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ALL-IN-ONE – RELIABLE PARTICLE ANALYSIS WITHOUT SAMPLE TRANSFER

In particle analysis, the transfer between the sieving machine and the balance carries considerable potential for error due to erosion or adhesion. RETSCH has solved this problem with the completely redesigned AS 200 jet pro and pharma all-in-one air jet sieving machines.

A wide range of functions offering tailor-made solutions for the analytical challenges of everyday laboratory work: RETSCH air jet sieving machines guarantee reliable processes in quality and production control and maximum product safety.

- Precise separation and deagglomeration of the finest particles
- Prevention of product losses
- Compliance with the strictest quality standards

In the busy everyday life of a laboratory, laboratory staff previously had to switch back and forth between the sieving machine and an external balance. The result: unwanted sample losses during transport of the sieves or the sample. RETSCH has found a solution for this with the AS 200 jet pro and AS 200 jet pharma air jet sieving machines. Modern air jet sieving results in the finest particle separation and the least possible agglomeration. The patented, extremely robust onboard balance is groundbreaking, even tolerating rubber hammer blows during sieving to break up agglomerations.

The triple combination of weighing and sieving the samples and evaluating the results is patented: in a single tabletop device! A variety of known sources of error are avoided by a variety of useful assistants and checks – for even more precise results and significant time savings with the simplest handling!

Particle size analysis made easy

The AS 200 jet pro is specially designed for test sieves with a diameter of 203 mm or 8" (or 200 mm with adapter). In addition, the machine allows the use of other RETSCH test sieves with different heights and mesh sizes. An externally connected industrial vacuum cleaner can be controlled by the internal software to make individual adjustments to the vacuum. Particle size analyses are performed using intuitive onboard software via a touch display. The built-in balance with a readout accuracy of 0.01 g records all necessary data, making the AS 200 jet pro (pharma) a compact all-in-one device.

User-friendly guided sieving

The internal software controls the entire process:

- Method creation
- Sieve management
- Parameter setting
- Sieve analysis
- Weighing
- Data evaluation

The system allows all methods and results generated to be stored in a database, and thanks to the audit trail in the pharma version, this can even be done on a user-specific basis. After selecting the desired method, users are guided step by step through the sieving process, where they can quickly choose from simple routine sieving to complex distribution analyses. All results can be displayed both graphically and in tabular form. Guided Sieving provides users with reliable results in the shortest possible time, from sieving and weighing to result evaluation.

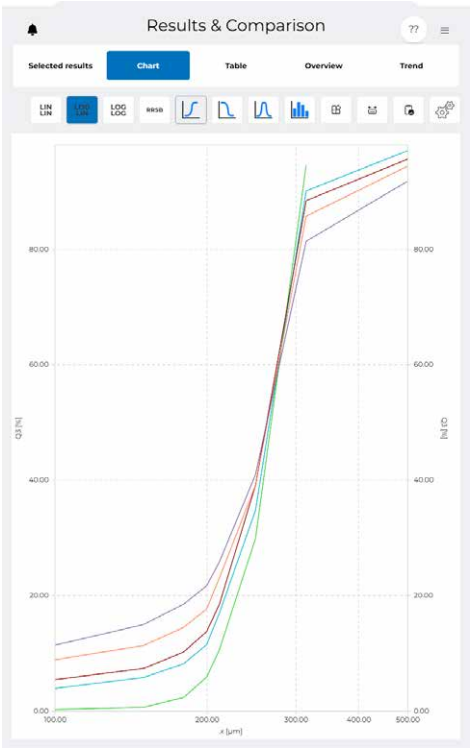
New functions – for even greater process reliability

- **Sieve-Check Function** – always use the correct sieve! A barcode scanner ensures that the sieve matches the selected method: one less error that could disrupt processes.
- **Plausibility Test** – The machine automatically detects when a sieve or lid is missing based on the weight.
- **Weighing-Assistant** – Active support for the correct loading of analysis sieves: Overloading leads to longer sieving times and, in the worst case, to non-reproducible sieving results, while underloading leads to incorrect results. The Weighing Assistant recommends a quantity range within which sieving can be carried out in accordance with standards and in a time-saving manner.
- **Weigh-In-Tolerance** – Individual tolerance limits can be defined manually: For example, 10 g of sample should always be sieved, with a maximum deviation of +/- 3%. Especially when maximum precision is required, this prevents excessive deviations from routine processes.
- **Backweighing-Tolerance** – for evaluating results against target values. The touchscreen can be used to communicate the expected results to the sieving machine and react immediately if these are not achieved.
- **Trend analysis of sieves** – Fine-mesh sieves can wear out over time. Trend analysis allows faulty sieves to be detected at an early stage. DIN 66165, for example, stipulates that a maximum of 10% of the meshes may be clogged. Trend analysis can provide an indication of this to supplement visual inspection.
- **Trend analysis of sieve analyses** – Trend analysis of multiple sievings allows for close process monitoring by using freely selectable parameters to compare different batches.
- **Filter function for sieve series** – In the so-called Renard series, specific sieves with different mesh sizes are used. If the test sieve with the smallest mesh size changes, all recommended test sieves may change – this is optionally taken into account automatically by the machine. This means that users can be sure that they are always working according to the correct specifications.

