ignition sources.**

**⚠ WARNING** W11.0001

**Serious bodily injuries**  
Careless use of protective equipment

- Improper use of protective equipment may result in hearing damage, eye injury, bruising or broken bones.
- **Wear hearing protection while operating the machine.**
- **Wear safety shoes, dust mask, gloves and safety goggles when opening the grinding chamber, pulling out the collection container or removing a sieve**
- **Wear personal protective equipment when starting the machine.**
- **Observe the instructions in the material safety data sheets of the sample material and take appropriate measures.**

**⚠ WARNING** W12.0001


**Serious injury**  
Unauthorised starting/operation

- Operation of the machine by third parties can result in bruises, crushing or broken bones.
- **Disconnect the machine from the power supply, e.g. during cleaning work.**

**⚠ WARNING** W13.0002

**Danger to life through electric shock**  
Damaged power cable

- Operating the device with a damaged power cable or plug can lead to life-threatening injuries caused by an electric shock.
- **Before operating the device, check the power cable and plug for damage.**
- **Never operate the device with damaged power cable or plug!**



**⚠ CAUTION** C4.0005

**Minor injuries**  
Falling objects or leaking liquids

- Sample material or liquids may fall or drip when the collecting vessel is removed.
- Injuries may be caused by sample material.  
For example, escaping liquids may cause burns.
- **Carefully pull out the collecting vessel.**

**⚠ CAUTION**

C5.0005

**Burns**

Heating of the sample material during grinding

- Hot surfaces on the collecting receptacle or the grinding chamber can cause burns.
- Hot sample material in the collecting receptacle can cause burns.
- **Allow the hot sample material to cool down before removing the collecting receptacle and opening the door.**
- **Wear protective gloves.**



**⚠ CAUTION**

C6.0005

**Risk of injury**

Potentially explosive atmosphere

- The device is not suitable for use in potentially explosive atmospheres. Operating the device in a potentially explosive atmosphere can lead to injuries caused by an explosion or fire.
- **Never operate the device in a potentially explosive atmosphere!**

**⚠ CAUTION**

C.0020

**Risk of injury caused by not hearing acoustic signals**

Loud grinding noise

- Loud grinding noise may result in not hearing acoustic warning signals, leading to injuries.
- **Take the volume of grinding noise into consideration when designing the acoustic signals in the working environment.**
- **Where necessary, use additional visual signals.**

**6.1 Switching the device on/off**

In order to switch on the device, please proceed as follows:

**⚠ CAUTION** Before switching on the device each time, please check the function of the pneumatic spring.

⇒ Check whether the device is correctly connected to the power supply.

⇒ Switch on the device by using the emergency stop switch, which is located at the front side of the device. To do this, activate the fuse (8.1) of the emergency stop switch by turning it.

⇒ Start the device by pressing the adjacent ON-switch (8).

➔ The device has been switched on and immediately starts with the grinding process.

In order to switch off the device, please proceed as follows:

**NOTICE:** The device must not be switched off until there is no longer any sample material in the grinding chamber that needs to be grinded. The hammers could get jammed and thereby damage the mechanical components.

⇒ Switch off the device by pressing the emergency stop switch (8) which is located on the front side of the device.

➔ The switch engages. The device has been switched off.

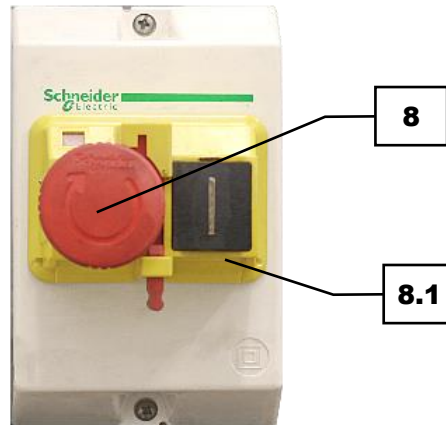


Fig. 14: Emergency stop switch

## 6.2 Replacing the feed hopper

There are two different types of feed hoppers which are available for feeding sample material. The batch feed hopper is suitable for small sample quantities which is equipped with a flap for feeding it in portions, while the feed hopper for continuous operation is suitable for larger sample quantities.

**NOTICE** The device cannot be started without a mounted feed hopper.

Assemble or disassemble the feed hopper as follows:

- ⇒ Switch off the device by pressing the emergency stop switch (8).
- ⇒ Release the door lock (4) by turning it (counter-clockwise) and open the door.
- ⇒ For disassembly, loosen the four screws (1.2) and lift off the hopper (1).
- ⇒ For assembly, put on the hopper (1) and tighten the four screws (1.2).
- ⇒ Close the door and secure it with the door lock (4).

