

NEW



LS 13 320 XR

LASER DIFFRACTION PARTICLE SIZE ANALYZER

DIFFERENCE YOU CAN MEASURE



The LS 13 320 XR boosts laser diffraction particle size analysis to the next level, with its enhanced PIDS technology and extended measurement range providing higher resolution and more accurate, reproducible results. You can measure a wider range of particles and detect smaller differences in samples more quickly and reliably. And new software with an intuitive interface provides data you need with only a few clicks.

CHARACTERIZED
by ingenuity.



BIG IMPROVEMENTS TO HELP YOU SPOT SMALL DIFFERENCES

Details matter. Minuscule changes in your sample material can result in big differences in a finished product.

That's why the **LS 13 320 XR laser diffraction particle size distribution analyzer** uses 132 detectors to provide higher resolution for more accurate results, together with an expanded measurement range from 10 nm - 3,500 μm .

DETAILS THAT MATTER

- 1 Expanded measurement range: 10 nm - 3,500 μm**
Provides real (not extrapolated) analytical data down to 10 nm, and high-resolution measurements up to 3,500 μm
- 2 Enhanced PIDS technology: Polarization Intensity Differential Scattering**
Enables more precise raw data detection and increased detector sensitivity of vertical and horizontal polarized scattered light for sub- μm particle size analysis - a measurement quality previously unavailable
- 3 Advanced automodality**
No knowledge about particle size distribution (e.g., multiple fractions, narrow distribution) needed prior to measurement in order to obtain a correct result
- 4 Optimized, intuitive software**
 - Requires 2 clicks from Start Measurement to result
 - Includes an integrated optical constants database
 - Helpful user diagnostics keep you informed
 - Streamlines workflows to save time

DATA INTEGRITY & COMPLIANCE

The FDA's Electronic Records and Electronic Signatures Rule (21 CFR Part 11) defines requirements for submitting documentation in electronic form. Choosing the software's highest security option enables you to configure the system to automatically support 21 CFR Part 11 compliance via:

- Secure user sign-on
- User-level permissions
- Audit trail
- Error log files
- Administrative configuration tools

VALIDATION

This is a must for Good Manufacturing Practices and other regulatory requirements. Therefore the LS 13 320 XR analyzer supports GMP with specific tools for Installation Qualification (IQ) and Operational Qualification (OQ).



**DIFFERENCES YOU
CAN MEASURE**



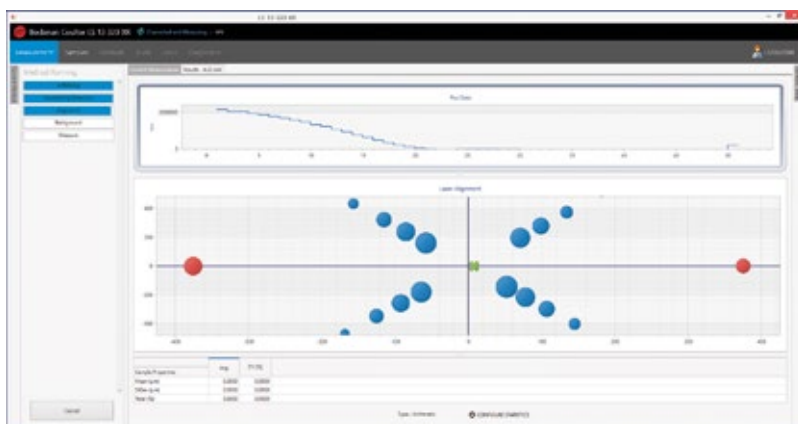
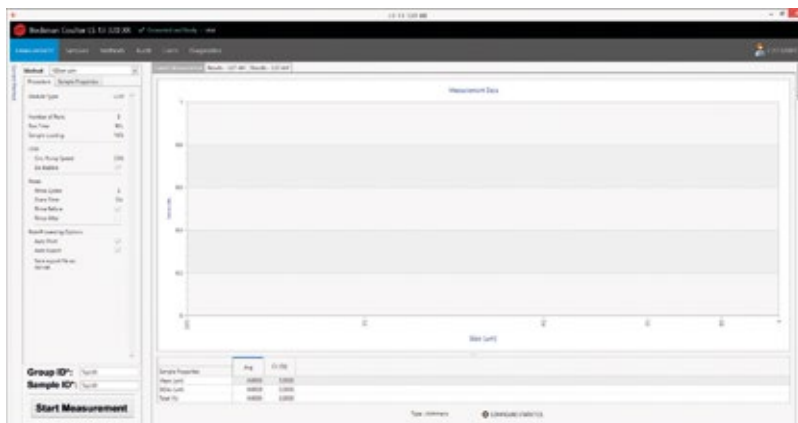
EASY-TO-USE SOFTWARE SIMPLIFIES YOUR DAILY WORKLOAD

