Particle Analyzer CAMSIZER XT

Measuring range from 1 µm to 3 mm

Retsch TECHNOLOGY
Solutions in Particle Sizing

IDEAL for:

- Pharmaceutical powders and granules, fine pellets
- Pulverized and granulated food
- Detergents and enzymes
- Plastic powders (also with electrostatic charge)
- Metal and ore powders
- Abrasives (medium-sized and small grit)
- Fine sands and cement
- Fine wood fibers
- Fine plastic fibers

BENEFITS

- Digital image processing, according to ISO 13322-2, with patented two-camera-system
- Wide dynamic measuring range from 1 µm to 3 mm
- Newly developed optical system with ultra-strong LEDs for highest resolution and excellent depth of sharpness
- Reliable detection of smallest amounts of "undersize" and "oversize"
- Very short measurement time of 1 – 3 minutes
- Modules for dry and wet dispersion with quick exchange "EasyFit"
- Measurement results are 100% compatible to sieve analysis if required

The quality control of fine powders can be substantially improved with the new CAMSIZER XT: More precise and faster analysis of particle size and particle shape helps to improve the product quality, reduce rejects and save costs.

The design of the Camsizer XT is based on the well-proven optical particle measurement system Camsizer but is optimized for finer samples. Not only the improved optical resolution but also new options for material feeding allow for an extended application range. Fine particles tend to agglomerate which makes it difficult to record the properties of a single particle. Therefore, it is important to have various possibilities of feeding the sample to the analysis area to be able to find for each material the optimum between the desired dispersion of the agglomerates and the undesired destruction of the individual particle. The CAMSIZER XT offers flexible solutions:

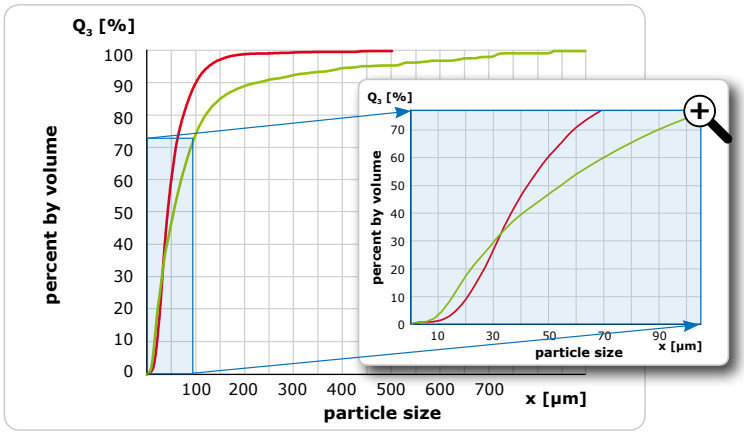
Modular design for optimum measurement conditions

Three alternative dispersion principles are available to analyze each sample in the most suitable way:

Pourable, not agglomerated particles can be fed to the analysis area by a vibrating feeder. The sample is accelerated towards the analysis area by gravity, and is collected after analysis in a box. Sample loss or contamination is minimized, so that the sample can be reused after the analysis.

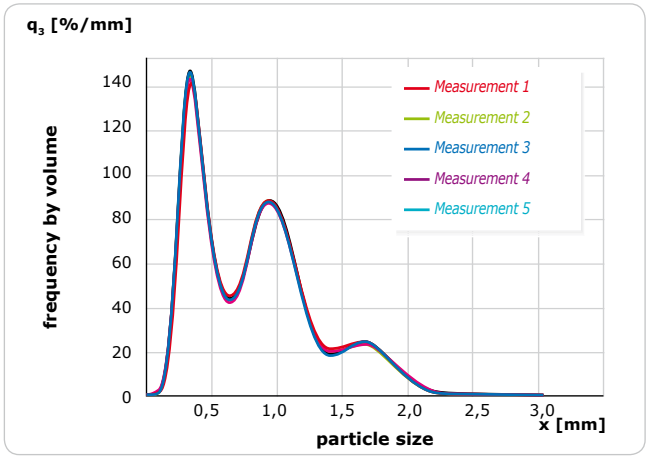
With the **dry powder feeder** agglomerated particles can be accelerated and dispersed through a nozzle with adjustable overpressure. Thus the agglomerates are separated without destroying the particles.

