Manual

Jaw Crusher BB 500

Translation

Retsch®

Table of Contents

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 **http://www.retsch.com** on the pages for the specific device concerned.

Amendment status:
The document amendment 0003 of the "Jaw Crusher BB 500" manual has been prepared in accordance with the Machinery Directive 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

1.3 Repairs

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

In case of repair, please inform…

…the Retsch GmbH representative in your country,
…your supplier, or
…Retsch GmbH directly.

Service address:

2 Safety

Safety Officer

The operating company itself must ensure the following with respect to persons authorised to work on the device:

- that they have read and understood all regulations contained in the chapter on safety;
- that they are aware before they start work of all instructions and regulations for the target group related to the work;
- that they have easy access to the manual for this device at all times;
- that they have been familiarised with the safe and correct handling of the device before starting work on it, by means of a verbal introduction by a competent person and/or using this manual.

⚠ Improper operation can lead to personal injuries. The operating company itself is responsible for its safety and that of its staff. The operating company itself must ensure that no unauthorised persons have access to the device.

Target group

All those operating, cleaning or working with or on the device.

This device is a modern, powerful product from Retsch GmbH and has been developed in line with the state-of-the art. The device is safe to use when operated correctly and when following the instructions in this manual.

⚠ People under the influence of intoxicating substances (medications, drugs, alcohol) or who are overtired may not operate the device or work on the device.

2.1 Explanations of the Safety Instructions

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

DANGER D1.0000

Risk of fatal injuries
Source of danger

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

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.

WARNING W1.0000

Risk of life-threatening or serious injuries
Source of danger

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

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.

2.2 General Safety Instructions

⚠ 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.**

⚠ CAUTION C3.0015

Risk of injury
Improper modifications to the device

– Improper modifications to the device can result in injuries.
- **Do not make any unauthorised changes to the device.**
- **Only use the spare parts and accessories approved by Retsch GmbH!**

NOTICE N2.0012

Changes to the device
Improper modifications

– The conformity declared by Retsch GmbH with the European Directives will lose its validity.
– Any warranty claims will be terminated.
- **Do not make any modification to the device.**
- **Use spare parts and accessories that have been approved by Retsch GmbH exclusively.**

2.3 Protective Equipment

- The Jaw Crusher BB 500 can only be started when the collecting receptacle has been inserted into the base frame.
- A limit switch behind the collecting receptacle prevents the machine starting in an unsafe state.
- Pulling out the collection container initiates a category 1 stop of the shredding process. The power supply to the motor will be interrupted.
- The motor protection switch turns the drive motor off when the jaws are blocked.
- In the event of danger, the machine can be shut down at any time by pressing the emergency stop button .

2.4 Intended use

The Jaw Crusher BB 500 is suitable for grinding medium to extremely hard substances and for brittle and hard ductile materials.

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.

2.5 Improper use

The Jaw Crusher BB 500 is not designed for continuous operation. Use in the private sphere and for applications other than those set out in the “Intended use” chapter is not permitted. Repairs and modifications may only be carried out by **Retsch GmbH** by an authorised representative, or by qualified service technicians.

2.6 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 Technical Data

3.1 Use of the Device for the Intended Purpose

The Jaw Crusher BB 500 is suitable for grinding medium to medium-hard substances and brittle and hard ductile materials.

The machine can be used to grind the following materials:

- Concrete
- Ores
- Rocks
- Glass
- Ceramics
- Coal
- Minerals
- Slag
- Cement clinker

NOTICE N3.0007

Range of application of the device
Long-term operation

- This laboratory device is designed for eight-hour single-shift operation with a duty cycle of 30 %.
- **This device may not be used as a production machine nor is it intended for continuous operation.**

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.

3.2 Principle of Operation

The Jaw Crusher BB 500 is tough and powerful.
The feed material passes through the splash-free hopper and into the grinding chamber. Grinding takes place in the wedge-shaped shaft between the jaws. The feed material is crushed and moved downwards by the elliptical motion.
The sample falls into a removable collecting receptacle as soon as it is finer than the smallest discharge gap width.
The infinitely variable adjustment of the gap width ensures an optimum setting for the feed material and for the desired final fineness level.

3.3 Dimensions and Weight

Height:	~ 1,480 mm
Width:	~ 930 mm
Depth:	~ 1010 mm
Weight:	~ 1,100 kg net

3.4 Required Floor Space

Width of floorspace: 1000 mm
Depth of floorspace: 1100 mm

No safety distance is required!
In order to ensure improved operability, you should allow a distance of approx. 50 cm on the right side of the machine.

3.5 Mains connection

220 V, 60 Hz
400 V, 50 Hz
400 V, 60 Hz
440 V, 60 Hz
480 V, 60 Hz
500 V, 50 Hz
Mains voltage fluctuations +/- 10%

3.6 Rated Power

9700 VA, 3~

3.7 Pre-fuse

32 A

3.8 Degree of Protection

– IP 55

3.9 Emissions

Noise data
Noise measurement in accordance with DIN 45635-31-01-KL3
Noise levels are significantly influenced by the properties of the sample material.

Example 1:
Sound power level L_{WA} = 95.7 dB(A)
Workplace-related emissions value L_{pAeq} = 81.5 dB(A)
Operating conditions :
Feed material : marble pebbles, particle size <90 mm
Set gap width: < 1 mm
Final particle size : < 14 mm
Fill level of the grinding chamber: approx. 65%

Example 2:
Sound power level L_{WA} = 102 dB(A)
Workplace-related emissions value L_{pAeq} = 90 dB(A)
Operating conditions:
Feed material: quartz pebbles, particle size <55 mm
Set gap width: < 1 mm
Final particle size: < 10 mm
Fill level of the grinding chamber: approx. 65%

⚠ CAUTION

C4.0045

Damage to hearing
A high noise level may arise depending on the type of the material, the jaws used and the duration of grinding

- Excessive noise in terms of level and duration can cause impairments or lasting damage to hearing.
- **Suitable sound insulation measures must be provided or hearing protection worn.**

3.10 Electromagnetic Compatibility (EMC)

- EMC class in accordance with DIN EN 55011: A

3.11 Feed Grain Size

Feed size:	max. < 110 mm
Final fineness:	90 % < 0.5 mm

3.12 Degree of hardness of the sample material

The degree of hardness of the sample material should be above 3 on the Mohs' scale to achieve effective grinding. The degree jaws should be harder than the sample material to prevent increased wear on the jaws.

