Manual

Air Jet Sieving Machine AS200jet

Translation

Retsch®

Table of Contents

1 Notes on the Manual

This operating manual is a technical guide on how to operate the device safely and it contains all the information required for the areas specified in the table of contents. This technical documentation is a reference and instruction manual. The individual chapters are complete in themselves.
Familiarity (of the respective target groups defined according to area) with the relevant chapters is a precondition for the safe and appropriate use of the device.
This operating manual does not contain any repair instructions. If faults arise or repairs are necessary, please contact your supplier or get in touch with Retsch GmbH directly.
Application technology information relating to samples to be processed is not included but can be read on the Internet on the respective device's page at www.retsch.com.

Changes

Subject to technical changes.

Copyright

1.1 Explanations of the Safety Instructions

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 Device for the Intended Purpose

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

Risk of explosion or fire
Changing sample characteristics

– Note that the characteristics and accordingly the danger presented by a sample can change during sieving.

• **Do not sieve any potentially explosive or combustible materials in this device.**

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: Owner/managing operator, operator
Machine Type Designation: AS200jet
The AS200jet is specially designed for the dry sieving and the particle size determination of fine-grained, dry, pourable and dispersed bulk materials. The sieve holder is particularly suitable for the Retsch 203-mm-diameter test sieves.
This device offers user-friendly operation with rotary knob control and a large graphic display. All sieve parameters are set, indicated and monitored digitally.
Work is also made easier by the possibility of storing up to 9 and 10 (QUICK START) parameter combinations directly in the sieve shaker for frequently repeated sieving operations under the same conditions. The QUICK START key allows direct access to a combination of parameters.
The device can be controlled and adjusted with the EasySieve® evaluation software. With EasySieve® all sieve parameters are displayed on the screen before and during the sieving procedure.
The AS200jet can then reduce the average sieving times in samples with a high fine fraction.

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.**

NOTE

Defects in components due to liquids
Penetration of liquids inside the housing

– Components are damaged and the correct functioning of the device is no longer assured.

• **Do not use this device for any wet sieving.**

3.2 Emissions

CAUTION

Hearing damage or hearing loss
Suction noise at the suction opening

– The volume and/or force of drawn-in air can damage hearing or cause hearing loss.

• **Keep your ears away from the air inlet in the channel. Use hearing protection.**

CAUTION

V0050

Failure to hear acoustic signals
Loud suction noise on the air inlet

– It is possible that some acoustic warnings and voice communication may not be noticed.

• **Take the strength of the suction noise into consideration when designing your acoustic signals in the working environment. Possibly additionally use visual signals.**

Noise characteristics:
The noise is measured in accordance with DIN 45635-031-01-KL3
The AS 200 jet itself is constructed in a manner that prevents any significant development of noise.
The noise characteristics of the connected industrial vacuum cleaner depend on the set suction force and suction load.
When the NILFISK HDS2000 is used at max. suction stage II, the average sound pressure level without sample filling is 72dB.
To reduce the suction noise, the provided sound absorber (**IS**) can be connected to the air inlet channel (**I**).

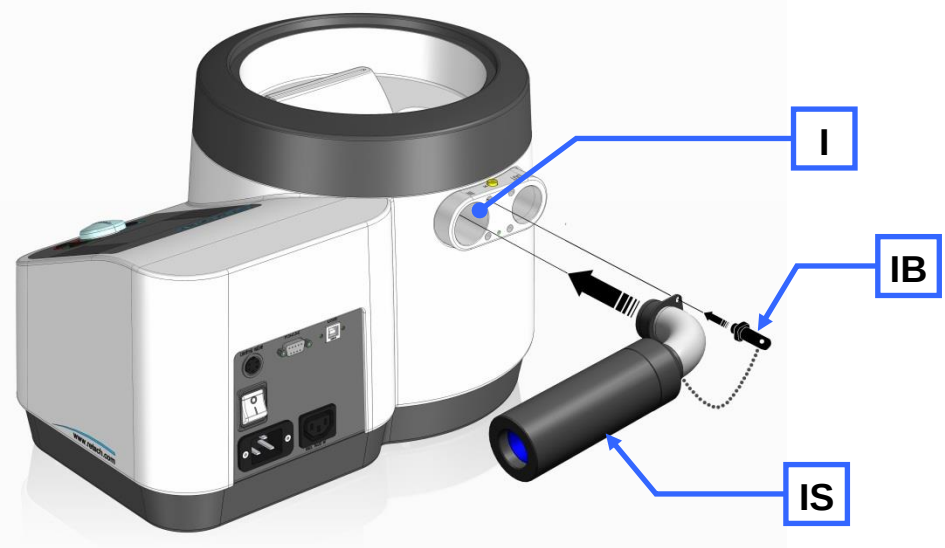


Fig. 1: Connecting the sound absorber

Put the position pin (**IB**) into the opening marked in the picture in order to lock the sound absorber in a horizontal position.

3.3 Maximum Load

NOTICE
Ensure that the differential pressure or vacuum generated by your vacuum cleaner or the suction is not greater than 100 mbar (9999 Pa).
The maximum quantity of material to be sieved depends on the mesh size and sieve size.

If the test sieves are overloaded, they can be damaged as the sample material can block the meshes and the vacuum can thus exert too much force on the sieve mesh fabric.

3.4 Degree of Protection

– IP40

3.5 Dimensions and Weight

Height : 288 mm (without lid)
Width: 460 mm
Depth: 305 mm
Weight: approx. 14 kg

3.6 Required Floor Space

460 mm x 320 mm; no safety spacing required

3.7 Rated Power

- AS200jet: maximum 50 watts
- AS200jet + HDS200 or GM80 vacuum cleaner: maximum 1450 watts

3.8 Type Plate Description

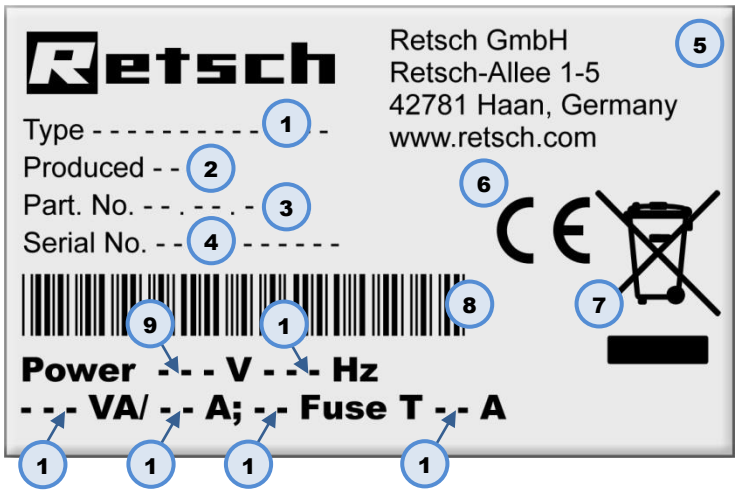


Fig. 2: Type plate lettering

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 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.

4.2 Transport

NOTICE

Transport

– Mechanical or electronic components may be damaged.

• **The machine may not be knocked, shaken or thrown during transport.**

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 Installation Site

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 Device

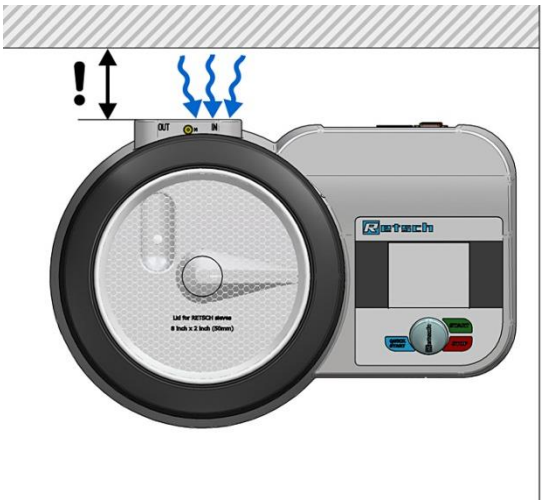
CAUTION

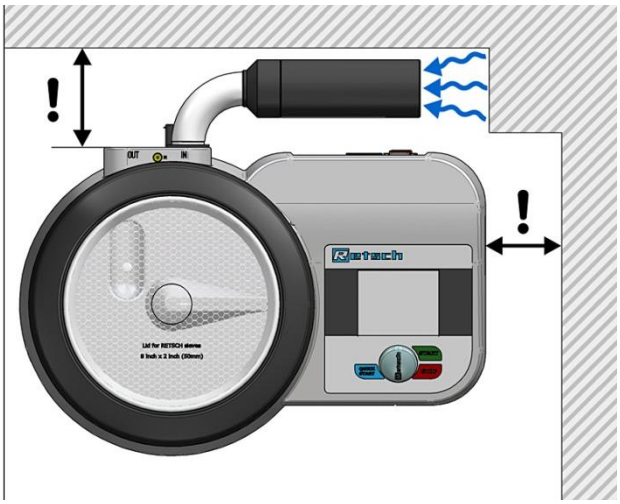
V0047

Device falling down
Incorrect erection or insufficient working space

– Due to its weight, the device can inflict personal injury if it falls down.
- **Only operate the device on a sufficiently large, strong and stable workplace.**
- **Ensure that all feet of the device are positioned securely.**

Installation height: maximum 2000 m above sea level





4.6 Electrical Connection

CAUTION V0048

Parts connected to voltage
The power supply is suddenly switched on

– When you switch the device on there is danger of an electrical shock at the electrical connection for the external suction device.

