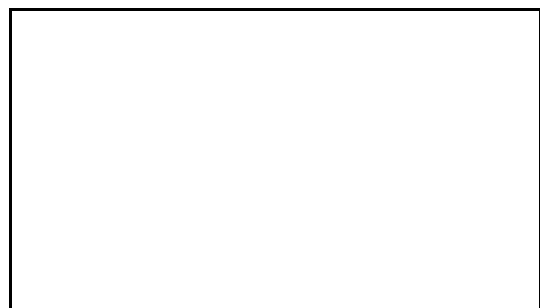


Manual

Ball Mill XRD-Mill McCrone



Translation

Retsch[®]

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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.

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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

Serious injury may result from failing to heed these safety warnings. We give you the following warnings and corresponding content.

 **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**

Moderate or mild injury may result from failing to heed these safety warnings. We give you the following warnings and corresponding content.

 **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:

The Retsch representative in your country
Your supplier
Retsch GmbH directly

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.

User

Surname, first name (block letters)

Position in the company

Signature

Service technician or operator

Surname, first name (block letters)

Position in the company

Place, date and signature

3 Technical data

3.1 Use of the machine for the intended purpose

 **CAUTION**

1.V0004

Risk of explosion or fire
Changing sample properties

- Consider that the properties and therefore also the hazardousness of your sample can change during the grinding process.
- **Do not use any substances in this device which carry the risk of explosion or fire.**

 **CAUTION****Risk of explosion or fire**

- On account of its design, the device is not suitable for use in hazardous (potentially explosive) atmospheres.
- **Do not operate the device in a hazardous atmosphere.**

 **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 sample material.**



Target group: Operating company, operator

Machine type designation: XRD-Mill McCrone

The XRD-Mill McCrone ball mill is used for the fast, loss-free and reproducible pulverisation of medium hard, hard and brittle materials to analytical fineness.

The ball mill is used successfully in almost all areas of industry and research. This applies in particular where there are high demands in terms of hygiene, speed, fineness and reproducibility

The XRD-Mill McCrone is particularly suitable for preparing samples for X-ray diffraction, X-ray fluorescence, infrared spectroscopy, atomic absorption analysis and spectral analysis because it achieves high degrees of final fineness in the shortest time while retaining the crystalline structure.

Due to its robust design, the XRD-Mill McCrone has proven to be especially good in the laboratory area, in geology, chemicals, mineralogy and metallurgy.

Carbide metals, nitrides, borides, cement, clay, slate, mica and many other substances can be ground easily, fast and without loss.

NOTICE

Area of use of the machine

- This machine is a laboratory machine designed for 8-hour single-shift operation.
- **This machine may not be used as a production machine nor is it intended for continuous operation.**

3.2 Grinding jar nominal volume

Polypropylene 125ml

3.3 Feed size

The maximum feed particle size depends on the degree of hardness of the sample material .

Grinding set 125ml = max. particle size < 0.5mm

3.4 Rated power

100 watts

NOTE

Reduction of tool service life

Abrasive sample materials

- The presence of abrasive composite materials during grinding can considerably reduce tool service life.
- **When grinding electronic scrap, take the properties of the composite materials into account.**

3.5 Motor rotation speed

The speed can be adjusted within the following range:

- 1050 - 1500min⁻¹

Four speed levels can be set.

3.6 Emissions



Possibility of acoustic signals not being heard

Loud grinding noises

- Acoustic alarms and voice communication might not be heard.
- **Consider the volume of the grinding noise in relation to other acoustic signals in the work environment. You may wish to use additional visual signals.**



V00461

Damage to hearing or hearing loss

Vibration noise in the grinding chamber

- The volume and/or vibrations in the device can cause damage to hearing or hearing loss.
- **Only start the device when using the soundproof hood.**



3.6.1 Noise levels of the XRD-Mill McCrone

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

The noise levels are largely influenced by the machine speed, the grinding material and the grinding set.

Workplace-related emissions value LpAeq = up to 63dB(A)

Sound power level LWA = 78dB(A)

Measurement conditions:

Soundproof hood: yes

Grinding set: 125ml polypropylene

Grinding material: 10g quartz, particle size <0.5mm

Speed: speed level four

Measured with hood on

Sound level meter: Brüel & Kjaer 2237 controller

3.7 Degree of protection

IP30

3.8 Dimensions and weight

Height: up to approx. 155mm / Width : 205mm / Depth: up to approx. 520mm

Weight : XRD-Mill McCrone net approx. 19kg

3.9 Required floor space

Height: 155mm / Width: 250mm /

Depth: 520mm;

A clearance distance of 100mm is necessary at the back to ensure sufficient space to operate the main switch.