3.13 Gap width

From 0 mm to approx. 11 mm (adjustable using the threaded spindle)

3.14 Installation drawing

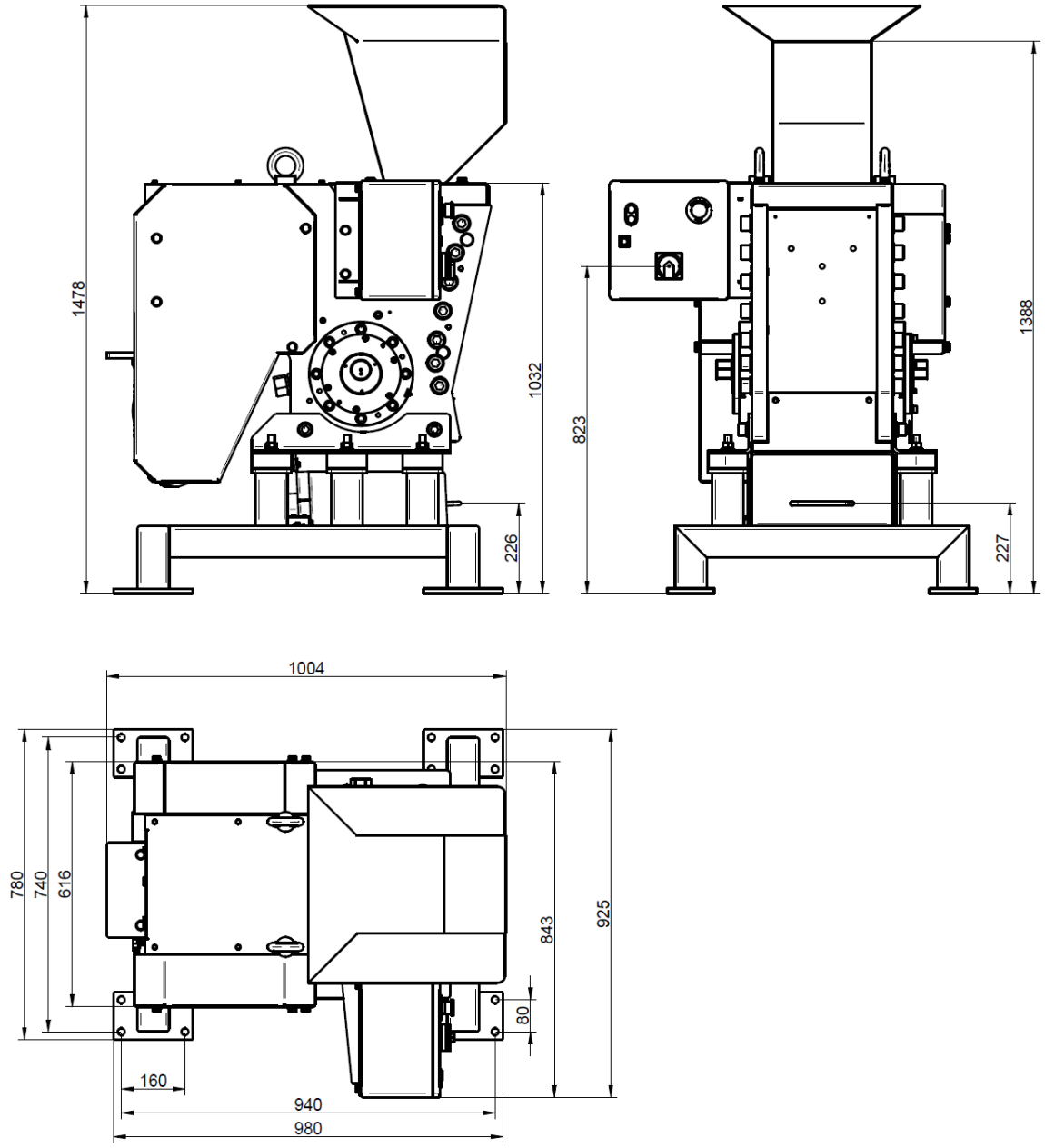


Fig. 1: Installation drawing

4 Packaging, Transport and Installation

4.1 Packaging

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

NOTICE N4.0001

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.**

4.2 Transport

DANGER D2.0001

Serious personal injury
Suspended loads

– If dropped, the great weight of the device would result in serious injuries or death.

- **People must never stand below suspended loads!**

WARNING W2.0011

Serious injuries
Excessive weight

– The machine is extremely heavy, weighing 1100 kg, and can lead to serious injuries when lifted.

- **The machine may only be lifted and transported using suitable lifting gear!**

NOTICE N5.0017

Damage to components
Transport

– Mechanical or electronic components may be damaged during transport.

- **The device must not be knocked, shaken or thrown during transport.**

NOTICE

N6.0014

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.**

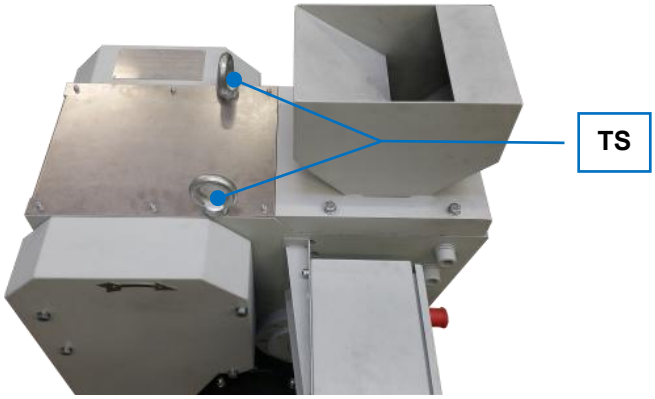


Fig. 2: Transport bolts

The Jaw Crusher BB 500 can be transported using a crane or other suitable means of transport:

- To do this, wind ropes through the two transport bolts (TS) on the machine.

⚠ CAUTION Only use suitable lifting gear that has been approved for the weight of the device.

The BB 500 has a base frame (**Z**) using which the device can be lifted and transported with the help of lifting gear.

⇨ Move lifting gear such as a forklift under the base frame (**Z**).
⇨ Slowly lift the device using the lifting gear and stabilise it to prevent it from toppling over.

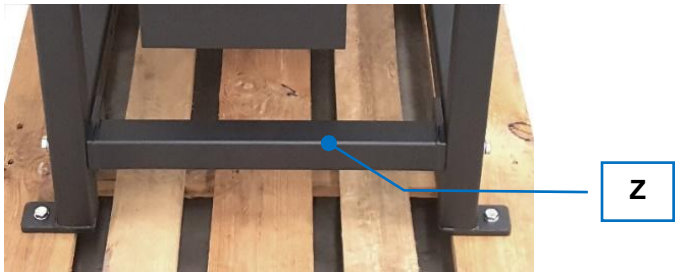


Fig. 3: Base frame

4.3 Temperature Fluctuations and Condensation

NOTICE N7.0016

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.

4.4 Conditions for the Installation Site

- Installation height: max. 2 000 m above sea level
- Ambient temperature: 5 °C – 40 °C

NOTICE N8.0021

Ambient temperature
Temperatures outside the permitted range

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

- 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 %

NOTICE N9.0015

Humidity
High relative humidity

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

4.5 Electrical Connection

WARNING W3.0005

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).

