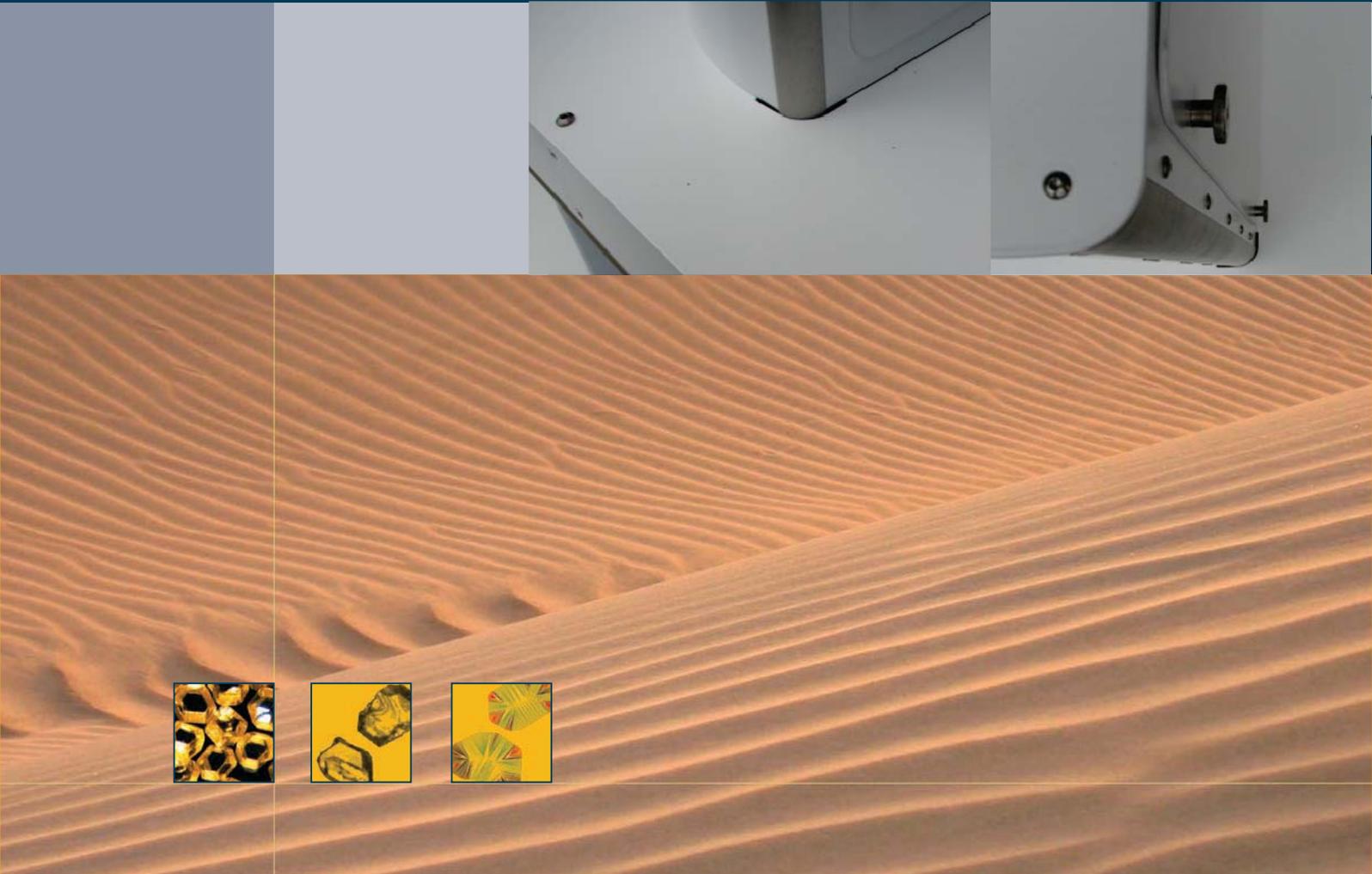


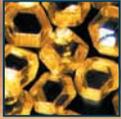
You need precision, you want morphology



OCCHIO 500 NANO

The best solution for measuring powders





OCCHIO 500 NANO

❖ By a team focused on powder characterisation

Through the efforts of an international and multidisciplinary team of engineers, **OCCHIO** offers you a complete range of solutions, starting from 400 nanometers and ranging up to centimeters.

Whether it is for laboratory instrumentation, «at line» or even «on line» solutions, **OCCHIO** is prepared to be your partner in high-level powder characterization. **OCCHIO** and **OCCHIO 500 NANO** bring you accuracy, profit and innovation.

_ Accuracy

With its proprietary Violet Collimated Light and high quality telecentric lens, **OCCHIO 500 NANO** will change your own perception of image analysis, measuring particles which are invisible under normal microscopy.