PARTICLE SIZE ANALYSIS IS MORE EFFICIENT THAN EVER BEFORE

You will appreciate the differences in easy-to-use LS 13 320 XR software because functionality is more intuitive, and you don't need extensive operator knowledge to get accurate data.

START YOUR MEASUREMENT

As soon as a method is set up in the LS 13 320 XR software, a measurement can be started with 2 clicks. Choose a pre-configured method, define your Test-ID and Group-ID and hit Start Measurement.



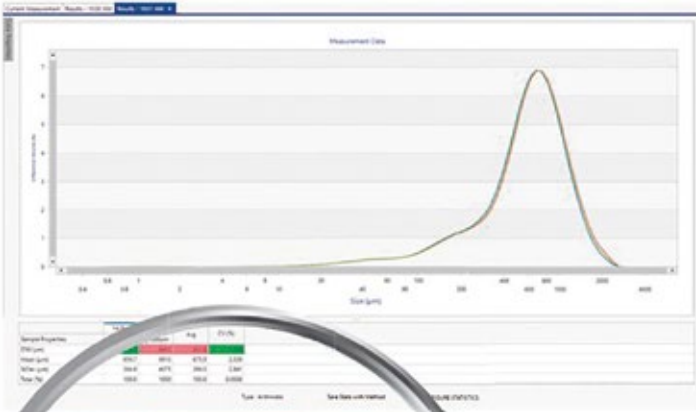
INSTRUMENT SELF-CHECK RESULTS

The instrument keeps you informed during sampling with helpful self-check diagnostics.

PIDS TECHNOLOGY

Polarization Intensity Differential Scattering (PIDS) technology enables not only direct detection of particles as small as 10 nm, but also direct detection of multimodal fractions in the sub- μm range.





PREPARATION

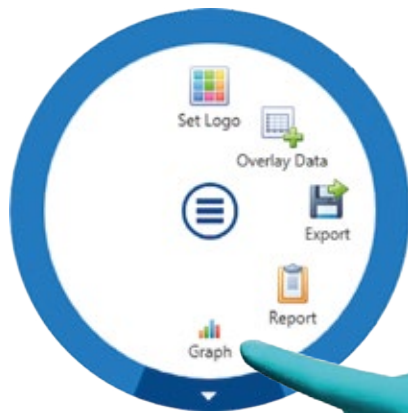
MEASUREMENT

RESULTS

1st Run	2nd Run	3rd Run
Carbon	Carbon	Carbon
14.84	15.04	15.20
69.76	71.29	70.73
181.5	219.6	201.5
108.0	136.4	118
100.0	100.0	100.0

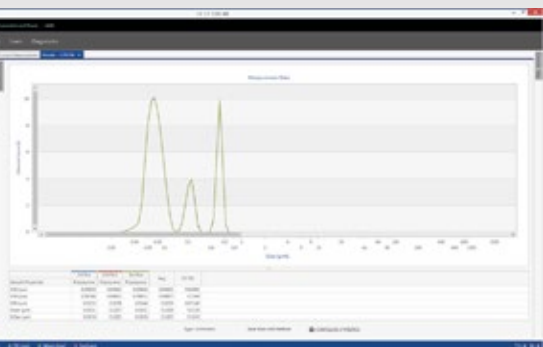
AUTOMATIC PASS/FAIL CONTROL FOR IMMEDIATE QC

For immediate pass/fail checks of sample specifications, LS 13 320 XR software automatically highlights results in green or red if the measurement is within or outside required specifications. This enables fast quality control responses by experienced and inexperienced operators alike.