4 Transport, scope of delivery, installation

4.1 Packaging

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

NOTICE

Storage of packaging

- In the event of a complaint or return, your warranty claims may be endangered if the packaging is inadequate or the machine has not been secured correctly.
 - **Please keep the packaging for the duration of the warranty period.**
-

4.2 Transport

NOTICE

Transport

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

NOTICE

H0014

Complaints

- 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.
 - **Notify your forwarding agent and Retsch GmbH within 24h**
-

4.3 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.**
-

4.4 Conditions for the place of installation

Ambient temperature: 5°C to 40°C

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).**

4.5 Installation of the machine

Installation height: maximum 2000 m above sea level

4.6 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.

4.7 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.

 **WARNING**

W0002

Danger to life through electric shock

- An electric shock can cause burns and cardiac arrhythmia, as well as respiratory failure and cardiac arrest.
- **Never use a damaged power cable to connect the device to the mains.**
- **Check the power cable and plug for any damage before use**

NOTICE

Electrical connection

- Mechanical or electronic components may be damaged.
- **Please observe the information on the type plate.**

4.8 Installation of the machine

 **CAUTION**

V00071

Risk of personal injury

Falling device

- Vibrating components
- **Secure the device firmly to the bench.**
- **Follow the steps in the chapter “Setting up the device”.**

 **CAUTION**

V00082

Risk of personal injury

Damage to safety-related components

- Safety-related components may be damaged when drilling or screwing the device to the mounting surface.
- **Check the mounting position and conditions underneath the mounting surface.**
- **Pay attention to the length of screws.**

4.8.1 Screw connection with mounting brackets

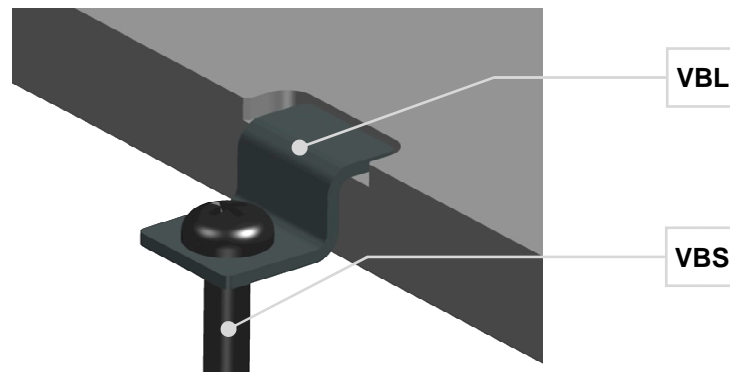


Fig. 1: Screw connection with mounting brackets

- For maximum operating efficiency, the mill must be fixed securely to a stable bench.
- Align the supplied drill template to the bench.
- Drill the four holes in the bench using the marked drilling positions **(VB)**.
- Align the device between the drilled holes.
- Slide the supplied mounting brackets **(VBL)** into the designated cut-outs.
- Where possible use the screws supplied **(VBS)**.
- Screw the device tight.

Use the following parameters as a guide when selecting the installation site and the installation materials:

Min. bench thickness: 30mm.

Drill diameter: Ø3mm.

Choice of screw: self-tapping screw ISO 7049-ST4,8x32-C-Z.

- Check the screw connection regularly to ensure it is tight.

4.8.2 Screw connection of the device from underneath

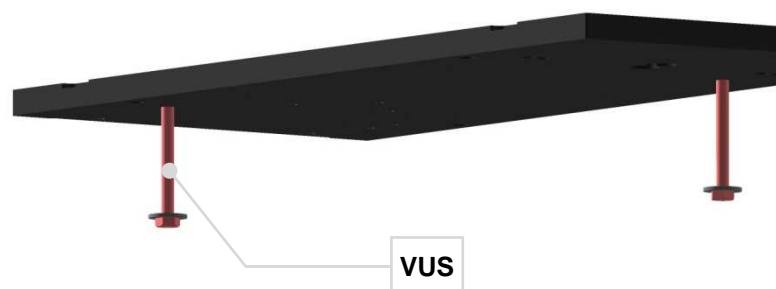


Fig. 2: Screw connection of the device from underneath

- For maximum operating efficiency, the mill must be fixed securely to a stable bench.
- Align the supplied drill template to the bench.
- Drill two holes in the bench using the marked drilling positions **(VU)**.
- Align the device between the drilled holes.
- Where possible use the screws supplied **(VUS)**.
- Screw the device tight.

