



Expertise - Innovation - Solutions

# Particle Size and Shape Analyzers



Manufacturing



Research and Development



Quality Control



Laboratory



Your partner in particle analysis

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

The inventor of Laser Particle Size Technology

# CILAS CORE KNOWLEDGE

CILAS was founded in 1966 to develop lasers for both military and nuclear applications. Due to our technical expertise with lasers, a leading cement manufacturer approached CILAS Engineers with a request to develop a new technique to quickly and accurately measure particle size. As a result of this partnership, **the world's first laser particle size analyzer** was developed in 1968.

For the past forty years, CILAS, a subsidiary of European Aeronautic Defense and Space (EADS) Company and AREVA, has maintained its position as the **technological leader** in the field of laser particle size analysis. CILAS Engineers have always developed **innovative solutions**, among them:

- 1st laser particle size analyzer (patented in 1968)
- 1st laser particle size analyzer to incorporate multiple lasers to extend the measurement range (patented in 1992)
- 1st laser particle size analyzer to fully integrate both wet and dry dispersion modes (patented in 1997)
- 1st laser particle size analyzer to integrate both laser diffraction and image analysis (introduced in 2004)

Thanks to our commitment to continuous research and development, our customers are getting products with the highest level of performance, reliability and innovation.



Jacques BATTISTELLA,  
CEO of CILAS



# EXPERTISE

## Experts in Laser Particle Size and Shape Analysis for 40 years

Our Engineers have over forty years of experience developing laser particle size analyzers for both research and industrial applications.

Our customers rely on our expertise to provide the **most technologically advanced** particle size analyzers designed to withstand even the harshest environments.

Our expertise covers lasers, optics, electronics and software development. We understand our customers require an instrument that provides **accurate results** and is effortless to operate. To ensure the highest level of accuracy, we only use lasers as light sources. From our basic model to our highest performing analyzer, only lasers are used. All of our systems are designed and manufactured to be fully compliant to ISO 13320.



CILAS Engineers combine their technical expertise with customer input to provide innovative solutions to customer's applications.

More info [www.cilas.com](http://www.cilas.com)

# INNOVATION

For 40 years, CILAS has been an Engineering driven company. As a result of this engineering focus, CILAS is the leader in product innovation.

Size



Shape

## Simultaneous Size and Shape

For many applications, particle shape information is a critical indicator of overall performance. To meet this demand, CILAS Engineers have developed a system **integrating both particle size and particle shape** into a single elegant package. CILAS laser particle size analyzers provide our customers with an innovative solution for both particle size and shape. With our Expert Shape software, customers can obtain particle shape properties such as roundness, convexity and aspect ratio.

Precision



Reproducibility

## ISO 13320 Compliant

To meet customer's demands for **traceable accuracy and repeatability**, our engineers have designed CILAS laser particle size analyzers to be fully ISO 13320 compliant. Whether running samples in dry or wet dispersion modes, the complete analyzer is qualified using Certified Reference Materials. Complete traceability is standard on all of our instruments. Measurement **reproducibility is better than 1%**, which is the best performance available in the market.



CILAS innovation includes full integration of both wet and dry dispersion

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# Innovation for research and industrial applications since 1966

Our combination of product features make CILAS laser particle size analysers the most accurate, versatile robust and powerful systems available anywhere.

## Integrated Wet & Dry Dispersion

CILAS analyzers can be configured with both wet and dry dispersion modes fully integrated into a single analyzer. To switch between dispersion modes, the operator does not need to exchange any hardware modules.

This innovative design eliminates the need to make any optical alignments when switching between dispersion modes.

**The operator can switch between dispersion modes with a simple click of the mouse!**



2 in 1



Upgradeable

## Multi Laser Technology

The CILAS 1064 and 1180 continue our tradition of designing innovative solutions.

Both systems incorporate a **patented optical design** for diffraction analysis which includes multiple lasers.

The CILAS 1064 has been designed with two lasers while the CILAS 1180 includes three lasers to cover the full measurement range. This unique design offers our customers an exceptionally **high level of accuracy and reproducibility** (< 1%).

Flexibility



Upgradeable

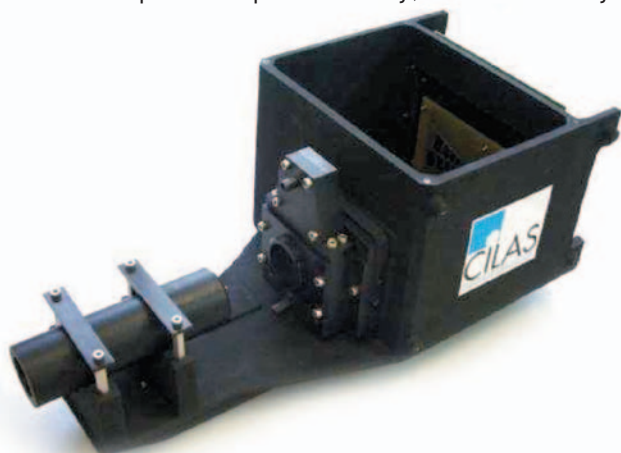
## Dry Jet Dispersion Technology

**Dry Jet Dispersion Technology (DJD)** is the latest development in particle size analysis. Dry Jet Dispersion guarantees that particles will not break apart during dispersion. This **new dispersion technique** allows the user to efficiently measure a wide range of powder samples. The system provides superior reproducibility, even with very **small volume samples** (<1gr).

Accuracy

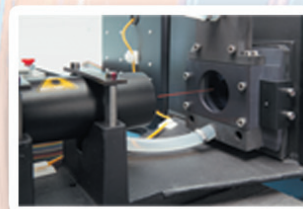


Repeatability



CILAS innovation includes a patented optical design. All optics are mounted on a single short pathlength baseplate, eliminating the need for any alignment.