NOTICE N11.0005

Electrical connection
Wrong direction of rotation on drive motor

- Electronic and mechanical components may be damaged.
- Insufficient grinding of the sample material.
- **Before putting into operation for the first time, check whether the direction of rotation of the motor (fan direction of rotation) complies with the direction arrow on the belt cover.**

4.6 Type Plate Description

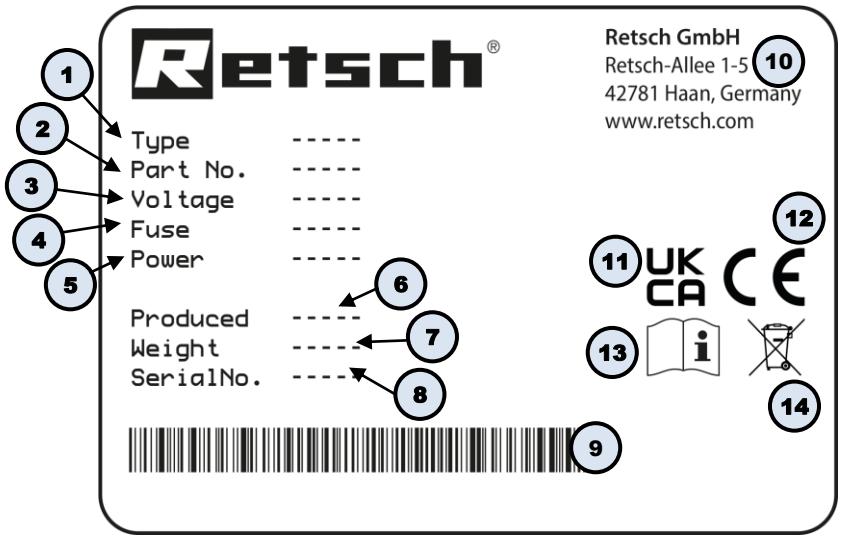


Fig. 4: Type plate

1 Device designation
2 Part number
3 Power version, Mains frequency
4 Fuse type and fuse strength
5 Capacity, Amperage
6 Year of production
7 Weight
8 Serial number
9 Bar code
10 Manufacturer's address
11 UKCA marking
12 CE marking
13 Safety warning: Read the manual
14 Disposal label

ⓘ In the case of queries please provide the device designation (**1**) or part number (**2**), as well as the serial number (**8**) of the device.

5 Views of the device

5.1 Front

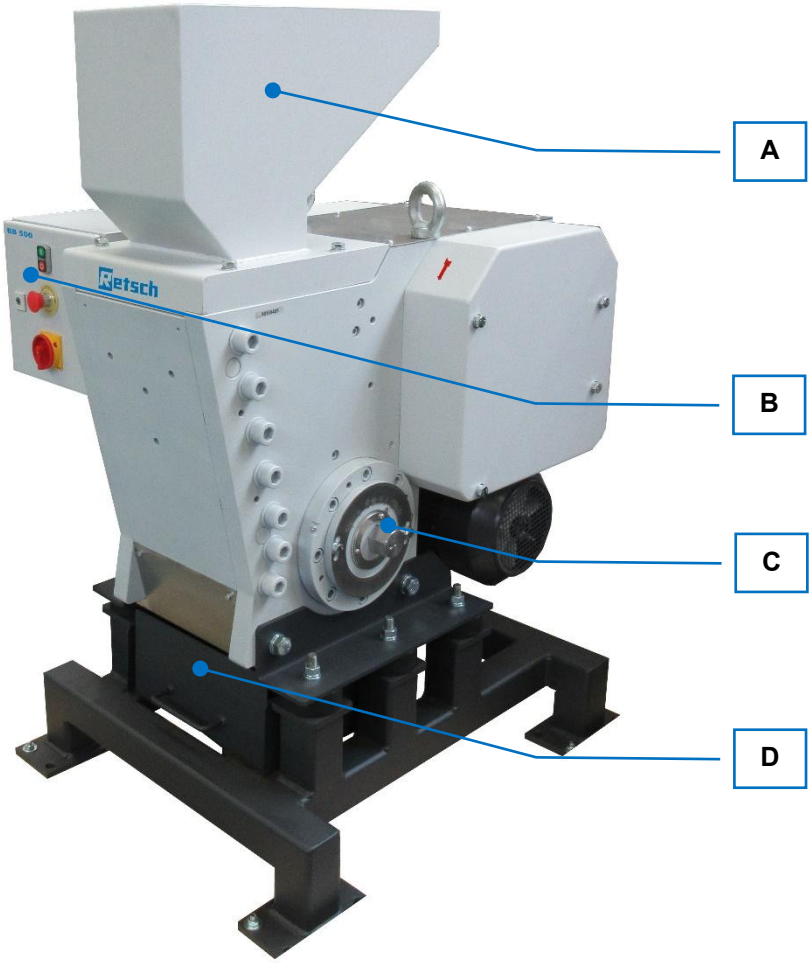


Fig. 5: Front view

Element	Description	Function
A	Feed hopper	For adding material.
B	Control element	For operating and controlling the machine.
C	Gap adjustment	For adjusting the gap width.
D	Collecting receptacle	Collects the sample material. The limit switch in the base frame actuates if the collecting receptacle is removed during operation.

5.2 Side view

Fig. 6: Side view

Element	Description	Function
E	Lock nut	Locks the threaded spindle for the gap width adjustment.

5.3 View of the control unit

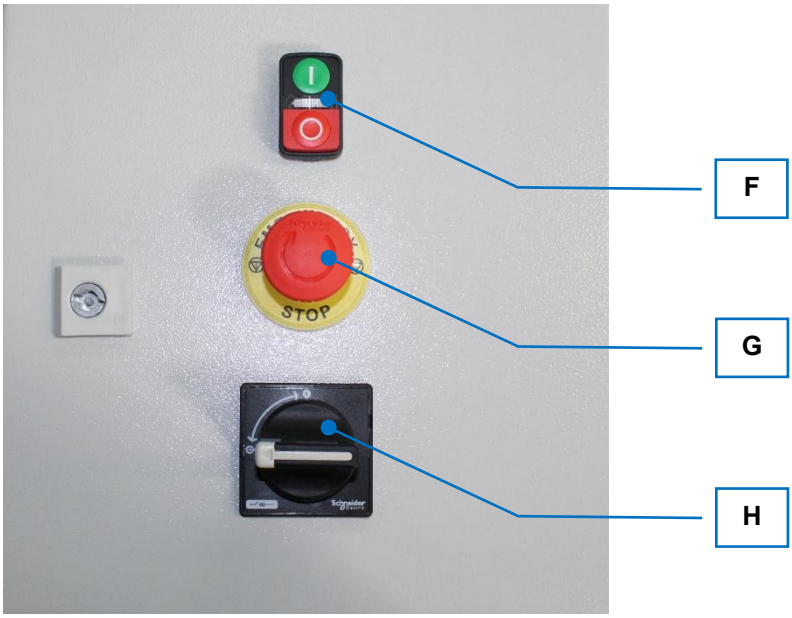


Fig. 7: Control element

Element	Description	Function
F	On/Off switch	Switches the jaw crusher on or off.
G	Emergency stop button	Stops the machine in the event of danger.
H	Main switch	Switches the machine on or off.

5.4 View of the threaded spindle

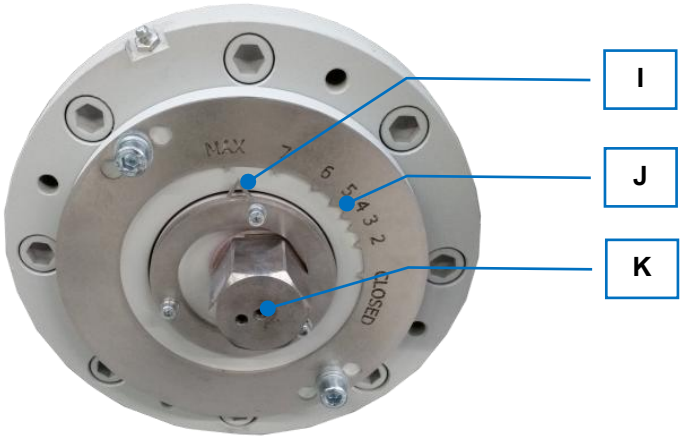


Fig. 8: Threaded spindle

Element	Description	Function
I	Pointer	Together with the scale this indicates the gap width.
J	Scale	Together with the pointer this indicates the gap width.
K	Nut	For adjusting the gap width together with scale and pointer.

