



Zetasizer

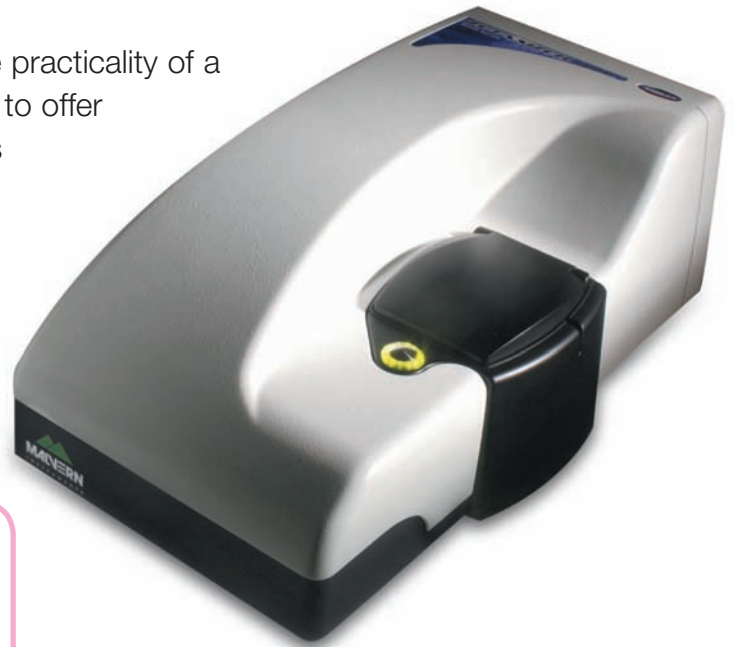
nano S90



S90

The **ultimate** in desktop particle characterization

The new Zetasizer Nano S90 brings you the practicality of a maintenance-free system with the versatility to offer precision measurement for your laboratory's particle characterization needs.



## Research

The flexibility of the software allows measurement and analysis to be configured for the specific application. An optional research software package gives access to further control of the system and analysis algorithms. Research grade correlator and sensitive Avalanche Photodiode Detector (APD) as standard

- **Pharmaceuticals – liposomes, drug targeting, latex for diagnostics**
- **Biotechnology – DNA condensation for gene therapy, viruses**
- **Chemicals – surfactant micelles**

## Development

Measurement of particle size can give valuable information about the appropriate type and concentration of additive to use to produce a stable formulation. Fast accurate measurements can quickly indicate the effect of changing pH or ionic concentration for example.

- **Pharmaceuticals – emulsions, formulation stability**
- **Chemicals – pigments, inks, toners, ceramics**
- **Time and temperature trends**

## Quality control

Standard Operating Procedures (SOP) ensure that measurements are simplified and results are repeatable between operators and sites. Compatibility with ISO13321 and optional 21 CFR part 11 compliant software ensures all current recommendations and regulations are met.

- **Chemicals – silica, latex, metal colloids**
- **Stability testing – pharmaceutical emulsions**
- **Trend plots – statistical process control**

## How Simple?

- No alignment, calibration or maintenance required
- Optics sealed to prevent contamination
- Sample area purge to prevent condensation

Power up the Zetasizer **Nano S90** and launch the software

1

An automatic complete system self-check ensures that all components are ready for operation.



Fill the cuvette

2

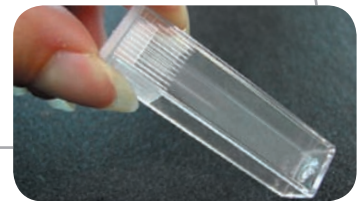
A range of cuvettes is available to match the application. Disposable polystyrene cuvettes with 0.1 to 1mL volume, and quartz cuvettes with volumes as low as 20 microlitres.



Load the cuvette

3

Simply insert the cuvette, close the lid and it's ready to go.



Run the measurement

4

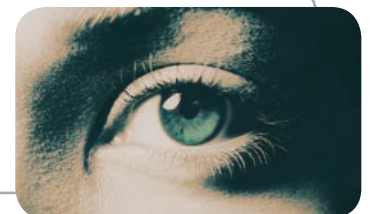
From the menu, select the standard operating procedure (SOP) you need or set your own conditions and click the 'start' button.



View the results

5

Predefined reports make reading, comparing and analyzing the results straightforward. Remove the cuvette and you are ready to go again.



That's how Simple

## Meeting **your** needs

At Malvern we strive for improvement in every instrument we design and produce. This process is made possible because we continually ask our customers what they think and what they need before turning those wishes into reality.

### You asked for

### We give you

#### *Simple operation*

Standard Operating Procedures (SOPs)  
The use of SOPs ensures that measurements can be repeated using exactly the same parameters to give confidence in the result.