The inventor of Laser Particle Size Technology



# SOLUTIONS

CILAS' comprehensive range of instruments for particle size and shape characterization delivers repeatable and accurate measurements for many different applications.



## Pharmaceutical

CILAS brings forty years of experience developing solutions in particle size analysis. All our instruments are calibrated to the ISO 13320 standard, meaning accurate and repeatable measurements. Our software is CFR 21 Part 11 compliant for complete traceability of results. A small volume dispersion unit is available for expensive samples. The extended measurement range of the CILAS 1180 allows you to analyze the widest range of particles.



## Chemical and Petrochemical

CILAS analyzers are extensively used in the chemical and petrochemical industries. Innovative solutions are available for all types of samples, including aggressive or expensive products and reagents. Our alcohol recirculator can be used for chemicals that are soluble in water. The small volume unit is perfect for expensive products as only a small amount of the sample is needed.



## Food

Particle shape is an important parameter affecting the characteristics of food products. CILAS' Image Analysis package gives customers a tool that provides both particle size and shape information. This information is used in production, inspection of raw materials, product development and quality control. The CILAS 1180 model, with a dynamic range from 0.04 to 2500 microns, allows both small and large particles to be characterized. Our Free Fall module permits the non-destructive analysis of fragile samples.



## Cement and Building Materials

Forty years ago, CILAS developed the first particle size distribution analyzer specifically for the cement industry. We continue to provide innovative solutions for the analysis of cement and building materials. Our cast-iron base plate means our systems are rugged enough to be used in the harshest environment. Our new Dry Jet Dispersion technology makes precise measurement of difficult dry cement samples effortless. All CILAS instruments are calibrated according to the ISO 13320 standard to provide accurate, repeatable measurement data.



## Mining and Minerals

All CILAS instruments are designed using a cast-iron base plate, ensuring the instruments are rugged enough to handle even the most difficult environments. The entry level CILAS 930 is a cost effective instrument with a standard measurement range adapted to mining and mineral customer needs. CILAS software allows the user to match the results generated from sieves or sedigraphs.

To receive more information about CILAS' solutions to your application, download free application notes at [www.cilas.com](http://www.cilas.com)

Flexible solutions focused on customer applications

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# SERVICES

## Customer Support Network

Quality service improves your laboratory's efficiency. CILAS offers high quality service through our worldwide customer support network. Our highly skilled customer support engineers make a difference by keeping your system running efficiently.



## On site and On line Customer Support Programs

- Installation, qualification, configuration and testing
- Hardware and software troubleshooting
- Preventative maintenance
- Timely, professional phone support
- Spare parts and consumables available locally

## Training & Seminars

Particle size and shape analysis seminars are available worldwide to help our customers develop new applications. Training and seminars focus on sharing knowledge and expertise between our users and our technical specialists.

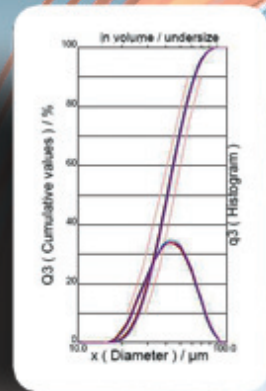
## Particle Characterization Services

All CILAS customer support centers provide:

**Applications development:** our experts help you with the development of new applications in particle characterization.

**Standard Operating Procedure optimization:** we will work with you to optimize your standard operating procedure. We can help you save time by minimizing delays and improving the efficiency of your process.

**Routine analysis:** Send your samples to our laboratory for a complete particle size characterization.



Customer satisfaction  
is our commitment

# PRODUCT LINE

## Specifications

MODEL	930	1064	1180	
Range (µm) in Dry mode	0.3-500	0.1-500	0.1-2500	
Range (µm) in Liquid mode	0.2-500	0.04-500	0.04-2500	
Dry dispersion	Venturi	Venturi	Venturi Free Fall	
Liquid Dispersion	2 Peristaltic Pumps / Ultrasonics / Stirrer			
Repeatability	< 1%	< 1%	< 1%	
Accuracy	< 3%	< 3%	< 3%	
Number of lasers	1	2	3	
External Dimensions	Length	Width	Height	Weight
	830 mm	560 mm	480 mm	54 kg
Power Supply	110-240 V, 50/60 Hz, < 100 VA			
Laser Safety Classification	21 CFR - 1040			
Closed Cover	Classe I of NF EN 60025-1			
Open Cover	Classe III of NF EN 60685			
Compliance	ISO 13320, 21 CFR-Part 11, CE			

## Shape Analysis

The shape analysis package includes a CCD camera to view particle shape. Particles are analyzed in a flow through cell connected to the laser particle size analyzer. The system is fully automated through software. The shape analysis system includes an easy to use software package for shape characterization.

Range : from 2µm to 2500µm

## Small Volume Unit

The small volume unit is well adapted for aggressive solvents and high cost samples. An independent liquid dispersion system with probe and pump is used. All accessories are fully automated in software.

This accessory greatly reduces both solvent and sample consumption during measurement.



## Alcohol Recirculator

The alcohol recirculator is used to regenerate alcohol when analyzing water soluble samples. The unit is fully automated using our Particle Expert software.

For more information on CILAS products or technologies, visit [www.cilas.com](http://www.cilas.com).

More info

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

**cilas**

8, avenue Buffon  
ZI La Source  
45063 Orléans cedex  
Tel: +33 (0)2 38 64 59 00  
Fax: +33 (0)2 38 64 59 07