Use the following parameters as a guide when selecting the installation site and the installation materials:

Max. bench thickness: 50mm

Drill diameter: Ø8mm

Disc: Disc DIN 9021-6,4-140HV

Choice of screw: cylinder head screw DIN912 M6x60-A2

- Check the screw connection regularly to ensure it is tight.

4.8.3 Attaching with Powerstrips

- For maximum operating efficiency, the mill must be fixed securely to a stable bench.
- Place a soft, clean mat next to the device.
- Tilt the device onto its side.

NOTICE

- Observe the instructions for use on the Powerstrips.
- Stick eight Powerstrips to the base plate of the device.
- Use the marked positions (**BP**) on the drill template as a guide.
- Peel the protective film off the Powerstrips.
- After positioning it will no longer be possible to move the device.
- Place the device in the desired target position.

Use the following parameters as a guide when selecting the installation site and installation materials:

Powerstrips: Tesa Powerstrips max.2kg

- Check the strips regularly to ensure they are firmly stuck.

4.8.4 Drill template

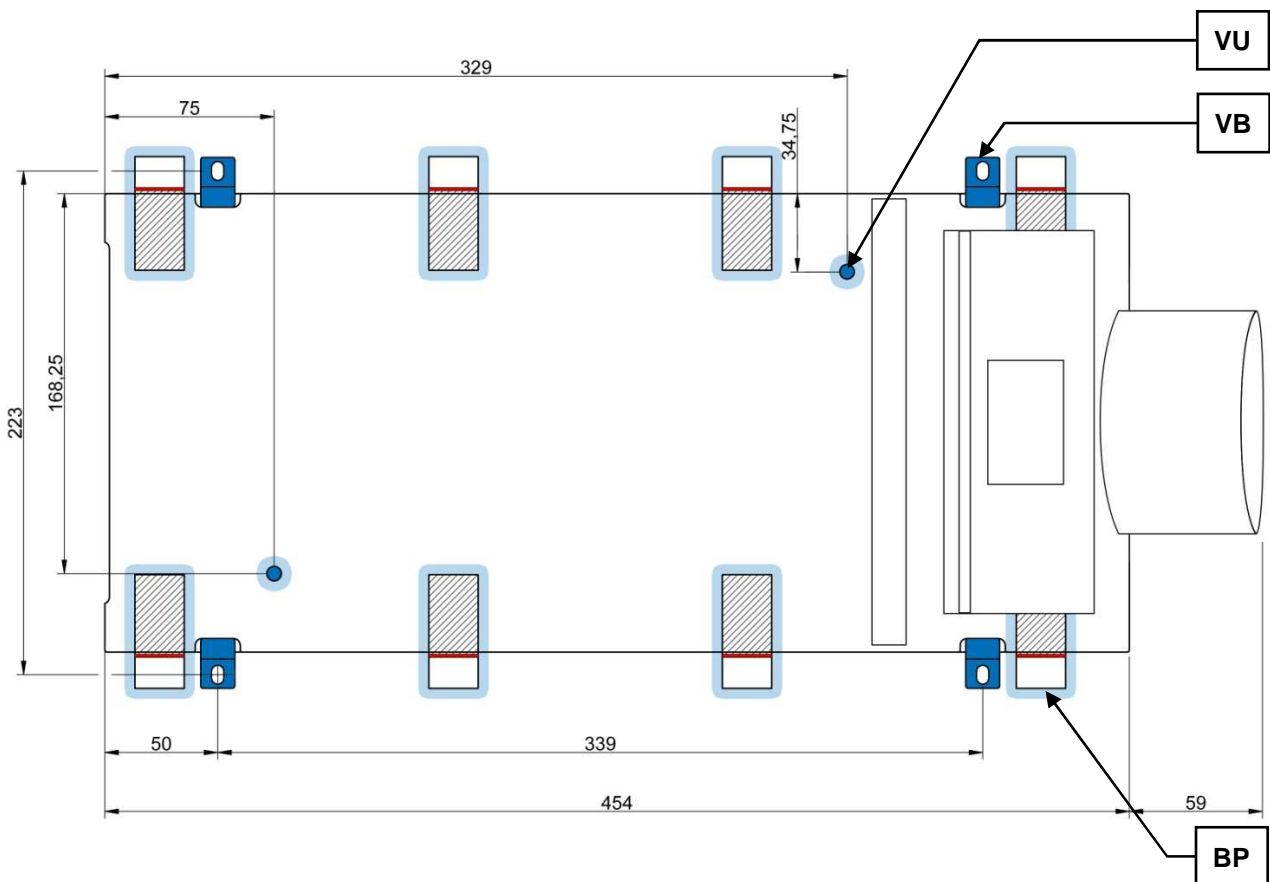


Fig. 3: Drill template

5 Operating the machine

5.1 Views of the Instrument



Fig. 4: Front view of the device



Fig. 5: Close-up of grinding chamber



Fig. 6: View of the back of the device

5.2 Overview table of the parts of the device

Element	Description	Function
A	Soundproof hood	Closes the grinding chamber
B	Control panel	Device controller
