

# ANALYSETTE 28 *ImageSizer*



## **IDEAL FOR**

- Analysis of particle shape and size
- Powders and Bulk Solids - Suspensions and Emulsions
- Particle sizes from 20  $\mu\text{m}$  - 20 mm | 5  $\mu\text{m}$  - 3 mm
- Quality Control
- Research and Laboratory
- Fast Alternative to Sieve Analysis

DYNAMIC IMAGE ANALYSIS

## DRY MEASUREMENT

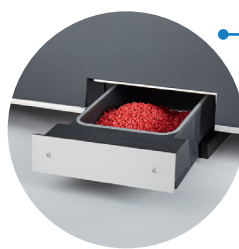
### Fast analysis of particle shape and size of dry, free flowing materials.

With optical analysis of the particle shape and particle size, identify damaged particles, contaminates, agglomerates or oversized and undersized particles accurately and fast and view them completely uncomplicated in single images. The measuring time depending on the sample quantity, is under 5 minutes, and the result is available immediately.

Sample material is filled into the funnel and conveyed to the falling chute via the automatically controlled feeder, which its U-shaped cross section ensures a good material feed. There, the sample falls through the measuring chamber between the camera and LED strobe light into an easy to clean sample collecting vessel. The images recorded continuously during this process offer a variety of evaluation possibilities. And the sample remains undamaged and completely intact throughout the entire analysis process.

### Optimal number of particles due to automatic adjustment of the feeder

For exact reproducible measurements, the position of the feeder and the funnel height can be adjusted via a scale and stored as information in a SOP. The ideal feed rate, precisely adapted to the sample, can also be stored in the SOP. The particle concentration is determined and controlled by the software. Always the optimal number of particles per image for a reliable and significant analysis.



A rubber seal around the collecting vessel prevents leakage of sample material

Simple adjustment of the funnel height for optimal adaptation to the sample

Funnel and feeder can be easily removed for cleaning



### Clean Design of the measuring chamber

Due to its special geometry, the measuring chamber is automatically kept clean so air flushing is not necessary. If soiling should occur, it is fast and easily cleaned.

### Variable measuring time

The duration of the measurement can be varied depending on the desired number of images (up to 75 images/sec.) or on the number of measured particles.

## Dynamic Image Analysis

### Telecentric lenses for highest shape precision

The bi-telecentric lenses guarantee the same reproduction scale of each individual particle wherever it is located in the measurement volume. Compared to conventional lenses, there is also a greater depth of field and less image field distortion providing a more accurate measurement through a higher magnification consistency.

The lenses are optimized for industrial utilization with a simple, heavy-duty design, and hermetically sealed against dust and moisture. A precise opto-mechanical setting and high optical performance are ensured at any time.

Choose from 3 different telecentric lenses according to your specific measurement task. By choosing the suitable lens, the measuring range can be optimally adapted and all lenses can be retrofitted and easily replaced at any time.



### One-camera-system with 5 megapixels

The high-performance industrial camera covers an extremely wide measuring range and ensures the highest resolution of even the smallest particles. Large and small particles can be directly captured, displayed, edited and deleted in one image.

The extra strong LED lighting guarantees a homogeneous illumination of the image field for perfect measurements. Adjustable exposure time ensures optimal adaptation to the sample and can easily be saved in the SOP.

## WET MEASUREMENT

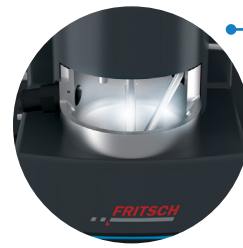
In combination with the corresponding wet dispersion unit, the ANALYSETTE 28 ImageSizer is ideal for measurement of particle shape and size of suspensions and emulsions. Simply insert the wet measuring cell into the measuring unit. Wet dispersion is particularly suitable for fine particles, poorly flowing, fine-agglomerating or sticky materials, which do not react in water or other liquids.

For perfect dispersion, the sample material is fed into a closed liquid circulation system and is pumped with high power through the measuring cell between camera and LED strobe light. The continuously obtained images are the basis for the analysis with a variety of evaluation possibilities.

### Wet dispersion system

The first fully automatic wet dispersion unit operating completely without valves and moveable seals in the sample circulation system and for emptying the system. That makes it significantly more robust and virtually wear-free. No difficult to clean dead spaces occur in which soiling can get deposited permanently and a single rinse is sufficient before it is ready to be used again. Without soiling or wear.

A powerful centrifugal pump with individually adjustable speed ensures optimal transport of even heavy, high density particles in the wet dispersion unit – enabling fast, uniform distribution of the sample material in the entire circuit. SOP's for easy operation, the completely free programmable dispersion process, the automatic cleaning ensure fast and reproducible measuring results.



• Illuminated dispersion bath makes it incredibly easy to feed the sample materials and to observe the dispersion process

• Variable suspension volume between 150 mL and 500 mL

Efficient, valveless and automatic rinsing



### Separate ultrasonic box

For sample material tends to agglomerate, connect an additional, powerful ultrasonic box to the wet dispersion unit, enabling an even finer adjustment to the respective sample.