_ Profit

OCCHIO 500 NANO is a semi automatic device dedicated to powder quality characterization. It is easy to use and carries out rapid analyses in less than 2 minutes.

_ Innovation

Morphology measurement is more than shape description. To improve, you need robust and significant measurement. Based on decades of university research, the **OCCHIO 500 NANO** provides your R&D department with dedicated parameters, specially engineered for your industrial purposes.



The best solution for measuring powders

OCCHIO 500 NANO



❖ From samples to reports, your solution is ready for use

OCCHIO 500 NANO

More than a microscope, the system combines an integrated vacuum dispersion device, monochromatic collimated back-light for ideal contrast, telecentric lens for unrivalled image quality, wide depth of focus, with an integrated computer and advanced software for size and morphometric analysis.

OCCHIO 500 NANO provides you with high quality images with a resolution of less than 400 nanometers. The entire system is engineered to remove diffraction so that a clear and precise image of each particle's outlines is quickly obtained.

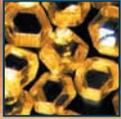


❖ Be the best at every step of the measurement process

Image acquisition

- Use one of the best high-resolution camera on the market; 6.6 Mega Pixels
- Eliminate diffraction with monochromatic Violet backlighting illumination.
- Increase the quality of the particle's outlines with collimated light and telecentric lens.
- Be perfectly focused on each particle thanks to a continuous auto-focus.
- Use the entire range of pixel values to obtain a perfect threshold.
- Avoid vibration problems due to the high-speed camera.
- Reduce maintenance costs and increase robustness with a fixed camera and light.





OCCHIO 500 NANO

INTEGRATED DISPENSER

❖ From samples to reports, your solution is ready for use



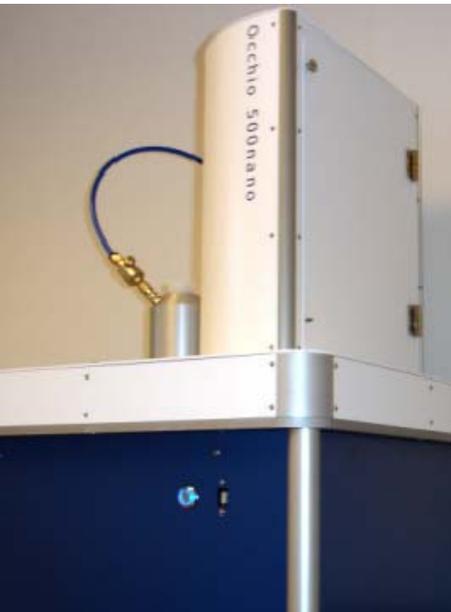
This **patented** disperser provides perfectly prepared slide glass. Without any sample contamination or damage, this Vacuum Disperser will gently deposit millions of individual grains of powder on a slide glass within a few seconds.



❖ Be the best at every step of the measurement process

Dispersal

- Maintain the integrity of the powder. There is no impact. The Vacuum Disperser uses the vacuum strength to gently dissociate agglomerates.
- Good orientation of each individual particle with natural sedimentation on the sample glass.
- Avoid contamination with the dispersion done directly onto the glass plate already placed on the analysis instrument.





Size and morphometric measurements

_ Size

The **Inner Diameter** (also known as Sieve Diameter) is the maximum inscribed disc within a particle, known as, is computed with a true Euclidean Distance Transform. The fast and accurate algorithm developed is exclusive to **OCCHIO**, providing for computing real size distributions.

The **Area Diameter** is the diameter of the equivalent area circle.

The **Mean Diameter** is the mean of all radii joining the centre of mass and the outline's pixels.

Area and **Volume** are also computed on the particle projected area.

_ Shape

Inertia **Elongation** measurement is computed from one minus the ratio between inertial ellipse axes.

Feret Bounding Box is the bounding box parallel to the Inertia Ellipsoid.

Width and **Length** are computed directly on this Feret Bounding Box.

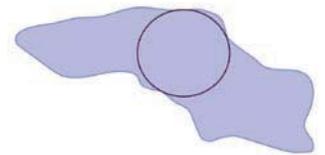
Max Distance is the maximum distance found within the particle.

Convexity is defined as one minus the ratio between convex area and particle area. The convex area is built with a virtual rubber band fitted on each particle.

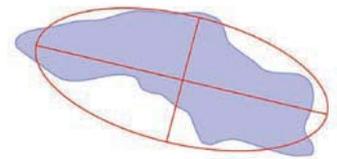
Reactivity (also known as Circularity) is defined as the ratio between the equivalent area circle perimeter divided by the actual particle perimeter.

Shape factor is computed with the formula $SF = P^2/A$ where P is the **Perimeter** and A the Area.

