

**Jaw Crusher 35mm to 0.5mm  
AG430**

Impact Test Equipment Ltd  
[www.impact-test.co.uk](http://www.impact-test.co.uk) & [www.impact-test.com](http://www.impact-test.com)

User Guide  
**User Guide**  
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**Impact Test Equipment Ltd.  
Building 21 Stevenston Ind. Est.  
Stevenston  
Ayrshire  
KA20 3LR**

**T: 01294 602626**

**F: 01294 461168**

**E: [sales@impact-test.co.uk](mailto:sales@impact-test.co.uk)**

**[Test Equipment Web Site](http://www.impact-test.co.uk)  
[www.impact-test.co.uk](http://www.impact-test.co.uk)**

**[Test Sieves & Accessories Web Site](http://www.impact-test.com)  
[www.impact-test.com](http://www.impact-test.com)**

### **Notes on the operating instructions**

These operating instructions for the jaw crusher type AG430 provide all the necessary information on the topics listed in the table of contents. The guide the target group(s) defined for the relevant subjects in safe and proper handling of the AG430. Knowledge of the relevant chapters by the appropriate target group(s) is essential for safe and proper handling.

This technical documentation comprises a reference work and a training guide. The individual chapters are self-contained units.

These operating instructions do not contain any instructions on repairs. Should any repairs become necessary, please contact your supplier.

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# Safety

**Target group:** All persons dealing with the machine in any way

The AG430 is a modern, powerful product. It reflects the state of the art. When the machine is handled correctly by persons familiar with this technical documentation, it is completely safe and reliable in operation.

## Notes on safety

You, as the operator, are responsible for ensuring that the persons appointed to work with the AG430:

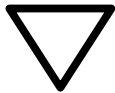
- have read and understood all the stipulations of the chapter on safety,
- are familiar before commencing work with all instructions and regulations for the relevant target group,
- have access to the technical documentation for this machine at all times and without difficulty.

Ensure that new staff have been familiarised with the rules for safe and proper handling before commencing work on AG430 either by oral instruction by a competent person and/or by this documentation.

Incorrect operation can lead to damage or injury. You are responsible for your own safety and that of your staff.

Ensure that no unauthorised persons have access to the AG430.

For your own protection, have your staff confirm that they have been instructed in operation of the AG430. A draft of an appropriate form can be found at the end of the chapter on safety.



No liability in any form will be accepted for damage or injury resulting from failure to observe the following notes on safety

**Warning notes**

We use the following symbols to warn against:



**Personal injury**



**Damage to property**

**Repairs**

These operating instructions do not contain any instructions on repairs. For your own safety, only have repairs performed by an authorised agent (service technicians).

In such a case, please inform:

Your supplier

**Your service address:**

_____
_____
_____
_____

**Confirmation**

I have read and understood the foreword and the chapter on safety.

\_\_\_\_\_  
Signature of the operator

\_\_\_\_\_  
Signature of service technician

# Technical data

**Target group:** Operators

**Machine type designation:** AG430

## Use for the intended purpose

The AG430 is suitable for crushing of medium to extremely hard substances and brittle and hard/tough materials. The achievable final output fineness can be up to 0.5 mm and less, depending on the input material.

The maximum input grain size is 35 mm.

The materials which can be crushed in the AG430 include the following:

Bakelite // bauxite // concrete // dolomite // ores // feldspar // granite // graywacke // glass // limestone // gravel // coal // coke // corundum // quartz // salts // refractory clay // slag // silicates // silicon // sintered materials // cement clinker, etc.

This machine is not designed as a production machine but as a laboratory machine intended for 8 hour single shifts with 30% total operation time.

Should you require any further details, the applications laboratory will be pleased to assist.



Do not modify the machine in any way, and use only spare parts and accessories approved.

**The conformity with European Directives will otherwise be invalidated.**

**Furthermore, this will lead to all warranty claims being rendered null and void.**

## Description of function

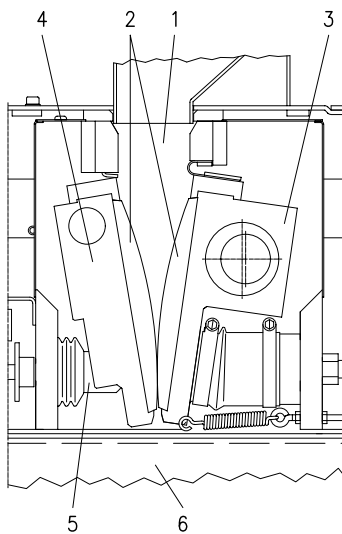
Comminution in the AG430 is effected by means of pressure.

The crusher chamber **1** is funnel shaped and tapers down towards the output end in accordance with the gap width which is infinitely adjustable in steps of 0.1 mm.

The AG430 has a gap width adjustment mechanism **5** linked to a fixed crusher arm **4** and a moving crusher arm **3**. Both crusher arms are fitted with replaceable jaws **2** between which comminution takes place by means of pressure.