• **Do not touch the electrical connection for the external suction device and do not insert any parts into the openings.**

WARNING

When connecting the power cable to the mains supply, use an external fusethat 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.

The external fuse must be at least T15A (230V) T15A (100/120V).

WARNING W0002

Danger to life through electric shock

– An electric shock can lead to burns and to cardiac arrhythmias or to respiratory arrest and cardiac arrest.

• **The device may only be operated with plugs that have a protective conductor (earthed).**

5 Operating the Device

5.1 Views of the Instrument

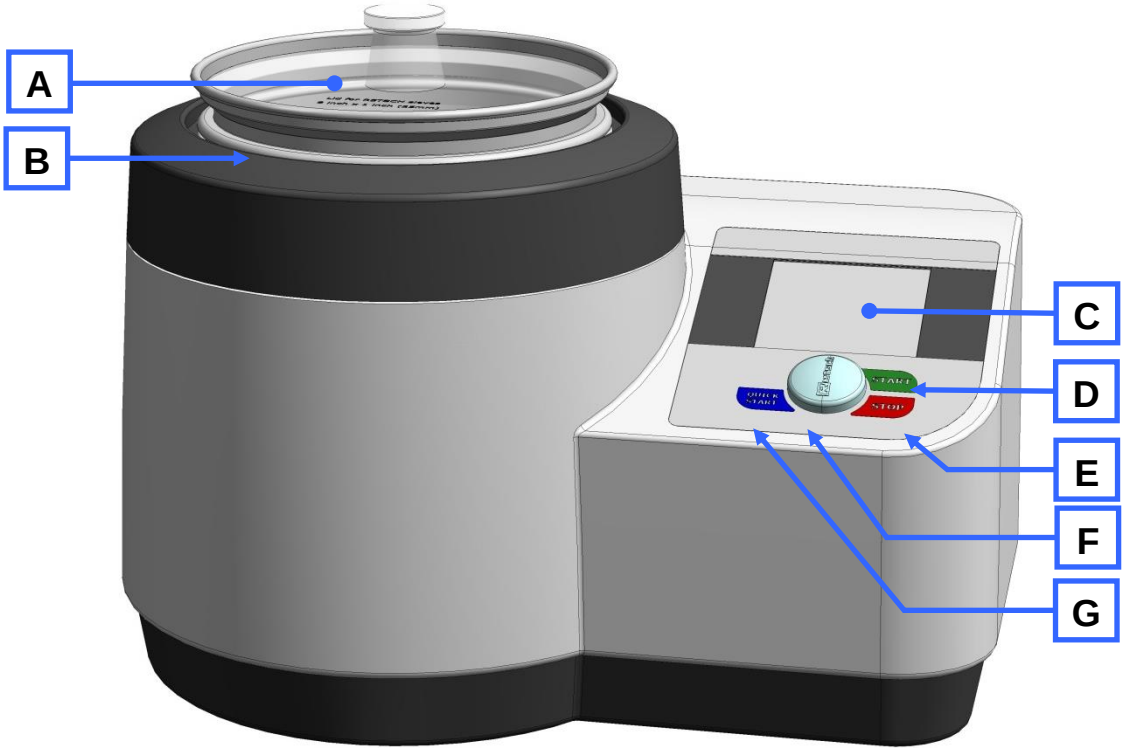


Fig. 3: Front view

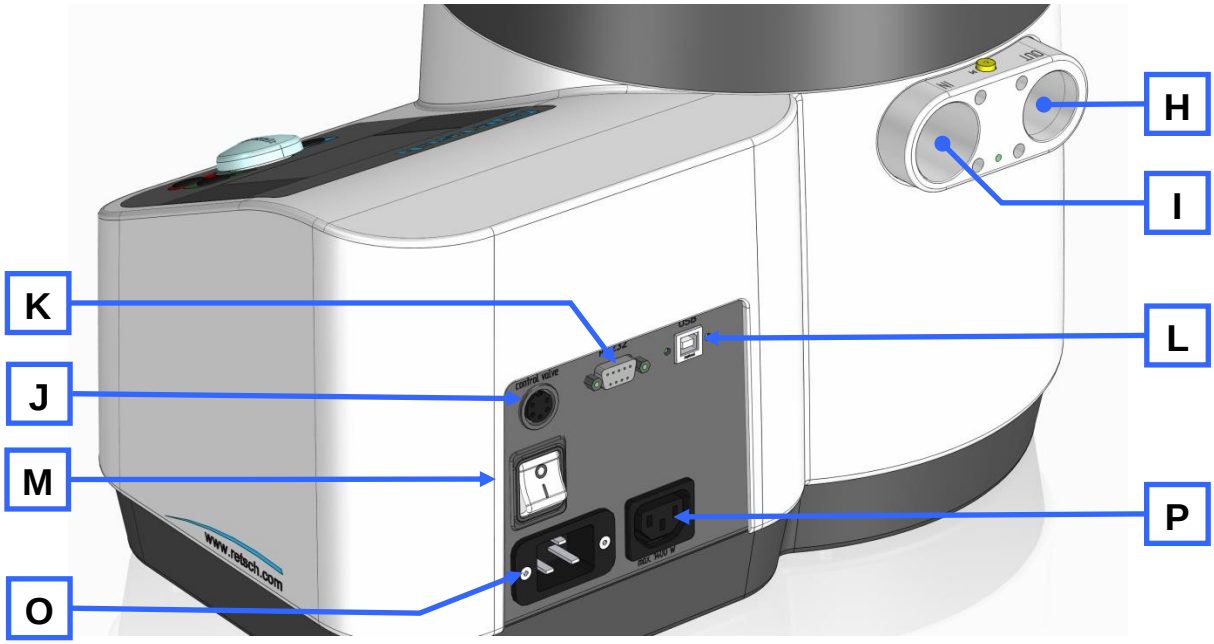


Fig. 4: Rear view

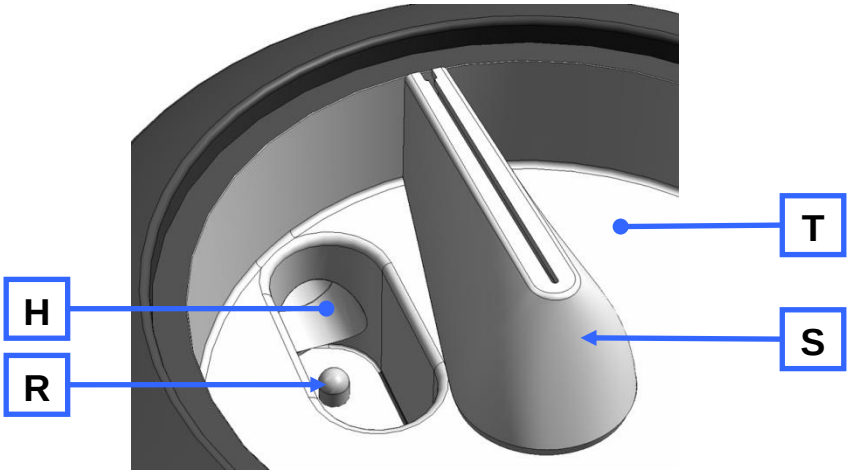


Fig. 5: View of the sieve compartment (without sieve)

5.2 Operating elements and displays

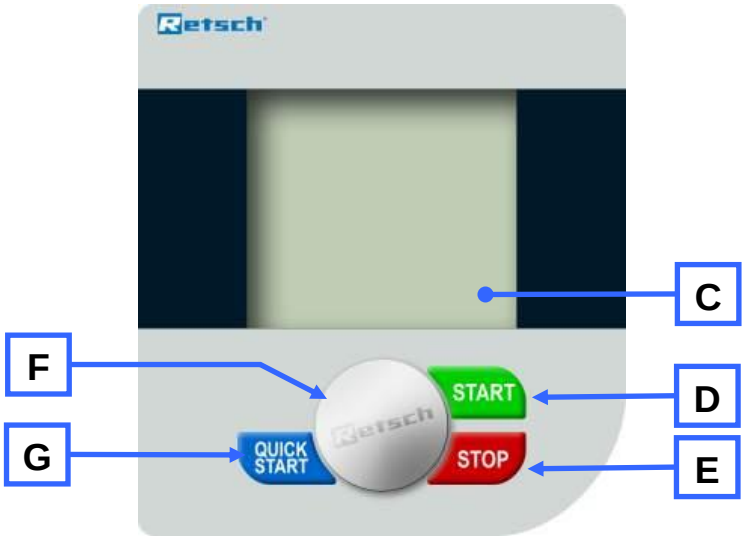


Fig. 6: View of the display unit

5.3 Overview table of the parts of the device

Element	Description	Function
A	Lid for air jet sieving	Lid for the test sieve
B	Test sieve	Sieve for the dry sieving and/or particle size determination
C	Display	Displays the control functions and parameters
D	Start button	Starts sieving
E	Stop button	Stops sieving
F	Operating knob	Dial for changing the device settings
G	Quick start button	Starts quick sieving
H	Air outlet channel	Connection for external exhaust
I	Air inlet channel	Opening for air inlet
J	Connection for automatic air flow regulation	Connector socket for external air flow regulation

K	Serial PC - Port (RS232)	PC connection for data communication with EasySieve®
L	USB interface	PC connection for data communication with EasySieve®
M	On/Off switch	Disconnects the device from the mains / including thermal and switchable power fuse
O	IEC C14 appliance inlet	Mains connection
P	IEC C13 connector	Power connection for the external vacuum cleaner
R	Cover for differential pressure sensor	Protects the differential pressure sensor
S	Air nozzle	Conducts the air jet upwards onto the sieve
T	Nozzle compartment	Feeds the material to be sieved to the air outlet channel

5.4 Working procedure

The AS 200 jet has an air nozzle, which is set rotating. The sieve with lid is put on top of that. A vacuum unit generates a jet of air, which disperses the particles through the air nozzle on the sieve. The material, which is smaller than the sieve's mesh size is transported by the backflow of the air into the cyclone or directly into the vacuum cleaner. The jet of air de-agglomerates the particles and cleans the sieve mesh constantly.

