

AcoustoSizer IIx



The Colloidal Dynamics AcoustoSizer IIx provides thorough and complete characterization of concentrated colloidal dispersions.

Directly measuring particle size, zeta potential, pH, conductivity, and temperature without sample dilution, it furnishes the most comprehensive analysis available in a single, turnkey instrument.

Traditional characterization techniques require sample dilution. Unfortunately, sample preparation is time consuming and error-prone. The AcoustoSizer's patented multi-frequency electroacoustic technology eliminates both problems. The AcoustoSizer IIx measures particle size and zeta potential directly, under true sample conditions, in concentrations as high as 40 volume percent.

*Laboratory and online
 measurement of
 zeta potential and
 particle size!*

Parameters Measured

- Particle Size Distribution
- Zeta Potential
- Dynamic Mobility Spectrum
- Ultrasonic Attenuation Spectrum
- pH
- Conductivity
- Temperature

Features and Benefits

- Particle Size and Zeta Potential in concentrated colloids and emulsions
- Modular design ideal for both laboratory and pilot plant operations
- Flow-through sensor for continuous monitoring of colloid processing
- On-line capability using sensor connections for external flow loop
- Sample volumes as small as 20 ml
- Broad particle size range: 0.01 to 100 microns combining electroacoustic and attenuation spectroscopy techniques
- Fully automated potentiometric and volumetric titration
- No moving parts in the sensor
- Automatic removal of background electrolyte signal for high accuracy iso-electric point determination
- High voltage pulsed electric field provides excellent signal to noise ratio
- Uses electrolyte calibration standard eliminating the need for colloid based zeta potential and particle size calibration standards
- Advanced size analysis – bimodal, normal & log normal size distributions
- Wide temperature and viscosity range
- Powerful, easy-to-use Microsoft Windows 11 based software with standard data reports in Microsoft Excel format

Colloidal Dynamics

Colloidal Dynamics offers a wide range of services to help you take advantage of this powerful new technology. AcoustoSizers are in use worldwide at major industrial and academic research laboratories. Applications include:

• ceramics	• electronic inks	• pharmaceuticals
• catalysts	• emulsions	• filtration/de-watering
• coal slurries	• cement	• wet milling/grinding
• semiconductors	• minerals processing	• control of surface coating
• pigments	• clay minerals	• control of homogenization
• CMP slurries	• isoelectric point	• dispersant demand titrations
• light phosphors	• paper coatings	• nanoparticle dispersion

AcoustoSizer IIx™ Specifications

Technology

Electroacoustic Spectroscopy

Ultrasonic Attenuation Spectroscopy

Sample Characteristics

Particle Concentration	0.1 to 40 volume percent
Sample Volume.....	Standard: 120 ml and down to 20 ml with optional low volume kit
Maximum Slurry Viscosity.	7,500 centipoise using peristaltic pump
Maximum pure solvent microviscosity.....	150 cP
Conductivity Range.....	zero to 5 S/m
pH Measurement Range.....	1 – 13
Temperature Range.....	10 to 50 °C
Frequency Range	1 – 20 MHz
Ultrasonic Attenuation.	0.1 – 10 dB/mm attenuation

Performance

Particle Size Measurement Range	10 nm to 100 microns (varies by application)
Particle Size Range for Zeta Measurements.	0.5 nm to 30 microns (varies by application)
Titration Module.	10 µl resolution, dual syringe pump

Other Characteristics

Wetted Surface Materials	PPS, PTFE, Niobium, Tantalum, borosilicate glass, peristaltic pump tubing
.....	EPDM or VITON elastomer seals
Sample Pump Options.	Built-in peristaltic or user supplied external pump
Power Requirements.....	100-240 VAC, 50/60 Hz, 6 Amps @ 120 VAC, 3 Amps @ 240 VAC
Dimensions (HxWxD).	33" x 60" x 20" (84 x 152 x 51 cm)

Minimum Computer Specification (if supplied by customer)

Dual core processor or better PC, minimum 1 Gb RAM, 200 Mb hard disk space available, two RS232 or USB ports available, 1024 x 768 or better high resolution color monitor (minimum 21 inch recommended), Microsoft Excel 2019 or higher installed, MS Windows 10 or 11 Operating System

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