C	Grinding jar clamping bracket	Clamps grinding jar on the support
D	Grinding jar support	Support for grinding jar
E	Main switch	Disconnects the device from the mains
F	IEC socket	Power supply for the power cable
G	Entry for fuse	Access to the device fuse
H	Type plate	Description of device parameters
I	Warning sign to pull out the plug	Warning of electric shock
J	Sign with instruction to read the operating manual	Sign pointing out the need to read the operating manual

5.3 Operating elements and displays



Fig. 7: View of the control panel

5.4 Overview Table of the Operating Elements and the Display

Element	Description	Function
K	Time	Adjustable grinding time
L	Speed	Speed levels adjustable
M	Display	Displays the control functions and parameters
N	START button	Starts grinding
O	STOP button	Stops grinding

5.5 Inserting the grinding jar

 **CAUTION**

V0083

Risk of personal injury

Ejected sample material

- Take the appropriate steps required to rule out the risk of injuries according to the danger posed by your sample.
- **Only start grinding when using the soundproof hood.**

NOTE

Reduction of tool service life

Abrasive sample materials

- The presence of abrasive composite materials during grinding can considerably reduce tool service life.
 - **When grinding electronic scrap, take the properties of the composite materials into account.**
-

5.5.1 Preparing the grinding process

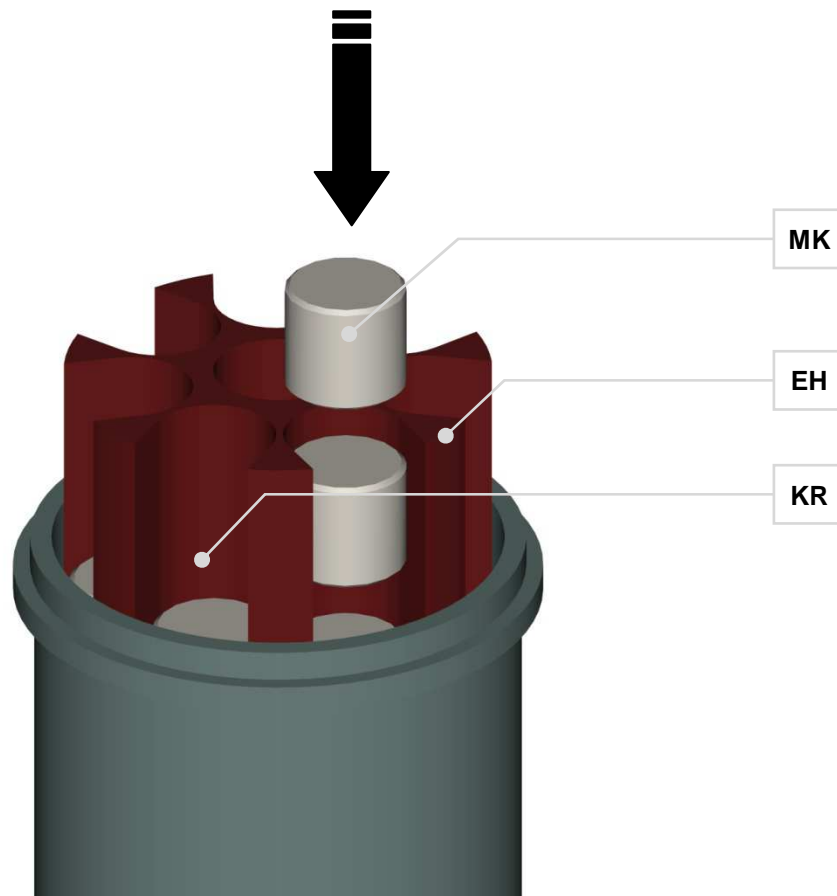


Fig. 8: Assembling the grinding jar

Assemble the grinding jar with the help of the applicator.