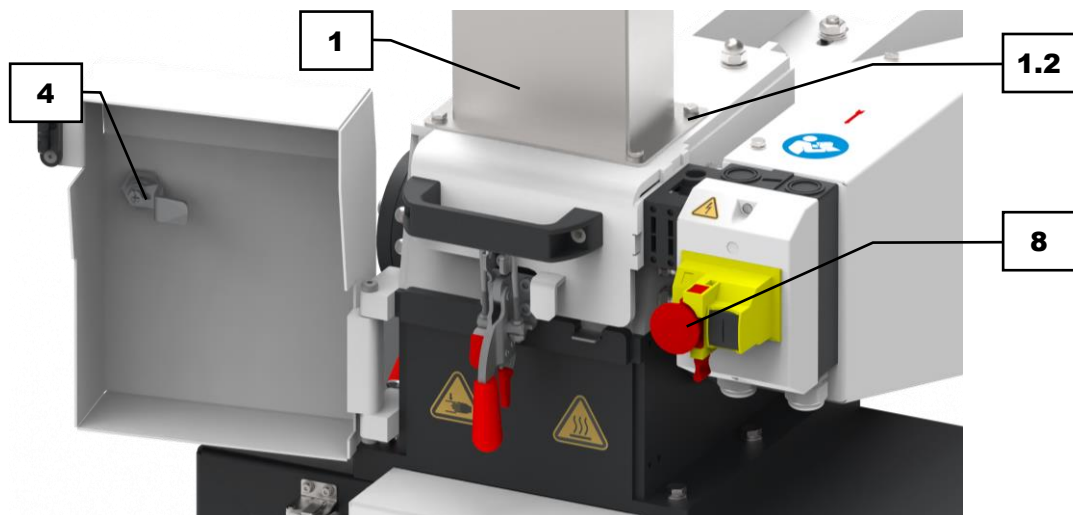


Fig. 15: Opening the safety door

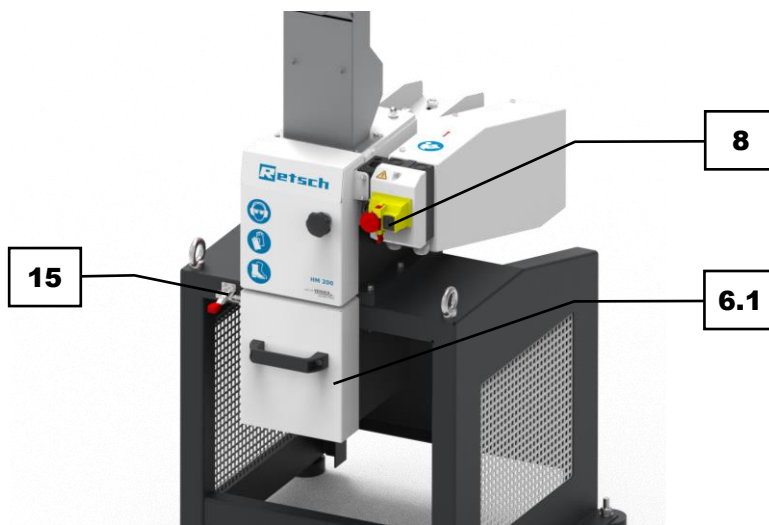
### 6.3 Replacing the collecting receptacle

The sample material which is grinded in the grinding chamber falls into the collecting receptacle. Two different sizes of collecting receptacles are available. The small collecting receptacle (6.1) with a capacity of 10 litres is suitable for small sample quantities. Alternatively, the large collecting receptacle (6.2) with a capacity of 30 litres can be used.

**NOTICE:** The device cannot be started without an inserted collecting receptacle.

Insert the small collecting receptacle as follows:

- ⇒ Switch off the device by pressing the emergency stop switch (8).
- ⇒ Open the clamping lock (15).
- ⇒ Hook the collecting receptacle (6.1) into the guides and push it under the grinding chamber.
- ⇒ Close the tension lock (15) in order to secure the collecting receptacle.



**Fig. 16:** Inserting the small collecting receptacle

Insert the large collecting receptacle as follows:

- ⇒ Switch off the device by pressing the emergency stop switch (8).
- ⇒ Open the clamping lock (15).
- ⇒ Hook the hopper (6.3) into the guides and push it under the grinding chamber.
- ⇒ Push the large collecting receptacle (6.2) under the hopper.
- ⇒ Close the tension lock (15) in order to secure the hopper.



Fig. 17: Inserting the large collecting receptacle

### 6.4 Preparing the grinding process

**WARNING**

W14.0003

**Serious personal injury**  
Crushing when opening and closing the device

- When opening and closing the device, limbs can get trapped and crushed between the tilted upper part and the middle part.
- **Never guide any body parts into the moving space of the device.**

Before the grinding process is started, the sieve must be inserted into the grinding chamber. Insert the sieve as follows:

- ⇒ Switch off the device by pressing the emergency stop switch (8).
- ⇒ Release the door lock (4) by turning it (counter-clockwise) and open the door.
- ⇒ Open the tension lock (15).

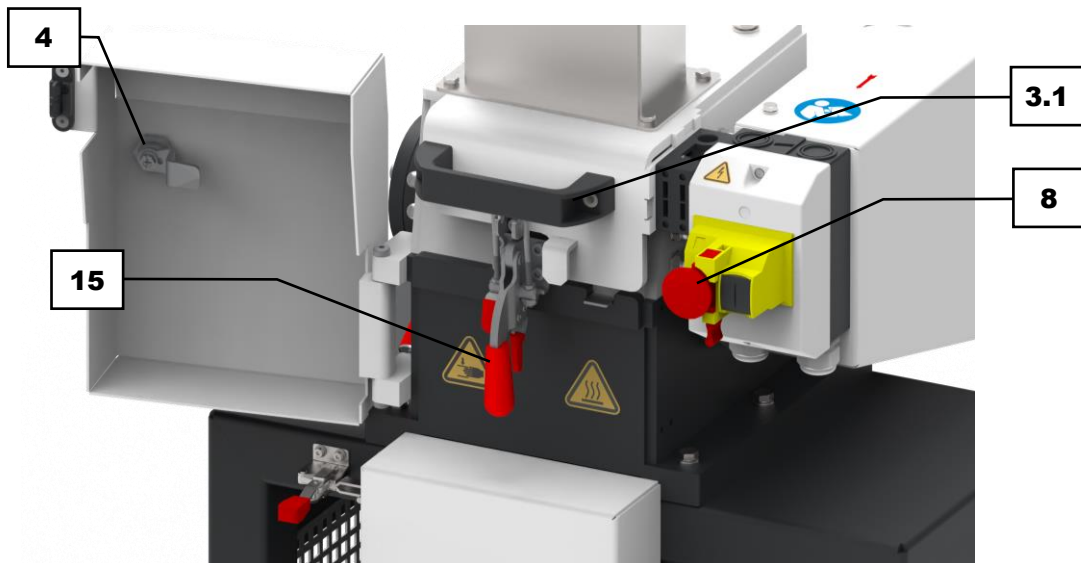


Fig.18: Opening the safety door

- ⇒ Slowly swing the grinder gear backwards. Use the handle (3.1).
- ⇒ Insert the sieve (16) into the grinding chamber with the bulge facing downwards. Make sure that the lug (16.1) integrated in the sieve points to the front. This lug serves as a removal aid (16.1) later on for the removal of the sieve, should the sieve become jammed.

