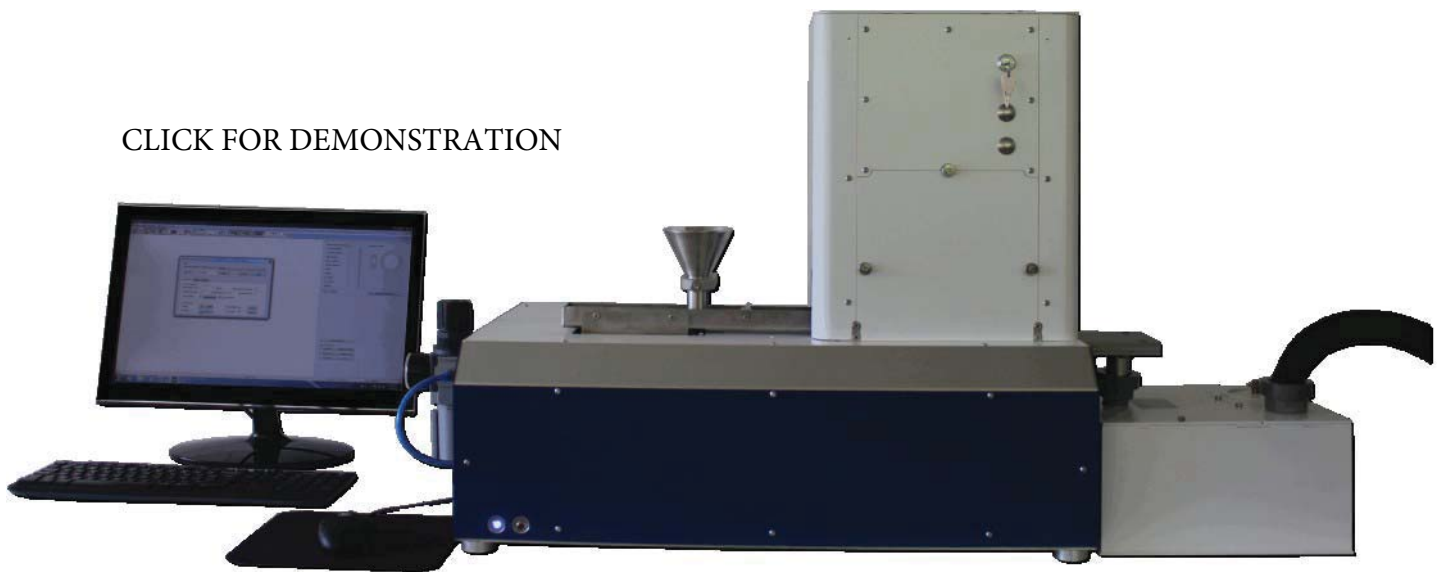


CLICK FOR DEMONSTRATION

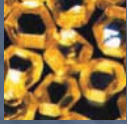


# ZEPHYR LDA

*Laser Diffraction Alternative*

5 µm – 3000 µm





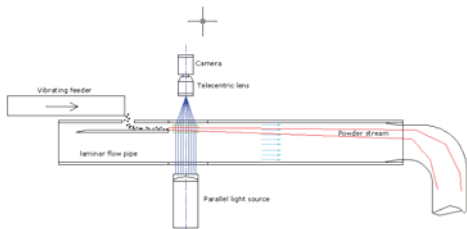
# ZEPHYR LDA: New particle size analyzer

**OCCHIO SA: Since 2001, your partner in imaging particle analysis**

Since 2001, through the efforts of an international and multidisciplinary **team of engineers**, **OCCHIO** offers you a **complete range of imaging particle analyzers**, starting from **200 nanometers up to several 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 bring you accuracy, profit and innovation.

## ZEPHYR LDA Technology

Based upon a combination of mechanical and vacuum dispersion, ZEPHYR LDA provides for fast and accurate size and shape analysis. It is used to substitute manual sieves analysis. Associated with the software CALLISTO, it is easy to use and carries out rapid analyses in few minutes.