NAVIGATION WHEEL

Data presentation and export handling with just 1 click.



SPECIFICATIONS AND ORDERING INFORMATION

LS 13 320 XR OPTICAL BENCH



Part Numbers	Description
B98100	LS 13 320 XR Optical Multi-Wave Bench
C27180	LS 13 320 XR Optical Multi-Wave Bench With Workstation
C20930	Workstation Only

*ADAPT Software is pre-installed on Workstations (i.e., C27180 & C20930).
It can be downloaded from our website for installation on an existing PC (i.e., for B98100).**

Specifications

Technology	Low-angle forward light scattering with additional PIDS (Polarization Intensity Differential Scattering) Technology. Analysis of vertical and horizontal polarized light at six different angles using three additional wavelengths. Full implementation of both Fraunhofer and Mie Theories.
Light source	Diffraction: Laser diode (785 nm) PIDS: Tungsten lamp with high-quality band-pass filters (475, 613 and 900 nm)
Particle size analysis range	Measurement range: 10 nm – 3,500 μ m Dry Powder System Module (DPS): 400 nm - 3,500 μ m Universal Liquid Module (ULM): 10 nm - 2,000 μ m
Electrical interface	USB
Power consumption	\leq 6 amps @ 90 - 125 VAC \leq 3 amps @ 220 - 240 VAC
Temperature range	10 - 40°C (50 - 104°F)
Humidity	0 - 90% without condensation
Compliance	Creates 21 CFR Part 11 enabling features RoHS Certifications: - EU EMC Directive 2014/30/EU - CISPR 11:2009/A1:2010 - Australia and New Zealand RCM Mark
Data export file formats	XLSX, TSV, PDF
File import capability	From all LS 13 320 Legacy and LS 13 320 XR systems
*Software operating system	Requires Microsoft Windows 10, 64-bit environment (U.S. English regional settings only)
Dimensions	Height: 19.5" (49.53 cm) Width: 37" (93.98 cm) Depth: 10" (25.4 cm)
Weight	52 lbs (23.5 kg)

SPECIFICATIONS AND ORDERING INFORMATION

LS 13 320 XR MODULES AND ACCESSORIES



Dry Powder System Module

Analytical size range: 400 nm - 3,500 μ m

- Measures entire sample as required by the ISO 13 320 Standard
- Programmable Obscuration setting to optimize sample feed rate
- User-selectable vacuum pressure for maximum dispersion control



Part Number: B98103



Universal Liquid Module

Analytical size range: 10 nm - 2,000 μ m

- Fully automatic with auto-dilution, auto-filling and auto-rinsing
- Analyzes samples suspended in aqueous as well as non-aqueous diluents for maximum flexibility
- Wetted materials list: Teflon®, 316 Stainless Steel, Glass, Kal-rez® and PEEK
- Chemical compatibility: butanol, butanone, carbon, tetrachloride, chloroform, ethanol, heptane, hexane, jet fuels, kerosene, ketones, methanol, methylene chloride, pentane, petroleum ether, propanol, toluene, trichloroethane, trichloroethylene, water, weak acid and base solutions (pH 4 - 10), ethylene glycol, polyethylene glycol, glycerol, mineral oil, and silicone oil



Part Number: B98105

* A variable-speed pump allows for total dispersion control of your sample, from delicate emulsions to heavy particles

Sonicator Control Unit

- Needle probe sonicator for additional dispersion control of wet samples
- Fully adjustable power settings
- In-situ sonication with ULM before/during the run, can also be operated external to module



Part Number: B5435

EU Vacuum Cleaner

- Vacuum pressure range fully adjustable
- Integrated vacuum control unit for optimized vacuum/obscuration settings
- Two vacuum systems to choose from



Part Number: C06826 - HiCap HEPA Vacuum