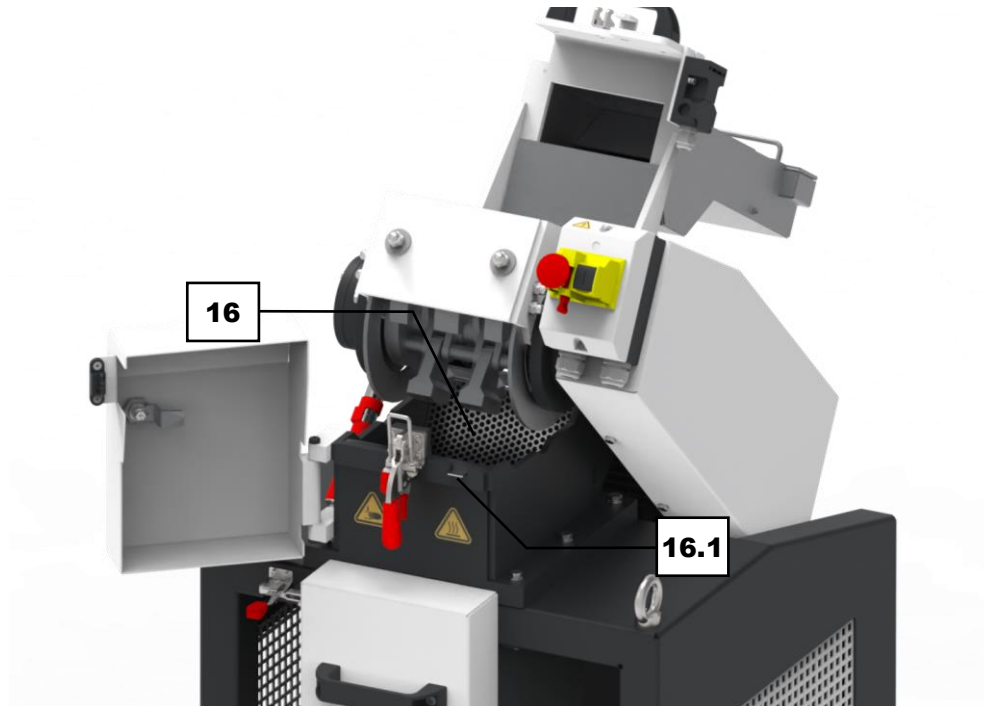


Fig.19: The opened grinding chamber

## 6.5 Starting the grinding process

**⚠ CAUTION**

**Risk of burns or poisoning**  
Varying sample properties

- The properties and therefore also the chemical reactivity of the sample can change during the grinding process and can cause burns or poisoning as a result.
- **Do not process any substances in this device whose chemical reactivity is so changed by grinding that there is a risk of explosion or poisoning.**
- **Take note of the safety data sheets for the sample material.**

C7.0010





**⚠ CAUTION**

C8.0026

**Danger! Risk of burns and injury due to explosion**

Mixing of different sample materials

- Successive sample preparations of different materials may cause undesirable chemical reactions that can lead to fires or explosions causing injury.
- **Do not grind any sample materials in this device where the chemical reactivity may be increased by contact with a previously crushed substance.**
- **If in doubt, clean the device and all components used before grinding any other sample material.**
- **Observe the safety data sheets of the sample materials.**



**⚠ CAUTION**

C9.0004

**Risk of injury**

Explosive or flammable samples

- Samples can explode or catch fire during the grinding process.
- **Do not use any samples in this device that carry a risk of explosion or fire.**
- **Take note of the safety data sheets for the sample material.**



**⚠ CAUTION**

C10.0006

**Risk of injury**

Sample material that is harmful to health

- Sample material that is harmful to health can injure people (illness, contamination).
- **Use suitable extraction systems with sample material that is harmful to health.**
- **Use suitable personal protective equipment with sample material that is harmful to health.**
- **Take note of the safety data sheets for the sample material.**



**⚠ CAUTION** The grinding process must not be started until a sieve and a collecting vessel are inserted and a feed hopper is mounted.

The device can be operated with two different hoppers. The batch hopper (1) is suitable for feeding in portion while the feed hopper (2) is suitable for continuous feeding of sample material.

In order to start the grinding process, please proceed as follows:

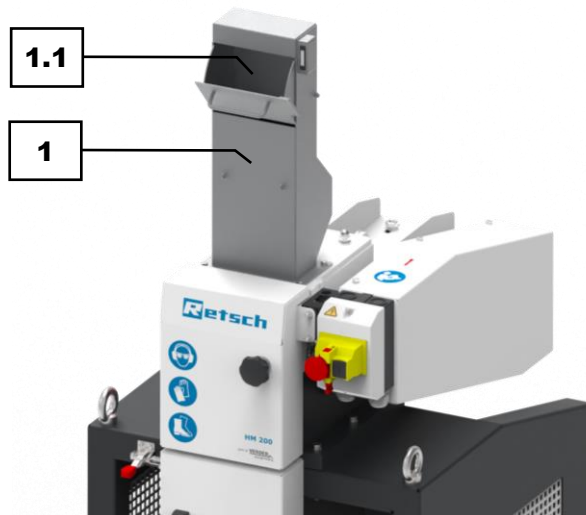
⇒ Switch on the device to activate the grinding gear.

When using the batch feed hopper:

⇒ Place the sample material in the flap (1.1) of the batch hopper (1).

⇒ Close the flap. The sample material falls through the feed hopper into the grinding chamber.

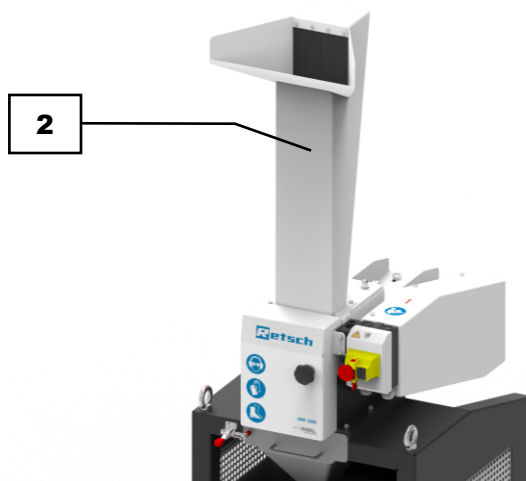
⇒ As soon as there is no longer any audible grinding noise, additional sample material may be filled in, as described above.