6 First Commissioning

⚠ WARNING W4.0002

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 W5.0004

Danger to life due to electric shock
Electrically conductive parts of the housing due to contact with live cables inside the housing

– An electric shock can result in burns, cardiac arrhythmia, respiratory arrest and cardiac arrest.
- **Always operate the device using a mains socket protected by a residual current circuit breaker (RCCB).**

NOTICE N12.0002

Setting up the device
Disconnecting the device from the mains

– A separation of the device from the mains must be possible at any time.
- **Set up the device in such a way, that the connection for the power cable is always easily accessible.**

NOTICE N13.0004

Setting up the device
Vibrations during operation

– Depending on the operating mode of the device, slight vibrations may occur.
- **Set up the device only on a vibration-free, plane and stable surface.**

6.1 Installation of the Device

Fig. 9: Securing to the transport pallet

On delivery, the Jaw Crusher BB 500 is screwed to the transport pallet.

- Remove the hex screws (SC) from the transport pallet.
- Using a forklift, lift the machine up.
- Place the machine onto the intended installation surface. Set up the device only on a vibration-free, plane and stable surface.
- Screw the machine firmly onto the base using suitable hex screws (SC).

6.2 Establishing the power supply

WARNING

W6.0005

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.**

The Jaw Crusher BB 500 is connected to the power supply as follows:

- Ensure that the machine has been securely installed; see “Installation of the Device”.
- Using the connecting cable provided, connect the machine to the operator’s power supply. Also see “Electrical Connection”.
- When doing so comply with local regulations and safety measures.

7 Operating the Device

⚠ CAUTION C5.0005

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 C6.0006

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 C7.0010

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.**

⚠ CAUTION C8.0004

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.**

NOTICE N14.0007

Range of application of the device
Long-term operation

- This laboratory device has been designed for 8-hour single shift operation.
- **This device must not be used as a production machine or deployed in continuous operation.**

NOTICE N15.0000

Selection of suitable materials

- You might be using unsuitable materials.
- **Use the manufacturer's application database to check whether your sample material is suitable for use.**

7.1 Switching On / Off

NOTICE The Jaw Crusher BB 500 may only be started up with an empty crushing chamber. Grinding material placed in the crushing chamber or the feed hopper before starting the machine will result in a blockage and possibly damage to mechanical components.

The control unit is located on the front of the Jaw Crusher BB 500, see "View of the control unit"

Start the machine as follows:

- Turn the main switch (H) to the "ON" position and release the emergency stop button (G) where applicable.
- Switch the machine on using the green button (F).
  The motor is started up and the moving crusher arm is set in motion.

The grinding process can only be started if the drawer on the collecting receptacle (D) (see "Front view") has been completely pushed in. Please ensure that you close and lock the drawer in order to prevent it slipping out due to vibrations.

When open, a limit switch prevents the machine starting (also see (D) in the "Front View").

NOTICE Stop the Jaw Crusher BB 500 when there is no longer any grinding material in the crushing chamber.
Mechanical components may be damaged by a possible blockage.

The control unit is on the front of the Jaw Crusher BB 500, see "View of the control unit".

The machine is switched off as follows:

- Switch the machine off using the red knob (F).
- Turn the main switch (H) to the "OFF" position.

In an emergency: the machine is shut down immediately when the emergency stop button (G) is pressed.
The motor is disconnected from the power supply and the moving crusher arm comes to a halt.

7.2 Adjusting the gap width

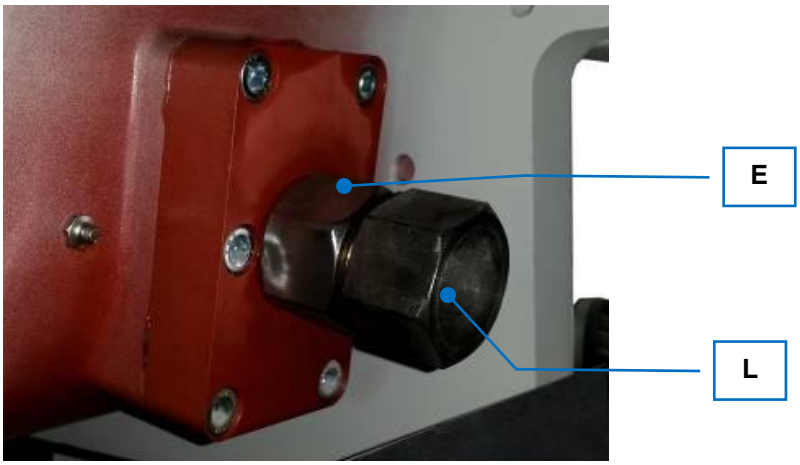


Fig. 10: Lock nut –adjusting the gap width

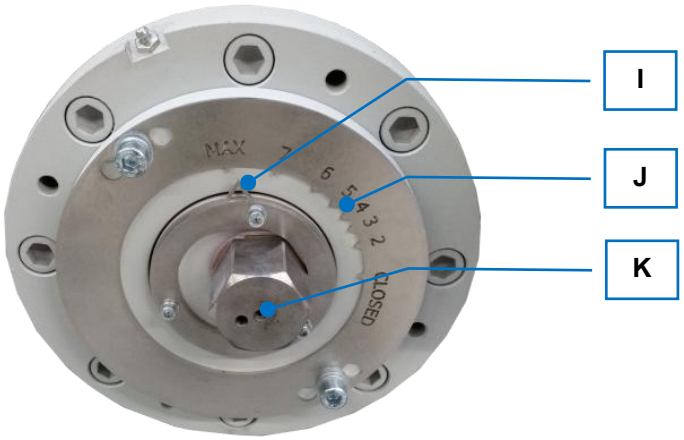


Fig. 11: Threaded spindle – adjusting the gap width

- Turn the lock nut (E) counter-clockwise to loosen it.
- Turn the screw (L) counter-clockwise as far as it will go to adjust the gap width.
- Turn the nut (K)
  - to the right to increase the gap width.
  - to the left to reduce the gap width.
- Use the pointer (I) and scale (J) as a guide.
  The scale (J) indicates the gap width in millimetres.
- Turn the screw (L) clockwise back in to fix the gap width.
  When fixing the gap width by means of the nut (K), make sure that the inner toothing of the screw (L) is properly fitted.
- Check the fit by turning it slightly backwards and forwards.
  The engagement of the teeth over the nut (K) must be perceptible.
- Tighten the lock nut (E) clockwise when the desired gap width is set.