In the **wet module** particles can be dispersed in liquids. Optimized dispersion conditions for each sample can be found with the help of the integrated ultrasonic module and different pumping speeds. Only a very small amount of sample is required for analysis in the wet module, as the sample is pumped continually through the measurement cell.



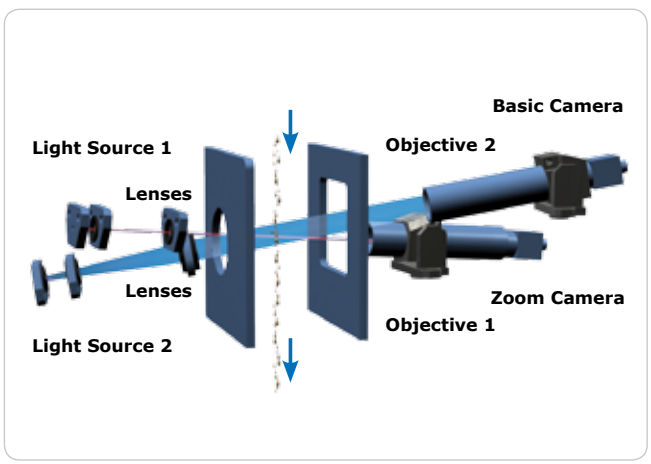
Wide dynamic measuring range

Thanks to the patented **two-camera-principle** the CAMSIZER XT offers both excellent resolution and reliable detection of oversized particles with exceedingly good statistics. The example above compares two differently ground coffee samples with similar d_{50} values. The red curve represents a more homogenous sample with a narrow size distribution, whereas the green curve shows both more fines and more oversized particles.



Excellent reproducibility

The large field of view of the patented 2 camera system ensures that the full width of the particle beam is analyzed. This results in an excellent repeatability, even with very small amounts of sample. The graphic above shows five repeated measurements of a trimodal mixture of glass beads in the size range from 50 µm to 1.5 mm. Each measurement took approximately 2.5 minutes, with more than 5.000.000 detected particles.



Patented measurement principle

The patented measurement principle is fairly simple: Dispersed particles pass in front of two bright, pulsed LED light sources. The shadows of the particles are captured with two digital cameras. One camera is optimized to analyse the small particles with high resolution, the other camera for the detection of the big particles with a good statistic, that means large field of view. Each camera is illuminated by one LED with optimized brightness, pulse length and field of view. A user-friendly software analyzes the size and shape of each particle, and finally calculates the respective distribution curves in realtime.

Image taken by the Basic Camera with large field of view

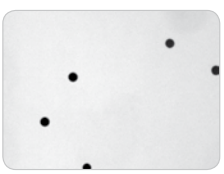


Image taken by the Zoom Camera with high resolution

TECHNICAL DATA CAMSIZER XT

Measurement range:	10 µm to 3 mm (free-flowing particles) 1 µm to 1.5 mm (dry powder feeder) 1 µm to 600 µm (wet dispersion)
Measurement principle:	Dynamic digital image processing (ISO 13322-2), patented two-camera-system
Measurement time:	approx. 1 to 3 min. (depending on required statistics)
Sample volume:	<100 mg – 100 g (depends on sample and measurement mode)
Measurement speed:	>250 pics/sec., each with approx. 1.3 MPixel
Width of analysis area:	25 mm (FoV)

Resolution:	1 µm
Measurement parameters:	Particle size (smallest diameter, length, mean diameter) Particle form (width to length, symmetry, sphericity, convexity etc., acc. to ISO 9276-6)
Instrument data:	Dimensions (H x W x D) approx. 550 x 860 x 600 mm Weight (without PC) approx. 50 kg
Options:	AutoSampler; software complying with FDA rule 21 CFR Part 11