5.5 Switching On and Off

- Press the on/off switch (**M**) at the back to turn on the device.

When the switch is in the "off" position, the device must be disconnected completely from the mains power supply.

5.6 Inserting the test sieve

The AS200jet is intended for Retsch test sieves with a diameter of 203mm (8 inches) and a height of 25mm (1 inch) or 50mm (2 inches). The range of mesh fineness extends from 10µm to approx. 4mm.

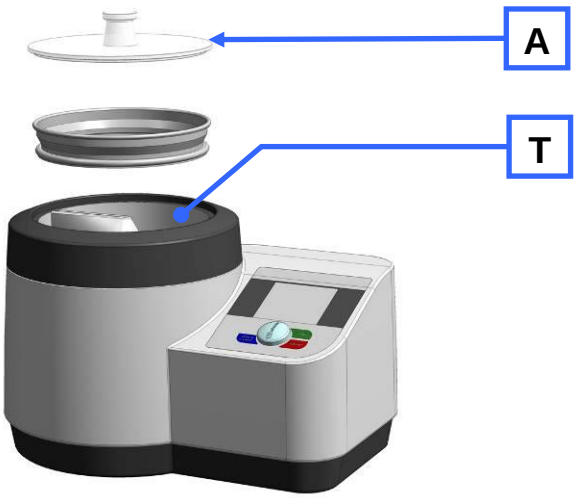


Fig. 7: Inserting the test sieve

Place the sieve in the nozzle compartment (**T**).
Close the sieve with the air jet sieve lid (**A**) intended for the respective sieve height.

NOTE
The AS200jet cannot be started until the sieve has been inserted and the lid put on.

5.6.1 Sieve lid for 50--mm/25--mm sieve height

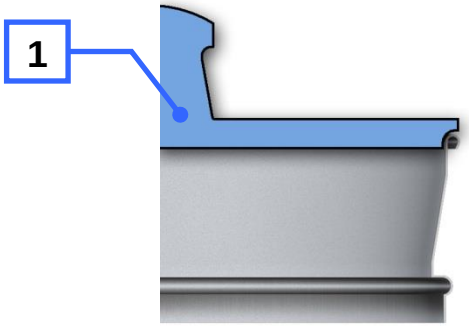


Fig. 8: Sieve lid

The sieve lid for 50-mm (2-inch) sieves lies on the top edge of the sieve (**1**).

5.7 Soft-faced mallet – Application and Use

Any caking that has built up during the sieving process is knocked off the inside of the lid by means of the soft-faced mallet.
Tap lightly, striking the centre of the knob as far as possible.

Fig. 9: Using the soft-faced mallet

5.8 Connecting the external Industrial Vacuum cleaner

WARNING W0007

Electric shock
Faulty power cable

– When you switch the device on there is danger of an electrical shock if the power cable for the external suction device is damaged.

- **Before use, check the power cable between the sieve device and the suction device for possible damage.**
- **Never use a damaged power cable!**

CAUTION

Objects thrown-out or falling down
Connection of compressed air instead of vacuum cleaner

– If compressed air is connected to one of the two air openings, the sieve lid and the sieve will be hurled out.

- **This device may not be operated with compressed air.**

The AS200jet can be operated only with a suction extractor, such as for example a vacuum cleaner. We recommend the use of the Retsch industrial vacuum cleaner, which is available as an accessory.

CAUTION

Before starting to use the Retsch industrial vacuum cleaner, read the accompanying operating manual.

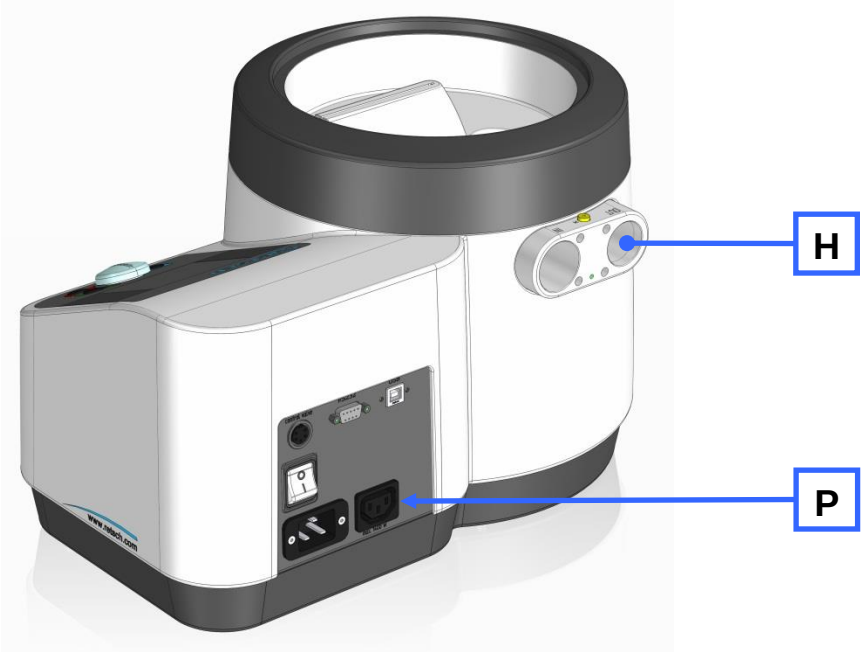


Fig. 10: Connection of the Retsch industrial vacuum cleaner

- As required, connect the manual suction force adjuster to the air outlet channel (**H**).

- Connect your vacuum cleaner's suction tube to the air outlet channel (**H**) or to the manual suction force adjuster.
- Insert the type F IEC C14 connector on the vacuum cleaner into the IEC C13 panel-mounted outlet (**P**).

The power for the Retsch industrial vacuum cleaner is supplied from the AS200jet.

5.8.1 Vacuum cleaner function

By means of the vacuum cleaner menu item, the industrial vacuum cleaner connected to the IEC C13 panel-mounted outlet (P) can be used for cleaning the device too.

- Pull the industrial vacuum cleaner's suction hose out of the air outlet channel (**H**).
- Navigate to the menu item Manual →suction apparatus.
- Press the **start button**.
- To turn the vacuum cleaner off, press the STOP button or use the turn-and-push dial.

5.9 Manual adjustment of the air jet

5.9.1 Manual adjustment of the air jet

NB

H0051

Objects are sucked in
Vacuum in the sieve area

– Small objects can be sucked into the inside of the machine.

• **No small objects or parts of the body may be placed near the suction opening.**

CAUTION

V0050

Failure to hear acoustic signals
Loud suction noise on the air inlet

– It is possible that some acoustic warnings and voice communication may not be noticed.

