

MALVERN MASTERSIZER MICRO AND MICROPLUS

Mastersizer Micro systems – Big Performance, Compact Package

Extensive market research and customer opinion directed the development of the Mastersizer Micro systems. The result is a small footprint, low cost instrument that takes laser diffraction out of the specialist laboratory and into the hands of particle technologists everywhere. The Micro is an instrument system in the clear Malvern tradition – with no compromise on sample handling, software capability or quality of results.



Mastersizer Micro performs like a research machine and yet operates like a cost effective QC tool. The wide measuring range makes it ideal for application in fundamental studies and quality control of production lines in diverse industries such as pharmaceuticals, mining, minerals, clays, food, metal powders, emulsions, ceramics, polymers, pigments, paints and coatings to name a few.

Designed for Easy Operation and Maintenance

Single button operation means that inexperienced users can perform repetitive measurements easily and reproducibly. The stable single lens optics minimises set up and routine maintenance.

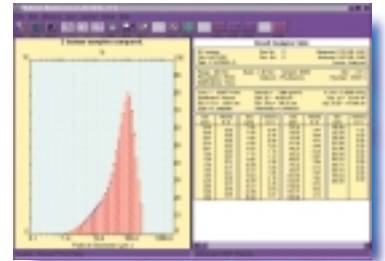
Rapid data acquisition and analysis allows repeatable measurements to be made in less than 4 seconds.

A unique "dip-in" probe provides sample agitation, sonication and circulation through the measuring system. By allowing the use of standard laboratory beakers as the sample tank, variable volumes of material can be analysed.

Superior Software – Complete Control

Malvern software sets an acknowledged world-wide standard for instrument operation, data acquisition and handling, reporting and systems integration.

Set up as easy as ABC – a special "ABC" icon guides the user through a set-up routine ensuring that no parameters are over looked.



Easy Mode –

a "GO" button runs the complete measurement to pre-selected requirements.

On-line Help –

interactive context relevant help screens provide step-by-step advice throughout set up, operation and data analysis.

Real Time Data Display –

data can be viewed as it is acquired simplifying method development by ensuring that the user is never divorced from the measurement.

Report Generation –

company logos, typestyles and formats can be incorporated into printouts.

Flexible Data Processing –

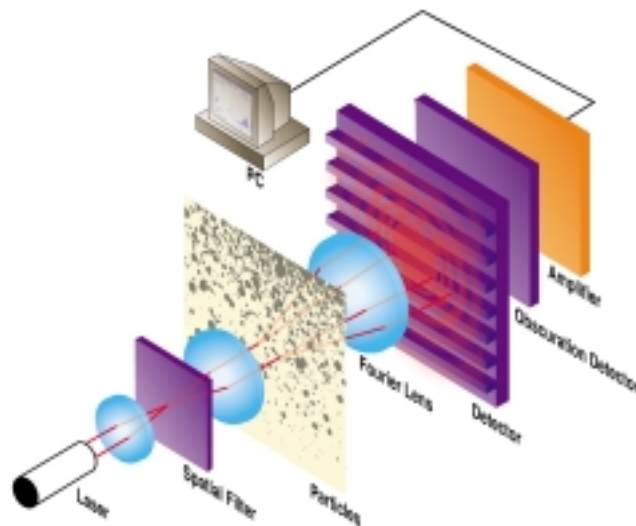
a range of data processing options are available allowing the user to specify the graph format and scale.

Statistical Analysis –

reproducibility of results and size trends can be reported using built-in statistical analysis options.

Security Features –

four password access levels are available from supervisor down to a level for the infrequent or unskilled user.



Full Mie theory – full Mie theory matrix generator enables compliance with ISO13320.

Advanced features – Malvern BASIC – a powerful set of programming tools enable the user to customise measurement parameters.

Windows operation – all the benefits of the Windows operating system are available to the Mastersizer user. A key feature is the ability to integrate particle size data by "cutting and pasting" into other independent software packages.

Additional features for specific needs

For measurement of solvent based systems, Malvern's QSpec small volume sample dispersion unit can be used, and when only very small amounts of material are available a direct injection small volume flow cell is available.

Laser Diffraction

Laser diffraction particle size analysis is based on the phenomenon that all particles scatter light at a range of angles, which is a characteristic of their size. Large particles scatter at small angles and vice versa.

The Mastersizer Micro comprises a Helium-Neon laser as a light source, which illuminates the dispersed particles in the measuring zone. This is then

focused by a Fourier lens to a detector, which consists of a large number of photosensitive elements radiating outward from the centre. A novel property of a Fourier lens is that it collects the scattered light from an ensemble of particles, and overlays the common angles of scattering on the detector array. The intensity of the scattered light is measured and using an optical model (Mie theory) to calculate the scattering pattern and a mathematical deconvolution procedure, a volumetric particle size distribution is calculated that best matches the measured pattern.

The Mastersizer Micro produces volume-based measurements based on the measurement of ensembles of particles sampled at a rate of 500 snaps per second, simultaneously from all detectors. This means that the system is exceptionally suitable for the detection of rogue coarse particles.

Total Support Program

Ownership of a Mastersizer connects you directly to the Malvern support network, including access to an applications library and laboratories around the world, as well as the Malvern Help Desk. Remote modem support enables users to have a virtual engineer in their laboratory, minimising down time and improving payback.

Mastersizer Micro's Technical Specifications

Size Range	Mastersizer Micro: 0.3um – 300um Mastersizer Microplus: 0.05um – 550um
Measurement Principle	Mie scattering
Measurement Time	< 4 seconds typical – user variable
Light Source	HeNe laser of wavelength 632.8nm
Accuracy	± 2.0% on Dv50 on Malvern reference standard
Power	100-240V, 50/60Hz
External Dimensions	500 (w) x 560 (h) x 325 (d) mm
Weight	32Kg
Minimum Specification of PC	Capable of running Windows™ 98 or Windows™ NT to include 3.5" floppy disc, CD-ROM, 2 x RS232 comm ports
Operating Platforms	Windows™ 98 or Windows™ NT 4.0 and above
Options	QSpec small volume sample dispersion unit Small volume flow cell

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