**Fig. 20:** Fill in sample material with the batch feed hopper.

When using the feed hopper for continuous operation:

- ⇒ Place small quantities of sample material to be grinded in the feed hopper for continuous operation (2). The sample material falls through the feed hopper into the grinding chamber.
- ⇒ If there are no longer any grinding noises that can be heard, additional sample material can be filled in, as previously described.



**Fig. 21:** Fill in sample material with the feed hopper for continuous operation.

- ➔ The sample material that is grinded in the grinding chamber falls into the collecting receptacle.

**NOTICE:** Please observe the maximum filling quantity of the collecting receptacle.

## 6.6 Stopping the grinding process

**NOTICE:** The device may only be stopped when there is no longer any sample material left to be ground in the grinding chamber. The hammers could get jammed and thereby damage any mechanical components.

The grinding process can only be stopped by switching off the device. This procedure is done as follows:

- ⇒ Switch off the device by pressing the emergency stop switch on the front side of the device.
- ➔ The switch engages. The grinding process is finished. The device is switched off.

## 6.7 Removing the sample material

### CAUTION

C11.0024

#### **Risk of burns and scalds from heated sample material and/or inside the grinding chamber**

- During the grinding process, the grinding chamber and the sample material may become very hot.
- **After the grinding process has been completed, it must be ensured that the sample material is only handled with protective gloves.**
- **Never open the hot grinding chamber!**
- **Allow the grinding chamber to cool down to room temperature before opening it.**

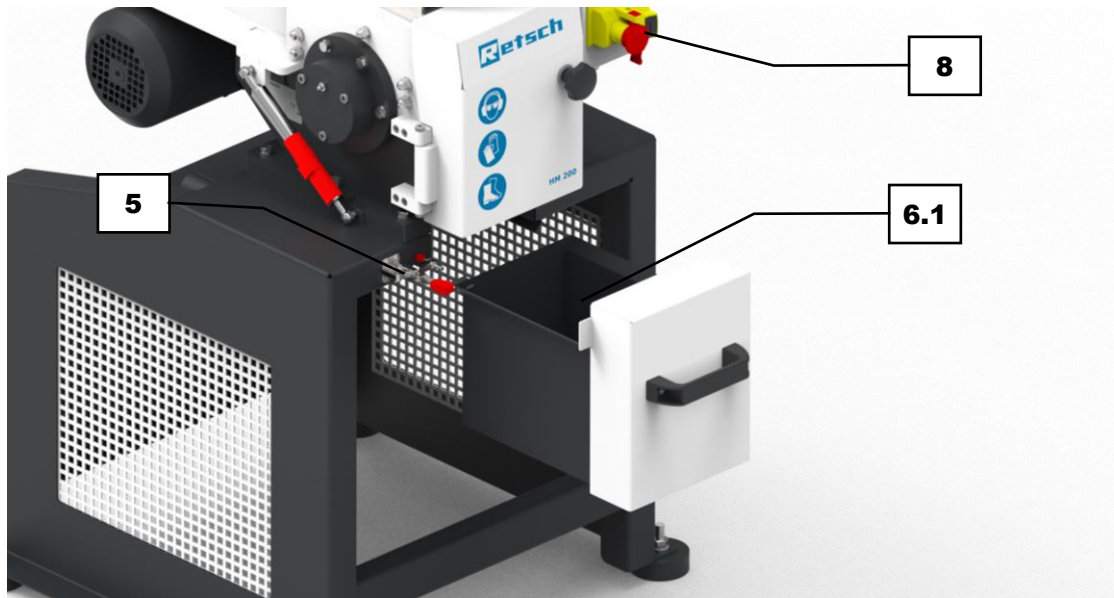


In order to remove the sample materials soon as the grinding process has been completed, please proceed as follows:

- ➔ The grinding process has been completed successfully. There is no longer any sample material left in the grinding chamber.
- ⇒ Switch off the device by pressing the emergency stop switch (8)..
- ⇒ Open the quick-release clamp (5) and pull the small collecting vessel (6.1) out of the guide. Alternatively, pull the large collecting vessel (6.2) out from under the output hopper (6.3).

**CAUTION** The sample material as well as the collecting vessel may be still very hot and should be cooled down before they can be removed.

- ⇒ Remove the sample material from the collecting vessel.



**Fig. 22:** Removing the sample material from the collecting vessel.

## 7 Maintenance

### CAUTION

C12.0013

#### Risk of injury

Improper repairs

- Unauthorised and improper repairs can cause injuries.
- **Repairs to the device may only be carried out by Retsch GmbH, an authorised representative or by qualified service technicians.**
- **Do not carry out any unauthorised or improper repairs to the device!**

This chapter contains descriptions on cleaning and servicing the device.



This Manual does not contain repair instructions. All repairs must be conducted by Retsch GmbH, an authorised representative or by Retsch service technicians.

**CAUTION** The device must always be switched off and disconnected from the mains before any interventions for cleaning and maintenance purposes can be performed.

### 7.1 Cleaning

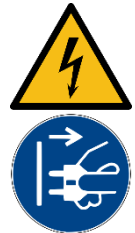
#### WARNING

W15.0003

#### Risk to life caused by an electric shock

Cleaning live parts with water

- Cleaning the device with water can lead to life-threatening injuries caused by an electric shock if the device has not been disconnected from the power supply.
- **Only carry out cleaning work on the device when it has been disconnected from the power supply.**
- **Use a cloth moistened with water for cleaning.**
- **Do not clean the device under running water!**



#### CAUTION

C13.0031

#### Risk of injury

Cleaning with compressed air

- When using compressed air for cleaning purposes dust and remnant of the sample material can be flung around and injure eyes.
- **Always wear safety glasses when cleaning with compressed air.**
- **Observe the material safety data sheets of the sample material.**



To guarantee the reliability and operational safety of the device, it must be cleaned as necessary and at least once a month.





Use a damp cloth and gentle cleaning agent to remove stubborn deposits.


**7.1.1 Cleaning the outside of the device**

- ⇒ Clean the housing of the device with a damp cloth and, if necessary, a household cleaning agent. Make sure that no water or cleaning agent gets into the interior of the device.
  - ⇒ Only use neutral cleaning agents. Do not use solvent-based cleaners! Acetone is not permitted!
- Test cleaning products on an inconspicuous spot.