• **Take the strength of the suction noise into consideration when designing your acoustic signals in the working environment. Possibly additionally use visual signals.**

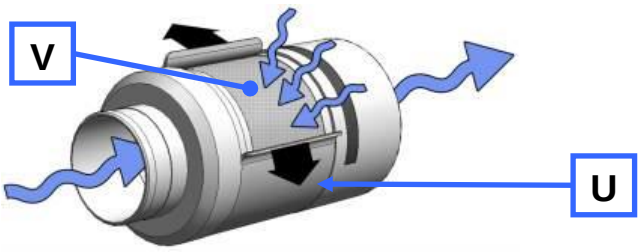


Fig. 11: Air jets through the manual suction force adjuster

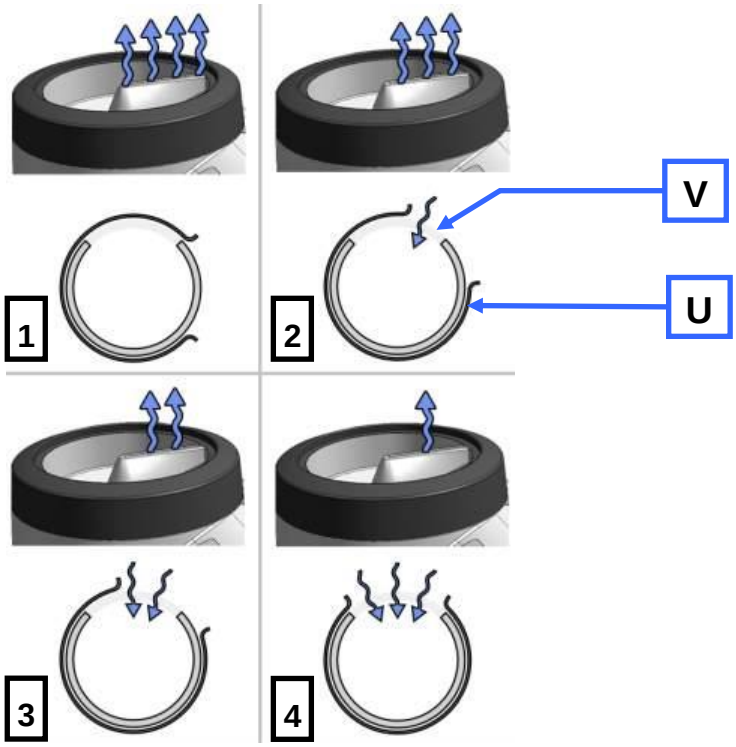


Fig. 12: Manual adjustment of the air jet (cross section)

The air jet can be changed by turning the manual air jet setting (**U**).
[1] Air entry opening (**V**) closed ➔ maximum air jet
[2] Air entry opening (**V**) open ➔ minimum air jet
The difference in air pressure (differential pressure) between the air inlet and air outlet at a given moment is displayed on the screen.

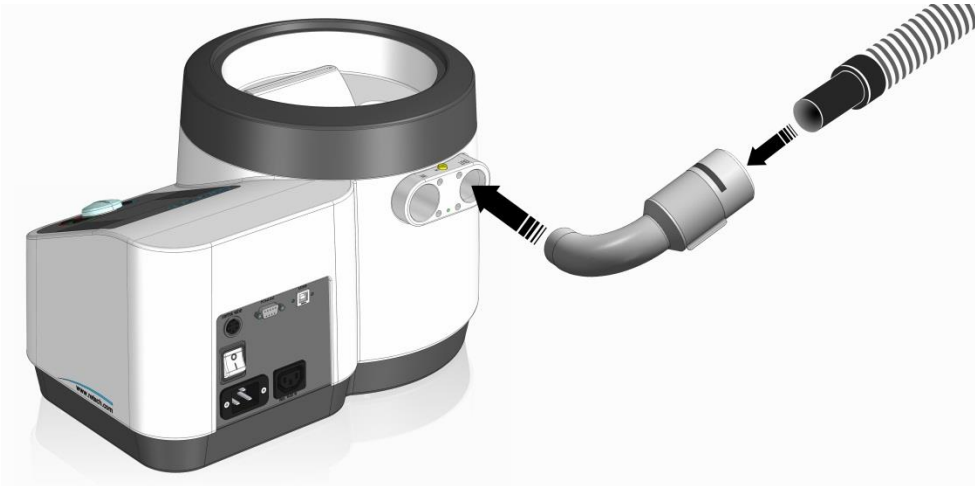


Fig. 13: connecting the manual suction force adjuster

5.10 Display unit – operation of the device

This device offers a new, very convenient operator guidance. All relevant data can be entered or retrieved by means of a graphics display with one-button operation. The menu guidance is in several languages.

5.10.1 Setting options using the display menu

The selection bar in the display should be operated as follows:

Rotation function I)

- Turn the operating button to get to the various menu points. The selected menu points are marked by the dark selection bar. Areas which cannot be changed are skipped.

Rotation function II)

- Turn the operating button to change figures and decisions in the menu points.

Press I)

- Press the operating button to open selected menu points.

Press II)

- Press the operating button to confirm settings.

Press III)

- Keeping the operating button pressed takes you back to the basic screen (level 1).

5.10.2 Navigation between operating modes

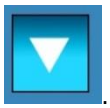
- Turn the operating button clockwise until the dark line cursor is in the navigation menu (**C1**).
- Press the operating button (**F**).

– The icon for scrolling direction (**C4**) changes from

 to .

- By turning the operating button, switch between the operating modes manual, Program 01 to 09, Quick Start and basic settings.
- To activate the selected operating mode, press the operating button (**F**).

– The icon for scrolling direction (**C4**) changes from

 to  .

- By turning the operating button, switch to the sub-points of the selected menu point.

5.11 Symbols in the Display Unit

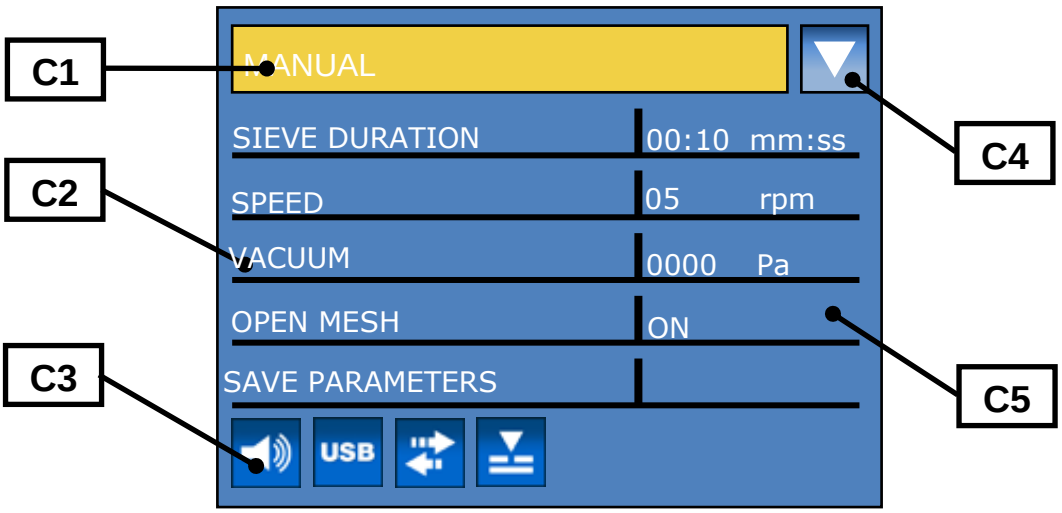


Fig. 1: View of the menu in the display unit

Element	Description	Function
C1	Menu navigation	Switch between manual, program and basic settings
C2	Specification of sieve parameters	Sieve parameter display and adjustment
C3	Icons for device functions	Display of function statuses of sound, interface, Open Mesh and automatic vacuum force adjustment
C4	Icon for scrolling direction	Shows possible scrolling directions
C5	Sieve parameters	Display of values

	Open Mesh switched on (see Open Mesh chapter)
	Open Mesh switched off
	Automatic vacuum adjustment connected
	No automatic vacuum adjustment
	Signal tone on
	Signal tone off
	RS232 interface active
	USB interface active
	Scrolling up or down possible
	Scrolling up only is possible
	Scrolling down only is possible

5.12 Direct access to the language menu

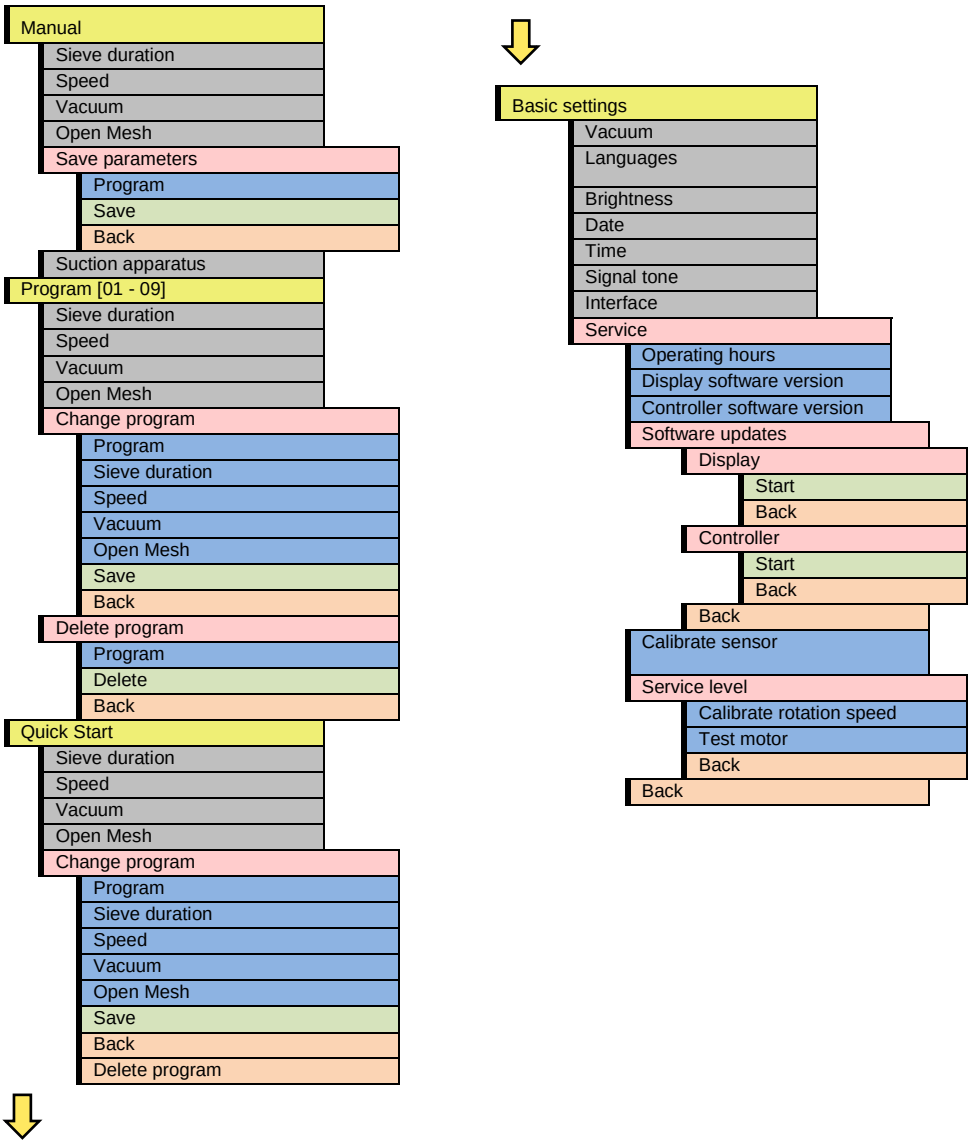
If you have inadvertently set the wrong language you can go straight to the language menu using the following steps.

