

Dynamic
Image
Analyzer

Litesizer DIA 500



Dynamic Image Analysis

at the Touch of a Button

With Litesizer DIA 500, you can easily and reliably characterize the size and shape of particles (from 0.8 μm to 8000 μm) via analysis of their direct images.

- Access all important information at a glance with the Kalliope operating software's one-page workflow
- Leverage automated features for filling, draining, and rinsing the dispersion liquid, and setting the feeding rate of dry samples
- Maximize your safety with features that protect you from dangerous sample spread and your instrument from damage
- Enjoy three powerful dispersion units – Liquid Flow (wet), Dry Jet (compressed air), and Free Fall (gravitational fall) – that are easy to switch between with the Quick-Click feature in just one move



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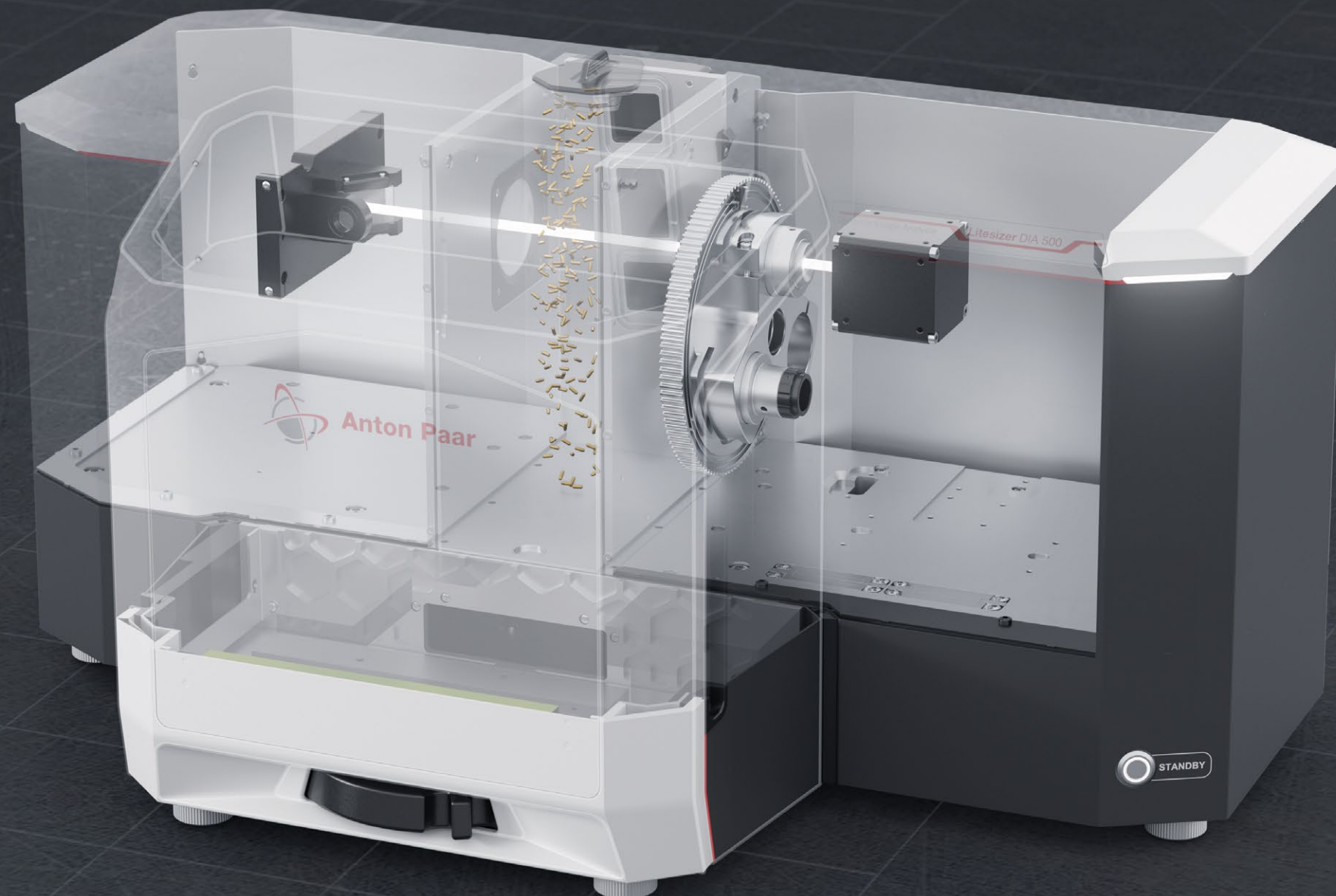
[www.anton-paar.com/
apb-litesizer-dia](http://www.anton-paar.com/apb-litesizer-dia)