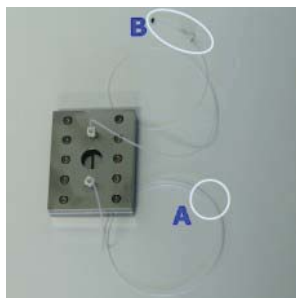
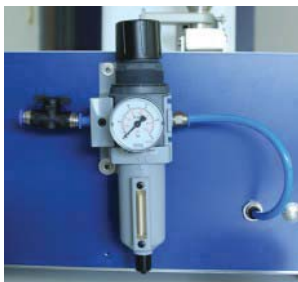
### Dry dispersion by air flow

Dry powders, which fall from a vibratory feeder, are introduced into a pipe and are dispersed by means of an aspiration system. Laminar air flow allows having all particles in focal plane.

High resolution camera associated with telecentric lens allows taking perfect pictures.

### High resolution camera

OCCHIO Instruments develops ZEPHYR LDA with one high resolution camera in order to obtain perfect correlation with other particle size technique as manual sieve analysis or laser diffraction.



### Substitute manual sieve analysis



Manual sieves analysis is long and need a full time operator.

ZEPHYR LDA is working alone. Just put powder in feeder than ZEPHYR LDA measures.

### Glass cleaning

New principle to have an automatic cleaning of glass plates.

No sticked particles during analysis

No need to clean optics after analysis

### DRY & WET ANALYSIS

Sieves distribution

Particle size and shape

Particle counting with Flowcell (WET option)

Kinetic mode

**Applications: Sugar, Coffee, Chocolate, Fiber, Tobacco, Sand, Diamond, PTFE, Ceramics, Fertlizers...**



**QAQC LAB**

[www.qclabequipment.com](http://www.qclabequipment.com)

QAQC LAB 589 Rappahannock Drive White Stone Va 22578 TEL (866) 244-1578



# ZEPHYR LDA: CALLISTO™

## CALLISTO™ : Software for particle analysis

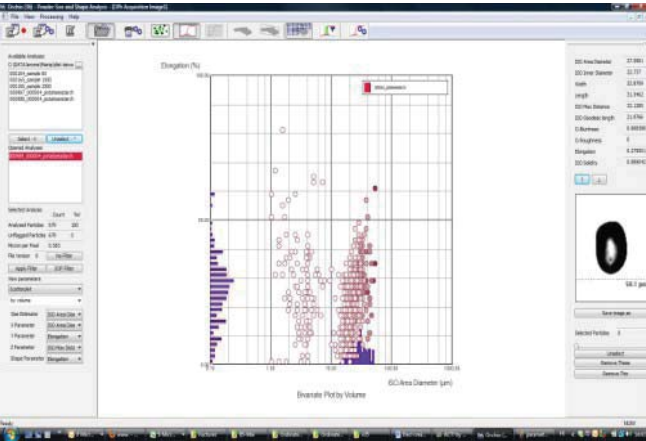
Since 2001, OCCHIO develops revolutionary systems by image analysis technique to study all particles types (powders, suspensions, emulsions and foams). These new systems, associated to the **powerful software CALLISTO™**, allow particle size measurements, shape analysis & particle counting. Now, more than 50 parameters are available ...

### PARTICLE SIZE PARAMETERS

Area diameter

Inner diameter - Length

Width - Geodesic length - Mean diameter



### PARTICLE SHAPE PARAMETERS

**O. Aspect Ratio and Elongation:** The Elongation is defined as  $1-AspectRatio$  with  $AspectRatio$  being the ratio between the width and the length of the particle

**ISO Straightness:** For very elongated particles, the straightness is ratio between the maximal distance and the Feret Length

**ISO Compactness and ISO Roundness :** Compactness and roundness are related to the degree to which the particle is similar to a disc. Roundness is less robust than compactness