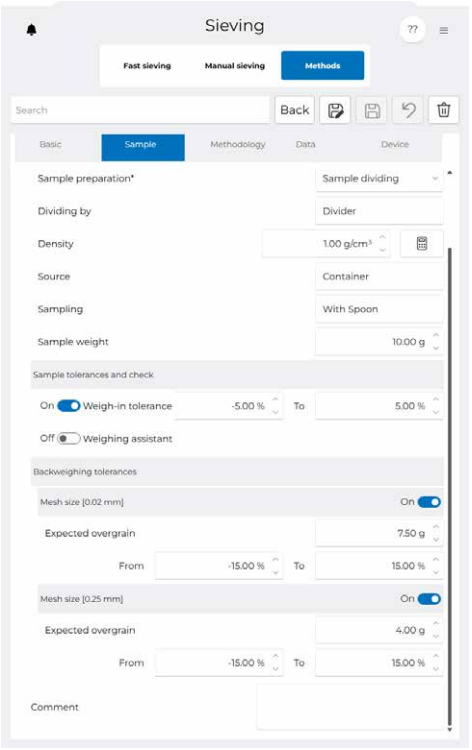
AS 200 jet pro with Cyclone

Further highlights:

- On request, it is also possible to use an external, high-precision, pre-validated balance via a USB 2.0 interface.
- The fine fraction can be collected and analyzed later using a high-separation cyclone. Another advantage: The vacuum cleaner's dust filter is relieved, increasing its service life.
- The new AS 200 jet pro and pharma air jet sieving machines are LIMS ready!



Screenshot
Comparison of results



Screenshot
Backweighing-tolerance

AS 200 jet pharma – The perfect laboratory partner for pharmaceutical analysis

The AS 200 jet pharma offers a wide range of functions that meet the requirements of modern particle size analysis, even in a GMP environment. It meets the software validation requirements according to ISPE GAMP 5, FDA 21 CFR part 11, and EC GMP Annex 11, thus ensuring the highest standards in quality assurance. The integrated user management allows for easy and secure handling of access rights, while password management and legally compliant email signatures provide additional security.
Administrators can assign access rights individually and with user-specific scope. It is possible to assign individual rights to each user or to combine several rights in predefined roles in order to provide multiple users with identical sets of rights. This allows both the preconfiguration of access rights in accordance with internal company specifications and the specific individual adaptation of each individual user access. Access to the system can also be controlled on a user-specific basis using a wide range of adjustable password characteristics.
An integrated audit trail monitors all activities and events, ensuring complete traceability. A network connection is recommended for operating the AS 200 jet pharma in order to make optimal use of all functions. IQ / OQ / Risk Analysis is available on request to facilitate device qualification and process validation.

The advantageous principle of air jet sieving

Air jet sieving is the method of choice for dry sieving of samples with a high proportion of fine particles, and is also a faster alternative to vibration sieving for particle sizes up to 500 µm. In contrast to other methods, air jet sieving uses only one sieve per sieving process. The rotational speed of the nozzle is normally fixed. However, a variable speed – as offered by the AS 200 jet pro or pharma – can be very helpful. Sensitive samples should be sieved at low speed to protect the material. For agglomerating samples, a high speed is more effective, as the impact frequency increases and even strong agglomerates are broken up in a short time. Unlike competing devices, the AS 200 jet pro is designed for use with sieves of different heights. This allows the impact intensity of the sample feed to be varied, thus determining the ideal combination of process duration and gentle sample processing.

Determine particle size distributions – with just one sieve

Two methods are available for determining particle size distributions in air jet sieving. Basically, the standard method requires a smaller amount of sample material, while the Swiss method delivers more precise results overall.

1.) Standard method
The entire sample material is placed on the sieve with the finest mesh size. After sieving and weighing the fraction, the oversize material is transferred in several steps to the next coarser sieve until the sample is completely separated into fractions.
2.) „Swiss method“
The sample is first divided into the desired number of size classes and then each subsample is sieved individually using the appropriate sieve. Important: This method only delivers reliable results if the sample division is representative, but it offers the advantage over the standard method that errors resulting from sample transfers are eliminated.

Conclusion

The AS 200 jet pro and AS 200 jet pharma sieve analyzers offer tailor-made solutions for almost any challenge in quality and production control. The precise separation and deagglomeration of even the finest particles prevents product losses and ensures maximum product safety. The AS 200 jet pro is a compact, all-in-one machine that combines sample sieving and weighing with result evaluation in a single device. Software-based wizards and check functions ensure increased process reliability and consistently reliable results with the simplest possible handling. The integrated balance impresses with its robust design and sensitively records all necessary data. The internal software guides you through the entire process and automatically stores methods and results in a database.
The AS 200 jet pharma also meets the highest requirements of modern particle size analysis in a GMP environment.

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