**7.1.2 Cleaning of grinding chamber and grinding gear**

<p><b>⚠ WARNING</b></p>	<p><small>W16.0003</small></p>
<p><b>Risk to life caused by an electric shock</b> Using water when cleaning live parts</p> <ul style="list-style-type: none"> <li>– Using water to clean the device can lead to life-threatening injuries caused by an electric shock if the device has not been disconnected from the power supply.</li> <li>• <b>Only carry out cleaning work involving water on the device when it has been disconnected from the power supply (unplugged).</b></li> <li>• <b>Use a cloth moistened with water for cleaning.</b></li> </ul>	

<p><b>⚠ CAUTION</b></p>	<p><small>C14.0024</small></p>
<p><b>Risk of burns and scalds</b> from heated sample material and/or inside the grinding chamber</p> <ul style="list-style-type: none"> <li>– During the grinding process, the grinding chamber and the sample material may become very hot.</li> <li>• <b>After the grinding process has been completed, it must be ensured that the sample material is only handled with protective gloves.</b></li> <li>• <b>Never open the hot grinding chamber!</b></li> <li>• <b>Allow the grinding chamber to cool down to room temperature before opening it.</b></li> </ul>	

<p><b>⚠ CAUTION</b></p>	<p><small>C15.0031</small></p>
<p><b>Risk of injury</b> Cleaning with compressed air</p> <ul style="list-style-type: none"> <li>– When using compressed air for cleaning purposes dust and remnant of the sample material can be flung around and injure eyes.</li> <li>• <b>Always wear safety glasses when cleaning with compressed air.</b></li> <li>• <b>Observe the material safety data sheets of the sample material.</b></li> </ul>	

**⚠ CAUTION**

C16.0006

**Risk of injury**

Sample material that is harmful to health

- Sample material that is harmful to health can injure people (illness, contamination).
- **Use suitable extraction systems with sample material that is harmful to health.**
- **Use suitable personal protective equipment with sample material that is harmful to health.**
- **Take note of the safety data sheets for the sample material.**



Clean the grinding chamber and the grinding mechanism as follows:

⇒ Open the grinding chamber by opening the door (3) and the tension lock (15).

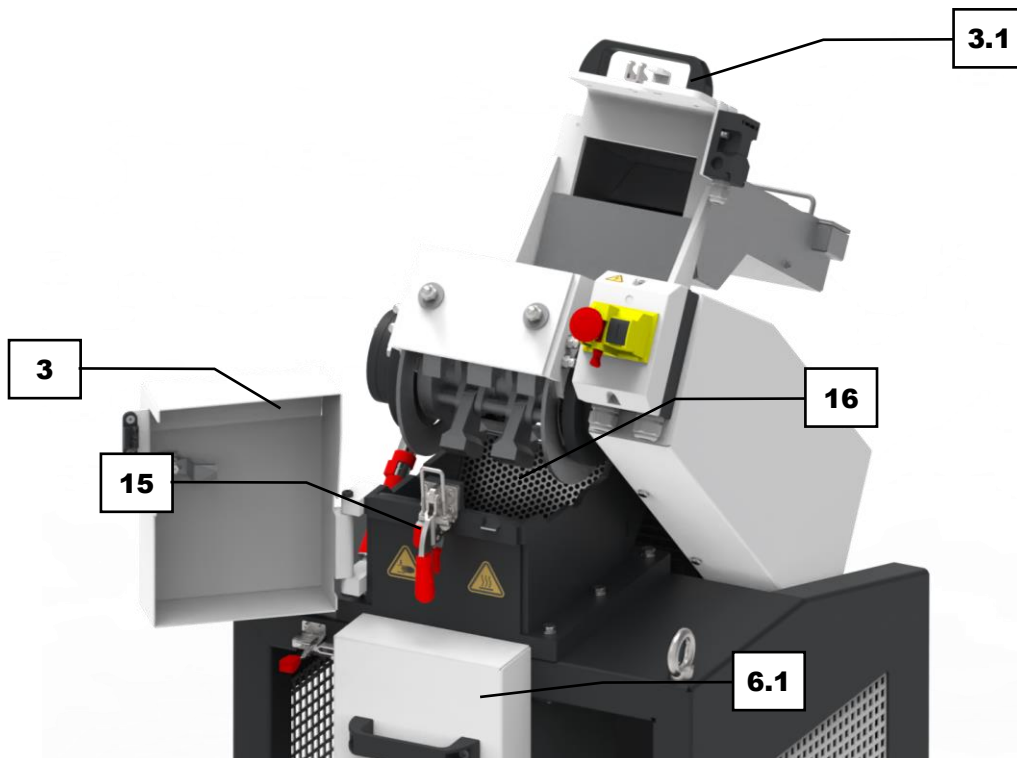
⇒ Slowly swivel the grinding gear backwards. Use the handle (3.1)

⇒ Remove the sieve (16) and clean it with a brush or under running water.

⇒ Clean the grinding chamber and the grinding gear with a brush, compressed air or vacuum cleaner. Any sample residues which are strongly stuck with adhesives can be removed with the aid of a cleaning grinding. Among others, grinding of marble crushed material is also suitable for this purpose.

⇒ Take out the collecting receptacle (6.1, 6.2) and clean it with a damp cloth or vacuum cleaner.

**NOTICE** Remaining sample residues in the grinding chamber can lead to cross-contamination during the next grinding process.



**Fig.23:** The opened grinding chamber.

## 7.2 Servicing

To guarantee the reliability and operational safety of the device, the following servicing work must be carried out as necessary, and at least once a month.