- Slide the applicator (**EH**) into the grinding jar up to the bottom of the grinding jar.

NOTICE

- For each grinding operation, place 6 grinding bodies (**MK**) each in all 8 chambers.
- Then remove the applicator.
- The sample volume during a single grinding process must not exceed 5 millilitres. The ideal grinding efficiency is achieved with a sample volume of 2 millilitres. This corresponds to a weight of 10g for a material with a density of 5g per millilitre or 2g for a material with a density of 1g per millilitre.
- Approx. 4 ml of sample and 7 ml of grinding liquid (water) can be milled.
- Screw the lid onto the jar.
- Make sure that the lid closes tightly so that no liquid can escape.



Fig. 9: Removing the soundproof hood

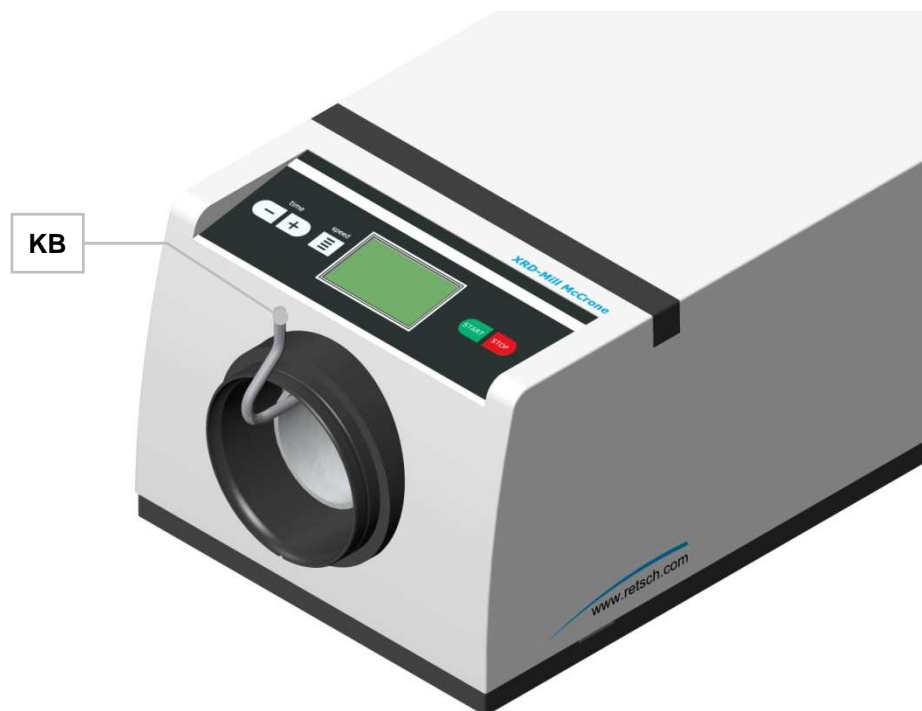


Fig. 10: Grinding jar clamping bracket

- Pull the grinding jar clamping bracket (**KB**) forwards and rotate it upwards.



Fig. 11: Inserting the grinding jar

- Insert the grinding jar (**ME**) in the grinding jar support so that the collar on the grinding jar body fits closely against the front edge of the grinding jar support.



Fig. 12: Clamping the grinding jar

- When using the grinding jar lid with groove, it is necessary to ensure that the clamping bracket clicks into place in the groove (anti-rotation protection).
- Pull the clamping bracket (**KB**) forwards and rotate it by 180 degrees downwards until it clicks into place.

5.5.2 Wet grinding

- Before adding sample, ensure that the grinding bodies are in a structured order (6 rows of 8).
- Place the crushed and sieved sample in the centre of the top layer of grinding bodies. Take care that no sample particles fall onto and remain on the top rim of the grinding jar.
- For wet grinding, pour approx. 7 ml of liquid (water) over the sample. Ensure that all sample particles are rinsed into the grinding jar.
- Screw the lid onto the grinding jar. Make sure that the lid closes tightly so that no liquid can escape.