7.3 Setting the zero position

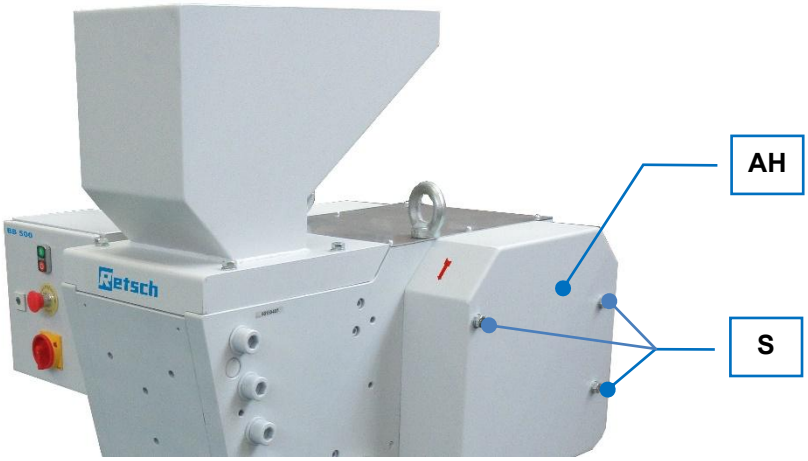


Fig. 12: Right-hand protective cover

The zero position must be reset after changing a jaw.
Proceed as follows to set the zero position or minimum gap:

- Turn the Jaw Crusher BB 500 off at the main switch (H) (see “View of the control unit”).
- Disconnect the machine from the power supply and secure to prevent it restarting.
- Unscrew the M12-hex screws (S) and remove the right-hand protective cover (AH).
- Manually turn the flywheel until the moving crusher arm is in the front position.
- Look into the crushing chamber and close the gap so that only a narrow light slit is visible between the jaws.
  The jaws must not touch each other.
- Check the scale (J), see “Adjusting the gap width”.
- Where necessary unscrew the fixing screws and set the ring with arrow (I) to “Closed”, see “Adjusting the gap width”.
  The zero position has now been set.

7.4 Adding sample material

⚠ CAUTION

C9.0045

Damage to hearing
A high noise level may arise depending on the type of the material, the jaws used and the duration of grinding

- Excessive noise in terms of level and duration can cause impairments or lasting damage to hearing.
- **Suitable sound insulation measures must be provided or hearing protection worn.**

NOTICE

N16.0003

Damage to mechanical components
Overfilling the feed hopper and the grinding chamber

- Feeding too much sample material can result in increased wear to the jaws and wearing plates and to blockages.
- **Do not use the feed hopper for storing sample material.**
- **Do not fill the grinding chamber to over 65% full.**
- **Do not exceed the specified maximum feed size for the sample material.**
- **Fill larger and firmer sample material slowly and gradually into the feed hopper.**
- **Pre-grind larger and firmer sample material with a larger gap where necessary.**

NOTICE Filling the crushing chamber to more than 2/3 full may damage the guide plates on the feed hopper (A) and will result in sample material being conveyed by the activated crusher arm into the crusher housing behind the crusher arm.

The fill volume also influences the fine share in the pre-ground sample. The fuller the crushing chamber, the higher the fine share may be.

NOTICE With respect to the fill level, attention should also always be paid to the volume of the collecting receptacle (D). The fill quantity must not exceed the volume of the collecting receptacle (D).

NOTICE Only fill the feed hopper (A) and the crushing chamber when the machine is in operation.

The feed hopper (A) is not intended for storing sample material, rather its sole purpose is for feeding the material into the crushing chamber. It furthermore prevents inadvertent access to the crushing chamber and holds back any splashing sample material.

7.5 Removing sample material after grinding

⚠ CAUTION C10.0005

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 C11.0010

Heavy collecting receptacle

Depending on the density of the sample material or the filling level, the filled collecting receptacle may be very heavy.

- Due to its weight, a filled collecting receptacle can cause personal injuries when lifted out from the base frame.

- **As a general rule, always use both hands to pull the collecting receptacle out of the base frame.**
- **Two people should always remove a heavy collecting receptacle from the base frame.**
- **Wear safety shoes.**

NOTICE N17.0004

Damage to mechanical components

Jaw blockage with the motor shutting down

- Due to the size and geometry of the grinding chamber, blockages may occur when feeding a large quantity of big pieces of firmer sample material. If the machine is not switched off in time in the event of blockages, a motor protection switch turns the overloaded drive motor off.
- **Switch the machine off immediately when there is a blockage and remove the sample material causing the blockage.**
- **Reduce the feed of sample material to the feed hopper.**
- **Fill larger and firmer sample material slowly and gradually into the feed hopper.**
- **If necessary, pre-grind larger and firmer sample material using a larger gap width.**

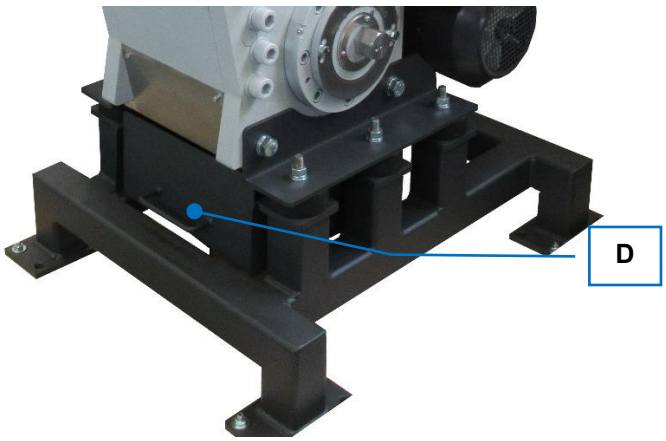


Fig. 13: Collecting receptacle

- Switch the Jaw Crusher BB 500 off.
- Pull the collecting receptacle (D) out of the base frame.
- Remove the ground sample material from the collecting receptacle (D).

8 Cleaning, Wear and 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 the Retsch GmbH , an authorised representative or by qualified service technicians.**
- **Do not carry out any unauthorised or improper repairs to the device!**

8.1 Cleaning

WARNING W7.0003

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.**

NOTICE N18.0009

Damage to the housing and device
Use of organic solvents

– Organic solvents may damage plastic parts and the coating.
- **The use of organic solvents is not permitted.**

8.1.1 Cleaning the machine housing

The machine is best cleaned using an industrial vacuum cleaner and brush with a long handle:

- Clean the housing of the Jaw Crusher BB 500 with a damp cloth and standard household detergent.
- Ensure that no water or detergent gets inside the machine.

8.1.2 Cleaning the feed hopper and grinding chamber

WARNING

W8.0003

Serious personal injury

Contact between moving jaws in the grinding chamber

– Accidentally reaching into the grinding chamber and between moving jaws can cause serious injuries to hands.

- **Always operate the device with the feed hopper installed.**

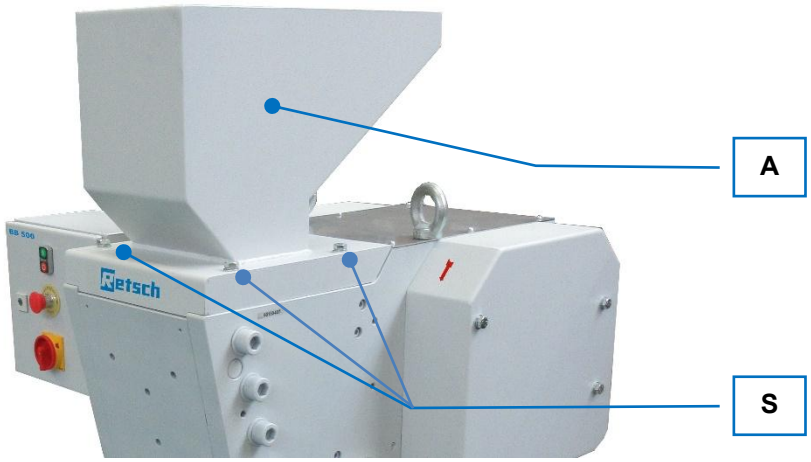


Fig. 14: Feed hopper

- Turn the Jaw Crusher BB 500 off by the main switch (H) (see “View of the control unit”).
- Disconnect the machine from the power supply and secure to prevent it restarting.
- Unscrew the four hex screws (S) around the feed hopper (A).
- Lift the feed hopper (A) up and off.
- Clean the feed hopper (A) using a damp cloth and household detergent.
- Clean the grinding chamber and jaws with a brush and vacuum the loosened material residue with an industrial vacuum cleaner.
- The grinding chamber may alternatively be carefully cleaned with compressed air.
- After cleaning, replace the feed hopper above the grinding chamber.
- Secure the feed hopper (A) again using the four hex screws (S).