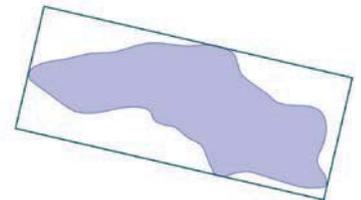
Inner Diameter



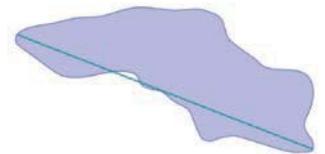
Elongation



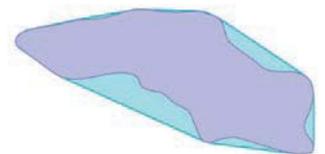
Width - Length

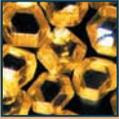


Max Distance



Convexity





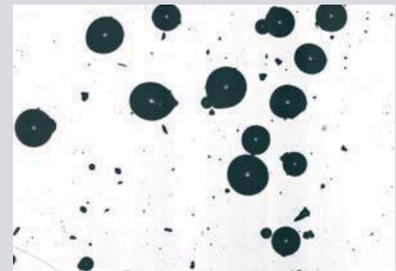
OCCHIO 500 NANO

CALLISTO SOFTWARE

❖ From samples to reports, your solution is ready for use

CALLISTO

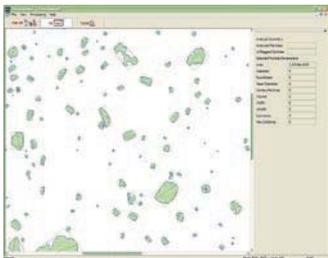
Callisto **Software** ensures accurate powder characterization with a full computer controlled procedure including powder dispersion, analysis and report generation.



❖ Achieve the best results at every step of the measurement process

Measure

- Automatic calibration of the device before each analysis optimizes accuracy.
- Use the best in image analysis, employing accurate and robust parameters based on the latest developments in mathematical morphology.
- Carry out reproductions with a very simple procedure wherever measurement are made.



The best solution for measuring powders

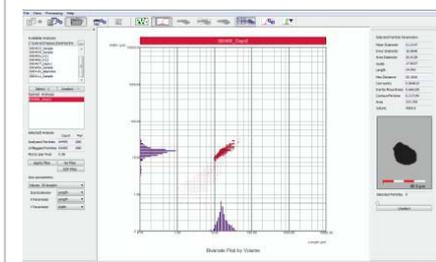
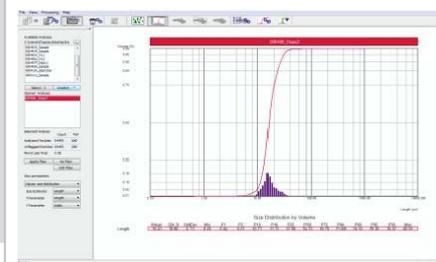
CALLISTO SOFTWARE

OCCHIO

From samples to reports, your solution is ready for use

CALLISTO

Just as **OCCHIO 500 NANO** could become part of your process, Callisto, and its dedicated statistical package, can make unlimited sample comparison, real time statistics interactive plots and customizable reports available to everyone on your network, no matter where they are located.



Achieve the best results at every step of the measurement process

Result presentation

- Compare unlimited number of measurements.
- Share complete results with colleagues or clients who are connected to your network.
- Understand your product perfectly with individual ID CARD and photographs of every grain.
- Summarize measured parameters of hundred-thousands of particles with a mouse click.
- Visualize your products in innovative morphological space.
- Print the report you have designed to fulfill your quality policy requirements.



OCCHIO 500 NANO SPECIFICATIONS

- Particle range : from 0.5 μm up to 2500 μm .
- Representative measurements in less than 2 minutes.
- Number of particles analyzed defined by the user (from one to millions).
- Storage and computing of individual particle characteristics.
- Real-time storage of full resolution particle outlines.
- Parameters : Sieve Diameter, Equivalent Diameter, Mean Diameter, Volume, Area, Width, Length, Elongation, Convexity, Hole Detection, Perimeter.



OCCHIO 500 NANO TECHNICAL SPECIFICATIONS

Dimensions	54 x 54 x 76 cm or 137 x 137 x 193 inches
Total weight	30 kg or 66 lbs
Power	110-240 V 50/60 Hz
Operating Environment	Temperature 5°C - 45°C Humidity 35% - 80% non-condensing

IMAGING DEVICE

CMOS integrating active pixel sensor
Pixel Pitch 3.5 x 3.5 microns
6.6 Mega Pixel - digital output
Telecentric lens
Collimated Blue back-lighting

COMPUTER (included inside OCCHIO 500 NANO)

Windows Vista pro or Windows XP pro operating system
PC Core 2 Duo 3 GHz, 2Gb-800MHz RAM, 80 Gb SATA HDD, Ethernet
Ergonomic Flat Panel Display
Wireless optical mouse and Keyboard

*Specifications subject to change without notice.



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