- Switch the device off by the main switch.
- Switch the device on, simultaneously pressing the buttons **START** - **STOP** - **QUICK START**.
- After selecting the correct language, switch the device off and immediately back on.
- Confirm your selection by pressing the operating button.

The device has now been permanently set to your language and you are in the main menu.

5.13 Menu structure

Overview of all menu points:



5.14 Operating modes

You can select the following operating modes using the menu navigation (**C1**):

5.15 Manual

If this function has been set, all parameters and functions can be retrieved and changed at any time. This is also possible while sieving.

5.15.1.1 Program 01 to 09

In programs 01 to 09 the previously set parameters such as sieve duration, speed, vacuum (only with connected automatic suction force adjustment) and Open Mesh can be saved in a memory.

5.15.1.2 Quick Start

Under the Quick Start menu point, as with a program you can save previously set parameters such as sieve duration, speed, vacuum (only with connected automatic suction force adjustment) and Open Mesh in a memory.
The Quick Start sieving can also be started directly using
the Quick Start button (**G**).

– The Quick Start button has no function if you are in a settings menu.

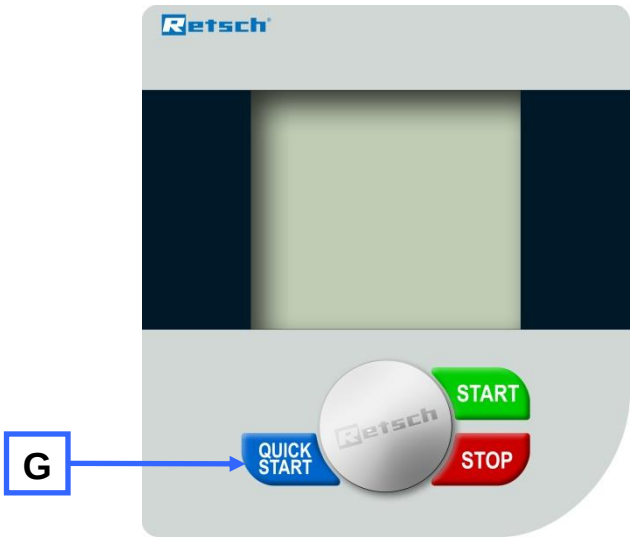


Fig. 2: Quick Start button

5.15.1.3 Basic settings

In this settings menu, you can perform the following device settings:

– Vacuum
– Languages
– Brightness
– Date
– Time
– Signal tone
– Interface
– Service

5.15.2 Manual Mode

5.16 Sieve duration

00:01 to 99:59 (minutes : seconds)

5.16.1 Speed

5 to 55 revolutions per minute (10 revolutions per minute “Open Mesh”)

5.16.2 Vacuum

You can adjust the vacuum when the automatic suction force adjustment has been connected. (Pa; mbar; psi)

5.16.3 Open Mesh

Display whether Open Mesh is active: YES / NO
The air nozzle is moved two steps in the direction of rotation and then one step back. The speed is fixed when Open Mesh is switched on to 10 revolutions per minute.

	Open Mesh switched on
	Open Mesh switched off

5.16.4 Save parameters

All previously set parameters such as sieve duration, speed, vacuum (only with connected automatic suction force adjustment) and Open Mesh can be saved in a memory here.

- Set the desired parameters.
- By turning the operating button (**F**), switch to the menu point Save parameters.
- Press the operating button (**F**).

– The Save parameters menu opens and the dark line cursor is on Program.

- Press the operating button (**F**) to select a program memory location or Quick Start.
- By turning the operating button (**F**) switch to the desired memory location.
- Press the operating button (**F**) to exit the memory location selection.
- Select either
  - Save to save settings or
  - back to cancel without saving.

5.16.5 Suction apparatus

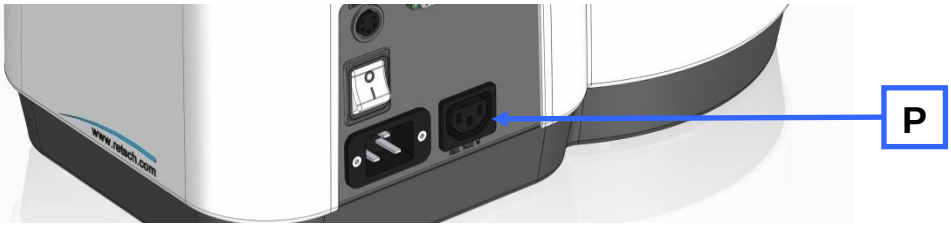


Fig. 3: Connector (electrical connection for the external suction apparatus)

Using the suction apparatus menu point, you can switch on the vacuum cleaner connected to the connector (**P**) independently of sieving.

- By turning the operating button (**F**) switch to the suction apparatus menu point.
- Press the operating button (**F**).

– The Off display appears in the suction apparatus menu point.

- Press the START button to switch the power on.
- Press the STOP button to turn the power off.
- Press the operating button (**F**) to exit the suction apparatus menu point.

5.17 Programme Mode

5.18 Sieve duration

Display of the stored sieve duration:
00:01 to 99:59 (minutes : seconds)

5.18.1 Speed

Display of the stored speed:
5 to 55 revolutions per minute (10 revolutions per minute “Open Mesh”)

5.18.2 Vacuum

Display of the vacuum with connected automatic vacuum force adjustment.

5.18.3 Open Mesh

Display whether Open Mesh is active: YES / NO
NOTE
The air nozzle is moved two steps in the direction of rotation and then one step back. The speed is fixed when Open Mesh is switched on to 10 revolutions per minute.

	Open Mesh switched on
	Open Mesh switched off

5.18.3.1 Change program

In this menu you can change the stored parameters of each program incl. Quick Start.

- By turning the operating button (**F)** switch to the Change program menu point.
- Press the operating button (**F**).

– The Save parameters menu opens and the dark line cursor is on Program.

NOTE
You can change the active or any other program.

- Press the operating button (**F**) to activate the program selection.
- By turning the operating button (**F**) switch to the desired memory location.
- Press the operating button (**F**) to exit the memory location selection.
- Set the desired sieve parameters.

- Finally select either
– Save to save the settings or
  – Back to cancel without saving.
  – This returns you to the program level.

NOTE
A program which has not been saved cannot be started.

5.18.3.2 Delete program

In this menu you can delete the stored parameters of each program.
NOTE
Only the parameters saved in the respective program are deleted. The program memory location remains in place. The parameters in the Quick Start program cannot be deleted.

- By turning the operating button (**F**) switch to the Delete program menu point.
- Press the operating button (**F**).
– The Delete program menu opens and the dark line cursor is on Program.
- Press the operating button (**F**) to activate the program selection.
- By turning the operating button (**F**) switch to the desired program.
- Press the operating button (**F**) to exit the program selection.
- Finally select either
  – Delete to delete the settings or
  – Back to cancel without deleting.
  – You return to the program level.

5.19 Quick Start

Fig. 4: Quick Start button

Using the QUICK START button you can start sieving directly with the parameters saved in the Quick Start program location.
(see programs)

5.20 Basic settings

NOTE
No sieving can be started while the basic settings menu is active.

5.20.1 Vacuum

You can set the display unit for the vacuum in this menu:
– Pa
– mbar;
– psi

5.20.2 Languages

You can selecte the languages menu here. After selecting and pressing the operating button, the entire menu structure is displayed in your language.

5.20.3 Brightness

The brightness can be adjusted to the respective user or environment (sunshine, glare etc.).

5.20.4 Date

The current date can be entered here.
The device can be disconnected from the mains for up to 30 days without losing the settings.