8.2 Wear

⚠ CAUTION C14.0013

Risk of injury
Improper repairs

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

Jaws may wear depending on the frequency of grinding and the property of the sample material. The jaws and the wearing plates should be inspected regularly for wear and replaced where necessary.

8.2.1 Replacing the breaking jaws

The jaws on the Jaw Crusher BB 500 are replaced as follows:

- Turn the machine off by the main switch (H) (see "View of the control unit").
- Disconnect the machine from the power supply and secure to prevent it restarting.

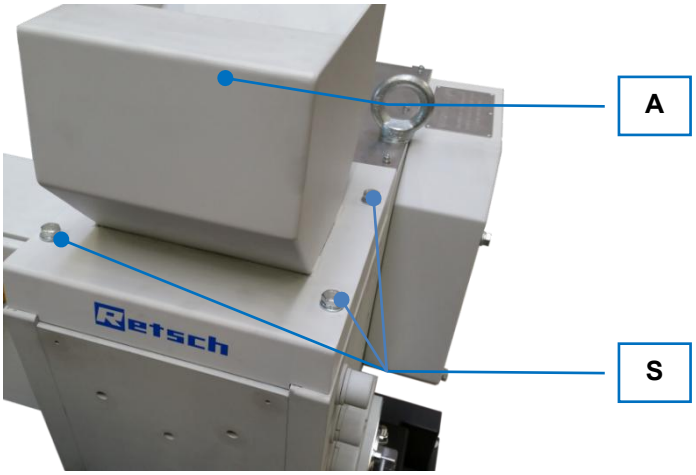


Fig. 15: Lifting off the feed hopper

- Unscrew the four hex screws (S) around the feed hopper (A).
- Lift the feed hopper (A) up and off.
- Using the threaded spindle (C), set the gap width to maximum.

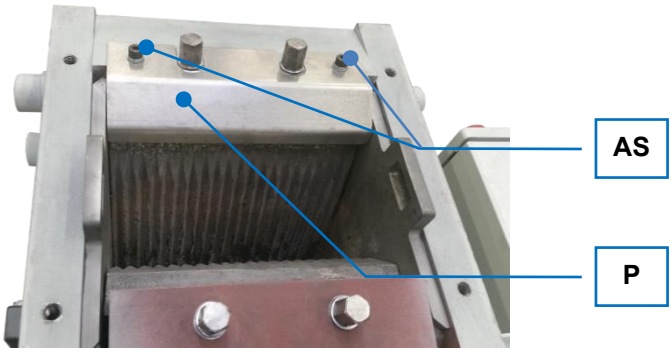


Fig. 16: Removing the cover plate

- Unscrew the two screws (AS) and remove the cover plate (P).

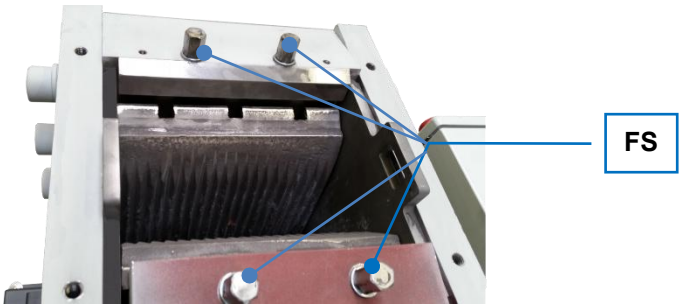


Fig. 17: Releasing the jaws

- Unscrew the four fixing screws (FS) on the jaws.
- Gently tap the surface of the jaws so that they come away from the support and slide downwards.

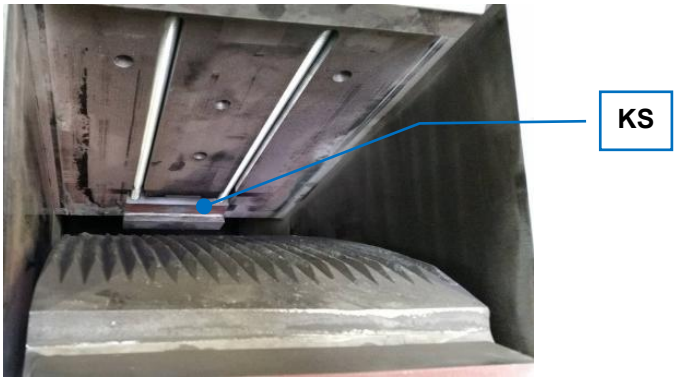


Fig. 18: Clamp

- Ensure that the clamp (KS) does not fall out while unscrewing the fixing screws (FS).

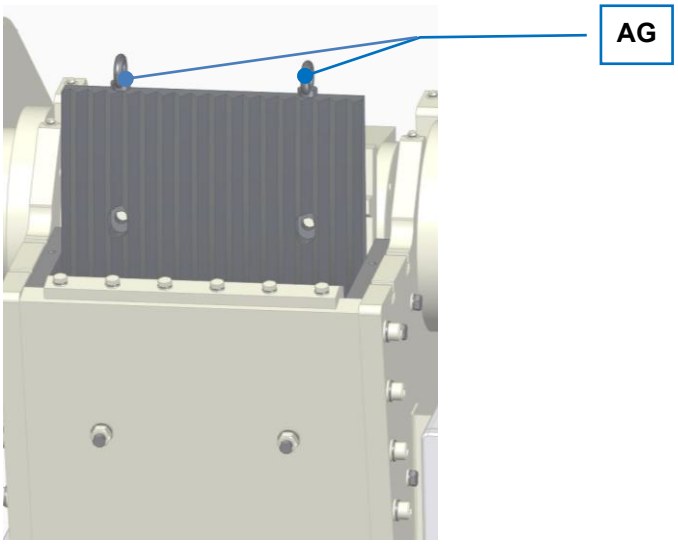


Fig. 19: Removing the jaws

- Screw the eye bolts (AG) into the threads on the top of the crusher jaws.
- Use the eyebolts as lifting straps and guide the lifting straps through the eyebolts.
- Lift the crusher jaws out of the device.
- The worn crusher jaws shall be removed and subsequently, the new crusher jaws may be inserted in reverse order.

8.2.2 Replacing the wearing plates

Only the feed hopper (A) needs to be removed in order to remove the wearing plates (SB). There is no additional fixing mechanism for the wearing plates (SB).

Fig. 20: Wearing plate

- Lift the wearing plates (SB) slightly to release them. Then pull them straight up and out of the crushing chamber.