The eccentric motion (eccentricity=2.4mm / 960min<sup>-1</sup> at 50Hz and 1028min<sup>-1</sup> at 60Hz) of the moving crusher arm **3** steadily moves the input material until it is fine enough to pass through the set gap width and fall into a withdrawable receptacle **6**.

The convex form of the replaceable jaws **2**, which may be made of various different materials accelerates the process of comminution while preventing compaction and formation of bridges.



## Protective devices

The crusher chamber of the AG430 is enclosed on all sides by a robust steel plate casing.

The AG430 can be safely started up even when the hopper lid is open and the output receptacle withdrawn, as its design in compliance with EN 294 precludes any inadvertent insertion of hands or objects.

A main switch fitted with a thermal overload relay on the back of the machine protects against current overload.

## Gap width adjustment

From 0 to approx. 10 mm by handwheel in 0.1 mm steps. Digital gap width indicator.

## Throughput, output fineness

The performance data, throughput and achievable final output fineness are dependent on the breakage behaviour and hardness of the process material and on the gap width set. They can only be determined empirically.

## Rated capacity of withdrawable receptacle

Approx. 1000 ml

### Noise data :

Noise measurement to DIN 45635-031-01-KL3

The noise levels are also influenced by the properties of the input material.

#### Example 1:

Sound power level  $L_{WA} = 78,3$  dB(A)

Workplace related emission level  $L_{pAeq} = 68,7$  dB(A)

#### Service conditions :

Input material: none

Crushing members : zirconia jaws

Gap width set: 2mm

#### Example 2:

Sound power level  $L_{WA} = 91,7$  dB(A)

Workplace related emission level  $L_{pAeq} = 83,7$  dB(A)

#### Service conditions :

Input material : quartz gravel of grain size approx. 25mm

Crushing members : zirconia jaws

Gap width set: : 2mm

Output grain size: < 5 mm

## IP ratings

IP20

IP00 on the side ventilation slits

## Rated power

1100 W

## Dimensions

Height: approx. 510mm,      Width: approx. 360 mm,      Depth: approx. 580 mm

Weight: approx. 79 kg / net

## Required mounting surface

(462 mm x 1000 mm; no safety clearances necessary!)

# Transport and installation

**Target group:** Operators

## Packaging

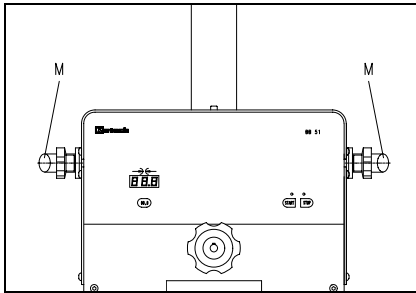
The packaging is suitable for the mode of transport selected. It complies with the general packaging regulations.



Please keep the packaging for the duration of the guarantee period, as your guarantee claim will be endangered in the case of a complaint or return of the machine in inadequate packaging.

## Transport

The handles **M** available as accessories (Order No. 32.825.0001) can be used to lift and carry the AG430. **Fig.1**



**Fig.1**



The AG430 must not be thrown, subjected to impact or shock during transport. The electrical and mechanical components may otherwise be damaged.

## Temperature fluctuations



When there are severe temperature fluctuations (e.g. during air transport) the AG430 is to be protected from condensation. The electrical components may otherwise be damaged.

## Interim storage

Also ensure that the AG430 is stored in a dry location for interim periods.

## Supply schedule

- AG430 with built-in crusher arms and wearing plates.
- 1 mains power cable.
- 1 instruction manual.

Check the delivery for completeness, including the accessories ordered individually.

Check the perfect function of the AG430 (see chapter on operation).



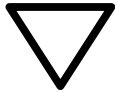
On incomplete delivery and / or transport damage, you must notify the forwarding agent and supplier immediately (within 24hrs). It may not be possible to take account of later complaints.



## Parameters for the installation location

### Ambient temperature:

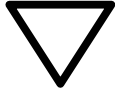
5°C to 40°C



If the ambient temperature falls below or exceeds the limits specified, the electrical and mechanical components may be damaged or the performance data changed to an unknown extent..

### Humidity :

Maximum relative humidity 80% at temperatures up to 31°C, decreasing in a straight line to 50% relative humidity at 40°C.



At higher humidity, the electrical and mechanical components may be damaged and performance data changed to an unknown extent.

### Site altitude:

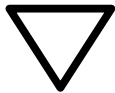
max. 2000 m above sea level

### **Installation**

Place the AG430 jaw crusher on an even and stable surface, eg. a laboratory bench.

### **Electrical connection**

- Consult the type plate for the voltage and frequency of the AG430.
- Ensure that the values are in agreement with the mains power supply.
- Connect the AG430 to the mains using the cable supplied.