Dynamic Image Analysis at a Glance

Compared to other particle sizing techniques, you can measure every single particle in your sample, and get shape information and detect outlier particles in populations counted in millions in seconds. This means dynamic image analysis lets you directly measure particles without having to conduct statistical calculations based on physical parameters.

Litesizer DIA 500 measures particle size and shape in a simple process

1. The particles are dispersed into the measurement cell via compressed air, gravity, or liquid
2. A high-powered LED illuminates the particles present in the measurement cell
3. The high-speed camera detects the projection of the shadows of particles
4. The instrument automatically switches between objectives and merges size ranges



Kalliope

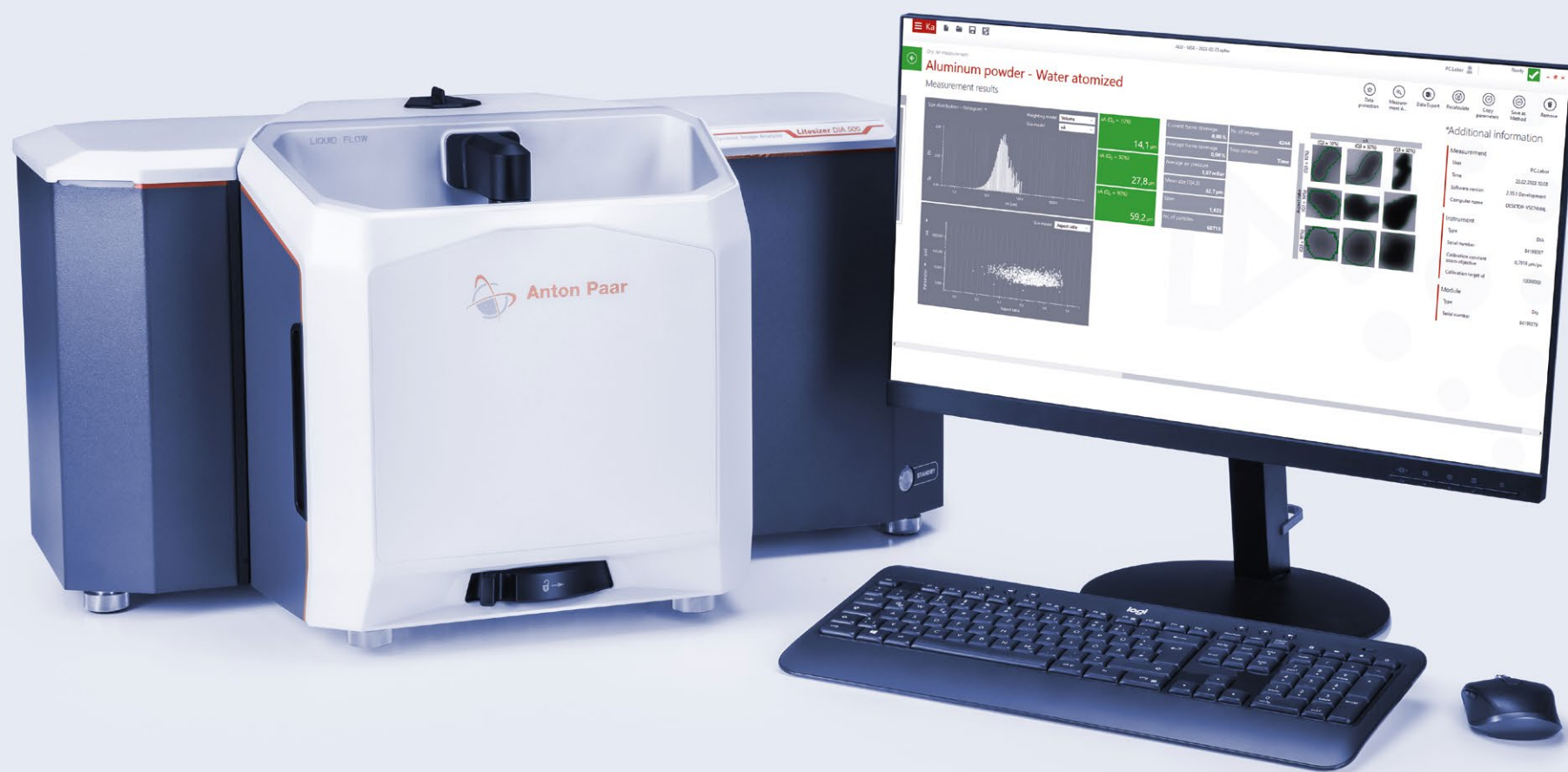
Our Intuitive Instrument Software