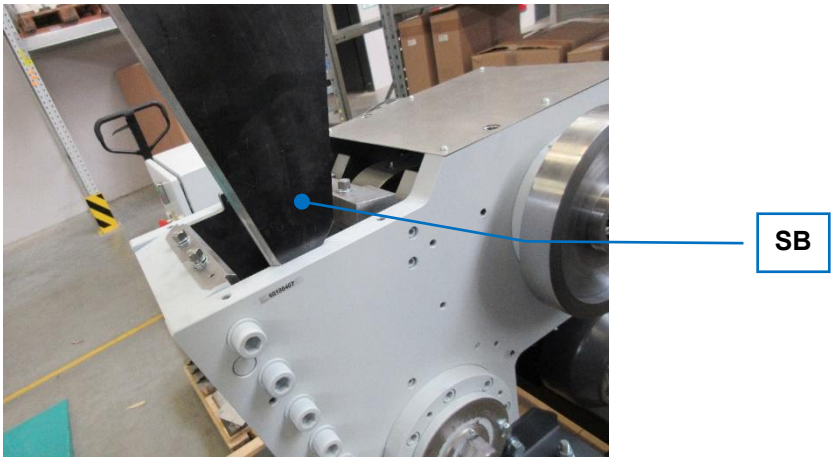


Fig. 21: Edge of the wearing plate

NOTICE The angled corner of the wearing plate (**SB**) must always point to the crusher arm, because damage to the machine may otherwise occur.

8.3 Maintenance

⚠ CAUTION C15.0013

Risk of injury
Improper repairs

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

8.3.1 Lubricating the device

The Jaw Crusher BB 500 must be lubricated again after around 60 operating hours:

- Use 4 to 7 g of natural coloured, lithium saponified and graphite-free grease, such as Shell Gadus S2 V220 2 or BP Energrease LS-EP 2.
- Apply the grease to the lubrication points using a standard grease press.

The lubrication points are marked with red arrows on the machine.

The following covers (AD) must first be removed to reach the relevant lubrication points (SP):

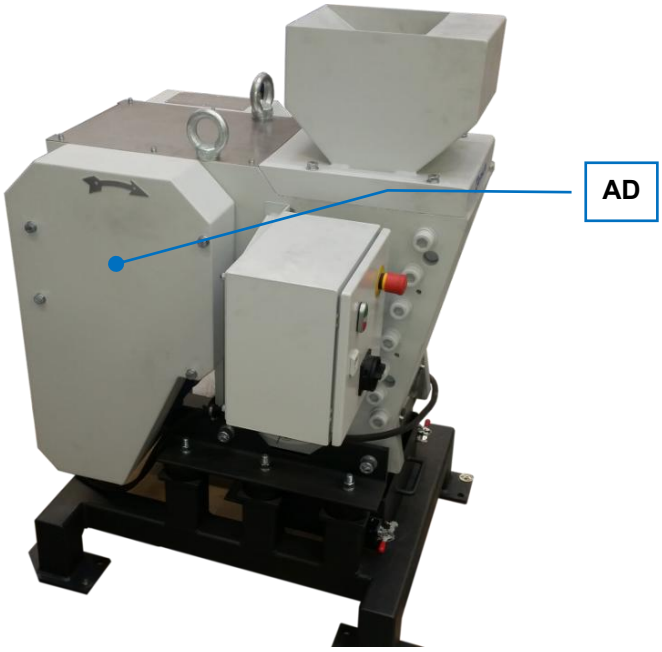


Fig. 22: Side view (left)

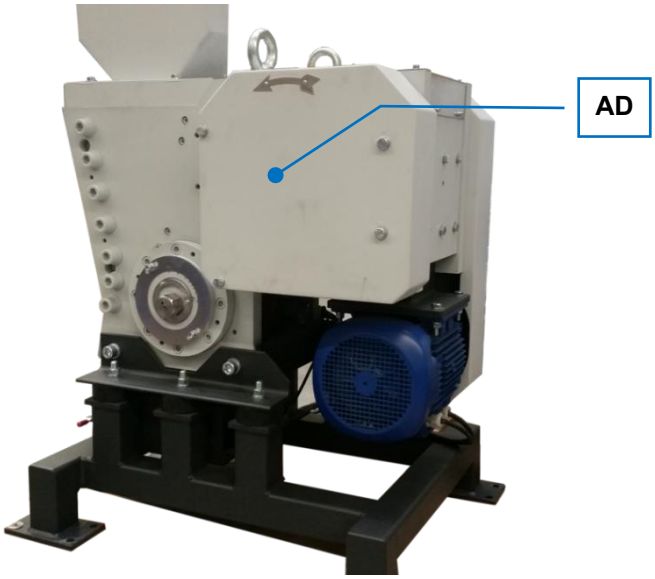


Fig. 23: Side view (right)

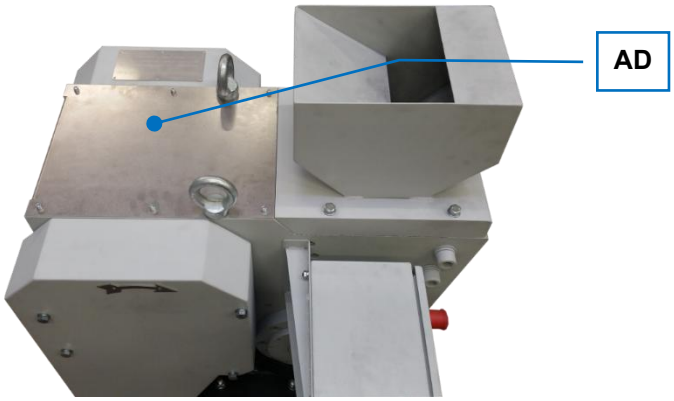
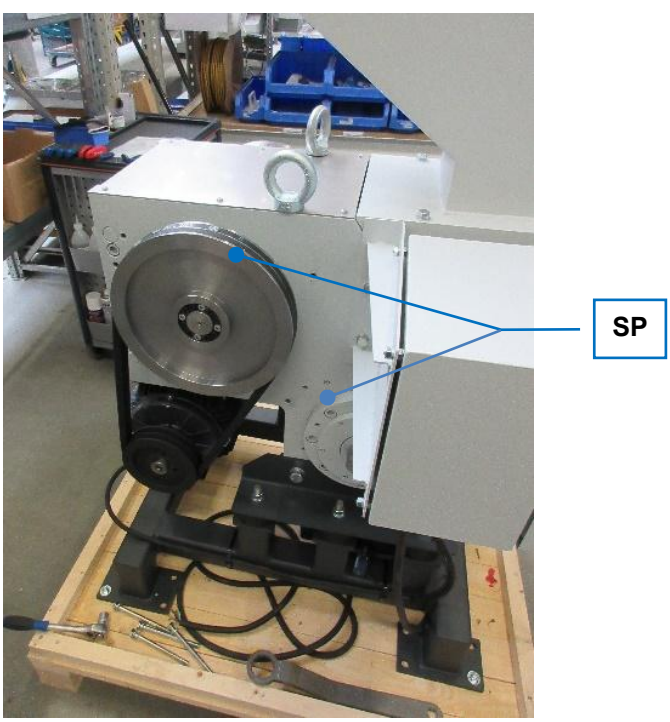


Fig. 24: View from above

- Unscrew the screws and remove the relevant covers (AD).
- Once the covers (AD) have been removed, the lubrication points (SP) can be lubricated.