5.20.5 Time

The time can be entered here.
The time then appears in the stand-by screen.
The device can be disconnected from the mains for up to 30 days without losing the settings.

5.20.6 Signal tone

The error messages on incorrect operation can be supported by an acoustic signal tone. When the function is switched off, the corresponding pictogram appears

	Signal tone on
	Signal tone off

5.20.7 Interface

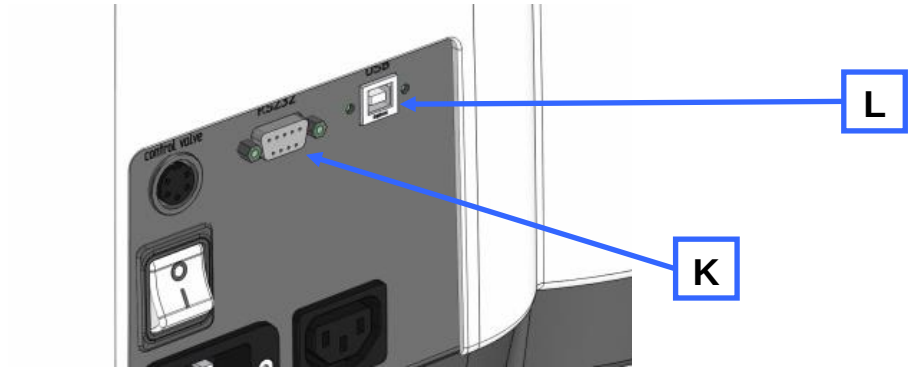


Fig. 5: Interfaces

In this menu you can switch from using the RS232 (**K**) or the USB (**L**) interface.

	RS232 interface active
	USB interface active

5.20.8 Service

5.20.8.1 Operating hours

The hours counted are sieving hours, i.e. the total times between START and STOP. The times cannot be manipulated.

5.20.8.2 Software version display

Shows the software version of the display.

5.20.8.3 Software version controller

Shows the software version of the controller.

5.20.8.4 Update software

5.20.8.4.1 Display

– The target display unit is selected on the PC via a software update selection menu.
– The data are sent by the connected PC via interface cable (RS232 or USB) to the controller PCB. The controller PCB forwards the data on to the boot loader of the display unit.

5.20.8.4.2 Controller

– The target device controller is selected on the PC via a software update selection menu.
– The data are sent by the connected PC via interface cable (RS232 or USB) to the controller PCB. The controller PCB forwards the data on to the boot loader of the display unit.

5.20.8.5 Sensor calibration

See chapter “pressure sensor calibration”

5.20.9 Service level

NOTE
Access to this menu point is exclusively permitted for service employees or authorised service personnel.

5.20.10 Starting, Interrupting, Stopping

- Switch the device on by pressing the on/off switch at the back.
- Use the operating knob (**F**) to set the sieving parameters you want.
- Put the test sieve with the sample onto the nozzle compartment.
- Place the lid on the sieve.

NOTE
The sieving will not start if the lid is not on.

- Start sieving by pressing the START button (**D**).
- You can also start the air jet sieving directly by pressing the QUICK START key (**G**). (see chapter on Quick Start key functions)

5.21 Quick Start – button function

The QUICK START (**G**) key can be used to start a pre-programmed sieving process directly without accessing the menu.

5.22 Stand-by

After the device has been inactive for 15 minutes (time after a STOP command), the stand-by screen switches on automatically.
By pressing one of the buttons or touching the operating button, the stand-by screen disappears without executing the command given.
If you were in a sub-menu when the stand-by screen was activated, you return automatically to this selection window.
NOTE
The stand-by screen cannot be deactivated.

5.23 Connecting the Automatic Vacuum Regulator

The automatic vacuum regulation is available as accessory from Retsch GmbH. A detailed description of the installation and operation can be found in the separate manual of the automatic vacuum regulation.

5.23.1 Cyclone assembly

WARNING W0002

Danger to life through electric shock

– An electric shock can lead to burns and to cardiac arrhythmias or to respiratory arrest and cardiac arrest.

• **The device may only be operated with plugs that have a protective conductor (earthed).**

CAUTION

Risk of explosion or fire
Changing sample characteristics

– Note that the characteristics and accordingly the danger presented by a sample can change during sieving.

• **Do not sieve any potentially explosive or combustible materials in this device.**

Electrostatic charge inside the devices is prevented by earthing the device via the protective conductor on the electrical connection. Ensure the correct assembly of the cyclone in order to guarantee sufficient earthing.
NOTICE
Despite this, electrostatic charge separation may however still occur between the sample and receptacle wall inside the collecting receptacle (**Z9**) depending on the sample property, flow speed and air humidity.

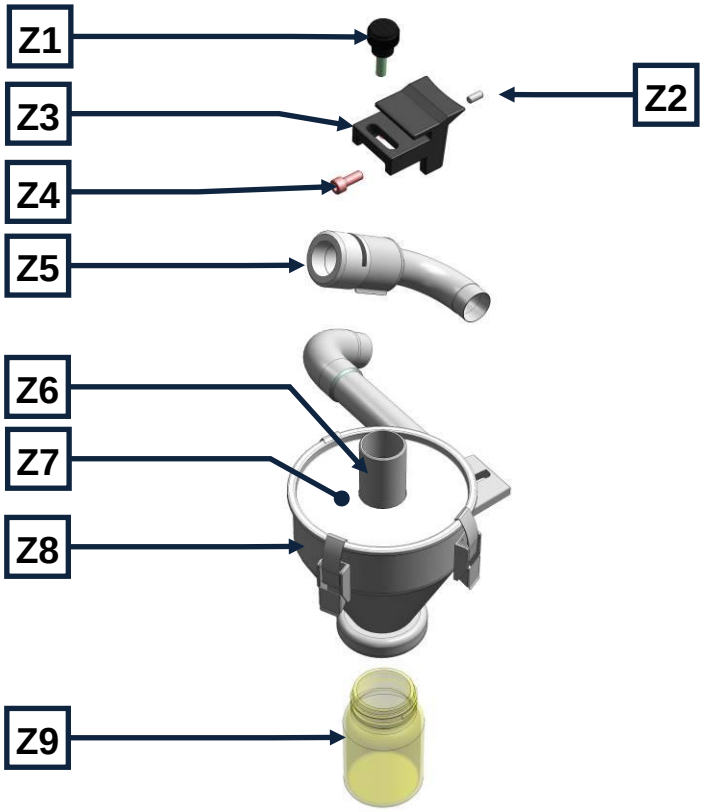


Fig. 14: Individual cyclone parts

Element	Description	Function
Z1	Knurled head screw	Fastens the cyclone
Z2	Pin	Anti-rotation device for support Z3
Z3	Housing support for cyclone	Cyclone support
Z4	Fixing screw	Fastens the cyclone support
Z5	Manual suction power adjuster	To adjust the air current
Z6	Air outlet	Connection for the industrial vacuum cleaner
Z7	Cyclone cover	Removable cover with air outlet
Z8	Cyclone	Separates sample material from air current
Z9	Collecting vessel	Collecting tank for sieved sample material

