

A decorative graphic consisting of a cluster of red dots of varying sizes, arranged in a roughly circular pattern.

The new LS 13 320 XR Extended Range 10 nm – 3,500 μm

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Abstract

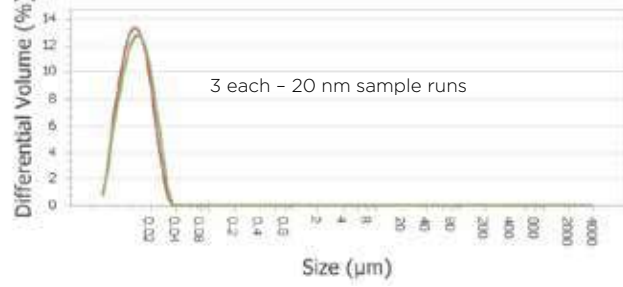
The new Beckman Coulter LS 13 320 XR has arrived. It features a significantly improved particle analysis range that stretches from 10 nm – 3,500 μm a smaller hardware footprint, and the new “ADAPT” (Automatic Distribution Analyzing Particle Technology) software. The new User Interface experience is both simple and intuitive in its navigation and is supported by the latest Windows 10 OS. Integrated into the ADAPT software is a QA/QC statistics analysis tool to quickly and visually distinguish a pass/fail result, yet has the sophistication necessary to support and facilitate a research and development requirement. Let’s take a look under the hood. The improved electronics and optical detection system extends the analysis range providing actual measurement capability from 10 nm – 3,500 μm while improving individual peak discrimination. Now you can have it all: accuracy, versatility, and the dependability you’ve come to expect with Beckman Coulter Instruments, in addition to the exciting new ADAPT software and measurement capability from 10 nm – 3,500 μm .

Introduction

At Beckman Coulter Life Sciences we have learned an incredibly valuable lesson in instrument design. We need to listen to the customer first and foremost. Designing a new instrument with all the latest bells and whistles is useless if it doesn’t serve the customer’s needs. Further, one of our primary goals is for the instrument to both be easy to operate and provide a useful measurement result. We want the sophistication hidden under the hood and behind the scenes where it belongs and not providing any impediments to an excellent user’s experience. The new LS 13 320 XR comes equipped new software (ADAPT), a completely new and intuitive User Interface, and an updated look and feel of the measurement bench and the sample modules. The expanded particle size measurement ranges of the ULM and DPS (Tornado) extend the overall measurement range of the system from 10 nm all the way up to 3,500 μm . The important differentiator is that the new LS 13 320 XR provides actual physical measurement capability as opposed to extrapolated data that is the norm. The following are examples featuring the extreme measurement capability of both the ULM and DPS (Tornado) modules.



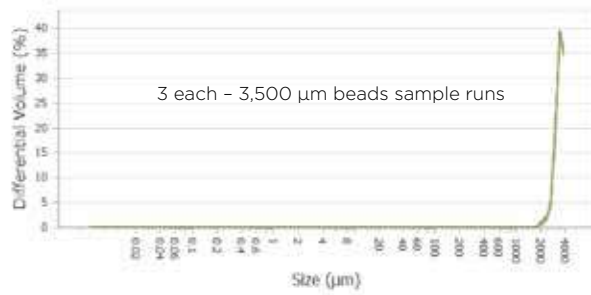
Graph of Results



Run	1	2	3	Avg	CV (%)
D10 (µm)	0.007958	0.007747	0.007925	0.007877	1.441
D50 (µm)	0.01383	0.01305	0.01370	0.01353	3.089
D90 (µm)	0.02366	0.02183	0.02338	0.02296	4.294
Mean (µm)	0.01488	0.01401	0.01473	0.01454	3.199
Mode (µm)	0.01523	0.01313	0.01313	0.01383	8.767
StDev (µm)	0.005973	0.005466	0.005895	0.005778	4.725



Graph of Results



Run	1	2	3	Avg	CV (%)
D10 (µm)	2875	2845	2854	2858	0.5387
D50 (µm)	3425	3410	3409	3415	0.2625
D90 (µm)	3564	3564	3564	3564	0.0000
Mean (µm)	3381	3359	3365	3368	0.3376
Mode (µm)	3364	3364	3364	3364	0.0000
StDev (µm)	384.5	405.2	389.8	393.2	2.735
Total (%)	100.0	100.0	100.0	100.0	0.0000

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 µm Dry Powder System (Tornado) Module: 400 nm - 3,000 µm Universal Liquid Module: 10 nm - 2,000 µm
Electrical interface	USB
Power consumption	≤ 6amps @ 90 - 125 VAC ≤ 3 amps @ 220 - 240 VAC
Temperature range	10 - 40°C (50 - 104°F)
Humidity	0 - 90% without condensation
Compliance	Facilitates 21 CFR Part 11 compliance 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 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)
Part Numbers	Description
B98100	LS 13 320 XR Optical Bench Multi-Wavelength
B98103	Dry Powder System Module
B98105	Universal Liquid Module
B95435	Upgrade Kit, Sonicator for ULM
C06826	HiCap HEPA Vacuum
C20930	Workstation (incl. OS W10 and preinstalled LS 13 320 XR Control Software)

Author



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Bill F. Bars is a Sr. Applications Scientist for the Beckman Coulter Particle Counting and Characterization organization. He has created and developed many of the liquid systems production processes for the BEC Particle products. These include but are not limited to the: 8011+, PODS+, ROC, and HRLD Sensors. He has been in the Particle Counting Industry for 22+ years in a multitude of engineering and technical capacities ranging from Metrology to Customer Service, Technical Training and Applications Support. He is a member of the NFPA U.S. TAG to ISO/TC 131/SC 6 - Contamination control group.



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