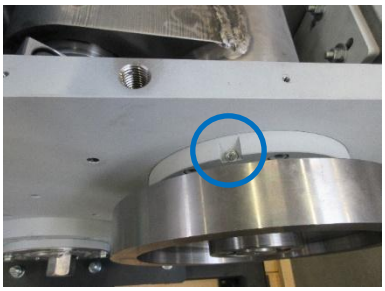
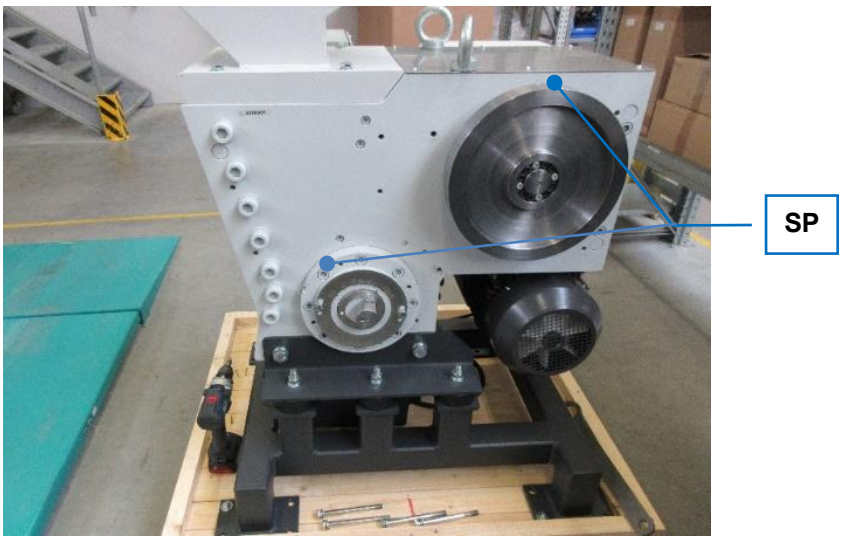


Fig. 25: Side view (left)



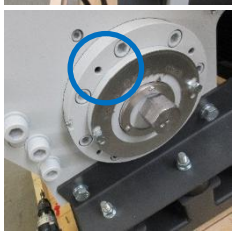


Fig. 26: Side view (right)

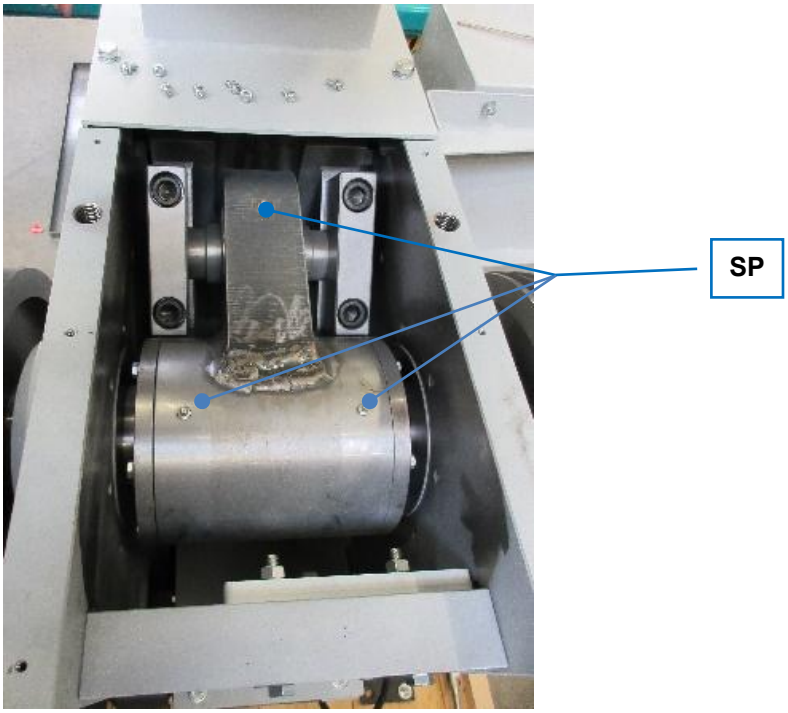


Fig. 27: View from above (open)

- Using a standard grease press, apply an adequate amount of grease (around 4- 7g) to the marked lubrication points (SP).

8.3.2 Checking the limit switch

A functional inspection of the limit switch must be conducted every 6 months.

Check the function of the limit switch as follows:

- Start the Jaw Crusher BB 500.
- Open the draw on the collecting receptacle (D), see “Front view”.
  The limit switch must activate, and the machine must stop or coast to a halt.
- Close the drawer on the collecting receptacle (D).
  The machine must **not** start up.
- Turn the machine on by the main switch (H).
  The machine starts and runs normally.

8.4 Return for Service and Maintenance

Fig. 28: 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.

9 Accessories

Information on available accessories as well as the respective manuals are accessible directly on the Retsch GmbH homepage (http://www.retsch.com) under the heading "Downloads" of the device.

Information on wear parts and small accessories can be found in the Retsch GmbH general catalogue also available on the homepage.

In case of any questions concerning spare parts please contact the Retsch GmbH representative in your country, or Retsch GmbH directly.

10 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 13th 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.

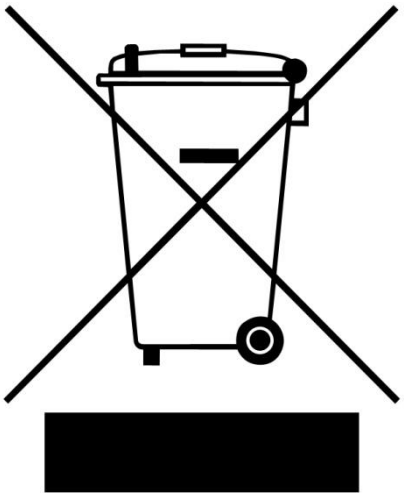


Fig. 29: Disposal label

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 23rd 2006. From this date on, the manufacturer must provide an adequate possibility of returning all devices delivered since August 13th 2005. For all devices delivered before August 13th 2005 the end user is responsible for the proper disposal.

11 Index

EU Declaration of Conformity
Translation

JAW CRUSHER
BB 500 | 21.003.xxxx

EU DECLARATION OF CONFORMITY
We, represented by the undersigned, hereby declare that the above device complies with the following directives and harmonised standards:

Machinery Directive 2006/42/EC
Applied standards, in particular:

DIN EN ISO 12100	Machine Safety - General Design Principles
DIN EN 60204-1	Safety of machinery – Electrical equipment of machines
DIN EN 13683	Garden equipment – Integrally powered shredders/chippers – Safety
DIN EN ISO 13849-1	Safety of machinery - Safety-related parts of control systems

Electromagnetic compatibility 2014/30/EU (tested at 400 V, 50 Hz)
Applied standards, in particular:

EN 55011	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
DIN EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements

Restriction of hazardous substances (RoHS) 2011/65/EU

Authorised person for compilation of the technical documentation:
Julia Kürten (Technical Documentation)

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

In the event of a modification of the device not agreed on by Retsch GmbH, as well as the use of non-approved spare parts or accessories, this declaration loses its validity.

Retsch GmbH

Haan, 06/2026

Dr. Kevin Schmitz, Head of Development

CE