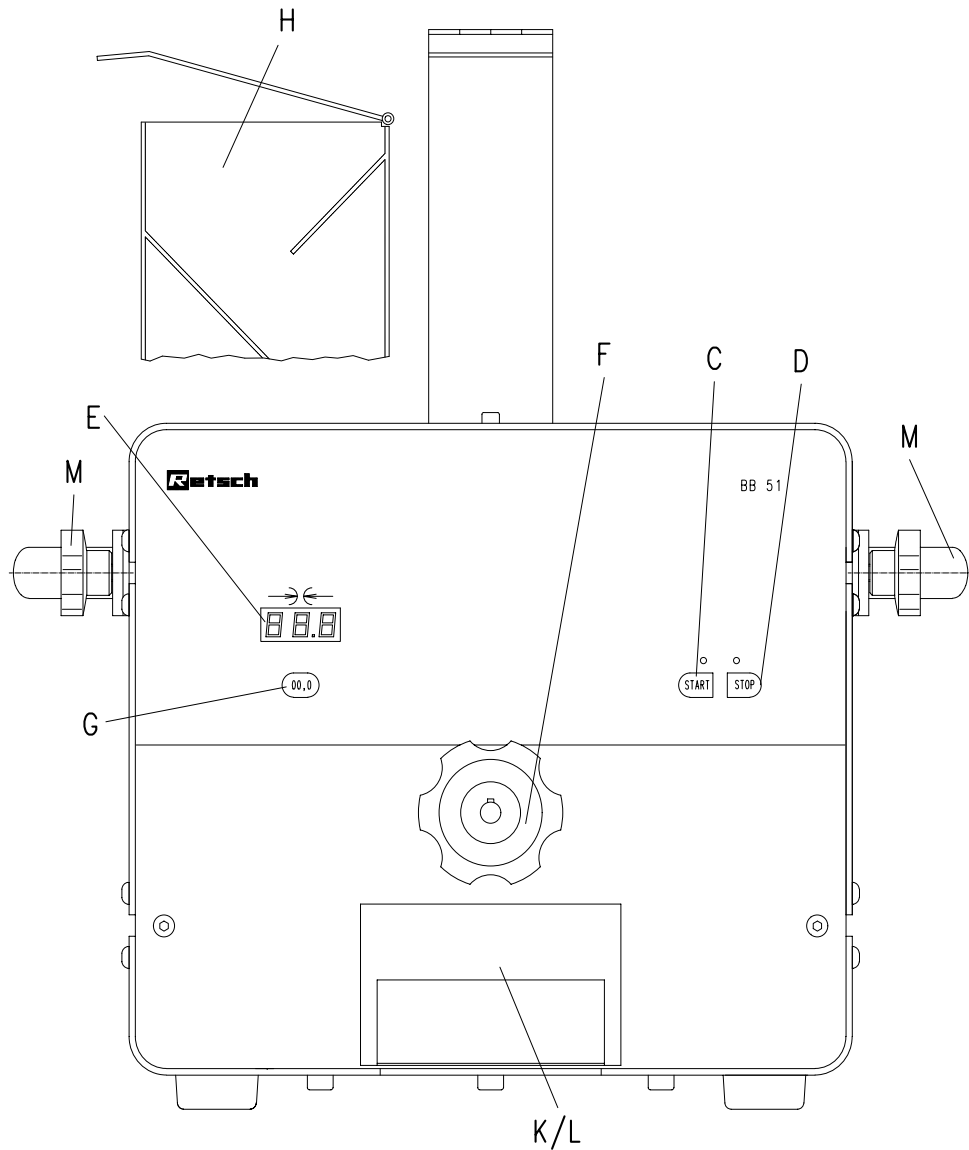
Failure to observe the values on the type plate can result in damage to electronic or mechanical components.

# Operation

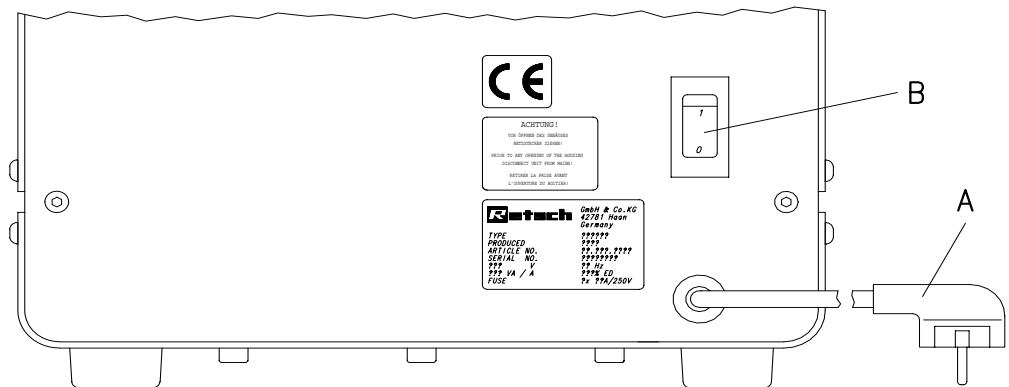
Target group: Operators

## Controls and operation

Schematic drawing of the controls:

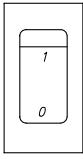

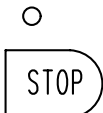
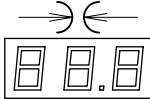
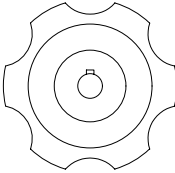