**ISO Circularity:** Degree to which the particle (or its projection area) is similar to a circle

**ISO Solidity:** Solidity is the object area divided by the area enclosed by the convex hull (perfect to detect aggregates )

**O. Bluntness :** The Bluntness Index is the expression of a “maturity in the abrasion process”

**O- Roughness:** Amount of material to be removed from the shape before getting a smooth surface

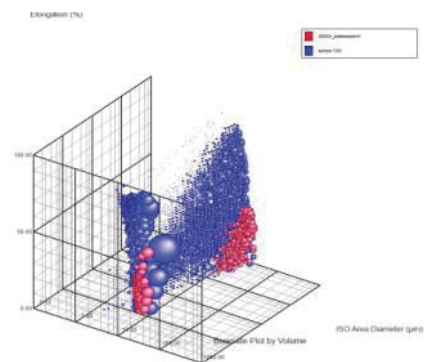
**Luminance:** The luminance is the mean greyscale level of the particle

**O-Porosity;** Porosity estimator

**SCATTERPLOT:** Possibility of **having a representation** of the **particle size parameters** versus morphologic estimators. According to the particle size classes chosen by the operator, all plots are corresponding to particles. Operator can visualize each particle in clicking on each plot.

**MICROSCOPE MODE:** Display of each parameters and picture for selected particle on Scatterplot or live pictures. Operator can save picture for individual particle in Bitmap format.

(Particle size & shape distribution, trends, Excel export, sieves correlation...)



## ZEPHYR LDA Options

WET Analysis

Autosampler

Do not hesitate to contact us for other idea...



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# Data sheet

Model	ZEPHYR LDA
Particle size range	7 microns – 5000 microns
Measurement time	2 up to 10 minutes (sample depending)
Parameters	<p><b>ISO 9276-6; 7; 8 norms + OCCHIO parameters</b></p> <p><b>SIZE:</b> ISO Area diameter; ISO Inner diameter; Mean diameter; Perimeter diameter; Crofton diameter; Half Crofton diameter; Width; Length; Ellipse Width; Ellipse Length; ISO Max Distance; ISO Geodesic Length;</p> <p><b>SHAPE:</b> Occhio Bluntness; Occhio Roughness; Elongation; ISO Aspect Ratio; Ellipsoid Elongation; Ellipsoid Roundness; Ellipse Ratio; ISO Eccentricity</p> <p>ISO Straightness; ISO Roundness; ISO Compactness; ISO Extent; ISO Solidity; Convexity; ISO Circularity, Luminance mean</p> <p>Luminance var.</p>
Dimensions and weight	89.5(L) x 47 (l) x (H)38cm, 28 kg
Disperser	Vibrating feeder + vacuum principle
Optics and imaging device	Camera 5Mpixels Gigabit Ethernet
Validation	IQ,OQ,PQ in option
Option	Wet module, autosampler
Computer specifications	Windows 7, Intel Core i5-650 @3.2GHz, 4MB cache ; 4 GB @ 1156MHz , HD 500GB Thanks to contact OCCHIO to check computer specifications
Power supply	110-240 V 50/60 Hz
Working conditions	Temperature 5 °C – 45 °C, HR 35-80 %
Images format	Bitmap
Data storage	‘.oph’ binary Occhio files format contains: Full size distribution values Shape and size percentiles Outline and greyscale levels of each particle
Statistics tools (distribution in number & volume)	Acquisition info (short overview of the used SOP) ; Size distribution; Size percentiles; Shape percentiles; Shape distribution; Mean shape by size; 2D scatter-plot (fully selectable particles map); 3D scatter-plot (include animation); Percentiles sample images; Sample images (BMP exportable format); Id card for each particle (BMP exportable format); Morphological and size filtering procedure ; Raw data export (text format); Table distribution export (text format); Table distribution and percentile export (Excel format); Automatic or custom reporting; Full image export (bmp format); Single particle image export (bmp format); Figure and graph export (bmp format)

Do not hesitate to contact us for more information or new developments

\* specification can be changed



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