### **⚠ CAUTION**

C17.0013

#### **Risk of injury**

Improper maintenance

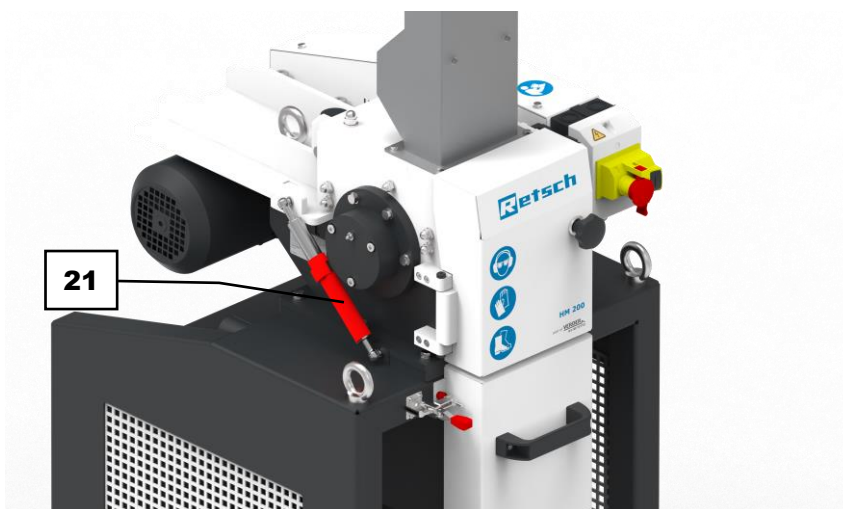
- Unauthorised and improper maintenance may cause injuries.
- **The device may only be serviced by Retsch service technicians or an authorized representative.**
- **The settings for the service range may only be adjusted by Retsch service technicians or an authorised representative.**
- **Do not perform any unauthorised or improper maintenance on the device!**

### 7.2.1 Maintenance of pneumatic spring

Check the function of the pneumatic spring, which acts as a damper (21) to support the opening and closing of mechanism of the upper part of the device prior to each operation.

Check the function of the pneumatic spring as follows:

- ⇒ Open the grinding chamber by opening the door and tension lock and swing the grinding gear backwards.
- ⇒ Slowly close the grinding chamber again and make sure that it can be lowered under slight force. The grinding gear **must not** close abruptly!
- ⇒ If the pressure in the gas springs (21) decreases as time goes on, a lot of force must be applied to prevent the upper part of the unit from closing. This condition requires the replacement of the pneumatic springs.
- ⇒ Please feel free to contact the Service Department at Retsch GmbH.



**Fig. 24:** Maintenance of the pneumatic spring



### 7.2.2 Lubricating the device

**NOTICE:** During the initial start-up, the device must be lubricated after eight hours of operation. There are two lubrication points on the device. Please use the supplied grease gun for lubrication.

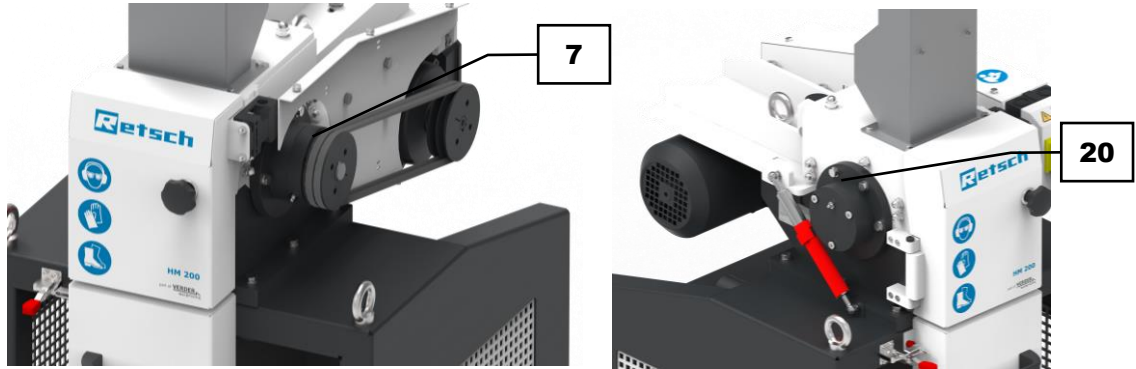


Fig. 25: Lubrication points

The following quantities of grease are required after a certain interval:

Lubrication point	Quantity [grams]	Interval [Operating hours]	Operating status
7	7	60	Downtime
20	7	60	Downtime

**NOTICE:** Use natural-coloured, lithium saponified grease (graphite-free). Shell Gadus S2 V220 2 is supplied along with the delivery of the device.

Lubricate the lubrication points as follows:

- ⇒ Switch off the device.
- ⇒ Disconnect the power plug.
- ⇒ Dismantle the belt cover to expose the lubrication point (7) by loosening the screws.
- ⇒ Apply the grease gun to the lubrication points (7, 20) one after the other and press the appropriate amount of grease into the respective lubrication point.
- ⇒ Mount the belt cover.

### 7.2.3 Checking the limit switch

The function of the limit switch must be checked every **6 months**. The proper function of the limit switch ensures that the device cannot be started until the feed hopper has been mounted and the collecting receptacle has been inserted.

Carry out the test of the limit switch as follows:

- ⇒ Switch on the device (idle running).
- ⇒ Open the clamping lock of the collecting receptacle (5).
- ⇒ Remove the collecting receptacle (6.1 or 6.2)
- ➔ Result: The limit switch **must switch off** the drive motor.
- ⇒ Push the collecting receptacle (6.1 or 6.2) back into the base frame.
- ➔ Result: The drive motor **does not start**. It can only be switched on again via the emergency stop switch.

- ⇒ Close the clamping lock of the collecting receptacle (5).
- ⇒ Switch on the device via the emergency stop switch.

**⚠ WARNING** In case that a different function is detected other than the sequence described here, the operation of the device must be halted and the service department of the company Retsch GmbH must be contacted.