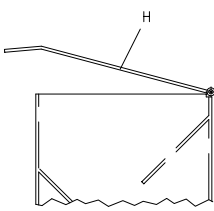


Front view



Rear view

Overview of control elements

Item	Element	Illustration	Function
A	Mains power cable		Connects the machine to the mains power supply (earthed socket)
B	Main switch <b>ON/OFF</b> with overload protection		Connects and disconnects the controller from the mains power supply.  Disconnects the motor from the mains power supply in the event of overload.
C	<b>START</b> button		Starts the AG430.  Green LED lights up when the button is pressed.
D	<b>STOP</b> button		Stops BB51.  Red LED lights up when the machine is switched on.  Puts the AG430 in standby mode when pressed a second time.
E	Gap width indicator		Indicates the gap width set in mm.
F	Handwheel for setting gap width		Turn clockwise to close the gap. Turn anti-clockwise to open the gap.
G	Gap zero adjustment button		Press to reset the indicator display to <b>00.0</b> .
H	Feed hopper and lid		Takes the input material. Prevents the input material from bouncing back and protects against excessive release of dust.
K	Drawer	See preceding page	For insertion of receptacle <b>L</b> .
L	Receptacle with capacity of approx. 1000 ml	See preceding page	Holds the crushed output.
M	Transport handles	See preceding page	For lifting and carrying the AG430.

# Operation of the AG430

Target group: Operators

## Switching ON and OFF

The main switch **B**, is located on the back of the AG430 **Fig.2**

- Switch the main switch **B** on.

The red LED above the STOP button **D** lights up.

The AG430 is now ready for operation.

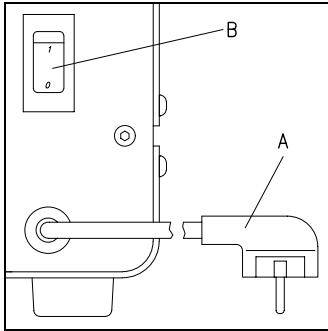


Fig.2

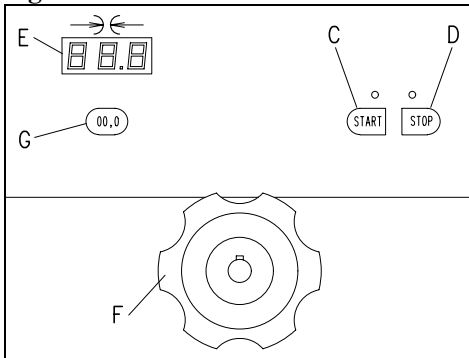


Fig.3

## Set gap width to 00.0

The gap width must only be adjusted when the machine is empty. There must be no input material in the crusher chamber or feed hopper.

Before starting the AG430 turn the handwheel **F** through two revolutions anti-clockwise so that the crusher jaws are out of contact with one another.

- Press the START button **C**. **Fig.3**

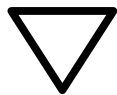
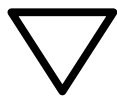
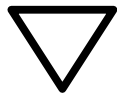
The red LED above button **D** goes out, the green LED above button **C** lights up, the indicator display **E** reads **00.0**. The machine starts up.

- Turn the handwheel **F** clockwise until you hear the sound of the crusher arms meeting.
- Press button **G**.

The indicator display **E** reads **00.0**.

Gap width and indicator now tally with one another.

- Turning the handwheel **F** closes the gap.
- Turning the handwheel **F** opens the gap.



Before adjusting or starting the BB51 you must turn the handwheel **F** through two revolutions anti-clockwise. **The crusher jaws are then safely out of contact with one another, thus preventing jamming and possible damage to the jaws of the BB51.**

Adjustment should be carried out regularly so as to ensure that the indicator display and the actual gap width tally. The greater the load on the AG430 and the harder and more abrasive the input material, the more often a zero point adjustment must be carried out in order to compensate for wear.

**The reading on the indicator display will otherwise not tally with the actual gap width.**

The AG430 must only be adjusted when the machine is empty. Jamming will result if there is any material in the crusher chamber or feed hopper before starting.

**This may result in damage to mechanical components.**

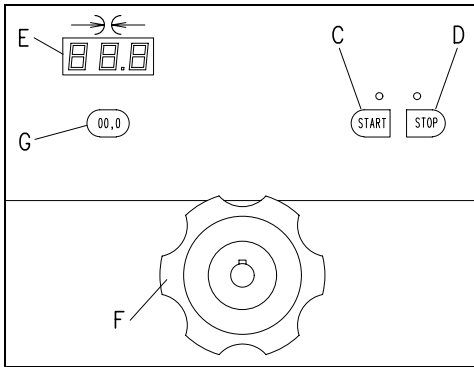


Fig.4

### Starting the crushing process

- Carry out adjustment as described in the preceding section.
- Press the START button **C**. **Fig.4**  
The green LED above button **C** lights up, the AG430 starts up.
- Set the desired gap width using the handwheel **F**.

Turn anti-clockwise to open the gap.

Turn clockwise to close the gap.

Display **E** indicates the gap width in **mm**.

The end of the crushing process is signalled by a change of noise and the machine can be switched off.