It's the beating heart of the Litesizer DIA 500. Perform expert-level measurements with minimal experience in just three clicks.

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www.anton-paar.com/apb-litesizer-dia-500



Optimized measurements ensure quality results

- Dive deeper into your measurement results with advanced filtering mode
- Streamline your measurements with quality control mode
- Measure samples of broad size distribution at high resolution using automated merge of size ranges

Easy and simple workflow

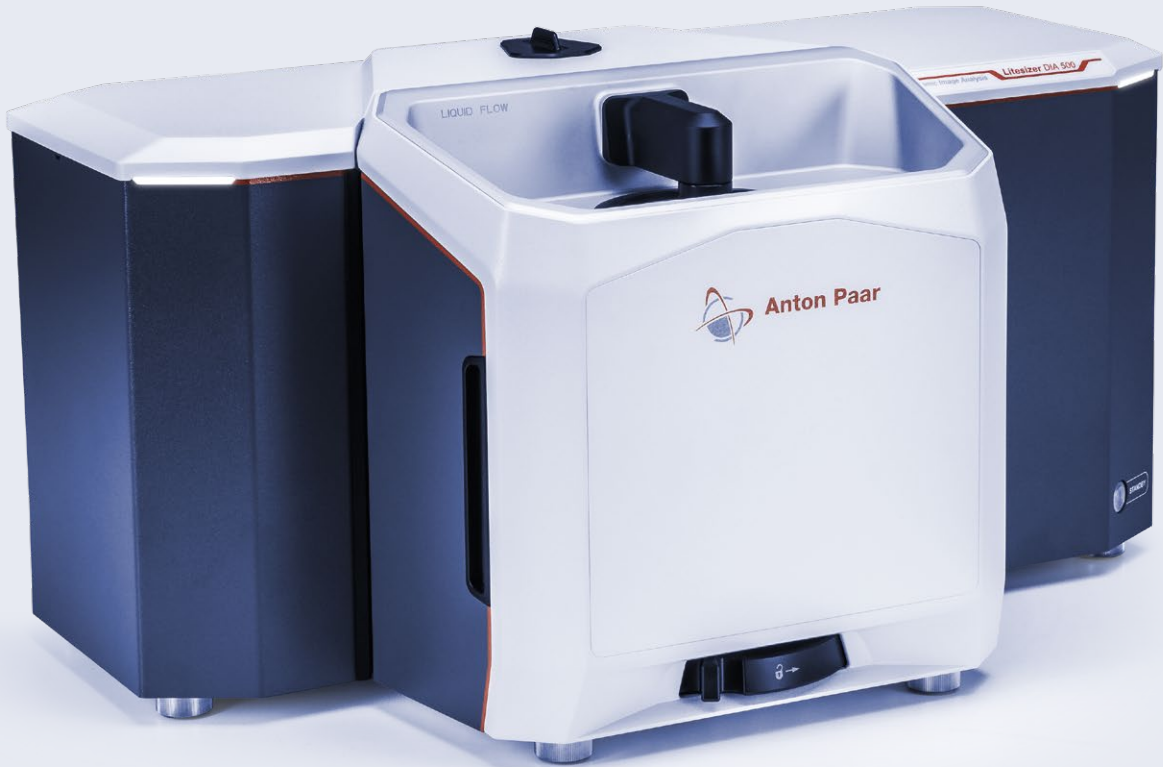
- Get all important information at a glance – input parameters, live view of the measurement, and results – in a single workspace
- Access the image database in the same workspace and recalculate the results using a different set of filters whenever you want
- Set automatic screening for particles of interest to filter them and optimize your data size