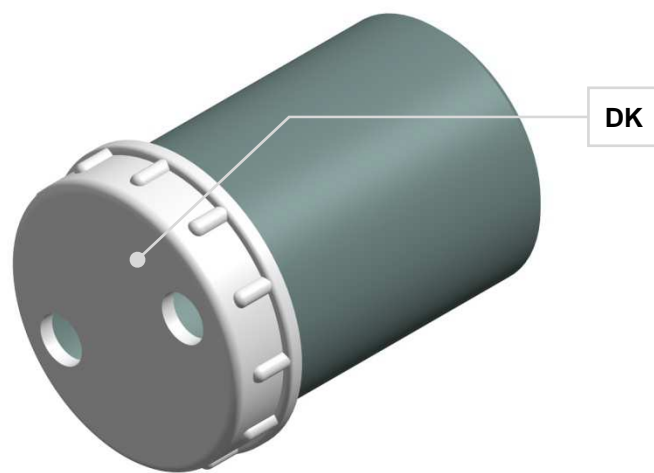


Fig. 13: Pouring lid

- The twin hole pouring lid is used to prevent the grinding bodies falling out when the product slurry in the mill is poured out at the end of a grinding process.
- After the grinding cycle has finished, remove the grinding jar by reversing the order of operations used for clamping
- Remove the grey lid and replace with the twin hole pouring lid (**DK**). Pour the contents of the grinding jar into a glass beaker or bowl.

5.5.3 Dry grinding

- Shake the grinding jar gently to ensure that the sample falls into the grinding jar and is not left at the top of the grinding bodies.
- Screw the lid to close it, insert the grinding jar in the mill as described above and start the grinding process for the required length of time.
- When grinding has been completed, remove the grinding jar in reverse order as described above (see figures).
- Remove the grinding jar lid.
- To remove the sample from the grinding jar, the grinding bodies must be taken out of the grinding jar for cleaning. Various methods are recommended here, e.g. use of tweezers to remove the grinding bodies individually or tipping the grinding bodies out and catching the ground sample from the grinding jar using a sieve with a diameter of 200 mm and suitable mesh size placed on a suitable material (paper or rubber with shiny surface). After cleaning the jar and the grinding bodies, the grinding bodies must be placed back in the grinding jar using the supplied applicator.

6 Display and operation

6.1 Symbols in the Display Unit

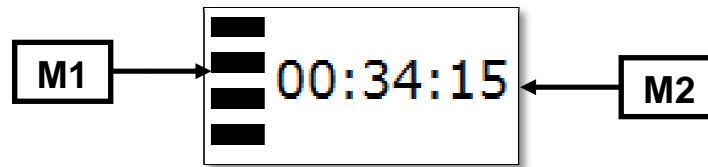


Fig. 14: View of the menu in the display unit

Element	Description	Function
M1	Speed	Display of the speed level set
M2	Time	Display of the grinding time set

6.1.1 Speed

Display of the speed level set:

- You can select one of the four speed levels.
- • To adjust the speed, press **speed (L)** on the control panel.

6.1.2 Time

Display of the grinding time set:

- The grinding time can be set at intervals of 10 seconds.
- To adjust, press the "+" or "-" button in the **time (K)** area of the control panel.