### 7.3 Wear

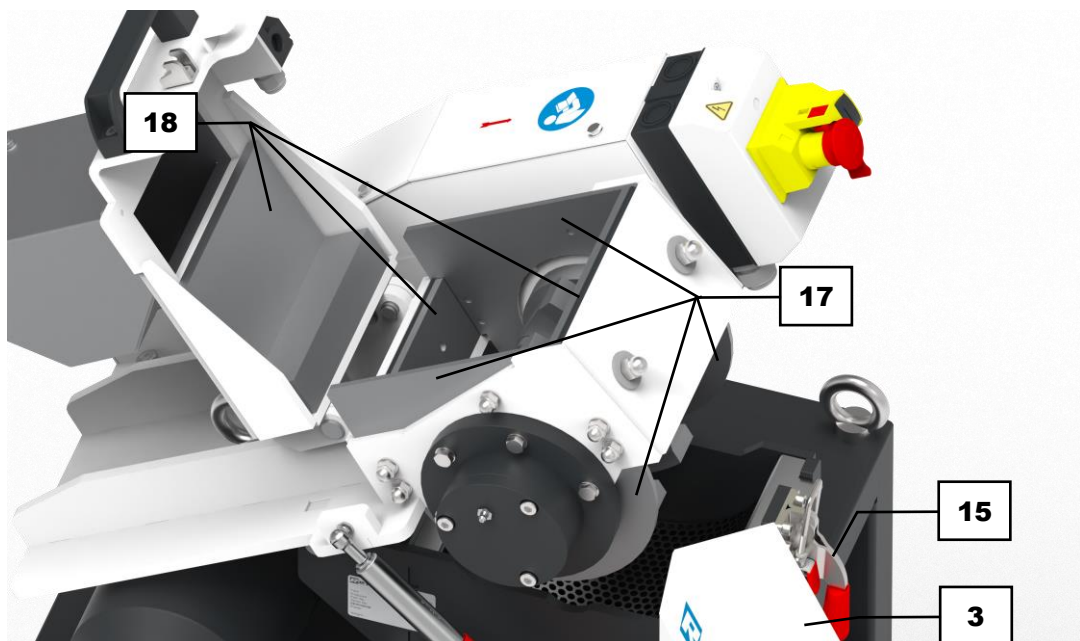
In order to ensure the reliability and operational safety of the device, the following components must be checked at least every six months in terms of any signs of wear and tear and, if required, any broken components shall also be replaced.

#### 7.3.1 Wear and tear of wearing plates and baffle plates

The wearing plates and baffle plates, which are mounted in the grinding chamber, protect the grinding chamber against any damages and enable a homogeneous sample grinding. There are a total of four wearing plates (two each on the right and left walls of the grinding chamber) and there are three baffle plates (one on the ceiling and one each on the front wall and the rear wall of the grinding chamber).

Check for wear and tear and replace the wearing plates and baffle plates as follows:

- ⇒ Open the grinding chamber by opening the door (3) and the tension lock (15).
- ⇒ Visually inspect wearing plates (17) and baffle plates (18). Abrasion and superficial damage, such as cracks or indentations, is an indicator of wear and tear.
- ⇒ If any wear and tear is visible, replace the wearing plates (17) and baffle plates (18). In order to generate a homogeneous grinding result, it is recommended to replace all components at the same time.
- ⇒ When it comes to removal, first of all loosen and remove the screw connection of the baffle plates (18) outside of the device and subsequently, loosen and remove the wearing plates (17).
- ⇒ Mount new wearing plates and baffle plates with the previously removed screw connection.



**Fig. 26:** Visual inspection of the wearing plates and baffle plates

### 7.3.2 Rotor wear

The hammers (14) are attached to the rotor (19), which is driven by the motor, and enable homogeneous specimen grinding. The forces acting during the grinding process cause the rotor to wear and therefore, it may be necessary to replace the rotor at a later point of time.

Check the wear and, if necessary, replace the rotor as follows:

⇒ Open the grinding chamber by opening the door (3) and the tension lock (15).

⇒ The rotor needs to be visually inspected (19). Any abrasion and superficial damage, such as cracks or indentations is an indicator of wear.

⇒ If any wear is visible, the rotor must be replaced (19).

⇒ In order to remove the rotor, the belt cover (9) must first be removed. In order to do this, loosen three screws on the upper side of the belt cover and two screws on the lower side.

⇒ Subsequently, the tension of the motor must be readjusted. In order to do this, loosen the four nuts (9.1) on the rear of the device above the motor. Push the motor (9.2) deeper into the device until the belt (9.3) is loosened and can be removed.

⇒ Next, the wearing plates and baffle plates must be removed (see Chapter “Wear and tear of wearing plates and baffle plates”).

⇒ Thus, loosen the screw connection of the rotor (eight screws (19.1)) laterally on the outside of the housing and pull out the rotor (19) downwards.

⇒ Insert the new rotor in reverse order to the previous steps.