One software for various instruments

- Operate all of your Anton Paar particle-sizing instruments from Kalliope

Liquid Flow Dispersion Unit

Characterize all of your emulsions, suspensions, and solid-state particles with one dispersion unit: Liquid Flow.



Liquid Flow Dispersion Unit



Description	Liquid-based dispersion unit recirculating the carrier liquid within the closed circuit
Dispersion means	Stirring, ultrasonication
Liquid volume	150 mL to 600 mL
Automation	Auto-filling, auto-draining, auto-rinsing
Measurement range	0.8 µm to 2,500 µm
Particle size measurement range compliant with ISO 13322-2:2021	2.4 µm to 2,500 µm
Particle shape measurement range compliant with ISO 13322-6:2021	7.2 µm to 2,500 µm
Safety-related features	Lid cover prevents possible vapor spread Compatible with flammable liquids Liquid presence check before starting sonication
Weight	16.5 kg (36 lb)
Features	Centrifugal pump, max. 2400 RPM Ultrasonic unit, max. 50 W Frame coverage indicator Tank illumination Power supply provided by the main instrument Water inlet / outlet provided via the main instrument

Versatile and adaptable

- Characterize objects ranging from 0.8 µm up to 2,500 µm
- Save on critical solvents with a working volume down to 150 mL
- Work with aggressive liquids due to high chemical resistance