### Feeding in the input material

The feed hopper **H** and the crusher chamber can take input material up to a grain size of 35 mm.

The feed hopper is not however intended for storage of process material: its function is solely that of feeding material into the crusher chamber. It also prevents inadvertent reaching into the crusher chamber, and stops process material from being ejected.. **Fig.5**

- Check that the drawer and inserted receptacle are pushed in.
- Open the lid on the feed hopper **H**.
- Feed the material into the hopper.
- Close the lid on the hopper **H**.

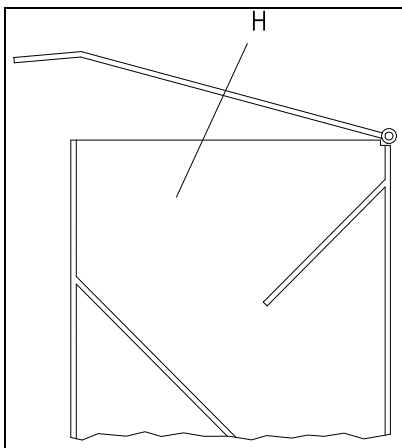
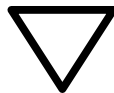
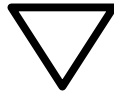


Fig.5



Feed material into the hopper only when the machine is in operation.  
**Mechanical components may otherwise be damaged.**

The maximum quantity of input material is limited by the capacity of the withdrawable receptacle. The useful capacity of the receptacle will depend on the properties of the input material. Remember to empty the receptacle in good time.

**Crushed material must not be allowed to back up in the crusher chamber. Mechanical components may otherwise be damaged.**

### Interrupting the crushing process

The AG430 must only be stopped when there is no more input material in the hopper and crushing chamber.

**Mechanical components might otherwise jam and be damaged when the machine is restarted.**

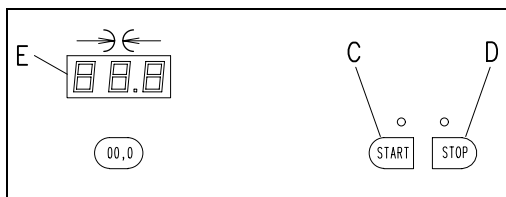


Fig.6

- Press the STOP button **D**. **Fig.6**  
The red LED above button **D** lights up, the green LED above button **C** goes out. The machine stops.
- Press the STOP button **D** a second time.  
The red LED stays lit, the display goes out and the machine is in standby mode. The last gap width setting is retained and the machine is still ready for operation.

The crushing process can be continued at any time, provided that the AG430 has not been switched off at the main switch on the back of the machine and the red LED above button **D** is lit up.

### Continuing the crushing process

- Press the START button **C**. **Fig.6**  
The red LED above button **D** stays lit, the display indicates the last gap width setting.
- Press the START button **C** a second time.  
The crushing process continues using the last gap width setting.

### Emptying the drawer

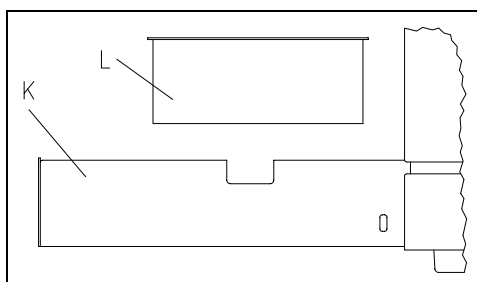


Fig.7

- Stop the AG430
- Pull out the drawer **K** to the stop.
- Remove the inserted receptacle **L** and empty it.

The maximum capacity of the receptacle **L** for particular types of input material must be determined empirically.

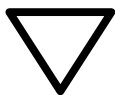
When emptying the withdrawable receptacle **L** first ensure that the B 51 has run empty before stopping it, ie. that there is no more input material in the crushing chamber or the feed hopper.

**The crushed material will otherwise fall into the drawer recess rather than into the receptacle.**



Be sure to always empty the drawer in good time so that the top of the heap of crushed material does not protrude into the crushing chamber.

**Mechanical components might otherwise be damaged.**



# Notes on working procedures

**Target group:** Laboratory technicians

## General

The AG430 is a robust benchtop machine which can predominantly be used for preliminary pulverisation of hard or brittle materials.

The performance data, throughput and achievable final fineness are dependent on the breakage behaviour and hardness of the process material, and on the gap width set.

This machine is not designed as a production machine but as a laboratory machine intended for 8 hour single shifts with 30% total operation time.



Do not modify the machine in any way, and use only spare parts and accessories approved.

**The conformity with European Directives will otherwise be invalidated.**

**Furthermore, this will lead to all warranty claims being rendered null and void.**

## Input grain size

The maximum input grain size is determined by the size of the intake opening, and is max. 35 mm on the AG430.

## Quality of process material

In principle, any hard and brittle process material with a Mohs hardness  $>3$  can be crushed in the AG430.

Moist or greasy process material with a Mohs hardness  $<3$  tends merely to compact or cake in the crusher chamber as a result of the pressure applied by the crusher jaws.

Proper crushing is not possible in such cases.