**NOTICE:** Make sure that the belt is evenly loosened or tensioned to avoid any damage to the device.

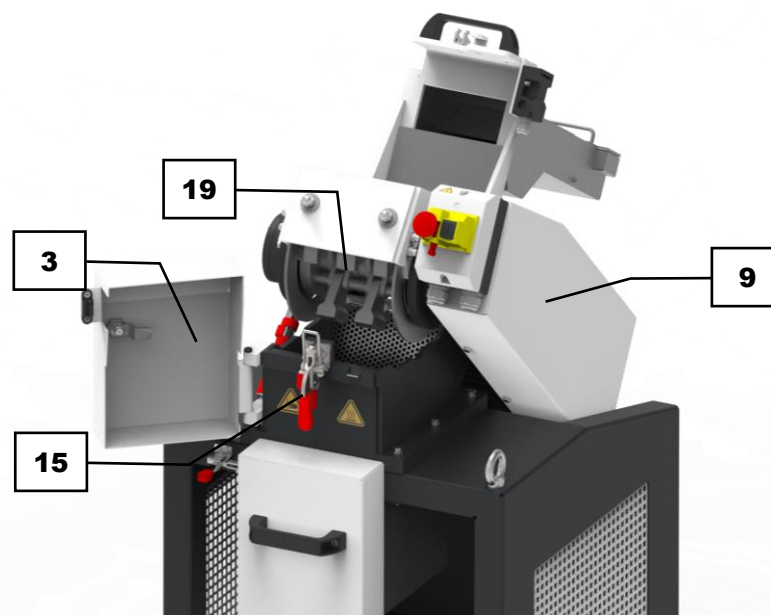
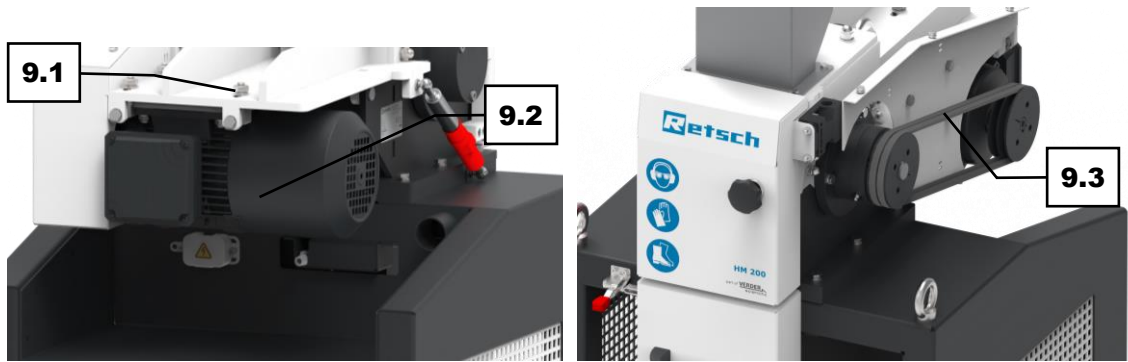
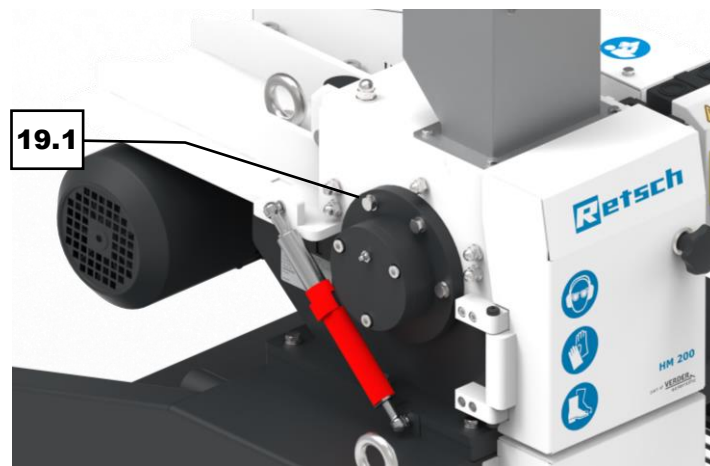


Fig. 27: Visual inspection of the rotor



**Fig. 28:** Loosening the tension of the motor



**Fig. 29:** Loosening the screw connection of the rotor

## 7.4 Returning for repair and maintenance



**Fig. 30:** Return form

The acceptance of devices and accessories of the Retsch GmbH for repair, maintenance or calibration can only be effected, if the return form including the decontamination declaration service has been correctly and fully completed.

- ⇒ Download the return form located in the download section "Miscellaneous" on the Retsch GmbH homepage (<http://www.retsch.com/downloads/miscellaneous/>).
- ⇒ When returning a device, attach the return form to the outside of the packaging.

In order to eliminate any health risk to the service technicians, Retsch GmbH reserves the right to refuse the acceptance and to return the respective delivery at the expense of the sender.

## 8 Accessories

Information about available accessories and the corresponding manuals can be found directly on the Retsch GmbH (<https://www.retsch.com>) website under the "Downloads" section for the device.

Information about parts subject to wear and tear and small accessories can be found in the complete catalogue for the Retsch GmbH, likewise available on the website.

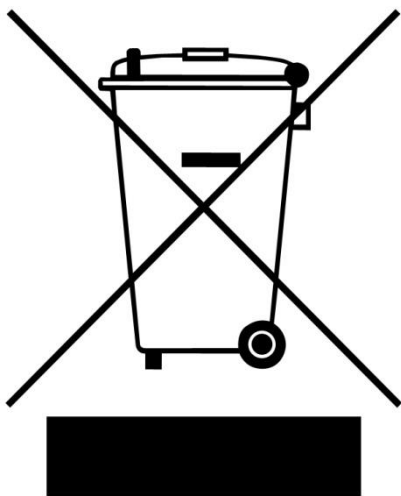
In the event of questions about spare parts, please contact the representative for Retsch GmbH in your country or contact Retsch GmbH directly.

## 9 Disposal

In the case of a disposal, the respective statutory requirements must be observed. In the following, information on the disposal of electrical and electronic devices in the European Community are given.

Within the European Community the disposal of electrically operated devices is regulated by national provisions that are based on the EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE).

Accordingly, all devices supplied after August 13<sup>th</sup> 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, the devices are provided with the disposal label.



**Fig. 31:** Disposal label

Since the disposal regulations worldwide and also within the EU may differ from country to country, the supplier of the device should be consulted directly in case of need.

This labelling obligation is applied in Germany since March 23<sup>rd</sup> 2006. From this date on, the manufacturer must provide an adequate possibility of returning all devices delivered since August 13<sup>th</sup> 2005. For all devices delivered before August 13<sup>th</sup> 2005 the end user is responsible for the proper disposal.

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## HAMMERMILL

HM 200 | 21.753.xxxx

### EU DECLARATION OF CONFORMITY

We, represented by the undersigned, hereby declare that the device specified above complies with the following directives and harmonized standards:

#### Machinery Directive 2006/42/EC

Applied standards, in particular:

ISO 12100:2010	Safety of machinery – General principles for design
DIN EN 13683:2013	Garden equipment – Integrally powered shredders/chippers – Safety
DIN EN 60204-1:2019	Safety of machinery – Electrical equipment of machinery
DIN EN ISO 13489-1:2016	Safety of machinery – Safety-related parts of control systems

#### Electromagnetic compatibility 2014/30/EU

Applied standards, in particular:

DIN EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use – EMC requirements
---------------------	---

#### Restriction of hazardous substances 2011/65/EU

#### Authorized person for compiling the technical documentation:

Julia Gramsch (Technical Documentation)

Furthermore, we declare that the relevant technical documentation for the above device has been created in accordance with Annex VII, Part A of the Machinery Directive and we undertake to present these documents to the market surveillance authorities upon request.

**This declaration loses its validity if the device is modified without the agreement of Retsch GmbH or if non-approved spare parts or accessories are used.**

Retsch GmbH



Dr. Stefan Mähler, Technical Director

Haan, 06/2022





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