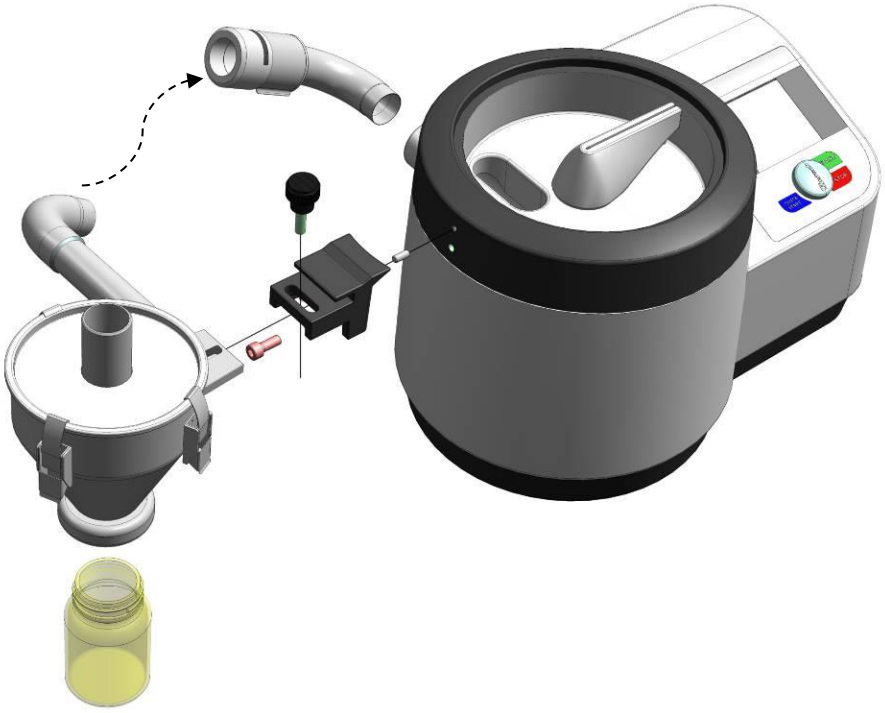


Fig. 15: Connection of the cyclone

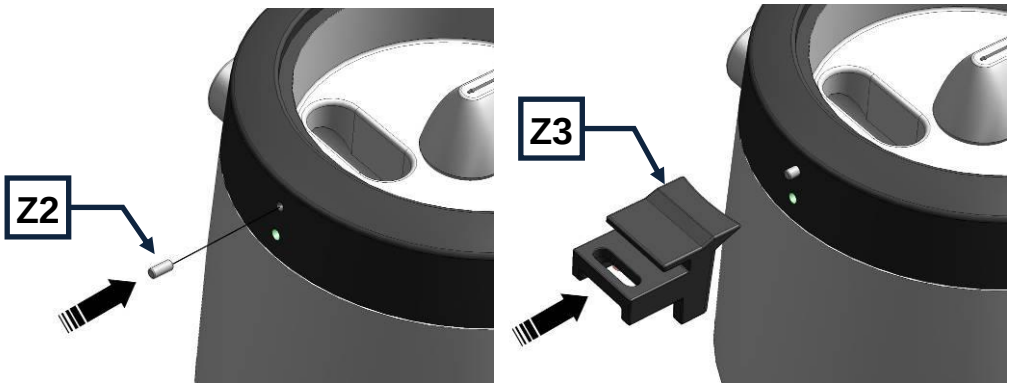


Fig. 16: Steps 1 and 2

1. Push the pin (**Z2**) into the upper opening on the outer edge of the housing.
2. Push the cyclone support (**Z3**) onto the pin.

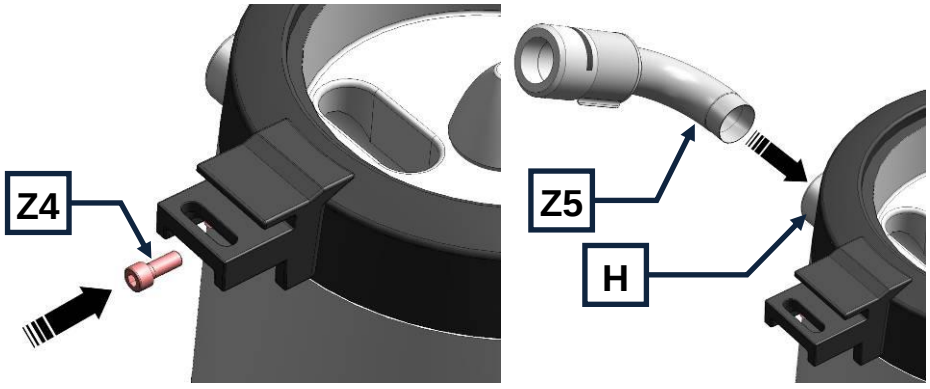


Fig. 17: Steps 3 and 4

3. Screw the screw (**Z4**) in.

4. Push the manual suction power adjuster (**Z5**) into the air outlet‘ (**H**).

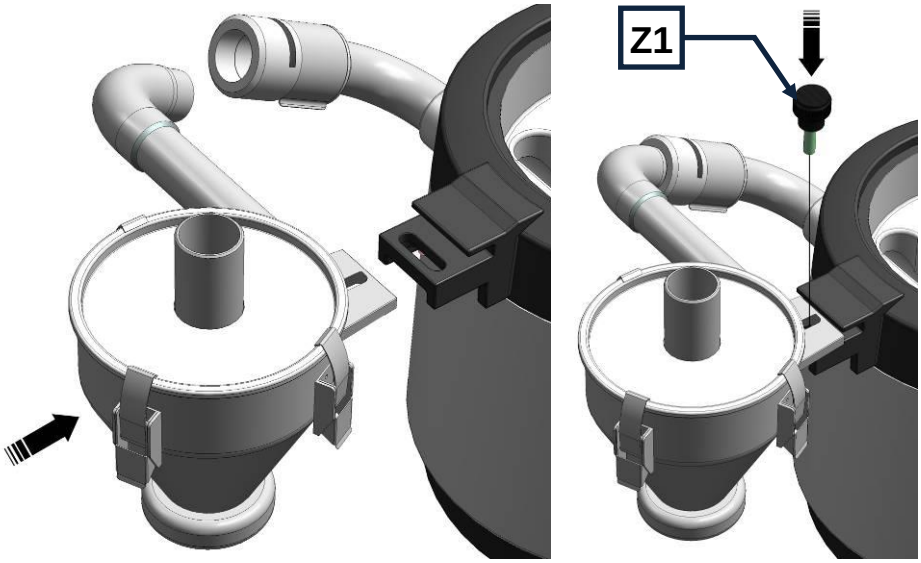


Fig. 18: Steps 5 and 7

5. Push the cyclone with cover into the manual suction power adjuster.
Position the cyclone with cover such that the support on the cyclone fits into the housing support (**Z3**).
6. Screw the knurled head screw (**Z1**) into the housing support.

Fig. 19: Connect the vacuum cleaner

7. Place the hose of the vacuum cleaner in the upper opening of the cyclone.

6 EasySieve®

6.1 Control, evaluation, documentation

EasySieve®, the software package from RETSCH for grain size analyses, is superior to manual evaluation in many respects. This is because the software is able to perform the required measuring and weighing processes automatically – from determining the weights of the sieves to evaluating the data. And in a much more simple and comfortable manner – thus making life “easier”.
The software is structured in a self-explanatory way and follows the logical chain of events involved in analysing grain sizes. This makes it possible to use it with confidence in a fairly short time. The multiplicity of evaluation options additionally provides the utmost flexibility in adapting to demanding, individual applications.

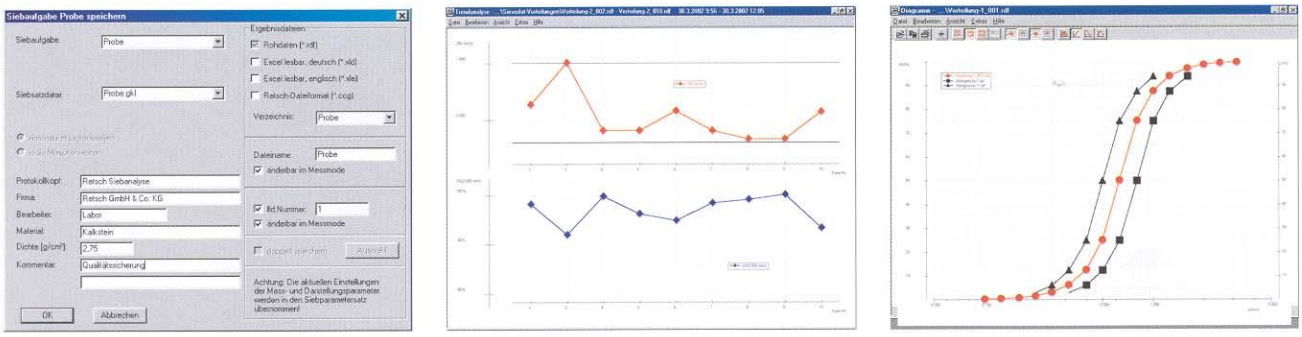


Abb. 20: Parameter input – Trend analysis of product processes - Comparison with specification limits

6.2 Serial PC connection

The AS200jet can be connected in series with a personal computer for data migration and data transfer. Either use a standard 9-pole RS232 cable or a type B USB cable. This enables analysis communication between sieving and the EasySieve ® software which is available as an accessory.
Depending on the model, connect either

- the 9-pole RS232 cable to the RS232 interface (**K**) or
- the USB type B cable to the USB interface (**L**).

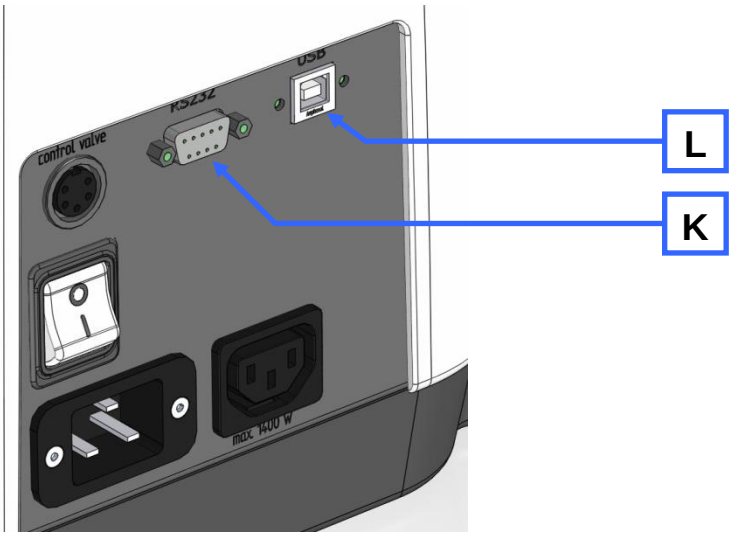


Fig. 22: Interface

7 Cleaning and service

WARNING

Risk of a fatal electric shock

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

NOTICE

Damage to the machine through solvents

– Solvents may damage plastic parts and the paint finish.