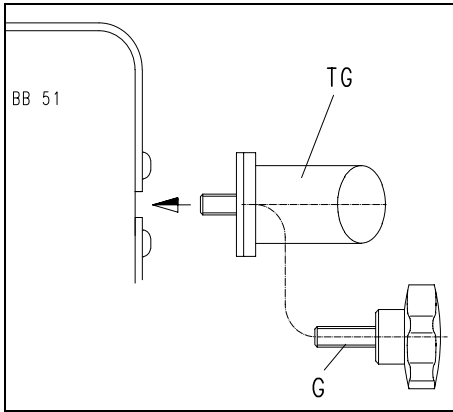


Fig.8

### Transport handles

A pair of handles fitting on to the top right and left hand sides of the AG430 for convenient portability can be supplied as accessories (Order No. 32.825.0001).

- Insert and tighten the tommy screws **G** together with the transport handle **TG** in the threaded borings (cf. arrow in **Fig.8**).

The handles can be left on the AG430. They increase the overall width of space required for the machine on the bench by approx. 115 mm.

### Cleaning

Do not clean the AG430 with running water.

**Lethal hazard of electric shock!**

Use only a damp rag.

**Solvents must not be used, as they would wash out the grease packing.**



### Cleaning the drawer recess

From time to time the recess containing the drawer must be cleaned. A regular visual check on the state of the recess should be made.

- Pull out the mains plug.
- Pull the drawer out to the stop.
- Remove the inserted receptacle.
- Loosen but do not remove the two cheesehead screws **ZS** with an Allan key AF4 **Fig.9**
- Slide the two cheesehead screws **ZS** together with the plate **PL** fitted behind the drawer to the left.
- Take out the drawer.

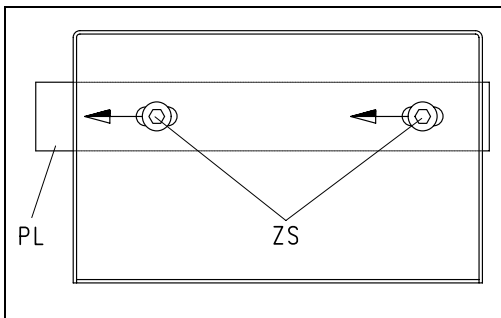


Fig.9

The recess can now be cleaned.

Follow the same procedure in reverse to reassemble.



### Cleaning the crushing chamber

From time to time the crushing chamber should be cleaned. An Allan key AF 4 is necessary for this.

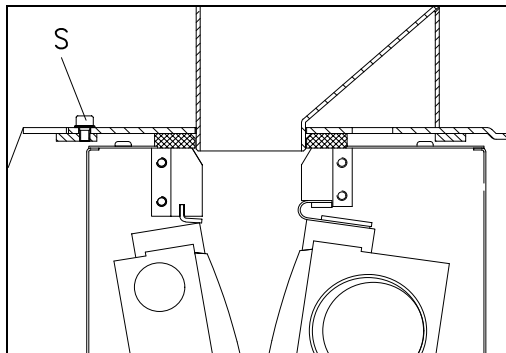


Fig.10

Fig.10

- Pull out the mains plug.
- Set the gap width to maximum.
- Remove the cheesehead screw **S** while at the same time lifting the feed hopper from its mounting plate.
- Remove the feed hopper.

The crushing chamber is now accessible and can be cleaned using a small brush or vacuum cleaner of the kind used on computers.

Follow the same procedure in reverse to reassemble.



Operation of the AG430 with the feed hopper removed is not permissible.

**Risk of crushing fingers and hands!**

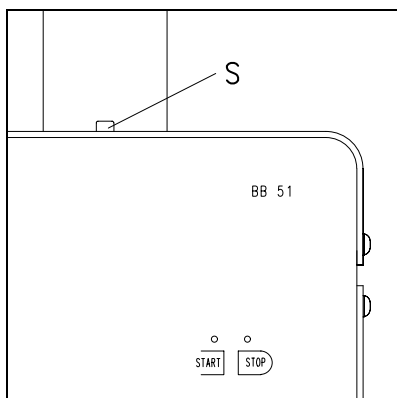


Fig.11

### Cleaning the interior of the casing

Fine dust may get inside the casing through holes in the drawer recess and this interior space should be cleaned from time to time using, for example, a vacuum cleaner of the kind used on computers.

To do this, first dismantle the feed hopper using an Allan key AF4.

Fig.11

- Pull out the mains plug.
- Remove cheesehead screw **S**.
- Remove the feed hopper.

The interior of the casing is now accessible for cleaning.

Follow the same procedure in reverse to reassemble.