Maintenance and safety

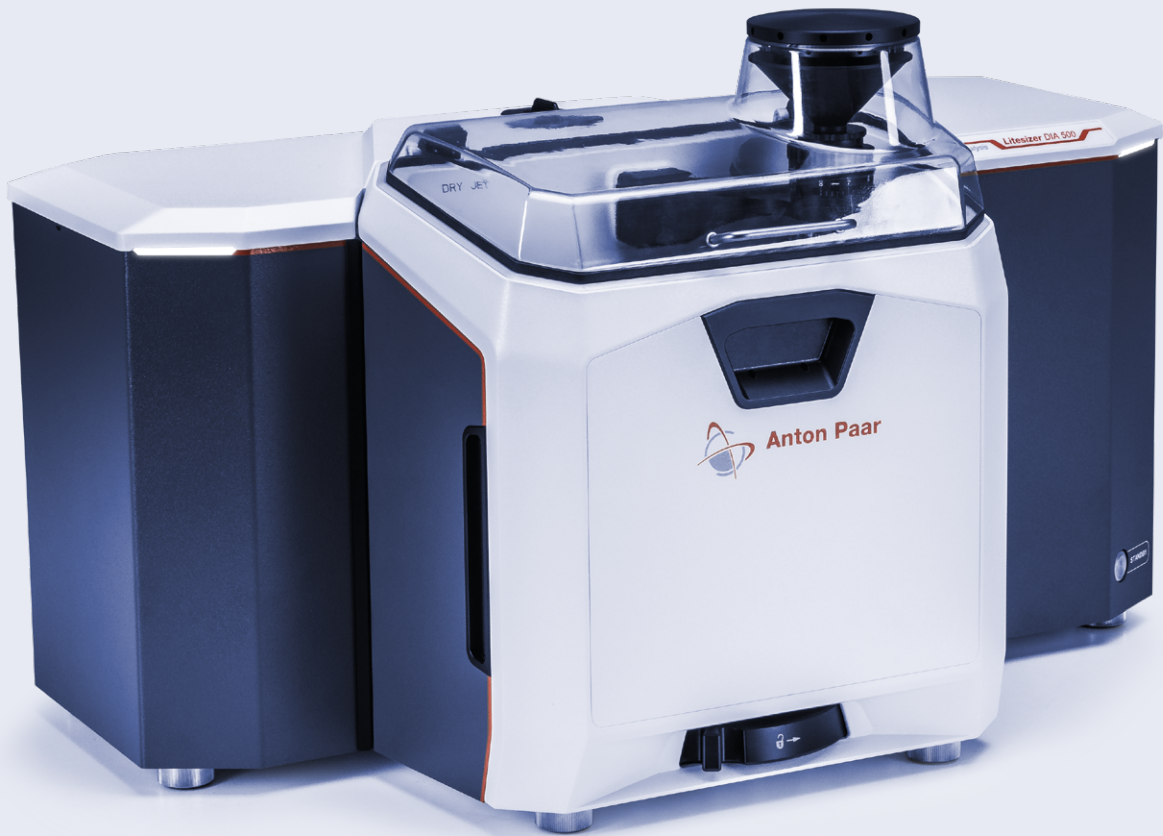
- Know Litesizer DIA 500 won't ignite flammable liquids: It recognizes that there is enough liquid in the system before sonification switches on
- Access the measurement cell in seconds if maintenance is required

Automated features for maximal efficiency

- Leverage automated filling, draining, and even multiple rinsings
- Be sure of highest data quality even with samples that tend to sediment at different rate because of equalization of circulation rate

Dry Jet Dispersion Unit

Break apart even the most stubborn dry agglomerates, detect hundreds of thousands of particles per second of your fine and dry powders.



Dry Jet Dispersion Unit



Description	Dispersion unit for deagglomerating dry materials
Dispersion means	Vibration and compressed air
Sample holder	Funnel: 150 mL or 600 mL
Automation	Automatic feeding rate adjustment, automatic funnel emptying, automatic cleaning of the measurement window
Measurement range	0.8 µm to 5,000 µm
Particle size measurement range compliant with ISO 13322-2:2021	2.4 µm to 5,000 µm
Particle shape measurement range compliant with ISO 13322-6:2021	7.2 µm to 5,000 µm
Safety-related features	Built-in cover preventing spread of dust Sealed design of sample channel preventing escape of particles and particle exposure of users
Weight	21.3 kg (47 lb)
Venturi nozzles	Option 1: 0.8 µm to 3,500 µm Option 2: 0.8 µm to 5,000 µm
Features	Dispersion pressure 0.05 bar to 4.6 bar Power supply provided by the main instrument Compressed gas supply and sample collection (vacuum cleaner) provided via the main unit

Effective dispersion in a wide range

- Handles most agglomerated dry samples between 0.8 µm and 5,000 µm
- A Venturi tube with pressure from 0.05 bar (for delicate samples) to 4.6 bar (for strongly agglomerated samples)
- Accurate results with minimal sample