7 Preliminary crushing set

7.1 Use of the mortar

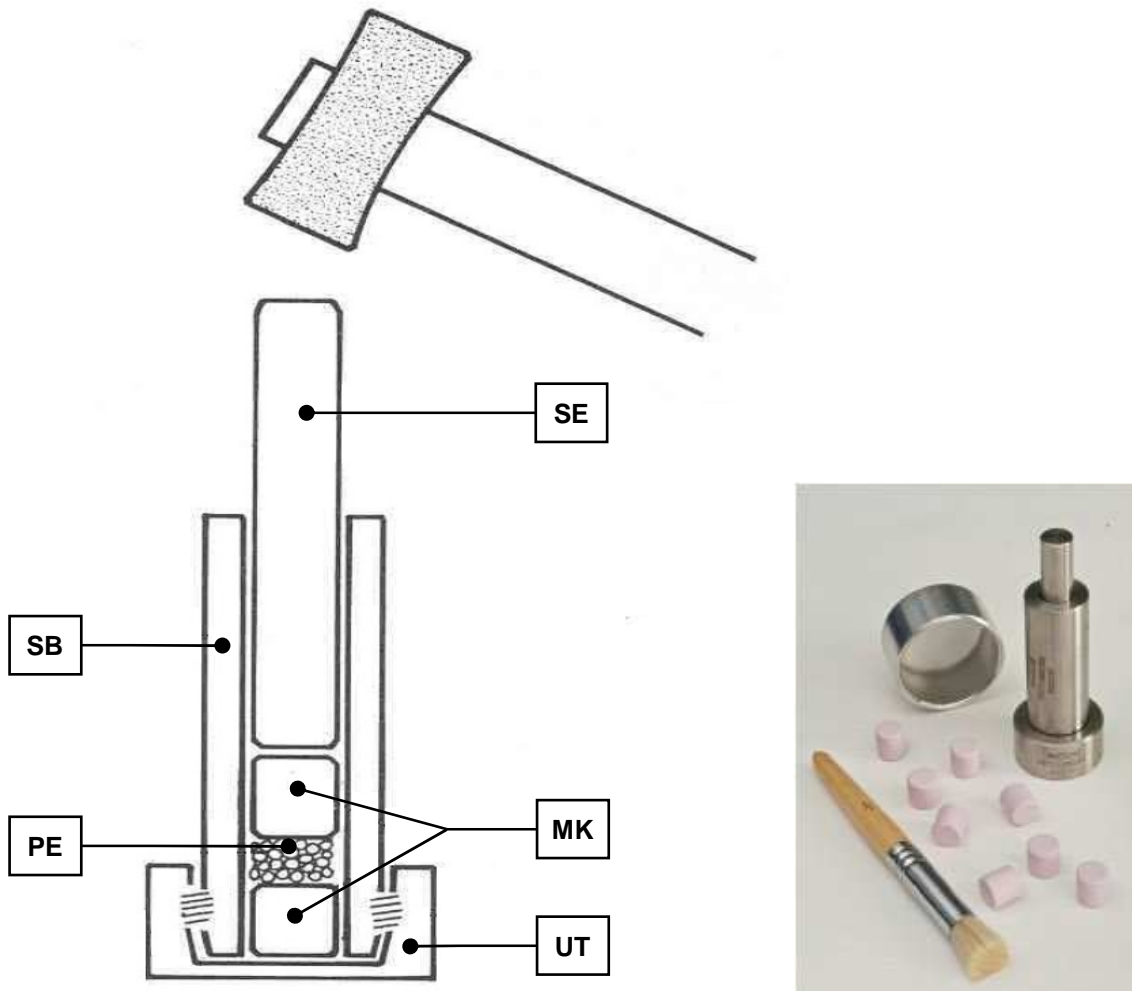


Fig. 15: View of the preliminary crushing set

- Particles larger than 0.5mm should be crushed in the mortar.
- Screw the bottom section (**UT**) onto the steel container (**SB**).
- Place one grinding body (**MK**) (either polycrystalline corundum (supplied) or tungsten carbide (available separately) in the stainless steel cylinder.
- Put the sample (**PE**) in the cylinder and place the other grinding body on top of the sample.
- Guide the steel plunger (**SE**) up to the second grinding body in the cylinder and hit the plunger hard several times using a small hammer.
- Remove the plunger and empty the contents of the cylinder into a suitable container. Remove the grinding body.
- Sieve the sample through the sieve provided, gently brushing the material to help it pass through the sieve.
- Material that is too coarse to pass through the sieve can be put back into the mortar for further crushing.

8 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.**

WARNING

The device must always be switched off and disconnected from the mains before any interventions for cleaning or servicing purposes.