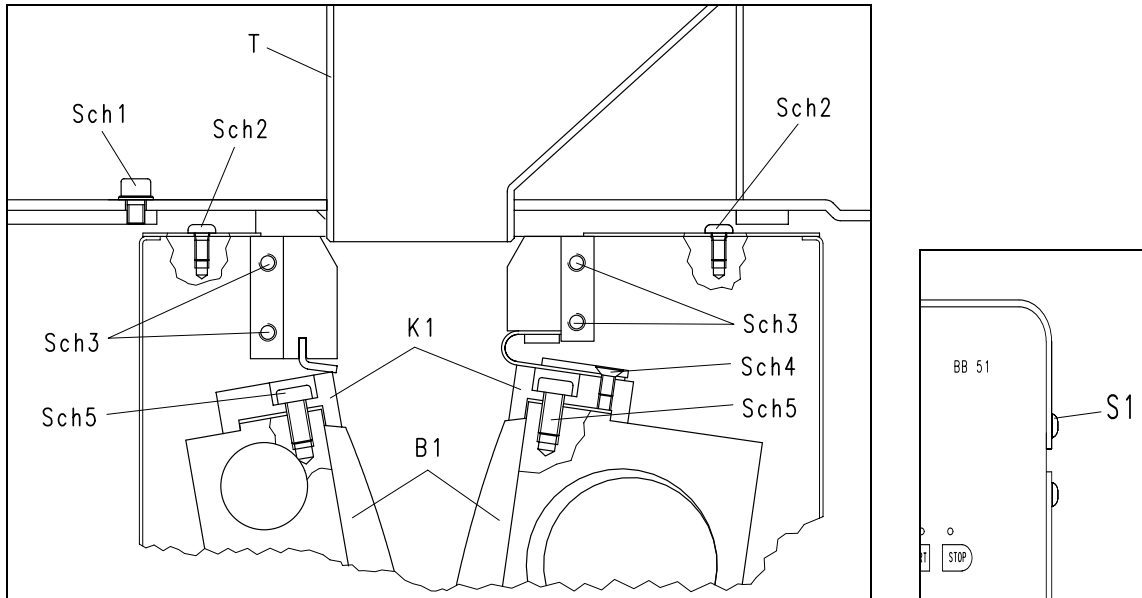
### Maintenance

The AG430 is maintenance-free and no settings need be adjusted when the machine is used for its designated purpose.

## Replacing jaws

The following tools are needed:

- Allan key AF 2,5
- Allan key AF4
- Allan key AF5
- Open jawed spanner AF8
- Philips head screwdriver size 2



**Fig.12**

- Pull out the mains plug.
- Remove the cheesehead screw **Sch1** on the feed hopper using an Allan key AF4.
- Remove the feed hopper.
- Set the gap width to maximum by turning the handwheel anti-clockwise to the stop.
- Remove the screws **S1** at the side using an Allan key AF4 and take off the top of the casing.
- Take care with the earth cable!
- Using a size 2 Philips head screwdriver, remove the four oval head screws **Sch2** and remove the two cover plates.
- Using an open jawed spanner AF 8, remove the eight hexagonal cap screws **Sch3**
- Remove the two hexagonal cap screws **Sch4** using an Allan key AF 2.5 and take out the plate.
- Pull the traverses upwards and out.
- Remove the four cheesehead screws **Sch5** using an Allan key AF5. During assembling the tightening torque must not exceed 10 Nm.
- Remove the shim **K1**.
- Change the jaws **B1**.

Follow the same procedure in reverse to reassemble.



Operation of the AG430 with the feed hopper removed is not permissible.

**Risk of crushing fingers and hands!**

## **Accessories**

- Spare V-belt.
- Transport handles, 1 pair.
- Crusher jaws, tungsten carbide, 1 pair.
- Crusher jaws, zirconia, 1 pair.
- Crusher jaws, stainless steel, 1 pair.
- Crusher jaws, special steel, 1 pair.
- Crusher jaws, manganese steel, 1 pair.
- Wearing plates, zirconia, 1 pair.
- Wearing plates, tungsten carbide, 1 pair.
- Wearing plates, stainless steel, 1 pair.

## **Modifications**

We reserve the right to make technical modifications without notice.

Safety regulations (table)