Maximum efficiency through automation and ergonomics

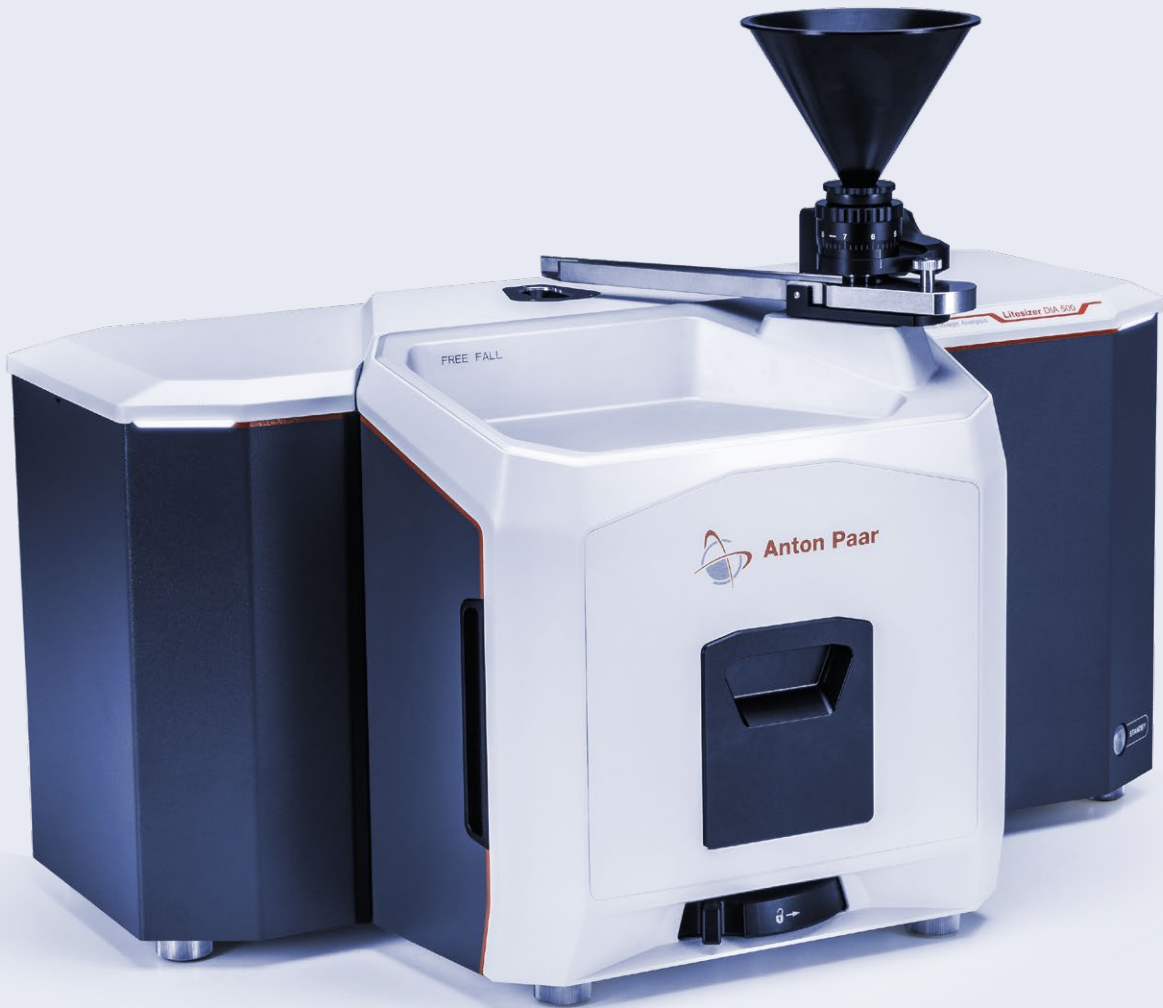
- Proper feeding rate reaches requested frame rate coverage automatically (if desired)
- The measurement cell can be accessed in seconds if maintenance is required

A design that keeps you safe

- Safety hood prevents spread of fine particles in the air while feeding
- The automated suction check prevents accidental spread of powders

Free Fall Dispersion Unit

With the Free Fall dispersion unit, characterize free-flowing samples up to 8,000 µm.