### Suitable for many liquids

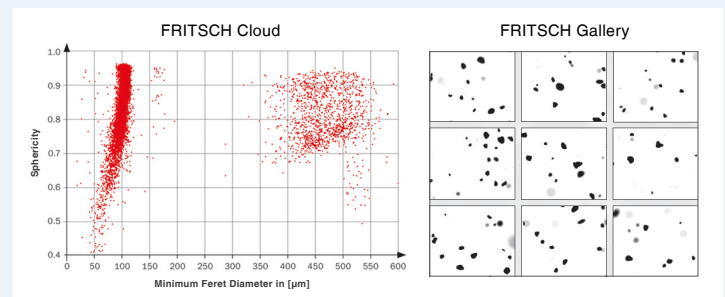
Suspension liquids water, benzene, alcohol and many organic solvents can be used. For working with extremely aggressive chemical dispersion liquids, the wet dispersion unit Extended is also available.

## ImageSizing-Software ISS

The evaluation software ISS displays each recorded particle clearly as a data point in the immediately available FRITTSCH Cloud as well as in the FRITTSCH Gallery. With a comprehensive library of morphology parameters, freely choose which statement is of interest: for example the Sphericity in regards to the Minimum Feret Diameter, the aspect ratio, applied on the porosity, or the convexity as a function of the particle Cross Section.

### State of the Art Evaluation

For fast single image viewing, each individual particle can be opened directly with a mouse click from the clearly arranged FRITTSCH Cloud. The important information about the morphology will be shown by the position of the data point in the Cloud. Immediately analyze, evaluate and delete individual selected particles. All available size and shape parameters are automatically displayed.



To get a quick overview of the typical particle shape of the analyzed sample, view and evaluate all the images in the FRITTSCH Gallery which is integrated into the software.

Have several measurements displayed simultaneously in a chart and immediately see the differences between the respective samples with a direct visual evaluation. A freely configurable report generator allows for automatic display of results clearly arranged on the monitor, either as a Cloud, cumulative curve, bar chart or in table form. Or define a layout according to sieve analysis.

## Specifications

	Dry Measurement	Wet Measurement
<b>Measuring range</b>	20 µm – 20 mm	5 µm – 3 mm
<b>Method of analysis</b>	Dynamic Image Analysis	
<b>Type of analysis</b>	Dry measurement of free-flowing powders and bulk solids	Wet measurement of suspensions and emulsions
<b>Measurement values</b>	Particle shape and particle size	
<b>Standard</b>	ISO 13322-2	
<b>Lenses</b>	3 different, easy to change telecentric lenses  Enlargement / Measuring Range 1. 0.157x / ~ 90 µm – 20 mm 2. 0.35x / ~ 40 µm – 9 mm 3. 0.735x / ~ 20 µm – 4.5 mm	3 different, easy to change telecentric lenses  Enlargement / Measuring range 1. 0.35x / ~ 20 µm – 3 mm 2. 0.735x / ~ 10 µm – 2 mm 3. 1.333x / ~ 5 µm – 1 mm
<b>Size of the measuring field (FoV) / Depth of field (DoF)</b>	<b>3 lenses</b>  <b>FoV / DoF</b> 1. 53.8 x 45 mm / ~ 27 mm 2. 24.1 x 20.2 mm / ~ 5 mm 3. 11.5 x 9.62 mm / ~ 1.2mm	<b>3 lenses</b>  <b>FoV / DoF</b> 1. 24.1 x 20.2 mm / ~ 5 mm 2. 11.5 x 9.62 mm / ~ 1.2mm 3. 6.34 x 5.3 mm / ~ 0.5 mm
<b>Camera</b>	5 megapixel CMOS camera, 2,448 x 2,050 pixel resolution, USB 3.0	
<b>Typical sample quantity</b>	10 – 100 g	0.1 – 1 g
<b>Measuring speed</b>	Max. 75 images/s	
<b>Evaluation</b>	Fast image analysis for morphology description and particle size determination	
<b>Software</b>	ImageSizing-Software ISS for controlling, recording and evaluating the measuring results pre-installed on supplied computer, including monitor, keyboard and mouse (without computer hardware for deliveries to CIS countries.)	
<b>System requirements (for computer supplied by customer)</b>	Standard Windows PC with Intel Core i7 Quad Core processor or better, at least 16 GB main memory drives: 1 TB SSD, 1 TB HDD, USB 3.0 port, Windows 10 (64 bit), monitor with 1,920 x 1,080 pixel or better, keyboard and mouse	
<b>Dimensions (W x D x H)</b>	90 x 30 x 55 cm	90 x 30 x 55 cm and 29 x 27.2 x 29 cm (wet dispersion unit)
<b>Net weight</b>	36.8 kg	58.8 kg



Please read the operation manual before using this product to assure safe and proper handling of the product.

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BG042023