for the AG430 with reference to the individual chapters

Subject	Action	Hazard
Modifications to the machine	Do not modify the machine in any way, and use only spare parts and accessories approved. <b>The conformity with European Directives declared will otherwise be invalidated.</b>	<b>This will lead to all warranty claims being rendered null and void..</b>
Safety	Failure to observe the notes on safety can lead to damage to property and personal injury.	We accept no liability whatsoever for any damage or injury resulting from non-observance of the notes on safety.
Packing	Please keep the packing for the duration of the guarantee period.	Return of goods in inadequate packing may jeopardise your entitlements under the guarantee.
Transport	The AG430 must not be thrown or otherwise subjected to impact or vibration during transport.	Electrical and mechanical components may be damaged.
Temperature fluctuations	When there is a likelihood of temperature fluctuations the AG430 must be protected against condensation.	Electrical components may be damaged.
Scope of supply	In cases of incomplete delivery and/or transport damage, you must notify the forwarding agent and Impact without delay (within 24 hours).	It may not be possible to accept subsequent complaints.
Ambient temperature	Not below 5°C. Not above 40°C.	Electrical and mechanical components may be damaged and performance data change to an unknown extent.
Humidity	Maximum relative humidity 80% at temperatures up to 31°C or 50% (decreasing in a straight line) at 40°C.	Electrical and mechanical components may be damaged and performance data change to an unknown extent.
Electrical connection	Mains power differs from the values on the type plate.	Electrical components may be damaged.
Operation	When starting, stopping or interrupting the operation of the machine, ensure that the crushing chamber and feed hopper are empty..	Mechanical components may be damaged by blockage..
Gap width adjustment	Adjustment should be carried out regularly so as to ensure that the indicator display and the actual gap width tally. The greater the load on the AG430 and the harder and more abrasive the input material, the more often a zero point adjustment must be carried out in order to compensate for wear.	<b>The reading on the indicator display will otherwise not tally with the actual gap width.</b>
	The AG430 must only be adjusted when the machine is empty.	Mechanical components may be damaged by blockage.
Feeding in the input material	Feed material into the hopper only when the machine is in operation..	Mechanical components may be damaged.
	The maximum quantity of input material is limited by the capacity of the withdrawable receptacle. The useful capacity of the receptacle will depend on the properties of the input material. Remember to empty the receptacle in good time.	<b>Crushed material must not be allowed to back up in the crusher chamber. Mechanical components may otherwise be damaged.</b>
Interrupting the crushing process	The AG430 must only be stopped when there is no more input material in the hopper and crushing chamber.	<b>Mechanical components might otherwise jam and be damaged when the machine is restarted.</b>
Emptying the drawer	When emptying the withdrawable receptacle <b>L</b> first ensure that the B 51 has run empty before stopping it, ie. that there is no more input material in the crushing chamber or the feed hopper.	<b>The crushed material will otherwise fall into the drawer recess rather than into the receptacle.</b>
	Be sure to always empty the drawer in good time so that the top of the heap of crushed material does not protrude into the crushing chamber..	Mechanical components may be damaged.
Cleaning	Do not clean the AG430 under running water. Using solvents is prohibited.	<b>Lethal electric shock hazard!</b> Grease packings could be washed out.
Cleaning the crushing chamber	Operation of the AG430 with the feed hopper removed is not permissible.	<b>Risk of crushing fingers and hands!</b>
Replacing crusher jaws	Operation of the AG430 with the feed hopper removed is not permissible.	<b>Risk of crushing fingers and hands!</b>

## Warranty conditions

1. In the case of justified complaints, we will repair or replace the defective parts at no charge.

The purchaser shall only be entitled to withdraw from the contract or reduce the purchase price when, at our decision, repair is impractical or impossible or replacements cannot be supplied or cannot be supplied in due time, or when a reasonable period of grace of at least six weeks set by the customer has expired without result due to circumstances within our control.

Should the attempt to repair or replace defective parts finally fail, the customer may at his option require a reduction of the purchase price or withdraw from the contract. Further claims, in particular such for damages not suffered by the object itself, such as loss of production, shall be excluded unless caused by intent or negligence on our part. We pass on the liability of the manufacturer(s) for bought-in products.

2. We shall bear the direct costs of repair or replacement on condition that the complaint has proven to be justified. This also applies to the costs of shipment and reasonable costs for dismantling and installation. The customer shall however be obliged to bear the costs of providing his own fitters and ancillary personnel at site. Should our customer operate abroad, we shall, alternatively, be entitled to bear the costs of rectification, and in particular transport, travel and material costs, ex-German border.

3. The warranty term for newly manufactured goods is two years, for used it is one year.

The guarantee refers to deployment in a laboratory in 1-shift operation. In case of multi-shift operation or other areas of application, the guarantee term is shortened accordingly.

No warranty is given for parts subject to wear and tear.

4. We warrant that our goods are free of manufacturing defects. The suitability, classification and function of our goods shall be exclusively determined by the specifications in the acknowledgement of order, even if these deviate from the order. In such cases, the customer shall have the option of drawing our attention to any deviations from the order within two weeks of receipt of our acknowledgement, and reaching agreement with us. Should no objection be raised to the specifications in the acknowledgement of order, these shall be deemed accepted.

In the absence of any agreement to the contrary, we shall accept no liability for the suitability of the object supplied for the purpose intended by the customer. The same shall apply to performance data expected by the customer, unless we have been able to perform appropriate, realistic laboratory trials in advance and declared the corresponding performance data to be firm and binding in writing in our acknowledgement of order.

5. Our warranty shall also become null and void if persons other than those appointed by ourselves perform repairs or other work on or modifications to goods we have supplied or use unsuitable accessories, provided that there is a causal relationship between such actions and the defects which appear. For the rest, our warranty is dependent on compliance with our operating instructions.
6. If the goods are installed in other systems or production facilities by the customer without our prior approval, or connected to, linked with or processed on such systems or production facilities, our warranty is exclusively limited to the parts we have supplied.
7. Repair or replacement of defective parts shall be effected at our option either at the point of installation of the object purchased, or at our corporate location. When repairs take place at the point of installation, the customer is to afford our representative unimpeded access for as long as required to the object purchased. The customer may for the rest only require the performance of the warranty work during normal local business hours. Should warranty work be performed at the customer's request outside our normal business hours, the customer is to pay the additional costs. Should he require further special work over and above the warranty work, these costs are also to be borne on the basis of our current prices.