The true alternative to laser diffraction and sieving methods

- ✓ Laser and sieve correlated measurement
- ✓ Particle size
- ✓ Particle shape
- ✓ Dry analyses from 5µm to 5mm

How it works

Based upon a combination of mechanical dispersion and air flow, the Occhio Zephyr LDA provides a fast and accurate size and shape analysis of sub-visible powders. The instrument combines a high-quality imaging system with a robust mechanical design, providing the user with a long-lasting precision instrument for quality control or production monitoring analyses.
More than a laser diffraction instrument, Zephyr LDA works with image analysis and provides you with a comprehensive direct measurement method including the real size of the particles.

Technical specifications

Dimensions and weight

Dimensions	85 x 64 x 47 cm (Width x Height x Deep)
Weight	52 kg

Working conditions

Working temperature	5-35°C non-condensing
Power Supply	100 or 220 Vac 50-60Hz (auto-switching is not available, please ask Occhio to set power supply)
Compressed air	Maximum 8 bar, used only for glass windows auto-cleaning 8mm tubing connector

External computer (minimum specification)

Processor	Intel Core i7 9700
Ram	32GB DDR4
Hard Disk	HDD 1 TB + SSD 512GB
Display	LCD, FullHD
Mouse, keyboard	USB (English)
Operating system	Windows 10 Pro 64 bits

Optics and imaging device

Camera resolution	5.0 Millions of pixels 2456 x 2054 pixels
Pixel size	3.45 µm
Lens type	Telecentric lens
Lens resolution (standard lens) (lens code 164-120-R2)	x0.350 – 9.9 µm/pixel
Field of view (standard lens) (lens code 164-120-R2)	24314 x 20334 µm²
Lens resolution (Optional lens) (lens code 164-121-R2)	X0.735 – 4.7 µm/pixel
Field of view (Optional lens) (lens code 164-121-R2)	11543 x 9653
Light source	Back light collimated monochromatic light source
Light wavelength	450 nm (blue light)

Instrument main features

Sample dispersion	Vibrating feeder combined with air flow
Cleaning	Compressed air principle
Sample particles size range	From 5µm* to 5mm *additional lens required
Time measurement	1-3 minutes (sample and quantity dependent)
Sample analysis	Size distribution cumulative and proportional curve

	Quantity distribution or volume weighted distribution Sieves correlation procedure
Standard Operating Procedure includes	Maximum number of particles Control of vibrating feeder Light intensity calibration Background calibration Particle database creation Image storage Filtering procedure Automatic report generation

Software main features

Software type	Callisto 3D
Size parameters (Iso 9276-6; 7; 8) All the size parameters may be displayable or not regarding the customer setting preference	Perimeter Cauchy-Crofton perimeter Perimeter of the convex hull Volume-equivalent diameter Area-equivalent diameter Surface-equivalent diameter Perimeter-equivalent diameter Cauchy-Crofton perimeter-equivalent diameter Inner diameter Legendre ellipse maximum Legendre ellipse minimum Feret diameter maximum Feret diameter minimum Feret conjugate Angle-average Feret diameter Geodesic length Thickness Minimum circumscribed circle diameter Erosion number Convex erosion number Fractal dimension Mean diameter Inertia box height Skeleton length Specific Area Inner threshold area
Shape parameters (Iso 9276-6; 7; 8) All the shape parameters may be displayable or not regarding the customer setting preference	Ellipse ratio Aspect ratio Elongation Straightness Curl Irregularity Compactness Roundness Extent

	Box ratio Wadell's sphericity Form factor Circularity Crofton Circularity Solidity Global surface concavity index Concavity Convexity Crofton Convexity Average concavity Particle robustness Largest concavity index Concavity/robustness ratio Occhio bluntness Occhio abrasivity Occhio elongation Occhio roughness xx% Outgrowth
Image format	Bitmap Monochrome 8 bits
Data storage	'.occ' binary Occhio files format contains: Full size distribution values Shape and size percentiles Outline and greyscale levels of each particle
Data comparisons	Open and compare different analysis
Plots and figure (By quantity or volume weighted values)	Acquisition info Size distribution Size percentiles Shape percentiles Shape distribution Mean shape by size Scatter-plot Particle images Id card for each particle 3D particles drawing and volume computing
Statistics tools	Morphological and size filtering procedure
Reporting and data export	Raw data export (Excel format) Table distribution export (Excel format) Table distribution and percentile export (Excel format) Automatic or custom reporting Full image export Single particle image export Figure and graph export

Starting kit parts (these parts are included in the packing box on the delivery)

Part number	Description	Quantity
164-081-R1	Glass plate	2
999-0014-R1 or 999-0015-R1	Vacuum cleaner (220VAC-240VAC) or vacuum cleaner (110VAC)	1
999-0015-R1	Vacuum cleaner filter (mounted on the vacuum cleaner)	1
999-0001-R1	USB 2 M/M 1.8m instrument communication cable	1
999-0003-R1or 999-0004-R1	Power supply cable North America or power supply cable Europe	3
999-1017-R1	Calibrated quartz sand (Fr C) Net weight 500g	1 bottle
164-501-R1	Focus and calibration slide	1
User guide	English user guide	1
999-0030-R1	Computer Windows 10 Pro 64bit (English-US) USB keyboard (US) USB mouse Display full HD	1 set

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