W0012

8.1 Cleaning

- To clean, add approx. 15 ml of liquid to the grinding jar, put the grey lid back on and place the grinding jar back in the mill again. Vibrate the jar for a further 15 seconds, remove it and then pour the contents into the beaker or bowl.
- Repeat this process as many times as necessary to clean the grinding jar. (As a rule one further cleaning cycle is sufficient).
- Wait until the product and rinsing liquid in the beaker or bowl has settled, then pour off the clear liquid. If water has been used as grinding liquid, acetone may be added after pouring the liquid off, and the mixture then drained again. The draining and drying phases can be considerably accelerated by using acetone in place of water. A dried product can be obtained quickly using a volatile grinding liquid.
- Either a blank sample or a small quantity (e.g. < 0.1 ml) of the next sample can be ground for about one minute and then discarded to prevent cross-contamination of samples. The grinding jar is then ready for the prepared second sample.
- The polypropylene jars and the grinding bodies may become dirty when grinding insoluble, highly pigmented or black materials, in particular when these are sectile or oily such as graphite or some heavy metal sulphides. The soiling is frequently also present after grinding a harder or abrasive material. This soiling is often considered to be a potential source of cross-contamination, but this is not the case. The fact that the soiling remains on the grinding jars and grinding bodies is evidence that the pigment is not being passed on to subsequent samples.
- Separate grinding jars and grinding bodies can be provided where trace elements in the ppm (parts per million) range complicate work. However it has been seen that in geochemical tests, where it is particularly important to determine trace elements accurately, the effects of cross-contamination can be reduced to a negligible level by thoroughly cleaning between the individual grinding cycles.
- The pigmented areas are not generally visible when grinding surfaces are made of hard alloys or hard metal carbides or borides, even when they are present. It is therefore very helpful to examine the surfaces of such a mill under ultraviolet light after grinding ultraviolet-excited phosphor.

NOTICE

H0069

Certain chemicals, such as cyclohexane, may distort the polypropylene jar and the PVC lid, making the lid impossible to remove. Such chemicals should be avoided or used in accordance with commonly available information regarding durability.

NOTICE

H0070

Acetone may damage the PVC lid. Contact between the lid and acetone should therefore be avoided. Acetone is not recommended as a grinding liquid but may be used after grinding to accelerate the evaporation of the slurry

8.2 Replacing the machine fuses

 **WARNING**

W00014

Mortal danger from electric shock

Exposed power contacts

- When replacing fuses on the cutout or fuse adapter you may come into contact with live contacts. An electric shock can lead to burns and to cardiac arrhythmias or to respiratory arrest and cardiac arrest.
- **Remove the mains cable before replacing fuses.**



Fig. 16: Replacing fuses

NOTICE

Always replace both fuses.

- Type of fuse: 2 x T2A 250V
- Press the two clips (GL) of the fuse holder (GS) together and pull the fuse holder out.
- Remove the fuses from the fuse holder and insert the new fuses.
- Place the fuse holder with the inserted fuses into the opening

8.3 Returning for service and maintenance



Fig. 2: Returned goods dispatch note

RETSCH devices and accessories can only be accepted for repair, maintenance or calibration if the returned goods despatch note has been correctly completed in full.

- When returning a device, attach the returned goods dispatch note to the outside of the packaging.

In order to eliminate any health risk to our employees, we reserve the right to refuse acceptance and to return the respective delivery at the expense of the sender.

9 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:

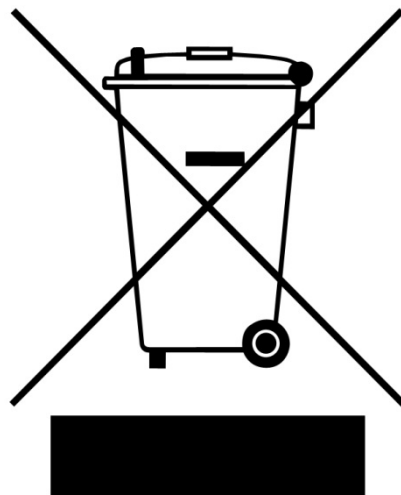


Fig. 3: Disposal label

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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BALL MILL

XRD-MILL McCrone 20.770.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:

EN 61000-3-2/-3 Electromagnetic compatibility (EMC)
EN 61326 Electrical measuring, operating, controlling and laboratory equipment – EMC-requirements in conjunction with EN 61000

EN 55011 Limit values and measuring procedures for noise suppression of industrial, scientific and medical high frequency devices

Additional applied standards, in particular

DIN EN 61010 Safety prescriptions concerning measuring-, operating-, controlling- and laboratory equipment

Authorized person for the compilation of technical documents:

Dr. Loredana Di Labio (technical documentation)

The following records are held by Retsch GmbH in the form of Technical Documentation:

Detailed records of engineering development, construction plans, study (analysis) of the measures required for conformity assurance, analysis of the residual risks involved and operating instructions in due form according to the approved regulations for preparation of user information data.

The CE-conformity of the Retsch Ball Mill Type XRD-Mill McCrone 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





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