Free Fall Dispersion Unit



Description	Dispersion unit for dry, free flowing materials
Dispersion means	Vibration and gravitational fall
Sample holder	Funnel: 150 mL or 600 mL
Automation	Automatic feeding rate adjustment Automatic funnel emptying
Measurement range	0.8 µm to 8,000 µm
Particle size measurement range compliant with ISO 13322-2:2021	2.4 µm to 8,000 µm
Particle shape measurement range compliant with ISO 13322-6:2021	7.2 µm to 8,000 µm
Weight	20.9 kg (46 lb)
Measurement cell	Option 1: 4 mm gap Option 2: 8 mm gap
Features	Sample recovery using built-in drawer Power supply provided via the main instrument

Extra-wide measurement range

- Measure any particle between 0.8 µm and 8,000 µm
- Enjoy high-resolution images for all particles

Simple sample recovery and maintenance

- Recover your full sample after the measurement with a drawer-type container
- Dismantle and open the measurement cell in one move
- Conduct each measuring step by hand – no tools required



Reliable.
Compliant.
Qualified.

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service

Avoid unforeseen costs while maximizing uptime and staying compliant with Anton Paar Service. Our well-trained and certified technicians are ready to keep your instrument running smoothly.



Maximum uptime



Warranty program



Short response times



A global service network

Litesizer DIA 500	
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Measurement principle	Dynamic image analysis
Data collection rate	Up to 144 fps at 5 MPix (constant over the measurement)
Optical systems	0.8 µm to 300 µm and 10 µm to 8,000 µm
	Automatic switch between objectives Automatic merge of size ranges
Data transfer	1x 10 Gigabit Ethernet, 1x USB-A 3.0
Camera	5 MPix / 0.8 µm per pixel
Accessories available	Calibration tool Water filter (for Liquid Flow dispersion unit) Air filter (for Dry Jet dispersion unit) Vacuum cleaner: regular or ATEX (for Dry Jet dispersion unit) Air compressor (for Dry Jet dispersion unit)
Computer requirements	Windows 64-bit operating system Intel Core i9-10900K 3,7 GHz 32 GB DDR 512 GB SSD M.2 Network interface card 10GBase-T
Complies with	ISO 13322-2, ISO 13322-1, ISO 9276-2, ISO 9276-6, ISO 9276-11, ISO 14488
MEASUREMENT RANGES	
Liquid Flow	0.8 µm to 2,500 µm
Dry Jet	0.8 µm to 5,000 µm
Free-Fall	0.8 µm to 8,000 µm
MEASUREMENT PARAMETERS	
Weighting modes	Number-, surface- and volume-based models
Particle size and shape	Feret diameters (min, max), projected area equivalent diameter of a particle, length, geodesic length (length of a fiber), axes length of the legendre ellipse (min, max), aspect ratio, ellipse ratio, irregularity, elongation, circularity, form factor, compactness, extent, solidity, convexity
Complies with with ISO 9276	
Other parameters	Sharpness, contrast
INSTRUMENT DATA	
Dimensions (H x W x D)	400 mm x 790 mm x 290 mm 41 kg (90 lb)
Weight without PC and dispersion units Power supply	240 V to 100 V, 50/60 Hz
Compressed air supply (for Dry Jet dispersion unit)	5 bar - 10 bar
Water supply (for Liquid Flow dispersion unit)	Max. 8 bar
COMPATIBLE DISPERSION UNITS	
Liquid Flow dispersion unit	Dispersion using a liquid carrier, mixing and ultrasonication
Dry Jet dispersion unit	Dispersion via compressed air and Venturi nozzle
Free Fall dispersion unit	Dispersion via free fall

Trademarks

Kalliope (EU: 012709391), (UK: UK00912709391)
Litesizer (EU: 011695491), (UK: UK00911695491)

