

ARTISAN®
TECHNOLOGY GROUP

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RANGE OF PRODUCTS

INSTRUMENTS

OUR INSTRUMENTS GUIDE RESEARCH AND PRODUCT DEVELOPMENT, HELP MANAGE AND CONTROL MANUFACTURING QUALITY, AND OPTIMIZE OUTPUTS.

DISC CENTRIFUGE

GAIN THE ADVANTAGE OF A COMPLETE, HIGH-RESOLUTION PARTICLE SIZE ANALYSIS SYSTEM WHEN MEASURING MULTIMODAL SIZE DISTRIBUTION.

The CPS disc centrifuge separates particles by size using centrifugal sedimentation in a liquid medium. The sedimentation is stabilized by a slight density gradient within the liquid.

The particles sediment through the density gradient inside a transparent rotating disc, through which a light beam passes. As particles move towards the outer edge of the disc, they pass through the light beam, attenuating the beam intensity. Detector beam attenuation is continuously recorded and converted by the operating software into the weight of particles at each size in the sample.

VIEW RESEARCH COMPLETED WITH THE CPS DISC CENTRIFUGE

FEATURES 4 STEP PROCESS SPECS OPERATING SYSTEM AUTOGRADIENT AUTOSAMPLER

GET STARTED



FEATURES

SPEED

Measures samples 3 to 4 times faster than competitive centrifuge-based instruments.

Detector and electronics operate with an effective response time of ~0.1 second compared to ~1 second for competitive disc centrifuges.

For a majority of applications, analysis times are in the range of 3 to 15 minutes/sample.

RESOLUTION

Completely separates narrow peaks that differ by as little as 2%.

Partially separates narrow peaks that differ by as as little as 1.5%.

Reported distributions contain virtually no distortion/contribution from the instrument.

No other particle sizing instrument can match the CPS Instruments disc centrifuge in high resolution performance.

ACCURACY

All analyses are run against a known calibration standard.

Typical precision of reported sizes with external standard is ± 0.5% (95% confidence).

Typical precision of reported sizes with internal standard is better than ± 0.25%.

Replicate runs produce virtually duplicate results in all cases.

LEARN MORE

EVALUATE THE CPS DISC CENTRIFUGE IN 4 STEPS

CPS INSTRUMENTS' DISC CENTRIFUGE ISN'T MERELY THE FASTEST AND MOST ACCURATE HIGH RESOLUTION PARTICLE ANALYZER ON THE MARKET. ITS INTUITIVE SOFTWARE, GRAPHICAL INTERFACE, AND THOUGHTFUL DESIGN MAKE IT ONE OF THE EASIEST TO OPERATE AS WELL.

01. INITIAL CONSULTATION

During your initial consultation, a specialist from CPS Instruments gathers information about your operation and specific particle size measurement needs.

02. SAMPLE ANALYSIS

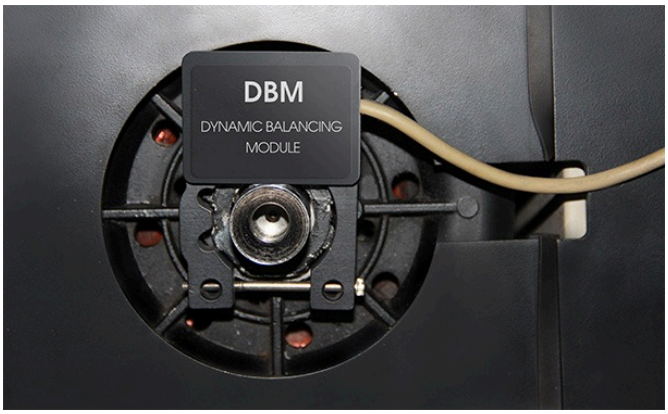
To demonstrate the superior value of our disc centrifuge, we perform a sample analysis, delivering the industry's highest resolution results for your review.

03. ON-SITE DEMO

Once you're confident of the CPS Instruments advantage, an on-site demo can be scheduled so that you can experience our state-of-the-art disc centrifuge first-hand.

04. INSTALLATION TRAINING

Your equipment is shipped, and a knowledgeable consultant ensures proper installation and functioning while providing a day-long training on the technology.



ANALYZE BROAD DISTRIBUTIONS FASTER

VERY BROAD DISTRIBUTIONS LEAD TO LONG MEASUREMENT TIMES WITH A FIXED CENTRIFUGE SPEED, BUT THE CPS DISC

CENTRIFUGE ALLOWS RAPID MEASUREMENTS EVEN WITH VERY BROAD DISTRIBUTIONS VIA SPEED RAMPING.

CPS Instruments' Disc Centrifuge can be equipped with disc inserts that make it possible to change the centrifuge speed during a measurement without disrupting (mixing) the liquid in the rotating disc. Speed can be increased during analysis from below 1,800 RPM to as high as 24,000 RPM. This increases the practical dynamic size range (ratio of largest to smallest particles measured) to as much as 1,000 or more. Speed ramping reduces measurement times for very broad samples by a factor of up to 100 times.

SAMPLE	TIME (FIXED SPEED)	TIME (RAMPED SPEED)
Polystyrene Polymer Spheres (20 microns to 0.075 micron)	~19 hours	~30 minutes

SIZE RANGE CAPABILITY

PARTICLE DENSITY IMPACTS PRACTICAL MEASUREMENT RANGE

The size range capability of CPS Instruments' disc centrifuge is dependent on the density of the particles to be measured as well as the difference in density between the particles and the fluid.

The upper size capability for nearly all samples is approximately 50 microns. The lower size limit depends on the density of the particles. The higher the density of the particles, the smaller the lower size limit will be.

For example, gold sols (19 g/mL) can be measured to as small as ~3nm, ceria (7.2 g/mL) can be measured to ~8nm, and polystyrene (1.052 g/mL) can be measured to ~35nm.

Using fixed centrifuge speed, the largest practical ratio of sizes in a single analysis is about 70. If the largest particle to be measured is 3 microns, particles as small as 0.04 micron can normally be measured in a single analysis of less than 1 hour.

Using ramping of speed during the analysis, the practical dynamic range is up to 1000 or more. If the largest particle to be measured is 30 microns, particles as small as 0.03 micron can normally be measured in a single run.

MODEL	DC12000	DC18000	DC24000UHR
MAXIMUM SPEED	12,000 RPM	18,000 RPM	24,000 RPM
MINIMUM PARTICLE SIZE	Larger	Smaller	Smallest

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