#### *Low volume sample measurement (for valuable proteins and biopolymer samples)*

A comprehensive range of low volume cells

#### *Comparability with results from existing systems with 90 degree optics*

90 degree scattering optics to ensure the result from polydisperse samples larger than 100nm give comparable results

#### *Improved sensitivity at a 90 degree scattering angle*

An avalanche photodiode detector (APD) as standard, monomode fibre detection optics, an optional higher power laser

#### *A high specification correlator*

A research grade correlator fitted as standard

#### *Flexibility of data manipulation*

An optional software package to give additional data processing options, graphs, tables and reports

#### *Compliance with regulatory standards*

Compatibility with 21 CFR part 11 and all other current standards including ISO13321

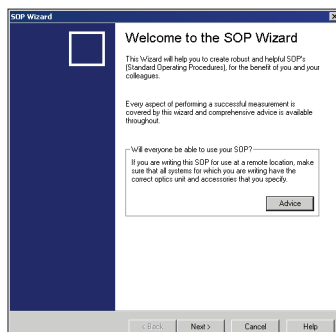
## Software to make it happen

The excellence of the Zetasizer Nano S90 hardware can only be fully realised with similarly advanced software. For an instrument of this refinement, the software design and development has to match its quality.

All support software for the Zetasizer Nano S90 has been programmed by Malvern Instruments not simply to operate the system but to enable you to get the best out of it – to bring it to life.

The software is designed to provide the functionality you need as well as the ease of use you want in a familiar Windows™ environment.

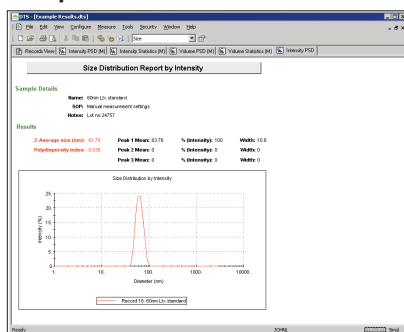
### SOP creation



A 'wizard' is available to assist in the generation of standard operating procedures.

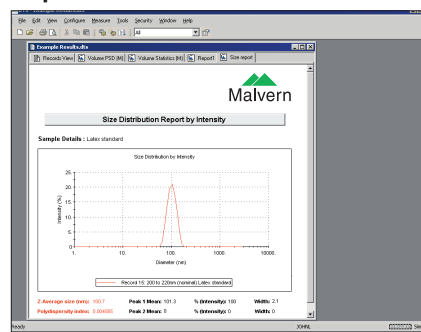
- fully automated operation – for ease of use
- SOPs – for repeatability between operators, systems and sites
- custom report generator – to meet every laboratory's requirements
- temperature trend analysis
- time trend analysis
- selected parameter trend analysis
- overplotting of results for direct comparison
- full range of statistical plots

### Sample measurement



During data acquisition, status messages keep the operator informed of progress and an evolving distribution is displayed.

### Reports



A range of reports are supplied to display distribution tables and result statistics. The report designer can be used to customise the contents of these reports.

## Specifications

## Zetasizer Nano S90

	Parameters measured	Materials
	Hydrodynamic size, molecular weight	Particle dispersions, emulsions and molecular solutions
<i>Size</i>	Size range maximum (diameter)	0.3nm - 5 microns*
	Minimum sample volume	20µL
	Measurement angle	90°
	Verification	Using latex standards
<i>Molecular weight</i>	Molecular weight range (estimated from hydrodynamic diameter)	342Da to 2 x 10 <sup>7</sup> Da <sup>†</sup>
	Molecular weight range (calculated using Debye plot)	9,800Da to 2 x 10 <sup>7</sup> Da <sup>†</sup>
	Minimum sample volume	20µL
<i>General</i>	Temperature control range	0°C - 90°C +/- 0.1°C, 120°C option**
	Condensation control	Purge facility using dry air
	Standard laser	4mW He-Ne, 632.8nm
	Correlator	Min. sample time 25ns, max. delay time 8000s. Max. 4000 channels
<i>Accessories</i>	MPT-2 Autotitrator	pH and additive titration
	SV-10 viscometer, viscosity range	0.3 - 10,000mPa.s
	Auto-degasser for MPT-2	3 channel
<i>Options</i>	High power laser/alternative wavelength	50mW, 532nm
	High temperature option	Extends upper temperature range to 120°C
	Narrow band filters, 633nm or 532nm	Improves signal for samples that fluoresce
	Flow mode option	Enables use as a detector with an SEC system
	21 CFR part 11 software option	Enables an operating mode that assists with ER/ES compliance
	Research software option	Advanced system utilities
<i>System compliance</i>	CE certification	Product laser class 1, EN 60825-1:2001 and CDRH
<i>System</i>	Dimensions, weight, power	320mm, 600mm, 260mm (W,D,H), 21kg, 100W
<i>Notes</i>	* Peak mode range (diameter), 0.6nm - 3 microns, sample dependent	
	** Temperature accuracy, 0.1°C at 25°C, 0.2°C at 0°C and 0.5°C at 90°C, 1°C at 120°C	
	† Sample dependent	



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**Zetasizer**

**nano S90**

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