• **It is not allowed to use solvents.**

7.1.1 Cleaning

We recommend Retsch ultrasonic baths for thorough, gentle and time-saving cleaning of your test sieves.
Ask for our free special publication “Looking after and cleaning test sieves”.

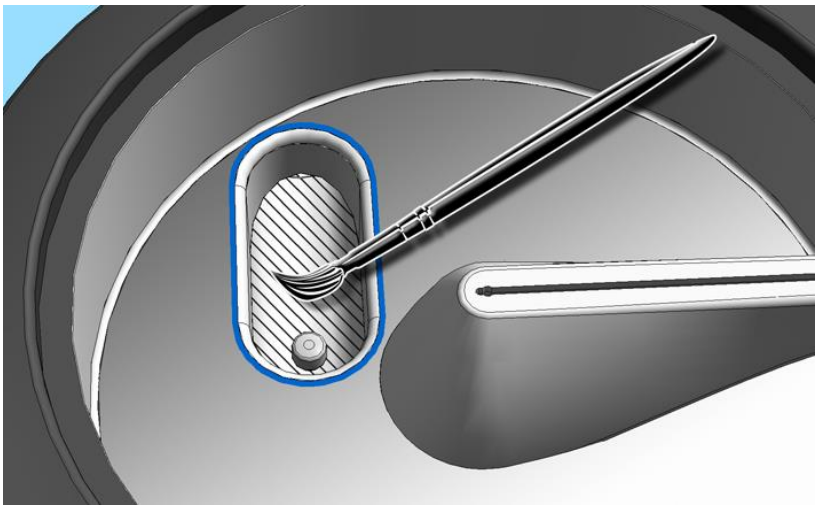


Fig. 21: Cleaning the air outlet channel

Clean the air outlet channel regularly using a brush to remove any deposits.

7.1.2 Vacuum cleaner – changing the vacuum cleaner bag

Change the vacuum cleaner bag or empty the dust container on your vacuum cleaner regularly as required.
Check the degree of soiling of the vacuum cleaner filter regularly and change the filter where applicable.
The vacuum or differential pressure generated by the vacuum cleaner may otherwise be too low for sieving.

7.1.3 Cleaning of Test Sieves

Test sieves are measuring instruments and should be treated with due care before, during and after the sieving process. It is recommended to clean new test sieves before the first use from possible preservative residues with ethanol or isopropanol and to store them in a dry, dust-free place when unused.

Before cleaning or drying the test sieves, the O-rings have to be removed. Before using and after the cleaning the test sieves should be visibly inspected for possible damages and impurities.

Near-mesh or clamped particles can be often removed dry after the sieving process by slightly tapping the test sieve upside down with the sieve frame on a table. For test sieves with mesh sizes > 500 µm a fine hair brush can be used to sweep over the outer side of the mesh fabric.

7.1.3.1 Cleaning of Test Sieves with Mesh Sizes > 500 µm

Coarse mesh fabrics with mesh sizes > 500 µm can be cleaned dry or wet easily and effectively with a hand brush with plastic bristles (at not too high applied pressure). A damage of the mesh fabric by these cleaning tools is not to be expected.

7.1.3.2 Cleaning of Test Sieves with Mesh Sizes < 500 µm

Test sieves with mesh sizes < 500 µm should generally only be cleaned in an ultrasonic cleaning-bath. As cleaning agent, water together with a standard surfactant is recommended. The cleaning in the ultrasonic bath usually takes two to three minutes. After that the test sieves are thoroughly rinsed with water and dried. The cleaning with strong bases or acids is generally not recommended.

7.1.3.3 Drying of Test Sieves

Drying ovens of various sizes can be used for drying test sieves.

Additional information concerning ultrasonic cleaning-baths and drying ovens can be found on the Retsch GmbH homepage (http://www.retsch.com). Also ask for the free expert guide *Sieve Analysis – Taking a close look at quality*.

N1.0028

NOTICE

Damage of the sieve mesh fabric
Drying temperature > 80 °C

- At higher temperatures, especially fine metal wire meshes can become warped, leading to a reduced tension of the mesh fabric inside the sieve frame and hence, makes the test sieve less efficient during the sieving process.

- **The drying temperature for test sieves must not exceed 80 °C!**

7.2 Maintenance

This device is essentially maintenance-free if cleaned regularly.

It is possible to calibrate the differential pressure sensor within the context of the DIN EN ISO 9001:2000 ff. Please contact your dealer or Retsch GmbH.
www.retsch.com

7.3 Calibrating the pressure sensor (checking of the differential pressure)

- Unscrew the sealing screws (**MS**).

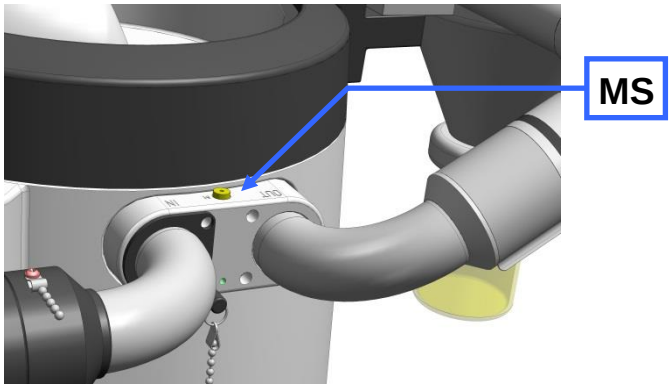


Fig. 2 Sealing screws

- Install a test sieve.
- Install a sieve cover.
- Connect the vacuum cleaner to the manual vacuum regulation.
- Connect the two hoses of the manometer (Digital Manometer PCE-P05 or similar) to the two measuring ports.

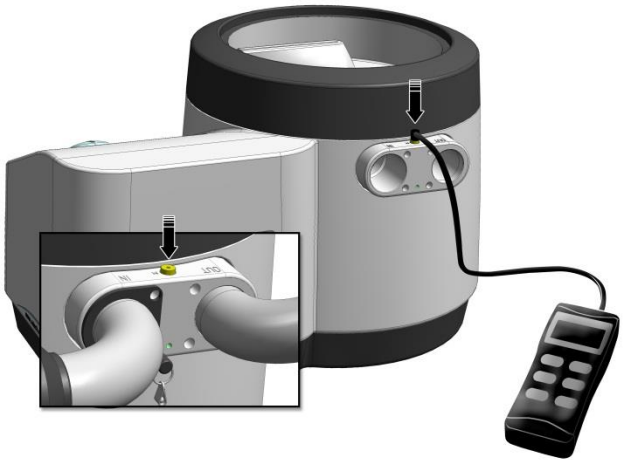


Abb. 22: Connecting the Manometer

- With the operating button, navigate to the sensor calibration menu point.

Manual operation → sensor

- Confirm the start of calibration by pressing the operating button.
- Press the START button

The instrument will now activate the vacuum cleaner and you can start the measurement. The air nozzle will not turn and the analog value of the differential pressure will be shown in the display.

- Compare this value on the display of your AS200 jet with the reading of your measuring tool.

If necessary change the setting of the manual vacuum regulation to check further measuring points. The actual pressure will be displayed until to press the STOP button.

8 Fault messages

E11	FAULT DRIVE/MOTOR	Service necessary
E20	FAULT CONTROLLER	Service necessary
E24	FAULT VALVE	Connection to electrical vacuum force adjustment disconnected. • Confirm the message in the display (**C**) by pressing the operating button (**F**) on the operating element.
E83	VACUUM TOO LOW	Check whether • The suction apparatus is connected; • The suction apparatus is generating sufficient vacuum; • The collecting receptacle in the suction apparatus is full; • The sieve cover is attached.
E84	DROP IN VACUUM	Check whether • The suction apparatus is connected; • The suction apparatus is generating sufficient vacuum; • The collecting receptacle in the suction apparatus is full; • The sieve cover is attached.
H45	INTERRUPTION DUE TO MAINS FAILURE	Restart the device

9 Index

Y

EU Declaration of Conformity
Translation

AIR JET SIEVING MACHINE

AS 200 jet | 30.027.xxxx

EU DECLARATION OF CONFORMITY

Herewith we declare, represented by the signatory, that the above mentioned device complies with the following directives and harmonized standards:

Machinery Directive 2006/42/EC

Applied standards, in particular:

DIN EN ISO 12100	Safety of machinery

EMC Directive 2014/30/EU

Applied standards, in particular:

DIN EN 55011	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
DIN EN 61000-3-2	Electromagnetic compatibility (EMC)
DIN EN 61000-3-3	Electromagnetic compatibility (EMC)
DIN EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements

Low Voltage Directive 2014/35/EU

Applied standards, in particular:

DIN EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use

Authorized person for the compilation of technical documents:

Dr. Loredana Di Labio (technical documentation)

Furthermore, we declare that the relevant technical documentation for the above mentioned device has been compiled according to Annex VII Part B of the Machinery Directive, and we undertake to submit this documentation on request to the market surveillance authorities.

In case of a modification of the device not previously agreed with Retsch GmbH, as well as the use of unauthorised spare parts or accessories, this declaration will lose its validity.

Retsch GmbH

Haan, 05/2016

Dr. Ing. Frank Janetta, Team Leader R&D Department

CE

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